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The Asian Journal of Government Audit is a reputed resource for the SAI community for promotion of sound and effective audit systems. This bi-annual Journal has been in circulation since 1983 and has provided a forum for ASOSAI members for discussion and dissemination of good practices. The journal accepts articles, special reports, news items and other materials from member SAIs of ASOSAI.

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Editorial

Dear Colleagues,

We are pleased to bring out an October 2018 issue of the ASOSAI Journal on the theme “Audit of Disaster Management”.

Vulnerability to and impact of disasters can be mitigated by risk assessment, pre-disaster warning, hazard mapping and adequate preparedness through adequate and effective policies, institutional mechanisms and adequate financial resources. These pre-disaster activities complement post-disaster activities of emergency response, recovery and relief as well as restoration, rehabilitation and reconstruction.

The October 2018 issue contains the articles on Disaster Management shared by SAIs of China, India, Iran, Japan, Nepal and Turkish Court of Accounts (TCA).

We are thankful to Dr. Ho Duc Phoc, Chairman of ASOSAI and Auditor General of State Audit Office of Vietnam and Ms. Hu Zejun, Secretary General of ASOSAI and Auditor General of National Audit Office of the People’s Republic of China for their messages.

The theme for April 2019 issue of ASOSAI Journal is “Role of SAIs in Detecting Fraud and Corruption “ and for October 2019 issue is “Big Data in Public Auditing”.

We look forward to the continued support and feedback of our esteemed readers to improve the quality of the journal. You could contact us at ir@cag.gov.in or asosai.journal@gmail.com.

(Praveen Kumar Tiwari)

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From the desk of the Secretary General of ASOSAI



Ms. Hu Zejun, Secretary General of ASOSAI and Auditor General of the National Audit Office of the People's Republic of China

At the 14th Assembly of ASOSAI in September 2018, I am honored to be elected as Secretary General of ASOSAI. I would like to express my sincere gratitude to all colleagues from ASOSAI for your trust and support on my election.

With the joint efforts of all member SAIs, after 40 years of development, ASOSAI has attracted more members, formed sounder organization and became more dynamic in operation. It is now regarded as one of the most important knowledge sharing platform for Asian SAIs as well as an international organization with strong influence across the globe.

Furthermore, in the past 9 years, successive Chairmen of the Board of Audit and Inspection of Korea (BAI), as

ASOSAI Secretary Generals, actively cooperated with ASOSAI Chairpersons and made great contributions to the rapid development of ASOSAI, in the respects of strengthening institutions, improving communication, and upgrading operational efficiency and quality. I would like to show my sincere respect to BAI for its contributions to ASOSAI.

For now, it is time for ASOSAI to inherit the past and usher in the future.

Faced with a rapidly changing world, ASOSAI needs to further identify challenges and opportunities, and to pursue continuous self-reform and innovation alongside development. In my capacity as Secretary General, I would like to work with all member SAIs to make more contribution to the sustainable development of ASOSAI, particularly in the following areas:

□Based on the concept of respect with extensive consultation and joint contribution, ASOSAI shall continuously improve its governance, enhance cooperation among members and stakeholders, to make ASOSAI continue to be a model organization and

play a more significant role in the international community.

□For the purpose of capacity building of member SAIs, ASOSAI shall proactively carry out a variety of ways to enhance the abilities of SAIs and auditors, particularly aimed at young people and mastery of new technical approaches.

□In order to upgrade service capabilities of member SAIs for the sustainable development, ASOSAI shall focus on Sustainable Development Goals (SDGs) in the development of

ASOSAI, and help SAIs play an increasingly important role in social, economic development of respective states through achieving the SDGs.

I, along with the National Audit Office of China, will work with all colleagues from ASOSAI, to make more important contributions for its future development. The Secretariat will continue to provide high-quality services for all ASOSAI members.

Working together, we can build a better future for ASOSAI!

Message from Chairman



*Dr. Ho Duc Phoc
Chairman of ASOSAI and Auditor
General of State Audit Office of
Vietnam*

Greetings to all readers!

First of all, I would like to express a high appreciation to SAI of India for their great effort and contribution to the development of ASOSAI Journal, as well as a warm congratulation to their renewal to continue to serve as the Chairman of Board of Editors of ASOSAI Journal for the next term 2021-2024.

With objectives of advancing the quality and disseminating best practices in the field of public audit, ASOSAI Journal has been covered audit themes in depth and comprehensively by analysis looking at different aspects of the issue. This issue of the ASOSAI e-journal theme is about “Audit of Disaster Management”, which is in

connection with the theme of the 14th ASOSAI Assembly.

As an active regional working group of INTOSAI, ASOSAI understands that implementing sustainable development goals (SDGs) and addressing global environmental threats need to be dealt with among ASOSAI community, especially, nowadays, the emerging challenges in the process of globalization and climate change, we respect and follow common commitments of how INTOSAI can contribute to the United Nations towards 2030 Agenda for Sustainable Development. In specific, environmental issues for sustainable development have been remaining as a top concern and challenges to human community across the world.

The theme of “Audit of disaster management” also poses ASOSAI members’ utmost effort in pursuing and actualizing our common commitments stated in the Hanoi Declaration which emphasizes on environmental auditing for sustainable development in the coming period.

I, therefore, believe that the theme “Audit of Disaster Management” is an

urgent call for attention and action of ASOSAI members to find practical and effective solutions to conduct audits on environmental issues, and to contribute to the achievement of SDGs at national, regional and international levels.

On this note, I would like to take this opportunity to extend my deep appreciation to the Chair of ASOSAI Working Group on Environmental Audit (WGEA), SAI of China, who has been actively advocating and promoting the activity of environmental audit among SAI members. In moving forward, I long for greater cooperation and collaboration among all SAI members to ensure the success of ASOSAI's activity in general and environment audit for sustainable development in specific.

I hope this e-Journal issue will give a greater insight and perspectives on auditing of disaster management.

Finally, I would like to send the New Year greetings to the year of 2019 to all readers. I wish you a new year of health, happiness and success.

*Articles on theme: 'Audit of Disaster
Management'*

An Introduction to the Real-time Audit of Post-Earthquake Reconstruction in China - SAI China

1. Background

China is one of the countries suffering from most serious natural disasters with high frequency in the world. These disasters are greatly influenced by complex geographical and climatic conditions as well as human activities such as floods, droughts, earthquakes, typhoons, hail, snow, landslides, mudslides, pests, forest fires, which happen every year and result in hazards of different kinds. Especially since 2008, violent earthquakes struck cities in China of Wenchuan, Yushu, Lushan, Ludian, Jinggu, etc., causing heavy casualties and huge economic loss.

2. Real-time Audit of Post-Earthquake Reconstruction

Audit institutions in China are entitled to carry out comprehensive audit on post-disaster reconstruction, with the policy objectives to save lives, ensure the normal operation of production, social and public services, and maintain sustainable economic and social development in the long run in the disaster-stricken areas. As the supreme audit institution of China, CNAO has always attached great importance to the

real-time audit of post-disaster recovery and reconstruction.

3. Case Study on Real-time Audit of Wenchuan

Post-Earthquake Reconstruction

On May 12, 2008, a catastrophic earthquake of magnitude 8.0 struck Wenchuan, Sichuan Province, China which resulted in huge losses. In order to restore economic and social order in the disaster areas as soon as possible, the Chinese government decided to raise funds of about 1 trillion yuan to restore and rebuild more than 200,000 construction projects in three years. In order to strengthen supervision, the State Council instructed audit institutions to conduct the real-time audit of the recovery and reconstruction after the Wenchuan earthquake.

Accordingly, in September 2008, the CNAO issued the Opinion on the Audit Arrangement for the Post-Wenchuan Earthquake Recovery and Reconstruction. The whole process of real-time audit from 2008-2011 was led by 11,700 auditors nationwide from 4 CNAO regional offices/local audit institutions covering 3 disaster-stricken

provinces, 20 other provinces and municipalities.

4. Audit Contents

- Planning, implementation and effectiveness of policy on post-disaster recovery and reconstruction.
- Collection, distribution, management and utilization of funds and materials for post-disaster recovery and reconstruction.
- Post-disaster reconstruction and reconstruction project management, especially engineering quality management.
- The facts of land acquisition and utilization and environmental protection.

5. Audit Findings

I. Problems concerning reconstruction planning and policy implementation:

- Planned projects were not in conformity with actual situation;
- Adjustment of the medium-term plan was not in place;
- Construction progress was not balanced;
- Some projects were difficult to complete on time.

II. Problems concerning use of construction funds:

- Inadequate fund raising, untimely allocation, irregular arrangement and utilization.
- Irregularities and even criminal violations such as detention, embezzlement, misappropriation, repeated claims, false reporting of funds.

III. Problems in project management:

- Incomplete capital construction procedures, lax investment control, irregular bidding, lax construction management and weakness in project quality management, etc.

IV. Problems in land use and ecological rehabilitation:

- Inappropriate procedures for land expropriation, inadequate land management, untimely geological disaster management and environmental restoration.

6. Audit Achievements

- Improved the planning and policy implementation, including scientific funds arrangement, rational adjustment of project content and schedule, and reasonable reconstruction.
- Supervised the rectification of audit recommendations, such as the

establishment of relevant rules and regulations, improvement of construction management, correction of funds violations, etc.

- Improved the efficiency of project management in terms of construction progress, quality, capital management, etc.
- Increased the transparency of audit work by inviting media for site interview and publicizing audit results as well rectification results.

7. Audit Experiences

- Real-time audit of post-earthquake reconstruction is a dynamic, proactive, preventive process with continual supervision.
- Comprehensive use of a variety of audit methods for in-depth investigation, especially information technology and advanced engineering technology.
- Integrate audit resources in order to gain advantages with joint efforts.
- Comprehensively reflect audit results through multiple channels.

Audit of Disaster Management in State of Jammu and Kashmir - SAI India

*By Mr. Tharchin Tsweng,
Sr. Deputy Accountant General*

1. Introduction

Disaster is a “catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area.”

The Disaster Management Act, 2005 was enacted by Government of India (GoI) to provide for the effective management of disasters. The Act provides for a disaster management framework that envisages a continuous and integrated process of planning, organizing, coordinating and implementing measures for prevention of disasters, mitigation or reduction of their risk and severity, capacity building and preparedness to deal with any disaster, prompt response to disaster, assessing the severity of a disaster and undertaking evacuation, rescue, relief, rehabilitation and

reconstruction. Vulnerability to and impact of disasters can be mitigated by risk assessment, pre-disaster warning, hazard mapping and adequate preparedness through adequate and effective policies, institutional mechanisms and adequate financial resources. These pre-disaster activities complement post-disaster activities of emergency response, recovery and relief as well as restoration, rehabilitation and reconstruction.

Therefore, the Audit of disaster management activities is an important subject-matter for Performance Audit (PA) for SAI India, given India’s vulnerability to multiple natural hazards. In recent past, several States (sub-federal units) of the country have witnessed calamities and disasters.

2. Rationale for Audit of Disaster Management in J&K State

The State of Jammu and Kashmir (J&K) is a multi-hazard State falling in Seismic Zone-V ¹and in Seismic Zone-

¹Districts of Srinagar, Ganderbal, Baramulla, Kupwara, Bandipora, Budgam, Anantnag, Pulwama, Doda, Ramban and Kishtwar

IV ². Low lying areas of Kashmir and parts of Jammu are flood prone and upper catchments of all the tributaries of the Jhelum, Indus, Chenab and Tawi rivers are prone to flash floods. Areas in high reaches including Leh and Kargil are prone to avalanches and the hilly areas to cloudburst, areas alongside highways are prone to landslides and most parts of Jammu are prone to drought.

As per the Annual Report³ of Relief and Rehabilitation Department, the State of Jammu & Kashmir witnessed several natural disasters in the recent past such as the snow blizzard at WaltenguNad (Kulgam District) in September 2005, earthquake at Baramulla and Poonch in October 2005, drought of Kharif in 2009, the cloudburst of Leh in 2010 and the Floods of 2014 in several parts of the State. About 1700 people were reported death and many families were affected/injured in these disasters.

The governments, the federal and state governments of Jammu & Kashmir, responded to the disaster and took

²Rest of State including whole of Ladakh region and Jammu Division

³State Disaster Management Policy, Annual Report to GoI, Data of Relief and Rehabilitation Department)

initiatives and actions for relief, rehabilitation and reconstruction activities to mitigate the adverse impacts of the disasters. However, there were reports of non-finalization of feasibility and project reports or lack of decision by the authorities or agreement between various authorities on quantum of support and modality and areas of assistance.

Prior to the floods of September 2014, there was no Disaster Management Plan in the state of J&K. The State Disaster Management Plan for Jammu & Kashmir (J&K) was formulated only in July 2015 with a separate Department of Relief and Rehabilitation for a focused approach towards disaster management.

In view of the aforesaid and in the absence of any previous review by the SAI on the subject, audit of the disaster management activities in the State of J&K with specific focus on the Post Disaster Management (Relief and Recovery & Rehabilitation and Reconstruction) activities in the wake of Sept 2014 floods was undertaken in the year 2016. The report was published and was submitted to the state legislature on 4th July 2017.

3. Mandate of SAI, India

The mandate of the SAI India, provided in the Constitution of India (Articles 148-151) and elaborated in the CAG's Duties, Powers and Conditions of Service (DPC) Act, 1971 legislated by Parliament, includes audit of public funds and expenditure, and operations and performance of public authorities.

Performance audit of the proposed subject-matter, disaster management activities in the wake of floods of Sept 2014 in the State of the Jammu & Kashmir was covered under the mandate of the SAI India and the Office of the Accountant General (Audit), Jammu & Kashmir, being the representing office of the SAI, India in the State undertook the performance audit of disaster management activities in the State of Jammu & Kashmir.

4. Scope of Audit

The performance audit was conducted as per the Performance Auditing Guidelines of the Comptroller and Auditor General (CAG) of India by test-check of records of offices of two Heads of Departments⁴, two Divisional Commissioners (Kashmir and Jammu),

⁴Revenue Department, Relief and Rehabilitation Department

seven⁵ Deputy Commissioners (Administrative heads of districts) and other line⁶ departments of the districts covering the period between 2010-11 and 2014-15.

The sampled districts were selected based on profile of disasters in the State and expenditure incurred out of the State Disaster Relief Fund (SDRF).

5. Audit Objectives

The prime objective of the performance audit was to assess whether disaster management structures, institutional arrangements and policies were in place and were working effectively and actions taken for prevention, mitigation, reduction of impact of disaster were effective, immediate and adequate. Audit also aimed to check whether comprehensive risk assessment was conducted to identify the nature, location, intensity and likelihood of major hazards and preparedness to deal with disasters in the future was undertaken.

The performance audit also aimed to check whether the post-disaster

⁵Srinagar, Anantnag, Budgam, Jammu, Poonch, Udhampur and Leh

⁶Roads and Bridges, Irrigation and Flood Control, Public Health Engineering, Power Development and other Government offices/ agencies involved in temporary restoration works

activities about restoration of basic public facilities and utilities were managed and monitored effectively.

6. Audit Findings

Lack of Institutional Mechanisms for Disaster Management.

The Disaster Management Act, 2005 provides for a disaster management framework that envisages a continuous and integrated process of planning, organizing, coordinating and implementing measures for prevention of disasters, mitigation or reduction of their risk and severity, capacity building and preparedness to deal with any disaster, prompt response to disaster and undertaking evacuation, rescue, relief, rehabilitation and reconstruction.

Audit observed that institutional gaps inhibited the ability of the State Government to prepare cohesive disaster management plans and establishment and functioning of institutional mechanisms as detailed below:

- The State Disaster Management Authority (SDMA), though established in April 2007, was not fully constituted as its full-time members were not yet appointed [July 2016].
- the SDMA had met only once in 2012 in the last six years.
- the State Advisory Committee (SAC) responsible for making recommendations on issues relating to disaster management had not been constituted.
- No Disaster Management Authority had been constituted at the divisional level (Jammu and Kashmir).
- the Disaster Management Authorities constituted at the district level were non-functional.

Lack of Disaster Preparedness

The risk of inadequate disaster preparedness due to weak institutional structures was aggravated by shortcomings in the Government's pre-disaster preparedness and management activities as detailed below:

- The State Government had not conducted any assessment of hazards, vulnerabilities and risks in the State
- No risk maps for 13 multi-hazard districts, despite the funds for the same had been released by Government of India in June 2014 under the Capacity Building grants for this purpose.
- The State Government established (February 2012) the State Disaster Response Force but no Standard Operating Procedures (SOPs) had been prescribed for deployment of Force personnel.
- The State Disaster Response Force (SDRF) was short of its sanctioned strength by 28 per cent;

- 69 per cent of its available manpower was deployed for duties not connected to disaster relief or response.
- The bulk of the Force had not undergone the mandatory orientation and specialized training courses on disaster management.
- Specialists such as engineers, technicians, electricians, dog squads and medical/ paramedics were not available with the Force.
- The earthquake resistant seismic designs had not been made mandatory for private buildings and disaster resistant designs and retrofitting techniques were not ensured in re-construction of houses damaged during the floods of September 2014;
- Disaster forecasting and early warning and alert systems were not established despite the release of funds;
- Emergency Operation Centres were not established;
- The capacity building activities including public awareness and preparedness as envisaged in the Disaster Management Act had not been undertaken.

Post-Disaster Activities and Management

Heavy rainfall between 28th August and 10th September 2014 caused floods in Kashmir and various districts of Jammu Division. The flood caused loss of life, property, livestock as well as losses to the standing crops.

Audit observed that the following shortfalls in the post disaster activities and Management:

- relief and evacuation could not be provided to the victims of floods in a timely and effective manner due to the absence of adequate damage and need assessment;
- Inadequate and inaccurate damage assessment coupled with inefficient management of projects and diversion of funds also hampered restoration and re-building of public utilities and infrastructure damaged by the floods;
- No evacuation plan and relief centres/ camps had not been identified in any of the test-checked districts resulting in rescue, evacuation and relief being managed in an ad hoc manner.
- No assessment of livestock losses and damage to agricultural land and crops had been done in any of the test-checked districts of Kashmir division, even after 18 months of the disaster.
- Effective control mechanism and monitoring system for safe transportation of relief materials other districts of the State were not put in place.

7. Conclusion

Despite multi-hazardous risks and occurrence of several disasters in recent past, the steps taken by the Government to prepare for and mitigate the impact of disasters were not commensurate with the task at

hand. There were gaps and deficiencies in institutional arrangements, policy and plan formulation as well as implementation of disaster measures. There was considerable scope for improvement in the management of SDRF funds to both augment available resources as well as to ensure its utilization for the intended objectives of disaster preparedness and relief.

The lack of preparedness as well as inadequate institutional mechanisms and processes including internal control and monitoring mechanisms necessary to ensure efficient and timely relief and rehabilitation on the occurrence of a

disaster were self-evident in the disaster relief activities following the drought of 2009, the Leh cloudburst of 2010 and floods of 2014. There were deficiencies and delays in damage and need assessments, diversion of relief funds and delay in reaching relief and assistance to the affected persons/families.

Reference:

CAG's Report No.4 of 2016 (State Government) - Performance Audit of Disaster Management in the State of Jammu and Kashmir

Flood Management and Response in Chennai and its Suburban Areas - SAI India

*By Ms. Devika Nayar,
Principal Auditor General*

1. Introduction

The Chennai floods in 2015 brought the normal life to rubble. The floods claimed 289 lives, inundated 23.25 lakh houses, disrupted power and telecommunication services, halted transport facilities and caused extensive damage to public as well as private property. The aftermath of the floods was overwhelming, and it took a long time to get back to normalcy. The flood relief measures were also heavily handicapped because of the lack of institutional mechanisms for timely and effective relief activities. The absence of a significant Disaster Management Plan by the state Government of Tamil Nadu (GoTN) to effectively reduce the cost and devastation in the aftermath of natural disasters was clearly evident.

In this context, SAI India conducted a Performance Audit of "Flood Management and Response in Chennai and its Suburban Areas." The focus of this report was aimed to assess not only the economy, efficiency and effectiveness in disaster management

programmes but also the preparedness of the state to effectively manage natural disasters and the factors hindering the same. The report emphasized the agonizing impact of the floods and the lack disaster mitigation in the roles played by various government bodies.

2. Aims and objectives of the report:

The objectives of the report were to assess the:

1. Effectiveness in implementing the Master Plans for orderly development of the city with due regard to preservation of water bodies and structures;
2. Effectiveness in addressing the issue of encroachments, which hinder free flow of rain water;
3. Economy and effectiveness in carrying out flood management programmes;
4. Efficiency and effectiveness in disaster management; and
5. Effectiveness of internal control mechanism, including performance evaluation and monitoring.

3. Principal Findings

The 2015 December floods was not the first catastrophic flooding that the city has faced through its existence.

Floods have hit the city in 1943, 1976, 1985, 1998, 2002 and 2005 due to heavy rains and cyclonic activities. However, GoTN (Government of Tamil Nadu) has not prepared plans to effectively combat natural disasters. The 2015 Chennai floods was another example to show the lacunas in the preparedness in context to disaster management and relief measures. Lack of proper project management coupled with the absence of implementation of several plans is the reason for the government's poor response to a sudden natural disaster.

The results of this Audit brought out the deficiencies in urban planning and ineffective enforcement of statutes and Master Plans, which had an impact on natural water bodies. The improper maintenance of water bodies led to hampering the free flow of excess water to sea and paved the way for flooding in the city. This particular issue is twofold: the first being poor project management capabilities by the Government of Tamil Nadu (GoTN) and secondly, the lack of necessary restraints on encroachments. Few of such instances were as follows:

1. There were several government-approved plans to restore and

augment capacities of tanks and reservoirs, to reduce surface runoff and to meet the ever-increasing drinking water demands of the water-starved city. Considering the catastrophic floods in 1976, the Nucleus cell constituted by Government had recommended the creation of two new reservoirs in the upstream of Chembambakkam tank influencing Adyar River to capture 1.57 thousand million cubic feet of water. Audit noticed that the proposal to create a reservoir at Thiruneermalai across Adyar river in 1987 failed as the site became populated and requisite land was not available. Two new reservoirs were not created and the action to increase the storage capacity of existing six tanks, which would also meet the drinking water needs of the city was not completed due to land acquisition issues and faulty design.

2. With a view to mitigate flooding in Chennai due to frequent heavy rains, flood protection works for improving macro drainages in four basins of the city, taken up in June 2010, were not completed due to

- improper planning, non-acquisition of land, lack of co-ordination with other departments, and non-eviction of encroachments in waterways, where such works were needed to be executed.
3. Storm Water Drains (SWDs) are intended to collect surface rain water from the streets and discharge into water courses. An efficient, well designed and well-maintained storm water drainage system would minimize the level of water logging and damage, therefore would play an important role in flood management. There were recommendations of Anna University in Chennai, (by using Airborne Laser Terrain Mapping (ALTM) and Geo Information System) which proposed inter-linking of SWDs with temple tanks. Further Greater Chennai Corporation (GCC) has prescribed norms of rain water harvesting structures in SWDs at 30m intervals along the roads. However these were not complied with which ultimately caused inundation of flood water in 2015.
 4. National Institute of Hydrology, Roorkee (NIH) has evaluated rainfall intensity of 48.63 mm per hour. Greater Chennai Corporation, (GCC) however, adopted the rainfall intensity of 31.39 mm per hour and constructed SWDs for a length of 345 km during the years 2011-14. The construction of lower capacity SWDs also contributed to the above floods.
 5. Flood disaster would be considered natural if the quantum of outflow from the dam is equal to the inflow flood. If, however, due to very existence of a dam, the outflow exceeds the inflow, the disaster can be logically classified as man-made. Chembarambakkam Tank is one of the largest tanks which supplies drinking water to Chennai city, the capacity of storage is 3.645 TMC of water. The surplus course of this tank joined Adyar River at Thiruneermalai. On 1 December 2015, at 2 pm, when the storage stood at 3.377 TMC, which was 0.268 TMC less than the total capacity of the tank, the discharge of water was abruptly increased from 12,000 cusec to 20,960 cusec and

further increased 25,000 cusec and 29,000 cusec. The continuous discharge of water at 29,000 cusec into the Adyar River coupled with surplus water from the upstream tanks and catchment area, subsequently caused huge flow of flood waters into Adyar River. GoTN had failed in carrying out the recommendations of various experts/committees on creation of additional storage capacity in the upstream of Chembarambakkam Tank, construction of diversion channel to Adyar River and construction of two check dams across the river. Due to all these factors, it was concluded that the flooding was man-made in terms of the CWC guidelines.

After learning from the disaster of the 2015 floods, GoTN acted swiftly and conducted a special drive to evict 4,531 out of 23,840 slum families living along the margins of Adyar and Cooum rivers. The banks of Adyar river had been widened and deepened at vulnerable points in Chennai Metropolitan area. Greater Chennai Corporation took up works to construct 292 kms of SWD. The draft Disaster

Management Plan for the state was approved by GoTN in October 2016.

GoTN had taken following Multi-Dimensional measures as a part relief activities:

- i. Around 14 lakh people were evacuated from flood affected areas to flood relief centres;
- ii. About 600 boats were used to ferry people from flood affected areas;
- iii. Around 5500 relief shelters were operated by GoTN during time before and after flood for the affected people;
- iv. Approximately 75 lakh people were treated in 73,457 special medical camps organised by the Health Department;
- v. Around 1536 veterinary medical camps were conducted wherein around 1.5 lakh cattle and domestic animals were treated;
- vi. 453 MTs of Milk powders were distributed to the flood affected people;
- vii. To control epidemic disease, around 2000 MTs of bleaching powder were distributed every house-hold in CMA area (Half Kg per household) and chlorinated drinking water were distributed through distribution networks and tankers; and
- viii. Source reduction and vehicle mounted fogging machines were put into to control the mosquito breeding.

4. Conclusion

The State of Tamil Nadu is prone to sudden torrential rainfall and frequent cyclonic effects. Though GoTN has carried out the food, water, shelter and medical needs of the flood affected people, majority of these are part of state government's day to day business. Our report has concluded that the 2015 Chennai floods was a man-made disaster. Many plans need to be put in

place to mitigate inevitable disasters. GoTN should speed up implementation of plans to face this magnitude of severe disasters.

Reference:

CAG's Report (State Government) No.4 of 2017 - Performance of Flood Management and response in Chennai

Challenges of Auditing Multilateral Environmental Agreements in the Islamic Republic of Iran -SAI Iran

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Regarding the spread of environmental problems, their trans-boundary nature and their widespread negative consequences on the economy and social issues, it seems evident that the mere existence of multilateral environmental agreements does not protect the environment. In this regard, Supreme Audit Institutions, as regulatory bodies, will be able to play an important role in protecting the environment by conducting a variety of cooperative audits. Hence, this paper was an attempt to address the challenges of auditing environmental agreements in the Islamic Republic of Iran.

1. Introduction

The environmental pollution and degradation has been one of the most important and most acute consequences of civilization and industrial development in human societies in recent decades. As such, natural resources deficiency, climate change, temperature rise, sea level rise due to

melting of polar ice, desertification, droughts, lack of freshwater, biodiversity loss, greenhouse gas emissions, accumulation and spread of wastes and acidification of ocean water are among the most acute threats for the global environment. The gradual awareness of countries of trans-boundary nature and the non-limitation of environmental problems to specific geographical boundaries provides the basis for international convergence in global politics to develop and boost international environmental rules in the form of transnational agreements and their inclusion in the internal rules. On the other hand, given the nature and extent of the spread of these problems, the concerned agreements are concluded in various regional and international context. In this regard, the Islamic Republic of Iran has joined more than 20 regional and international environmental protocols and conventions, such as the Convention on Wetlands of International importance Especially as Waterfowl Habitat

"Ramsar" (1971), International Convention on Prevention of Pollution from Ships (MARPOL) (1973), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973), Convention for the Protection of the Ozone Layer (Vienna) (1987), Convention on the Control of Trans-boundary Movements of Hazardous Wastes and their Disposal (Basel) (1989), the United Nations Convention to Combat Desertification (UNCCD) (1994), Kyoto Protocol to the United Nations Framework Convention on Climate Change (1998), Cartagena Protocol on Bio-safety (2000), Stockholm Convention on Persistent Organic Pollutants (2001), Framework Convention for the Protection of the Marine Environment of the Caspian Sea (2003), the United Nations Climate Change Convention (Paris) (2015), etc.

Given the Articles 77 and 125 of the Constitution of the Islamic Republic of Iran, all international treaties, protocols, contracts and agreements concluded between the Government of Iran and other governments as well as relevant treaties shall be approved by the Islamic Consultative Assembly and,

then, the President or his/her legal representative must sign them. On the other hand, according to Article 9 of the Civil Code, the rules of the law which have been established in accordance with the Constitution between the Government of Iran and other governments are considered as law. Similarly, Paragraph B of Article 15 of the General Policies in the field of environment communicated by Supreme Leader emphasizes the need to strengthen environmental diplomacy through developing relations and attracting mutually, multilaterally, regionally and internationally contributing partnerships in the field of the environment.

In the same vein, the Fifteenth International Congress of the International Organization of the Supreme Audit Institutions (INCOSAI) held in Cairo in 1995 considered environmental protection and development as part of the responsibilities of SAIs. In addition, it was decided at the concerned meeting that INTOSAI encourages SAIs to cooperate, as far as possible, on conducting compliance audit on international agreements and support

accomplishing joint and/or simultaneous audits among SAIs. The latter is due to this fact that SAIs will be able to, through their own competencies and in a unique way, evaluate their diversion in implementing multilateral environmental agreements and present their activities and measures in the form of a report to their respected Parliament as well as the national and international stakeholders. This kind of cooperation brings about the ground for exchanging information and experience among countries and increases the expertise and skillfulness in order to conduct a real auditing activity. In this regard, the Islamic Republic of Iran has also come to the fore in understanding the importance of conducting Multilateral Environmental Agreements (MEAs) audits in this regard and, consequently, it has faced lots of challenges as well. Hence, in the following article, the Supreme Audit Court of I. R. Iran examines the challenges of auditing the MEAs in the following three sections:

1. The most important trans-boundary environmental problems of the Islamic Republic of Iran

2. The measures and efforts taken by the Islamic Republic of Iran to audit the MEAs

3. Challenges of auditing the MEAs.

2. The most important trans-boundary environmental problems of the Islamic Republic of Iran

The Islamic Republic of Iran has an area of 1648195 square kilometers by which it has a land border of 6000 kilometers with eight countries of Afghanistan, Pakistan, Turkmenistan, Turkey, Armenia, Azerbaijan and Iraq. Besides, I. R. Iran is a marine neighbor to seven other countries of Bahrain, Oman, Saudi Arabia, the United Arab Emirates (in the south) and Kazakhstan, Russia and Tajikistan in the north (2700 km). This has provided the basis for cooperation and the conclusion of many regional agreements in diverse fields of political, economic, environmental, etc. In this section, the most important regional issues as well as agreements on this subject are discussed:

A) Persian Gulf and Oman Sea (in the south) and existing agreements

The Persian Gulf is considered an international waterway that plays an important role in transferring the

world's energy consumption. Actually, high volumes of contamination annually enter the Persian Gulf. This contamination is the result of oil leaks from pipes, wells and oil installations as well as ballast water discharge and the operation of water desalination plants. Moreover, the concentration of industrial and production activities along the Gulf coast provides a good opportunity for the industry to release its waste water in these waters at no cost. The forenamed polluting sources directly and indirectly affect the environmental elements and resources and cause immediate or gradual loss of resources. The greatest impacts of oil pollution are evident on plant species living on the sea floor and coral islands, which are the proper places for the proliferation, nesting and growth of larvae of diverse species of fish.

In addition, competition in terms of wasteful extracting sand from the sea floor as well as construction of structures such as artificial islands by the majority of beneficiary countries in the natural resources of the Persian Gulf have contributed to the escalation of this acute situation to an extent that the International Maritime

Organization (IMO) has designated the sea as a special offshore area (in terms of pollution).

The most important laws and conventions on the pollution of the seas, to which Iran has joined, are as follows: *The Regional Organization for the Protection of the Marine Environment of Persian Gulf and Oman Sea (ROPME)*: it has four protocols as follows: a) Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution (1978), b) Protocol Concerning Regional Cooperation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency (1978), c) Protocol on Marine Pollution Resulting from Explosion and Extraction from Continental Shelf (1989), d) Protocol for the Protection of the Marine Environment against Pollution from Land-Based Sources, Harmful Substances and Their Disposal (1990), *International Convention on Prevention of Pollution from Ships (MARPOL)*, *International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)* and *Convention on the Prevention of Marine Pollution by Waste and Other Materials (London)*.

It is noteworthy that the cooperation between the countries located at the coastlines of Persian Gulf and Oman Sea in the proper implementation of the concerned conventions and protocols as well as the measures taken by SAIs in conducting joint audits and exerting necessary monitoring will play a significant role in reducing the level of pollution in the area.

B) Caspian Sea (in the north) and existing agreements

Having been considered the largest lake in the world, the Caspian Sea is embodied with such characteristics as the transportation network, and, more importantly, the huge reserves of oil and natural gas, extensive biodiversity and fisheries capabilities. Accordingly, it is one of the most significant ecosystems in the world. There are valuable resources in the Caspian Sea that have affected the interests of the countries of the region and even trans-regional ones. Therefore, the interaction and cooperation between coastal countries in pursuing the interests and profits of the Caspian Sea and the interaction to protect the sea from pollution and environmental monitoring can make this area a regional shelter for peace and stability.

Hence, environmental laws and regulations and international treaties, such as the Convention on the Conservation of the Caspian Sea (Tehran Convention), oblige coastal states to take action to stabilize the status of the lake and prevent spread of pollution across the lake. However, industrial wastewater, oil pollution, garbage accompanied with poisons and pesticides in gardens and lands entered into the lake have caused a dramatic increase in pollution. As such, cooperation among coastal states and regional cooperation among SAIs in conducting joint audits can play a significant role in reducing pollution.

C) International streams and dust phenomenon (on the eastern and western borders) and existing agreements

In the Middle East, climate change is associated with drought and water stress, as the form of precipitation has shifted from snow to rain. However, given the climatic change and global warming, it is anticipated that water resources in the catchment areas of the region would be sharply reduced by 2050. Moreover, the region is characterized with developing countries and the growing population.

Hence, water scarcity is not only a barrier to sustainable development, but also it can be an excuse for facing governments and internal tensions. Over the past decades, unstable water management and disputes over "Riparian Right" in the catchment area of rivers and lakes shared by the two or more countries in the area or watershed beyond international boundaries have been very evident. In addition, the mismanagement of common rivers has led to the drying of wetlands (such as Hamoun in the east and Horolazim in the west) and, consequently, the advent of dust phenomenon that has affected the eastern and southeastern borders of Iran.

3. The measures and efforts taken by the Islamic Republic of Iran to audit the MEAs

Regarding the nature and function of SAIs in auditing multilateral environmental agreements, it seems that they can play an important role in assessing the damage, challenges, deviations and the effectiveness of these agreements. In this regard, SAC has undertaken some significant measures in this regard, such as the translation of relevant standards and guidelines (e.g. Guidelines for a Joint

Audit Program between Supreme Audit Institutions, Proposed Standard No. 5800), compilation of books (e.g. Environmental Auditing, 2017 - Chapter Four is entirely devoted to explaining the quality of auditing the environmental agreements) and presenting articles (i.e. Environmental Audit of the Caspian Sea, which was presented at the Meeting of INTOSAI WGEA in Argentina, titled as Auditing in an Innovative Way, and published in the Asian Journal of Government Audit, April 2012). In this paper, SAC attempted not to select an ancillary topic from diverse environmental issues in a small region of the Caspian Sea but it tried to delineate the weaknesses and strengths of the mechanisms governing on the Caspian Sea environment, discussed the contribution of coastal countries in polluting the Caspian Sea, analyzed the joint actions taken by the Caspian Sea coastal states in controlling water pollution and enumerated the challenges of the environmental audit of the Caspian Sea. Finally, based on the findings and results of the auditing process, some recommendations were

presented to improve the environmental status of the lake.

Having compiled some educational pamphlets in this regard, SAC has included some courses on introduction to auditing the environmental agreements in its training curricula in order to strengthen the training background and empower auditors on the domestic level in that auditing the multilateral environmental agreements occupies a very sublime status in this domain. Moreover, according to the approved decision of Fifteenth Meeting of the ECOSAI Training Committee on the commitment of SAC to hold an environmental audit seminar in the region (in September 2015), SAC analyzed the needs and conducted researches in relation to the region's environmental problems and existing standards and, then, it included Audit of Multilateral Environmental Agreements in the training curricula of a seminar held with the presence of representatives from the member states of ECOSAI.

In 2017, the subject of Auditing the Implementation of Convention on the Conservation of the Caspian Sea was proposed by SAC and, subsequently,

the first meeting on planning and coordination of this joint audit was held in Russia with the participation of representatives from SAIs of Russia, Iran and Azerbaijan. In this meeting, SAC pointed to the necessity of conducting efficient and effective auditing in this regard and, then, it suggested not to focus on auditing specific environmental problems in the Caspian Sea (partial auditing) and, instead, put emphasis on structural audit of the Convention, such as the objectionable issues in the Convention, The correctness of the structures and mechanisms governing the Caspian Sea, reasons behind non-codification of the protocols of this Convention, performance bond, formulation of rules, standards, procedures and policies for reducing and controlling water pollution, etc.

Conclusively, due to the common and regional dilemma of the occurrence of dust phenomenon on the western borders of the country and its extension to other parts of the country as well as the conclusion of regional and international agreements in this domain (i.e. Convention to Combat Desertification), SAC suggested the

heads of INTOSAI and ASOSAI to carry out audits of the preventive projects on the dust phenomenon in the Asian region in 2012. Consequently, ASOSAI announced this issue to member SAIs in the form of projects. The purpose of the projects was to assess the quality of the activities undertaken by member SAIs, share knowledge in this regard and, finally, provide recommendations for improving their efficiency. Accordingly, SAC proposed that the audit would be carried out simultaneously by member SAIs and, then, the experiences and achievements of each SAI would be shared with others in the format of meetings or workshops.

It is worth noting that the Government of the Islamic Republic of Iran has so far ratified several international documents (protocols or declarations) on dust phenomenon in the United Nations.

4. Challenges of auditing the MEAs by SAC

1) Although the number and scope of international environmental agreements has increased dramatically over the past decades, some of these agreements cannot be implemented due

to the fact that the assignments of governments are very vague in this regard and there is no mandatory structure even to compensate for obvious violations of such agreements. Besides, some of these environmental agreements are formulated in terms of framework agreements and their full implementation and, consequently, auditing are subject to ratification of their concerned protocols. Convention on the Conservation of the Caspian Sea (Tehran Convention) is among such agreements. The fulfillment of the obligations of the Tehran Convention may be achieved through observing its protocols. Accordingly, the preparation and approval of several protocols is foreseen by coastal states (Article 24 of the Convention). Each protocol follows the objectives of the Convention and, thus, pursues important objectives in terms of preventing and controlling pollution and preserving the environment of the Caspian Sea. However, given that all these protocols have not yet been ratified by the member states due to the diversity of expert opinions of the five coastal states, some of these goals have not yet been achieved as well.

2) Given the advisory and non-binding nature of some multilateral environmental agreements, it seems that if there are appropriate domestic policies and procedures for implementation of the multilateral environmental agreements as well as the existence of the necessary performance bonds and their actual implementation, the auditors will be able to internally take into account the effectiveness, efficiency and economy of these agreements. It should be reminded that in the absence of macro-policies and the lack of appropriate framework for the implementation of an agreement as well as the lack of laws and regulations in terms of implementing such agreements, the incentives of SAIs to effectively and efficiently audit the same agreements will fall sharply. Regarding the forenamed issues and taking into account the security, social and political conditions and crises governing the Middle East, it seems that merely joining an international agreement (i.e. Convention to Combat Desertification) will not pave the way for conducting joint audit in this domain.

3. Governments are often reluctant to join the environmental agreements that impose international obligations and/or exert restrictions on their sovereignty and autonomy. Issues and considerations relating to the issue of sovereignty may undermine an agreement even after its completion stage. Although international laws insist that governments must respect their obligations, it is quite possible and likely that governments unilaterally withdraw from an agreement on which they have already agreed. The latter point severely affects the audit of multilateral environmental agreements and the pursuit of these types of audits in particular.

4. Cultural, historical and religious differences as well as governing political systems and language are among the factors involved in selecting audits of environmental agreements, type of audit and, ultimately, the degree of cooperation in conducting audits. Such differences affect the manner of auditing, reporting and time spent in such auditing activities.

5. The internal requirements of SAIs and the administrative structure of the country in which the concerned SAI is

based are determining factors in specifying the scope of the activities of the same SAI. Hence, the clarification of the roles and responsibilities of SAIs is of great importance, especially when different levels of powers and competencies may raise problems with the method and standards of auditing as well as reporting methods to legislative bodies and governments.

6. Considering this fact that maximum realization of the effectiveness of environmental agreements' auditing depends on the participation of all the contracting parties to the concerned agreement, it seems that the reluctance and unwillingness of members of the agreement to conduct an audit on the concerned multilateral environmental agreement - that may result from various reasons- will reduce the effectiveness of the results of the same audit.

5. Conclusion

The cooperation among SAIs in auditing the multilateral environmental agreements brings about the ground for exchanging information and experience among them and increases the expertise and skillfulness therein. Regarding the nature and function of SAIs in auditing

multilateral environmental agreements, it seems that they can play an important role in assessing the damage, challenges, deviations and the effectiveness of these agreements. Having considered significant challenges in the implementation of this type of audit, it is suggested that the concerned authorities do their best in order to pave the way for implementing this type of audit.

Audit of Disaster Management in Japan - Recent Trends and Characteristics - SAI Japan

By Ken Awano and Tae Nishimoto,
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1. Introduction

Recently devastating impacts of natural disaster on people's lives and economies are growing due to various factors such as climate change and urbanization. A report published by United Nations Office for Disaster Risk Reduction (UNISRD) in 2018 estimates that in 1998-2017 natural disasters have claimed 1.3 million people's lives and cost economic value worth nearly USD 3 trillion⁷. An increase in the number and damage of large-scale natural disasters across the world has urged potentially affected nations to promote international cooperation to effectively prepare for and respond to them. The Sendai Framework for Disaster Risk Reduction, adopted in 2015, is a disaster-related agreement with seven targets and four action priorities, which facilitates integrated and carefully monitored policies among a wide range of stakeholders in order to prevent and mitigate the disaster-related impacts.

⁷UNISRD. (2018) *Economic Losses, Poverty and Disasters 1998-2017*, p.3
https://www.unisdr.org/files/61119_credeconomiclosses.pdf

As the government of one of the most disaster-prone nations and a leading country of the Sendai Framework, the Japanese government has been making great effort to cope with risk and hazard posed by increasingly diverse types of natural disasters ranging from typhoon to volcanic eruption to earthquake. Accordingly, a scope of policy covered by mandates of the Board of Audit of Japan (hereinafter referred to as the Board) has been becoming broader to ensure accountability and effectiveness of such policy. Thus, it is useful to review audits conducted by the Board in recent years to offer a basis for international discussion and mutual learning.

To this end, this article aims to outline Japan's natural disaster management policies and audit results on them and elucidate characteristics of the Board's auditing of natural disaster management⁸.

2. Concept of Disaster Management

⁸Note that the opinions presented in this article are those of the authors, not of the Board.

The concept of disaster management can be different depending on types of disaster or agency dealing with it. For instance, International Federation of Red Cross and Red Crescent Societies (IFRC) defines the concept as “the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters.”⁹

ISSAI 5510 presents the model of Disaster Management Cycle in which disaster management activities are categorized into two phases: pre- and post- disaster activities. Applying IFRC’s definition to the model, pre-disaster activities largely correspond to preparedness and post-disaster ones to response and recovery. But it should be noted that this is a cyclic process because effective recovery measures involve preparations for future hazards. This article uses ISSAI’s classification for an analysis of the Board’s auditing later.

3. Natural Disaster Management of Japan

(1) Disaster Management

⁹IFRC. <https://www.ifrc.org/en/what-we-do/disaster-management/about-disaster-management/>

Japan is one of the most natural disaster-affected countries with 25,193 fatalities and missing persons¹⁰ caused by natural disasters over the period from 1998-2017. UNISDR calculates Japan’s disaster-caused economic losses during the same period at USD 376 billion¹¹. Diverse geographical and meteorological conditions, high population densities in particular areas and complicated social systems combine to highlight the need to cope with a broad range of complex hazards.

Currently the Japanese government spends around 3-5 trillion yen (USD 26.7-44.6 billion) annually on disaster management. The amount accounts for roughly 4-6% of the entire national budget. Approximately 80% of the budget was allocated to pre-disaster activities before 2011. Following the Great East Japan Earthquake¹² (hereinafter referred to as the Great

¹⁰Out of the total figure, 22,199 (88.1%) were the victims of the Great East Japan Earthquake. Cabinet Office.

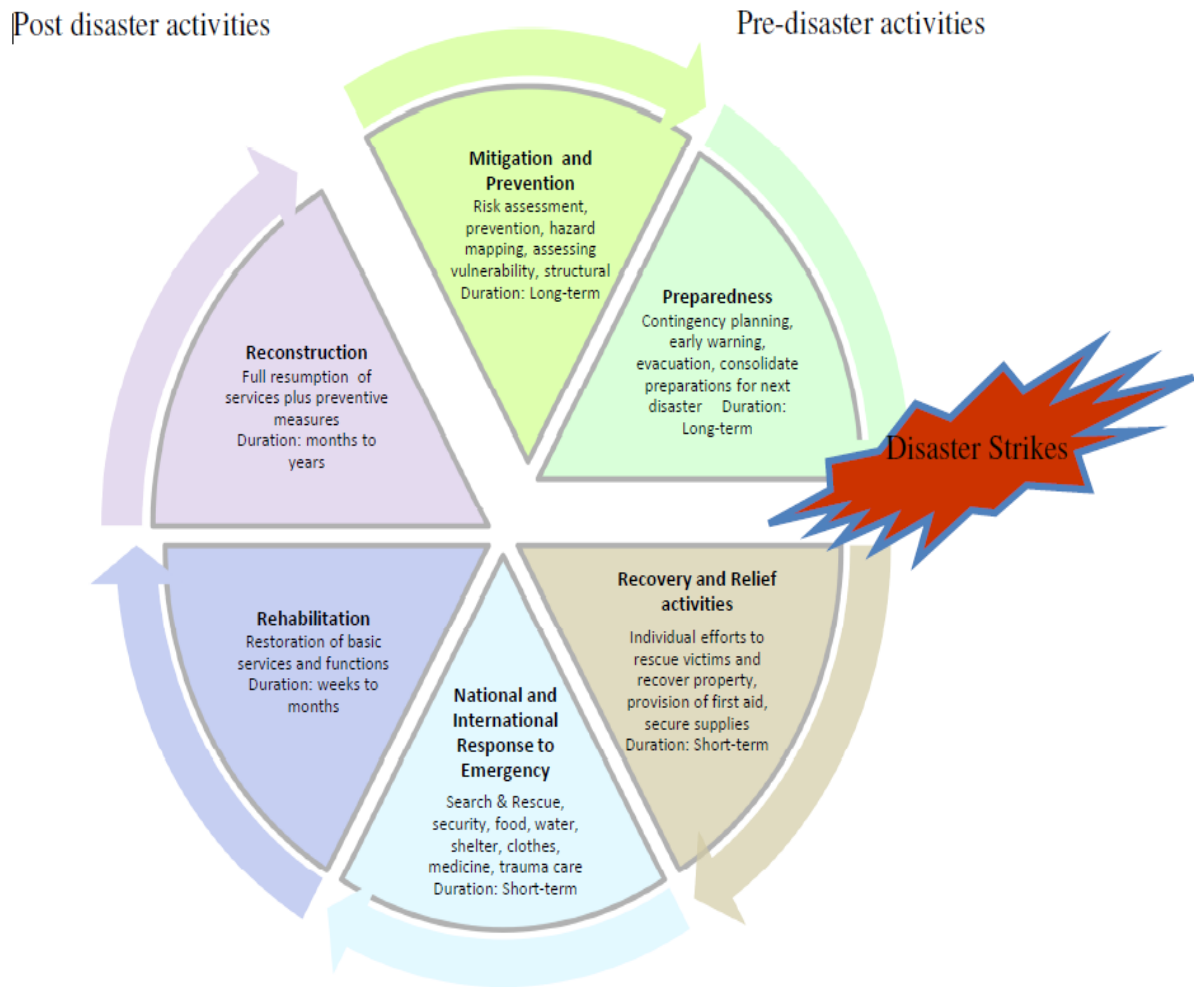
http://www.bousai.go.jp/kaigirep/hakusho/h30/honbun/3b_6s_09_00.html

¹¹UNISDR. (2018) *Economic losses, poverty & disasters: 1998-2017*, p.4

¹² On March 11, 2011, the largest earthquake ever recorded in Japan with a magnitude of 9.0, known as the Great East Japan Earthquake, occurred 130km off the Pacific Coast of Tohoku District. The compound disaster of earthquakes, tsunami and a nuclear accident caused tremendous damage and long-term consequences to the nation.

Earthquake), however, the distribution of the disaster-related budget changed dramatically with over two-thirds of it being spent on post-disaster activities.

Figure 1. Disaster Management Cycle



Source: ISSAI 5510. p.6

Table 1. National Budget Allocation by year from 2008 to 2017¹³

Fiscal Year	Pre-Disaster						Post-Disaster		Total JPY million
	Research		Disaster Prevention		Land Conservation		Disaster Reconstruction		
	JPY million	Share	JPY million	Share	JPY million	Share	JPY million	Share	
2008	8,921	0.4%	819,359	33.2%	1,275,135	51.7%	363,471	14.7%	2,466,886
	(USD 79.7 mil)		(USD 7,315.7 mil)		(USD 11,385.1 mil)		(USD 3,245.3 mil)		(USD 22,025.8 mil)
2009	8,761	0.4%	498,397	23.0%	1,383,254	63.7%	279,789	12.9%	2,170,201
	(USD 78.2 mil)		(USD 4,450.0 mil)		(USD 12,350.5 mil)		(USD 2,498.1 mil)		(USD 19,376.8 mil)
2010	7,695	0.6%	224,841	16.9%	813,359	61.1%	285,038	21.4%	1,330,933
	(USD 68.7 mil)		(USD 2,007.5 mil)		(USD 7,262.1 mil)		(USD 2,545.0 mil)		(USD 11,883.3 mil)
2011	28,072	0.6%	376,169	8.0%	743,936	15.9%	3,536,475	75.5%	4,684,652
	(USD 250.6 mil)		(USD 3,358.7 mil)		(USD 6,642.3 mil)		(USD 31,575.7 mil)		(USD 41,827.3 mil)
2012	29,422	0.6%	561,021	12.0%	790,422	17.0%	3,129,561	67.2%	4,656,656
	(USD 262.7 mil)		(USD 5,009.1 mil)		(USD 7,057.3 mil)		(USD 27,942.5 mil)		(USD 41,577.3 mil)
2013	15,339	0.3%	788,576	14.1%	879,932	15.8%	3,883,911	69.6%	5,578,036
	(USD 137.0 mil)		(USD 7,040.9 mil)		(USD 7,856.5 mil)		(USD 34,677.8 mil)		(USD 49,803.9 mil)
2014	16,688	0.4%	639,966	13.9%	836,580	18.2%	3,101,555	67.5%	4,594,789
	(USD 149.0 mil)		(USD 5,714.0 mil)		(USD 7,469.5 mil)		(USD 27,692.5 mil)		(USD 41,024.9 mil)
2015	14,961	0.4%	713,477	18.6%	155,475	4.1%	2,954,355	77.0%	3,838,268
	(USD 133.6 mil)		(USD 6,370.3 mil)		(USD 1,388.2 mil)		(USD 26,378.2 mil)		(USD 34,270.3 mil)
2016	14,023	0.3%	696,399	14.3%	318,320	6.5%	3,855,516	78.9%	4,884,258
	(USD 125.2 mil)		(USD 6,217.8 mil)		(USD 2,842.1 mil)		(USD 34,424.3 mil)		(USD 43,609.4 mil)
2017	10,123	0.3%	790,361	22.1%	267,619	7.5%	2,515,384	70.2%	3,583,497
	(USD 90.4 mil)		(USD 7,056.8 mil)		(USD 2,389.5 mil)		(USD 22,458.8 mil)		(USD 31,995.5 mil)

Source: Cabinet Office.

¹³ Cabinet Office. (2017) *White Paper: Disaster Management in Japan 2017*, A-9. The figure for 2017 was obtained at http://www.bousai.go.jp/kaigirep/hakusho/h30/honbun/3b_6s_34_00.html. In this article, amounts in JPY will be converted at a rate of 112 yen per dollar by referring to the expenditure official rate for FY 2018.

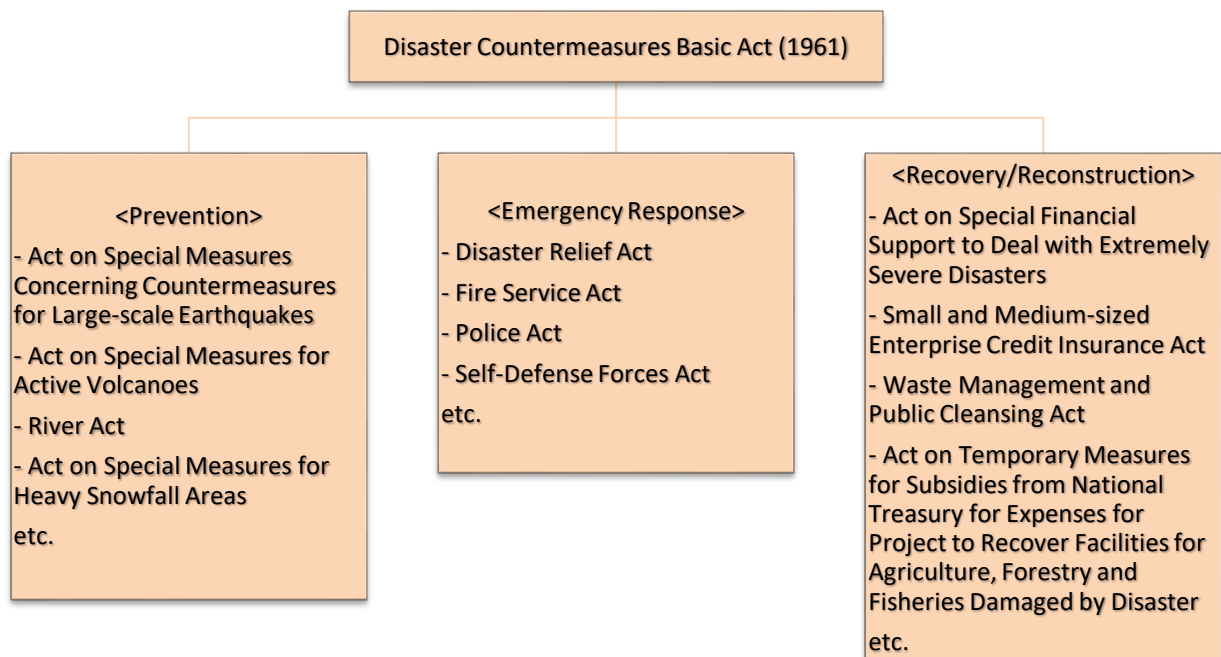
(2) Law and Policy Structure of Japan's Disaster Management

The Disaster Counter Measures Basic Act, enacted in 1961, is an umbrella act for natural disaster management in Japan. It stipulates the basic principles, clarifies the responsibilities among major stakeholders and formulates a basic policy relating to disaster prevention, emergency disaster control and disaster recovery. The national government shall take all possible measures, formulate and implement a plan, and coordinate operations with local governments and other public bodies. The act has been amended several times to introduce new types of disaster and deal with new disaster management needs according to social and economic change.

Under the act, there are a wide range of specific laws administering relevant programs concerning disaster prevention, emergency response and recovery/reconstruction, as shown in Figure 2. For instance, regarding the prevention area, specific laws are established to prepare for each type of disaster.

Figure 2. Major Legislation under the Basic Act on Disaster Management by Phase¹⁴

¹⁴Excerpt from Cabinet Office. (2017) *White Paper: Disaster Management in Japan 2017*, A-9.



Source: Cabinet Office.

After the Great Earthquake, Japan has introduced new laws concerning disaster management to reflect lessons learnt from the disaster and provide for future large-scale disasters, particularly strong earthquakes anticipated to hit Tokyo Metropolis and coastal regions along Nankai Trough in the Pacific Ocean within a couple of decades.

In terms of disaster preparation, the Basic Act for National Resilience, enacted in 2013, formulates basic principles (such as protection of human lives and the maintenance of administrative and social functioning), responsibilities and other fundamental matters to plan and implement nation-wide disaster resilience programs. The

Act stipulates that vulnerability assessments be conducted by the newly created National Resilience Promotion Office and the Fundamental Plan for National Resilience be formulated based on the assessments to serve as the umbrella plan and promote policies necessary for national resilience. Local governments are also supposed to formulate their Fundamental Plans for Regional Resilience in coordination with the national plan. The annual Action Plan for National Resilience is approved by the Office to enable the progress monitoring of the national plan and quantitative policy evaluations by introducing relevant Key

Performance Indicators for each policy area.

Regarding the recovery/reconstruction phase, in the past individual acts for recovery were enacted once major disasters stroke. Basic Act on Reconstruction in Response to the Great East Japan Earthquake, enacted in June 2011, is one such example. The Great Earthquake, however, made clear the importance of a general act being set in advance for smooth implementation of recovery programs. Consequently, the Act on Reconstruction from Large-scale Disaster was enacted in 2013 to formulate Government's organizational arrangements and authoritative and financial measures in case of large-scale disaster to facilitate recovery and reconstruction from the disaster¹⁵.

4. Board's Audit of Natural Disaster Management

(1) Mandate, Objectives and Organization of Board's Audits

The Board of Audit of Japan is a constitutionally independent organization which audits the State's financial accounts, accounts of other

public bodies and those which receive financial assistance from the State.

The Board "shall conduct its audit with the objective of accuracy, regularity, economy, efficiency, effectiveness, or other objectives necessary for auditing."¹⁶The latter three objectives collectively referred to as "3E", can be categorized as performance auditing in ISSAI frameworks.

The Board's audit sections are divided by Ministries and other auditees. Each audit division is assigned specific entities to audit. But the Special Issues Audit Division for Ministries and the Special Issues Audit Division for Agencies have no specified auditees and perform cross-department or overarching auditing.

The Board formulates the Basic Policy on Audit every year and, based on the Basic Policy, each division makes its Audit Plan and implement its audit accordingly. Reflecting Japan's social and economic trends and growing concerns among the public, the reconstruction from the Great Earthquake has been focus of audit in the Basic Policy since 2011. .

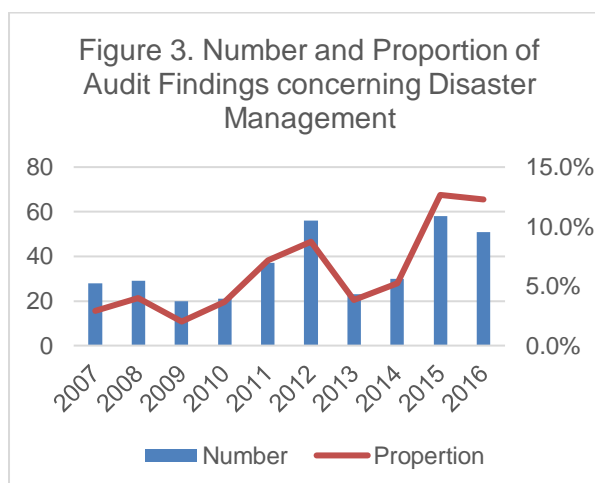
¹⁵For more information on Japan's disaster management, visit http://www.bousai.go.jp/1info/pdf/saigaipamphlet_je.pdf

¹⁶ The Board of Audit Act, Article 20.

(2) Analysis on Trend and Type of Disaster Management Audit

a. Trend in Disaster Management Audits

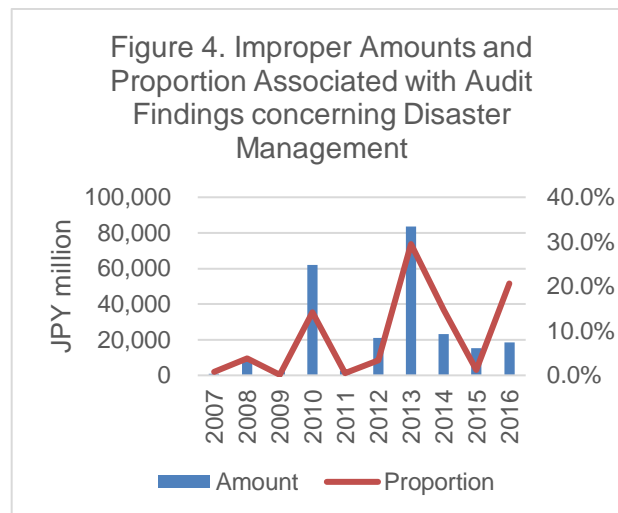
A brief analysis of ten-year audit results shows an increase after the Great Earthquake in the number and share of disaster-related findings although there are some dips and spikes (Figure 3). This reflects the Board's focus on disaster prevention policies and reconstruction projects as mentioned above.



Improper amounts¹⁷ in the disaster management area have also increased compared with the period until 2011 although the proportion

¹⁷ "Improper amounts represent any deficiency in the collection of taxes or social insurance premiums to be collected; overpayments for construction or purchases; overpayment of subsidies; amount of credit managed improperly; amount of assets not utilized effectively; and any amount of assets stated improperly in the statements of account and financial statements." The Board. (2018) *Board of Audit*, p.25 http://www.jbaudit.go.jp/english/pdf/Board_of_Audit_2018.pdf

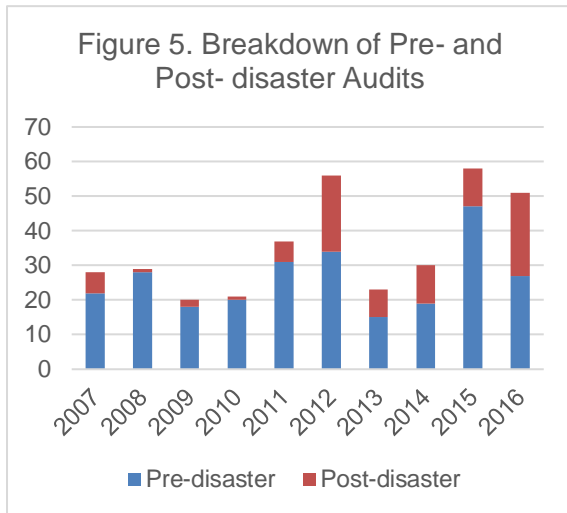
fluctuates because the improper amount in each finding varies significantly¹⁸(Figure 4).



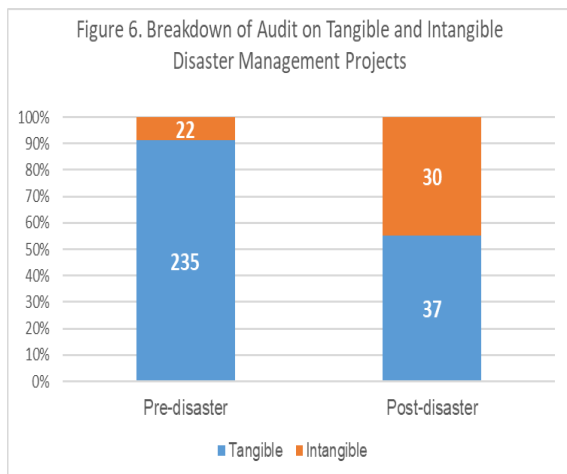
b. Type of Disaster Management Audits

Figure 5 shows the breakdown of audit cases for each year. The share of post-disaster projects or programs has increased after 2011. Most of the post-disaster cases relate to recovery from the Great Earthquake. This is due to the focused auditing of this issue, as mentioned in the previous section.

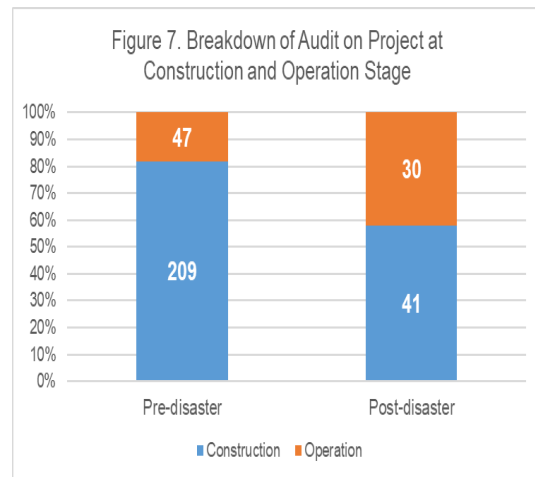
¹⁸The sharp rise of amounts in 2013 is largely due to the improper amount of one audit result about an agriculture/livestock subsidy reaching JPY 70 billion (USD 625 million).



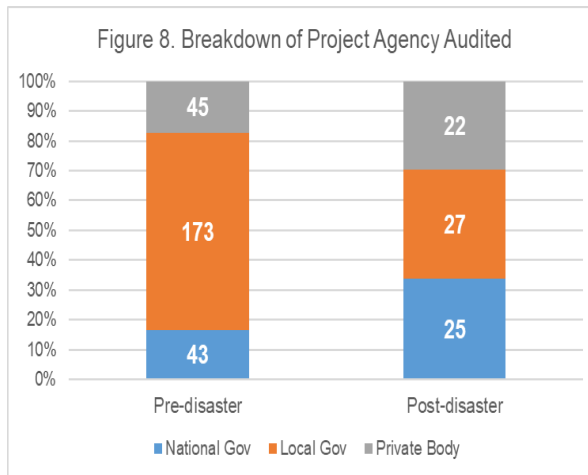
The share of tangible projects (such as earthquake-resistant construction) and intangible projects (such as disaster-related research or financial support to affected enterprises) varies depending on the phase of disaster management. Audit on tangible projects predominates in pre-disaster audits whereas nearly half of the findings in post-disaster audits come from intangible projects (Figure 6).



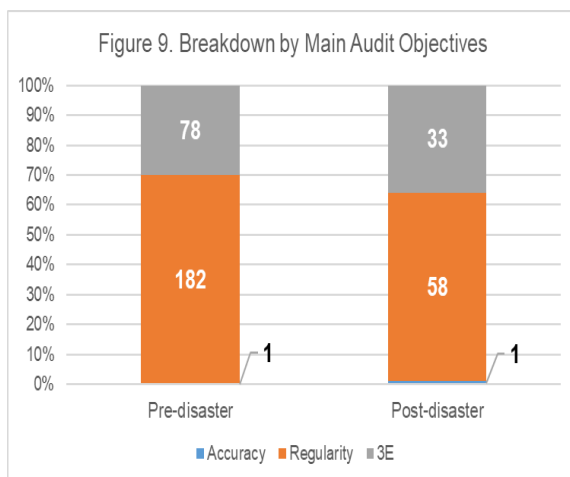
The classification of findings according to the project stage (construction or operation) gives a similar picture to the above figure (Figure 7).



When project agencies are classified into the national government, local governments and private bodies, two-thirds of pre-disaster audit results come from projects implemented by local governments. However, audit results on projects by these three types of agencies occupy almost the same share in the post-disaster phase (Figure 8).



Finally, audit results from the viewpoint of regularity account for 60-70% in both pre- and post- disaster audits (Figure 9).



c. Other Features of Japan's Disaster Management Audits

A closer look at Japan's disaster management audits shows that most of them are performed at a project level. For instance, typical disaster management audit was to verify whether the construction projects subsidized by the State are conducted in

conformity with the approved budgets, laws and regulations. Consequently the majority of disaster management audits by the Board became regularity audits, as shown in the above figure. Auditors' intensive field audits and familiarity with relevant regulations enable this project-level auditing.

In relation to the level of auditing, it is noticeable that audits are predominantly department-specific. Auditors examine projects or financial support by each governmental department or public agency in charge. This characteristic partly stems from the Board's organizational arrangements, as explained in the previous section. This individual auditing helps auditors to detect micro-level improprieties and informs auditors in different divisions through cross-division coordination mechanisms.

With regard to audit methodologies, the Board's auditors have been basically relying on field audits and examinations of documentations presented by audited entities. This traditional approach is also applicable to disaster management auditing and enables most Board's auditors to perform disaster management auditing.

In addition to this approach, new tools associated with disaster management such as remote sensing, GIS and GPS would be used more extensively for the Board's future auditing in geographical and thematic terms, as ISSAI 5510 suggests¹⁹.

5. Case Study

This section presents two recent audit cases to illustrate what kind of audit results have been produced in the Board's activities during the last decade.

(1) Development of disaster prevention information communications networks in the comprehensive urban disaster prevention promotion projects

The first example is an audit result on pre-disaster projects implemented by local governments to establish tangible infrastructure dedicated to earthquake emergencies.

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) provides subsidies for local governments that conduct projects to make urban structure more disaster-resilient (hereinafter referred to as "the Project"). The subsidies shall be provided when municipalities build telecommunication facilities to assure

communications in case of emergency (hereinafter referred to as "the Network") on the condition that the facilities are based on "five-year plan on earthquake-proof urban development promotion" that municipalities developed for earthquake disaster prevention. Also in installing any equipment for administrative radio system for disaster use in buildings to establish the Network, such buildings must undergo seismic diagnosis so that the equipment can effectively function even when earthquakes occur.

The Board audited the conditions of 72 master station facilities and 14,021 slave station facilities worth JPY 25 billion²⁰(USD 223.2 million), which had been established between 2008 and 2015 in 95 municipalities by reviewing relevant documents and performing on-site examinations.

The audit has revealed that 27 municipalities installed 87 facilities of the radio system in buildings which did not have or were not confirmed to have sufficient seismic resistant capacity. Consequently, they might not work properly in case of disasters.

¹⁹ISSAI 5510. Para 6.6

²⁰ Approximately half the amount was funded by MLIT subsidies.

For example, Konan City in Kochi prefecture installed administrative radio system for disaster use to develop the Network as a part of the Project. In order to transmit accurate information quickly to citizens when a large earthquake along the Nankai Trough (Nankai Earthquake) occurs, the master station will send data to slave stations across the city which will broadcast loud. The master station was supposed to be established in the city government building where the emergency management headquarter would be located, but it became clear that the city building is not earthquake-proof enough. According to the seismic inspection Konan City had performed, the Seismic Index of Structure was 0.43, much lower than the required value for emergency management headquarters; 0.9. As a result, administrative radio system for disaster use would not function effectively in case of Nankai Earthquake.

Therefore, the Board concluded that MLIT needs to take the following measures:

- In order to make these systems function effectively when earthquake happens, MLIT should suggest to 27 municipalities that they make plans to take necessary measures as to those

facilities already installed in buildings with insufficient seismic resistant capacity.

- MLIT should inform local governments that Disaster Prevention Communication Network facilities must be installed in sufficiently earthquake-proof buildings so that they would perform validly in case of earthquakes.

(2) State of implementation of reconstruction and rehabilitation projects after the Great East Japan Earthquake

The second example outlines a series of audit reports concerning progress of the long-term reconstruction program which has been specifically budgeted for after the Great Earthquake.

The Board received a request from the House of Councilors on August 27, 2012 to conduct an audit on the Great Earthquake and report the results.

To be specific, the objects of requested audit are described below.

- [1] The state of damage caused by the Great East Japan Earthquake**
- [2] The state of implementation of the reconstruction projects after the Great East Japan Earthquake**

The Board has conducted audits on these objects and submitted five special reports to the House of Councilors so far. The overview of these five reports is shown in the following table.

Table 2. Outline of Five Reports on Recovery from the Great Earthquake

		1st Report (Oct. 2012)	2nd Report (Oct. 2013)	3rd Report (Mar. 2015)	4th Report (Apr. 2016)	5th Report (Apr. 2017)
Objectives		Efficiency				
		Effectiveness				
		Regularity				
Viewpoints		The state of damage caused by the Great Earthquake				
		The allocation and execution of budget concerning reconstruction				
		Reconstruction projects implemented by disaster-affected prefectures and municipalities				
		Utilization of the reconstruction funds				
		Reconstruction after the nuclear disaster				
		The achievement of the reconstruction projects				
Scope		16 central government ministries/agencies				
		11 prefectures and 227 municipalities affected by the disaster				
Methods		Interview, Survey by questionnaire, Investigation and analysis of public information				
		Survey by questionnaire for 58 disaster-affected municipalities	Field audit of 8 prefectures except extremely damaged 3 prefectures (Iwate, Miyagi and Fukushima)	Field audit of 20 prefectures including extremely damaged 3 prefectures as well as un damaged prefectures	Field audit of 6 coastal prefectures hit by tsunami	Field audit of 4 prefectures including extremely damaged 3 prefectures
Findings	Number of Evacuees	About 343,000 (Jul. 2012)	About 298,000 (Jun. 2013)	243,040 (Sep. 2014)	182,000 (Dec. 2015)	123,168 (Feb. 2017)
	Budget concerning reconstruction	19 trillion yen (USD 169.6 billion) (during the Concentrated Reconstruction Period (FY 2011-2015)) 23 trillion yen (USD 205.3 billion) (FY 2011-2020)	25 trillion yen (USD 223.2 billion) (during the Concentrated Reconstruction Period (FY 2011-2015))		25.5 trillion yen (USD 227.6 billion) (during the Concentrated Reconstruction Period (FY 2011-2015)) 32 trillion yen (USD 285.7 billion) (FY 2011-2020)	
	Budget execution ratio	54.2% (FY 2011)	77.2% (FY 2011-2012)	80.1% (FY 2011-2013)	81.3% (FY 2011-2014)	82.4% (FY 2011-2015)

Other Findings	<p>•Details of damage and emergency response activities taken just after the disaster</p> <p>•A big difference in the execution ratio of reconstruction projects implemented among municipalities, depending on the degree of damage by the disaster</p>	<p>•The reconstruction projects are delayed in the coastal areas hit by tsunami and the areas affected by the nuclear disaster.</p> <p>•Fukushima prefecture and its municipalities affected by the nuclear disaster need long-term financial and human resource support.</p>	<p>•Details of the state of implementation of reconstruction projects in extremely damaged 3 prefectures</p> <p>•Some reconstruction funds established by prefectures and other bodies were not used at all, and others still held subsidies after the reconstruction project ended.</p>	<p>•Details of the state of implementation of reconstruction projects in coastal 6 prefectures</p> <p>•The completion rate of the construction of tide embankments, etc. for tsunami prevention is about 10%.</p>	<p>Summary of the state of implementation of reconstruction projects during the Concentrated Reconstruction Period</p>
Main Opinions	<p>•Allocate budget and estimate the cost based on the views, demands, and ongoing projects of disaster-affected prefectures and municipalities</p> <p>•Provide necessary support for disaster-affected areas where enormous amount of projects are conducted with limited staff</p>	<p>•Inspect the delayed projects and eliminate the barriers of implementation</p> <p>•Provide necessary support from a long-term perspective for decontamination, industrial promotion and other projects in the areas affected by the nuclear disaster</p>	<p>•Exchange views with prefectures and municipalities and support their effort by providing information, advice and other forms of necessary cooperation</p> <p>•Cooperate fully with relevant funds and examine whether their execution and the amount of funds were appropriate</p>	<p>•Given the fact that still more 3.2 trillion yen is needed for reconstruction projects, make effort to implement reconstruction projects effectively and efficiently</p> <p>•Construct and repair tide embankments, etc. steadily to prevent losses of people's lives</p>	<p>•Accumulate and classify the examples of challenges and solutions found in the implementation of reconstruction projects so that they will be used for the reconstruction from the future disaster</p>

Although the series of reports for the House of Councilors ended by submitting the fifth report, the Board is to continue to audit the state of implementation of the reconstruction projects after the Great Earthquake.

6. Conclusion

This article has aimed to outline disaster management in Japan and elucidate the trend and characteristics of the Board's disaster management auditing. There was an increase in the number of disaster management audits after the Great Earthquake in 2011 in line with the intensive reconstruction program for the tragedy and a growing awareness about disaster management among the public. As for pre-disaster stage, tangible construction projects

implemented by local governments are a typical auditing whereas post-disaster auditing shows greater diversity in terms of type, project phase and implementing bodies involved. Also, auditing from the viewpoint of regularity is still common in both phases.

Clearly, there is no one-size-fit-all auditing approach for every SAI since each SAI works in different social, legal, administrative conditions. Nonetheless, as international frameworks and coordinated policies in disaster management areas are gaining importance, it is desirable to compare the Board's approach with those of other SAIs to pursue mutual cooperation and learning among SAIs.

Audit of Disaster Management: An Experience of SAI Nepal

By Chandra Kanta Bhandari, FCA, CPFA

Abstract

"Disaster does not come beating the drum". This is a proverb commonly used in Nepali society. This simply means that disaster takes place/happens all of sudden. It does not give you big signals; beating drums. We can learn in two ways by this proverb; one disaster does not happen fixing the date and time in calendar and second, of course it does not provide you fix date and time when will it happen but you can get ready/prepared to cope with possible disaster to have minimal impact of disasters in terms of human and other casualty and loss of properties. So, this write up will try to discuss about how disaster management has been dealt with by the government and experience of SAI Nepal in conducting audits of disaster management in Nepal.

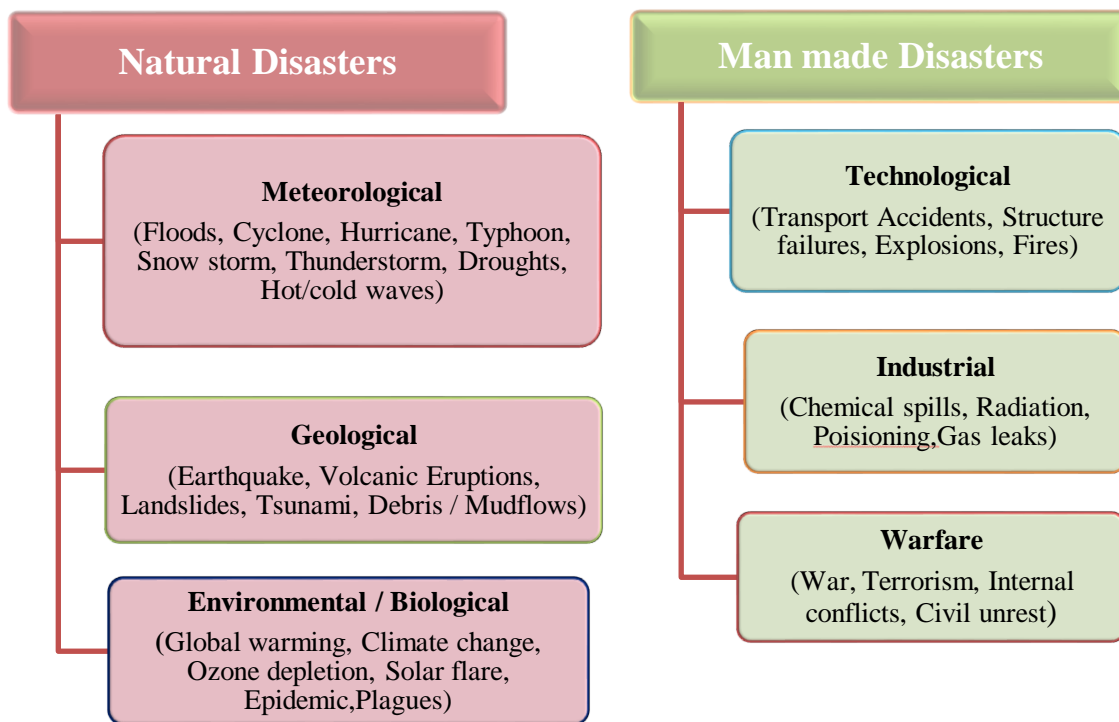
1. Disaster - Introduction: How it has been understood

The term disaster has been equated with the term 'Natural Calamity' and defined as earthquake, fire, storm, flood, landslide, heavy rain, drought, famine, epidemic, and other similar natural disaster and this expression also includes the industrial accident or accident caused by explosions or poisoning and any other kinds of

disaster in Section 2 of Natural Calamity Relief Act, 1982. The law was quite old and lacks to recognize a man-made event that negatively affects life, property, livelihood or industry often resulting in permanent changes to human societies, ecosystems and environment. Further it focuses on relief activities only. Disaster has multi-facet negative consequences including the disruption to the normal pattern of life, human effects such as loss of life, injury, hardship and adverse effects on health, effects on social and physical structures, deprivation of community needs such as shelter, food and clothing etc. There is little awareness on how it can be managed having minimal effect of disaster when it actually happens. The cost of disaster is quite huge to the societies and the government. So, every government and society must be serious to manage and keep its possible consequences at minimal.

2. Classification of Disasters -

Disasters can be classified broadly in two types; natural disasters and man-made disasters as below:



3. Where does Nepal stands in terms Disaster

Nepal has remained at the top 20th list of the most multi-hazard prone countries in the world. The country is ranked 4th, 11th and 30th in term of climate change, earthquake and flood risk respectively. Other disasters in Nepal are drought, storm, hailstorm, avalanches, cold-waves, forest fires and Glacial Lake Outburst Flood (GLOF). Nepal is in risk prone in different ways by different disasters such as whole country is prone to earthquake and drought but part of the country by other disasters such as terai (east to west in southern part of the country) and mid hill is prone to flood and fire risk, Hills

and mountains are prone to land slide and debris flow risk, high mountain area is prone to GLOF and avalanche.

4. Disaster Management

'You are not supposed to stop the rain but you are supposed to use umbrella during rain'. This statement hold true in management of disasters. We may not be able to stop some of natural disasters, however we can manage them to ensure minimal effects it disaster rakes place. Disaster management basically involves any activities aimed at *Disaster Risk Reduction*. A *disaster risk reduction* is defined as 'the concept and practice of reducing disaster risks through systematic efforts to analyze

and reduce the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.'

Disaster management cycle can be explained as below:

1. **Pre-Disaster Activities:**

- a) **Prevention and Mitigation** - Building codes and zoning, Vulnerability analyses, Public education
- b) **Preparedness** - Preparedness plans, Emergency exercises, Training, Warning systems

2. **Post-Disaster Activities:**

- a) **Recovery and Relief activities** - Emergency operations, search & rescue, first aid, relief distribution

- b) **Rehabilitation** - Temporary shelter, Basic facilities, Medical care, social cares

- c) **Reconstruction-** Full Restoration of Services, Rebuild destroy property, Repair infrastructure

5. Legal and Policy Frameworks in Nepal for Disaster Management

Nepal has, not limiting to this, adopted following laws and policies to deal with disaster related issues.

Laws:

- ✓ Natural Calamity Relief Act, 1982
- ✓ Disaster Risk reduction and Management Act, 2017
- ✓ Earthquake affected Infrastructure Act, 2015
- ✓ Local Self Governance Act, 1999 (now Local Government Operations Act, 2017)
- ✓ The Essential Services Operation Act, 1957
- ✓ Prime Minister Natural Disaster Relief Fund Regulation, 2007

Policies/Directives:

- ✓ National Disaster Risk Reduction Policy 2018
- ✓ The National Strategy for Disaster Risk Management, 2009
- ✓ National Reconstruction and Rehabilitation Policy, 2015
- ✓ Disaster Rescue and Relief Standard, 2017
- ✓ National Disaster Response Framework (NDRF) -2013
- ✓ National Strategic Action Plan On Search And Rescue 2013
- ✓ National Building Code, 1993
- ✓ Integrated Action Plan for Post earthquake Response and Recovery, 2015
- ✓ National Adaption Plan of Action (NAPA) and Local Adaption Plan of Action (LAPA)
- ✓ Regional warehouses operations Procedures, 2016
- ✓ Disaster Management Directives
- ✓ SAARC Agreement on Rapid Response to Natural Disasters
- ✓ Integrated Action Plan for Post-Earthquakes Response & Recovery-2015

6. Institutional framework

Whole government machinery including the no-state actors, communities, civic society in their own positions are, in general, responsible for management of disaster related activities. However, there are some specific institutions which are exclusively responsible for disaster management. The ministry of home affairs including its security wing is main agency responsible to manage disaster related activities. The other agencies specifically responsible to disaster management include:

- 1) Central Natural Disaster Relief Committee and its sub-Committees
- 2) National Disaster Risk Reduction and Management Council
- 3) Regional Natural Disaster Relief Committee
- 4) District Natural Disaster Relief Committee
- 5) Local Natural Disaster Relief Committee

7. Audit of Disaster Management

7.1. Audit Mandate and audit of disaster management

The Office of the auditor general of Nepal (SAI Nepal) receives its mandate from the constitution and the audit. As per constitution and audit act, SAI

Nepal is empowered to conduct audits of all government agencies including the legislative bodies, judicial bodies, security agencies at all three tiers of government, fully state owned enterprises and the other entities as prescribed by the law in such a manner as prescribed in law with due considerations given to the aspect of regularity, economy, efficiency, effectiveness and propriety thereof.

Before massive earthquake in 2015, SAI Nepal had not conducted any audits specifically focused at disaster management subject to entity specific non-compliances of roles and responsibilities relating to disaster management. Aftermath of 2015 earthquake, SAI Nepal realized the need of specialized audits relating to disaster management. Consequently, SAI of Nepal developed a Disaster Management Audit Guide which is in compliance with ISSAIs 5500 series. A steering committee chaired by a Deputy Auditor General was constituted to look after matters relating to audit of disaster management. The SAI of Nepal has conducted very few audits of disaster management so far.

7.2. Objectives of Audit of Disaster Management

Objectives of Disaster Management audit, depending on the subject matter being audited may be to ensure:

- ✓ Preparedness, prevention, rescue, relief, rehabilitation and reconstruction activities related to disaster have been carried out as per the Act, Rule, Directives,
- ✓ Disaster risk minimization have been embedded in the development,
- ✓ Safety of life and properties and social security at disaster have been guaranteed,
- ✓ Awareness among targeted groups has been created,
- ✓ Relief and facilities have been provided by identifying the real victims through integrated system,
- ✓ Coordination of works performed by various agency including the international community and development partners
- ✓ Financial transactions and books of account, records, reports related to disaster are maintained in consonance with the accounting policy and prevailing laws

In conducting audit of disaster management the auditors have to consider various risk factors related to different phases of disaster management cycles. When auditing a government's prevention, preparedness and mitigation of disaster risk reduction, the auditors may consider:

- ✓ risks to the **effectiveness** of policies and measures planned,
- ✓ risks to **compliance** with statutory requirements on governments regarding the security of citizens,
- ✓ risks to **compliance** with the requirements of international agreements,

When auditing emergency activities in the aftermath of disaster, auditors can consider risks arising due to the urgency of the situation:

- ✓ risks to **efficiency** when large amounts of aid arrive rapidly and must be managed and distributed quickly to save lives and limit losses,
- ✓ risks of **irregularity** when internal control systems are not in place or are not appropriately adapted to the activities in the name of urgency. The *ex ante* controls may be disregarded in the interests of acting quickly and not compensated for by *ex post* controls;
- ✓ risks to **economy** and the risk of **irregularity** when emergency procedures are introduced and
- ✓ operational and procedural controls are frequently circumvented or simply ignored in the interest of speed.

7.3. Audits conducted, methodologies used and other details

The SAI of Nepal has conducted three audits of disaster management as discussed below. As these audits were of special audits, the performance audit methodology was used. The disaster Audit Guide developed by the SAI

which is largely consistent with ISSAIs Series 55000 was used as a guidance document in conducting these audits. The interview and focused group discussions were used in addition to other techniques of audits generally used.

	Audit Topic	Audit Objective	Audit Scope	Major Audit Findings
	Performance Audit of Disaster Management Preparedness (Findings of this audit were reported in Auditor General's 53 rd Annual Report 2016)	To assess government's preparedness in management of disaster activities	Legal and Institutional frameworks, Coordination among the agencies etc.	<ul style="list-style-type: none"> ✓ Existing law namely the Natural Calamity Relief Act, 1982 did not capture all kinds of disasters ✓ It focused only on relief aspects of disaster ✓ There were very few provisions on preparedness for disaster ✓ There were no disaster management committees specially at local level ✓ Lack of central coordinating agency at center had impacted in overall performance in disaster management ✓ Open spaces where people would have taken shelter were declared in Kathmandu valley but same was not available in other part of the country ✓ There were no adequate provisions of storage for foods, medicine and other relief goods to be supplied in case when

				<p>disaster happens</p> <p>✓ There was no integrated risk mapping and data capturing system</p>
	<p>Performance Audit on Relief Collection and Distribution to earthquake victims in Nepal (Findings of this audit were included in Auditor General's 54th Annual Report 2017)</p>	<p>To assess whether the collection of relief materials were carried out economical and efficiently.</p> <p>To assess whether the relief (cash and kind) distributed to earthquake victims was effective and in timely manner</p>	<p>Relief goods collection, Procurement of Relief goods, Storage and recording of relief materials, Relief goods distribution in Five Village Development Committees</p>	<p>✓ There was no integrated data on number of relief goods collected or purchased. There was data mismatch amongst the figures reported by different agencies.</p> <p>✓ Relief goods were not distributed in an integrated and coordinated manner. In some cases, goods were distributed by NGOs at their own discretion without giving due information to the responsible government agencies</p> <p>✓ Some relief goods were not distributed but dumped into stores</p> <p>✓ There was no monitoring mechanism specially for activities performed by the NGOs,</p> <p>✓ Inconsistencies were observed in data reported for different purposes e.g. warm clothes distributed, households affected and destroyed</p> <p>✓ There was no monitoring of expenditures incurred at community level. Huge amounts of advances remained unsettled at local government units</p>
	<p>Performance Audit of Reconstruction and Rehabilitation</p>	<p>To assess the effectiveness of National reconstruction authority and</p>	<p>Reconstruction of Government Offices, private households, schools, Health</p>	<p>✓ Reconstruction work of earthquake affected structures was not performed as it was planned. The physical</p>

	n works in earthquake affected districts (Findings of this audit were reported in Auditor General's 55 th Annual Report 2018)	its performances	institutions, cultural and historical heritages etc.	<p>progress of 11 identified structures ranged from zero to 48 per cent.</p> <p>✓ Financial progress was also not satisfactory. Negligible amount of budget allocated were actually utilized. Foreign assistance were not mobilized as they were committed by the international communities</p> <p>✓ There was situation where there were huge increments in private household to be reconstructed against the data which was reported earlier and plan were based,</p> <p>✓ Installments to the victims supposed to receive government assistance to reconstruct their houses were not released in time</p>
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8. Lessons Learned and Way Forward

The SAI of Nepal has a little experience in conducting audits of disaster management. We need to enhance audit competence in this regards. As Nepal is in risk zone for several disasters, disaster management always remains in most important function of government to get ready to cope with possible situations. So, SAI has a great role to strengthen government agencies in having effective institutional and legal

frameworks and their effective functioning all the time. The SAI of Nepal feels greater need of collaboration with sister SAIs in the regions and in INTOSAI Community in enhancing audit competence.

References:

- Annual Audit Reports of Auditor General*
- Disaster Management Guide, 2015*
- ISSAIs Series 5500 (now classified as GUID in new IFPP)*
- Laws and Policies in Nepal relating to Disaster*
- The Audit Act, 1991*
- The Constitution of Nepal, 2015*

The Next Steps for the SAIs in the field of Auditing of Disaster Risk Reduction (DRR) - Turkish Court of Accounts (TCA)

*By Arife Coskun
Principal Auditor/Audit Manager*

1. Introduction

Nowadays the disasters are occurring intensely and frequently than in the past. Owing to social, demographic, political, environmental and climatic factors the degree of vulnerability to disaster and the impact of disasters have dramatically and considerably increased. Therefore, the attention of the international community has been taken into the matters concerning disaster-related aid, especially reducing disaster risks since the second half of the 90's.

In 2004, the third biggest earthquake ever recorded and struck off the west coast of Sumatra, Indonesia arouse the international community's interest in issues concerning disaster risk reduction once again. For reducing the devastating impact of disasters, the international policies have been set under the leadership of the United Nations (UN).

In parallel with these developments, especially after the earthquake occurred in Indonesia, 2004, the INTOSAI decided to contribute its collective

auditing experience to the international community to enhance the accountability for and the transparency of disaster-related aid.

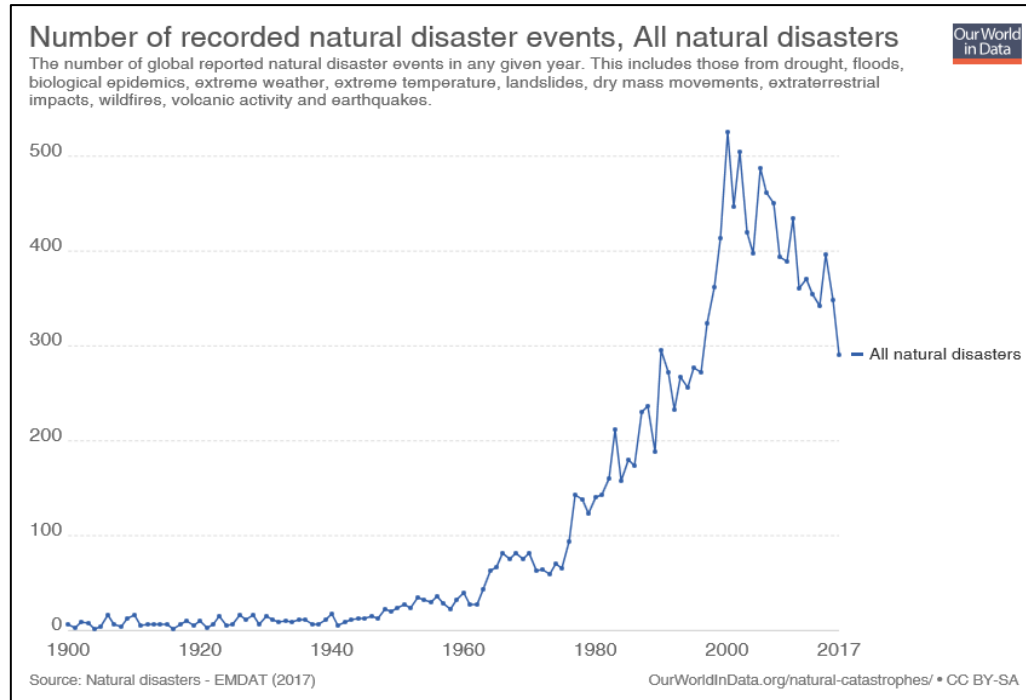
In this article, the brief summary about the INTOSAI's studies, particularly the ISSAI 5510, will be given and the role and responsibilities of the Supreme Audit Institutions (SAIs) will be evaluated, and besides the future perspective for the SAIs will be tried to present.

2. Background

As it is known that hazards have happened throughout the human history. The natural hazards have turned into the disasters due to social, demographic, political, environmental and climatic factors. As shown the following graphic, the number and frequency of disaster have seriously increased since 1980's. Unfortunately, the global mortalities from disasters have also been increasing. Injury, homelessness, and displacement along with mortality can be regarded as significant impacts of disasters on

populations.

Graphic 1: Number of Natural Disasters (1900-2017)



Source: <https://ourworldindata.org/natural-catastrophes#number-of-reported-disaster-events, October 2018>

Over the past three decades, every year, disasters result in loss of life and set back to the economic and social development by years. Between 1980 and 2005, nearly 7500 natural disasters worldwide took the lives of more than 2 million people and resulted in economic losses estimated at over USD 1.2 trillion. Hazards related to weather, climate or water, such as droughts, floods, windstorms, tropical cyclones, storm surges, extreme temperatures, landslides and wildfires, or health epidemics and insect infestations

directly linked to meteorological and hydrological conditions caused 90 per cent of these natural disasters, around 73 per cent of the casualties and 75 per cent of the economic losses.²¹

Undoubtedly, it is not certain whether disasters will happen every year, but it is clear that hazards will occur all the time. Then, the main task of all countries is to prevent the hazard from becoming disaster and to reduce the disaster risks. For disaster risk

²¹<http://itunews.itu.int/en/2014-Natural-disasters-and-climate-monitoring-.note.aspx>, October 2018.

reduction, it is obvious that all societies have to look into the past and plan for the future.

3. Milestones in Disaster Management (DM)

Against current disaster risks, the international society needs to develop common policies to take some measurements. The international policies concerning DRM are generally formed under the leadership of the United Nation (UN). During the 1960s, the UN, in general terms the international society only adopted the way to take some measures against severe disasters such as Iran Earthquake in 1962&1968 and the hurricane struck the territories Cuba, Dominic, Jamaica and Haiti.

In the 1970s and 1980s, strengthening the capacity of the UN system to respond to natural disasters came to the forefront. In this framework, the UN Disaster Relief Office (UNDRO) was created. Namely, the international policy still focused on assistance in cases of natural disaster.

In the late 80's, we see that the focal point of international policy shifted from the traditional emphasis on disaster response to disaster reduction.

And in the early 90's, with the aim of fostering international co-operation in the field of natural disaster reduction, the UN started the decade of International Strategy for DRR.

From the 90's to present, the 3 international strategies were specified under the leadership of UNISDR. The First one is the Yokohama Strategy. It provided guidelines for natural disaster prevention, preparedness and mitigation with the aim of a Safer World. Then, with the MOTTO «Building the Resilience of Nations and Communities to Disasters», the Hyogo Framework for Action was put into the effect in 2005 for ten years. The last one is the Sendai Framework for DRR (2015-2030).

4. The International Goal and Global Targets

When it is examined the latest International Strategy, the Sendai Framework, it is seen that the strategy covered almost all governmental actions. In the Sendai Framework, to attain the expected outcome in the Strategy, the international goal was specified such as:

“prevent new and reduce existing disaster risk through the

implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience.”

It is clear that attaining the expected outcome in the international strategy depends on being established a sound governance structure and a strong accountability mechanism in regional & international level as well as in national/local level. It is obvious that the international policies are to bring heavy responsibilities to the SAIs. Through fostering accountability in this field, the SAIs can give concrete support for carrying out the international goal. For this, the SAIs should focus on these targets and the actions specified under these targets while planning and implementing the audits in the field of DRR. I mean that the international goals and targets will help the auditors to specify the audit priorities and actions, focused on.

5. The Experience of SAIs on DRR

While developing the international policy concerning DM, decade by decade, was there any response of SAIs to the disaster?

When we examine the term from the 60s to the 2005, we can see that the SAIs didn't give directly special attention to the activities and transactions concerning disaster management. Generally, transactions concerning disaster management were examined within/by routine and annual financial audits of the governmental department/institutions.

As mentioned before, the disasters that occurred have increasingly awakened the interest of worldwide community because of its frequency and devastating impacts. The SAIs has also been concerned with this growing interest in the issues concerning disaster risk reduction and disaster related aid. Indeed, the SAIs have always been interested in the use of disaster-related funds as in the case of all public funds. However, under the umbrella of the INTOSAI, this interest turned into action following the experience of SAIs after the disaster occurred in South East Asia in 2004.

In 2004, when the third biggest

earthquake struck off the west coast of Sumatra, Indonesia, the vast amount of aid flowed from many different donors to many different recipients. SAIs and other stakeholders assessed the situation and found that there was little information on aid flows and that it was difficult to establish an audit trail.

This disaster was a start point for the SAIs and the INTOSAI decided to contribute its collective auditing experience to the international community to enhance the accountability for and the transparency of disaster-related aid in 2005.

The INTOSAI Governing Board established the INTOSAI Task Force on the Accountability and Audit of Emergency Aid in November 2005. The Task Force concluded there was a need for international agreement on a single information structure, which would also allow for the establishment of an audit trail. It also pointed out that new technology (such as Geographical Information Systems, GIS) could be used to audit disaster-related aid.

Then the Working Group on Accountability for and the Audit of Disaster-related Aid was established in 2007. It was tasked to;

- prepare guidelines and good practices on auditing disaster risk reduction and post-disaster aid to assist SAIs to help limit the impact of disasters and improve the effectiveness, and efficiency of aid;
- propose steps to improve the transparency and accountability of disaster-related and other humanitarian aid.²²

In this context, the INTOSAI Standards, the ISSAI 5500 series, concerning Disaster Related Aid were prepared and endorsed to provide guidance the SAIs on and improve their auditing of disaster in 2013.²³

One of the INTOSAI Standards developed within the INTOSAI Working Group on Accountability for and the Audit of Disaster-related Aid was the ISSAI 5510- The Audit of Disaster Risk Reduction. I feel lucky myself to be a part of this important study and to find an opportunity of making a contribution to be drafted of the ISSAI 5510.

Meanwhile, within the EUROSAI, Special Subgroup on the Audit of

²²Brochure on ISSAIs and IFAF for INCOSAI, <http://eca.europa.eu/portal/pls/portal/docs/1/23114895.PDF>, 11 October 2013.

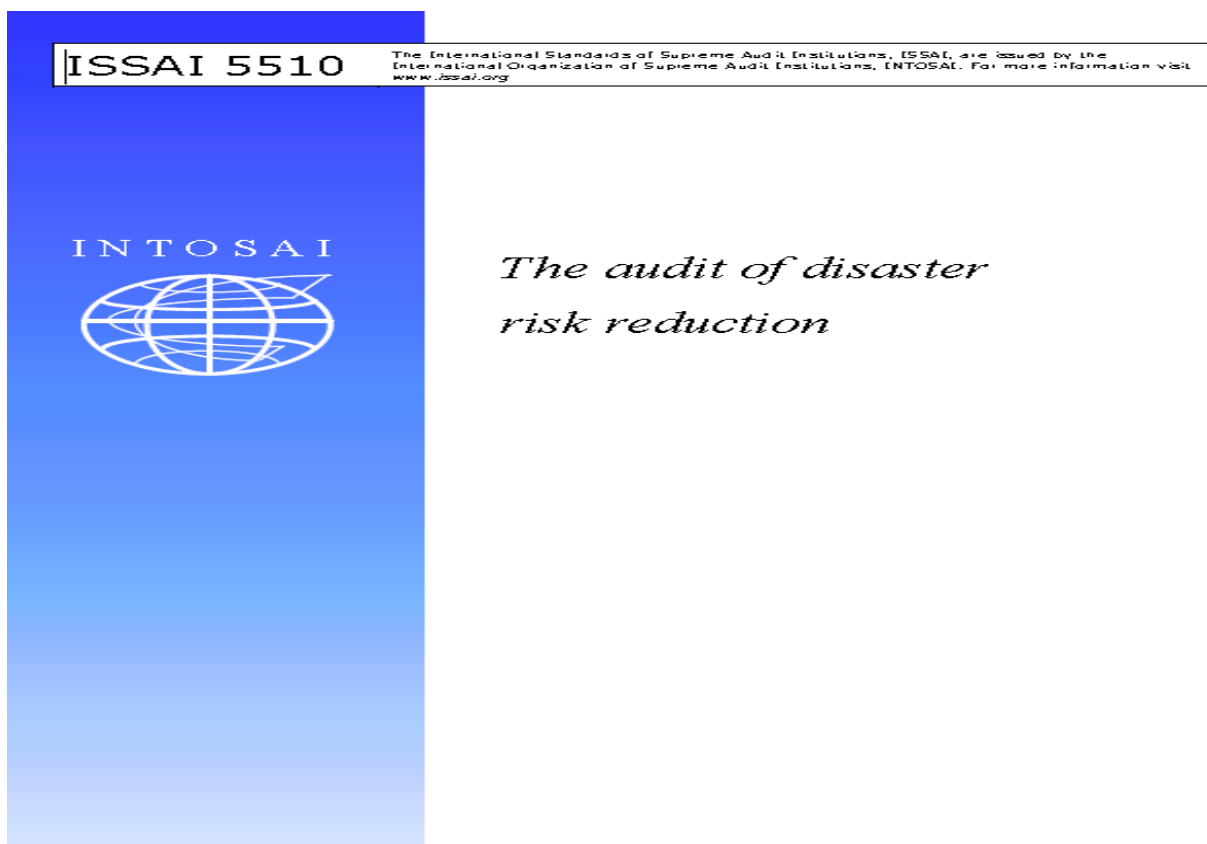
²³FINAL REPORT of the INTOSAI Working Group on Accountability for and the Audit of Disaster-related Aid, Presented to the XXI INCOSAI, 22 – 26 October 2013, Beijing, China. <https://www.sayistay.gov.tr/afet/content/final%20report.pdf>

Natural, Man-caused Disasters
Consequences and Radioactive Wastes
Elimination was established in 2006 and
later this subgroup turn into the
EUROSAI Task Force on the Audit of
Funds Allocated to Disasters and
Catastrophes which is still going on as a
good platform for knowledge sharing.

6. ISSAI 5510- The Audit of Disaster Risk Reduction

As stated on INTOSAI website, ISSAI
5510 provides guidance and good
practice on auditing disaster risk
reduction.²⁴

The purpose of



²⁴ ISSAI Executive summaries,
<http://www.intosai.org/issai-executive-summaries/detail/detail/News/issai-5510-the-audit-of-disaster-risk-reduction.html>, October 2018.

ISSAI 5510 is to assist SAIs in the audit of disaster risk reduction by governments. In some countries governments have not yet accepted the importance of establishing disaster risk reduction policies and plans. ISSAI 5510 assists SAIs in making recommendations in this area. Where disaster risk reduction and risk reduction policies exist, ISSAI 5510 provides advice on how to audit them based on exchanges of experience between SAIs. ISSAI 5510 can be used both by SAIs and by governments and communities seeking to improve mechanisms, procedures and institutions so as to reduce the risk of exposure of populations and assets to the consequences of disasters.²⁵

The ISSAI 5510 covers an audit program as well as the basic principles of auditing DRR. In this context, the ISSAI 5510 is structured in three parts:

- In Part 1, disasters, disaster management and disaster risk reduction were defined and the political and operational context of auditing disaster risk reduction was explored.
- In Part 2, the issues SAIs are faced with when planning or conducting an audit of disaster risk reduction were explored. It draws examples from the experiences of SAIs in auditing disaster risk reduction, gathered by means of surveys and a parallel audit conducted amongst SAIs.
- In Part 3, an audit programme to assist SAIs in auditing disaster risk reduction was proposed.

It can be said that the audit program is one of the important and helpful parts of ISSAI 5510 for the auditors. The ISSAI 5510 takes up the important issues concerning DRR in detail. The issues, tackled in audit program, are categorized as follows:

- Specification of policy gaps and legal arrangement related to DRR
- Assessment of governance structure based upon organization & coordination structure
- Evaluation of national strategies, national and local planning.
- Usage and evaluation of management tools such as GIS and early warning systems
- Evaluation of training activities and public awareness campaigns
- Assessment of financial structure concerning DRR
- Assessment of projects & programs for making urban area resilient

These issues almost match up with the international targets and priorities

²⁵ ISSAI 5510- The Audit of Disaster Risk Reduction, 2.1. http://www.issai.org/en_us/site-issai/issai-framework/4-auditing-guidelines.htm, October 2018.

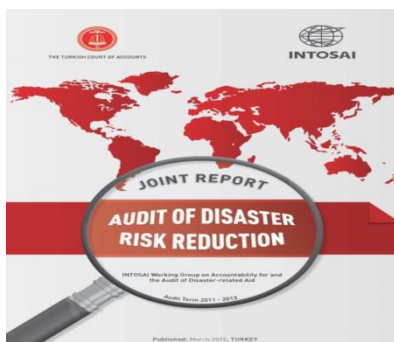
specified in Sendai Framework and provide a sound and comprehensive framework to conduct audit studies in this field for auditors. In the implementation of the ISSAI 5510, taking the international policies into account will increase the quality of SAIs' reports and contribute to strengthening accountability in this field.

Undoubtedly, this audit programme can be improved in line with specific requirements of their own countries of SAIs as well as the international policies.

7. The Parallel/Coordinated Audit on DRR

Within the INTOSAI Working Group on Accountability for and the Audit of Disaster-related Aid, while drafting the ISSAI 5510, a parallel/ coordinated audit on the same subject, DRR, was organised and led by the Turkish Court of Accounts (TCA) with the aim of testing the ISSAI 5510 and improving its contents.

The parallel/coordinated audit on DRR



was carried out with the

participation of SAIs of Azerbaijan, Chile, India, Indonesia, Netherland, Pakistan, Philippines, Romania, Ukraine and Turkey which countries have faced several devastating disasters including earthquakes, tsunamis, floods, storm and etc in recent years. The results of parallel/coordinated audit were summarised in a joint report.²⁶

Certainly that this joint report added value to the collective experiences related to DRR of international community as well as SAIs.

8. Next Steps

On 28 September 2018, all media in the world were reported that A magnitude 7.5 earthquake and after that tsunami hit the Indonesia city, Palu, in the Sulawesi Island. The local spokesman state that the twin disaster on Sulawesi Island erased whole suburbs and the death toll has reached 1944 (on Oct 8). We, as SAIs' community, express our condolence to Indonesian people, and particularly our colleagues in the Audit Board of Republic of Indonesia.

The latest earthquake and tsunami struck off the Sulawesi, Indonesia,

²⁶ Joint Report, Audit of Disaster Risk Reduction, <https://www.sayistay.gov.tr/En/Upload/files/Joint%20Report%20Audit%20of%20Disaster%20Risk%20Reduction%20WEB%20PDF%20SON.pdf>, October 2018.

unfortunately reminds the SAIs how vital is of auditing of the activities related to the DRR once again.

It is well known that the SAIs can also make valuable contributions to reduce disaster risks. In this content, the SAIs, particularly those located in disaster prone areas, should give a priority to audit of DRR for fostering accountability in this field.

Additionally, by taking into account the multinational and multi-stakeholders structure of DRR, the SAIs should re-interpret their mission in a manner that will thoroughly improve accountability in the field of audit of DRR.

For this, the SAIs should perform their audit functions by acting for not only as the institutional partners of their national parliaments, but also above all as the partners and agents of the citizens and international community. Under the leadership of SAIs, constructive cooperation among SAIs and between SAIs and other auditors should be fostered to give assurance to all parties and to make DRR activities transparent for national and international communities.²⁷

²⁷See for more detail information: ArifeCoşkun, The Expansion Of Accountability Framework and the Contribution of Supreme Audit Institutions, Input

The mission of SAIs concerning enhancing accountability and transparency of disaster-risk reduction is still going on. For that reason, they should improve their audits in a manner that cover the needs of citizens. The SAIs should certainly be involved in and contribute to the common solution of global problems such as DRR.

Paper Prepared for the Global Assessment Report on Disaster Risk Reduction 2015, <https://www.preventionweb.net/english/hyogo/gar/2015/en/bgdocs/Coskun,%202013.pdf>, October 2018.

Other Articles

Audit of Digital Payment Systems - an Assurance Framework for the Indian Context - SAI India

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ABSTRACT

This paper seeks to trace the digital payment scenario in India, describe the enabling technology and survey the regulatory framework within which it operates. Digital payment systems are fraught with security threats, many of which operate at the technical level but quite a few also seek to exploit the naivety and indiscretions of the end users. Hence an assurance framework for digital payment security should attempt to address the problem from several fronts - technical, legal, user-awareness, third party management and grievance redressal. Since regulatory frameworks strive to achieve a balance between security on the one hand and industrial dynamism on the other, taking care of neither being too restrictive on the players nor being too permissive, it may be necessary for an assurance program, in addition to testing compliance to existing laws, to evaluate the system on a scale based on contemporary industry best practices as well. In this paper the current digital

payment modes in India are described along with the associated threat landscape. Finally attempt is made to synthesize the tenets of existing regulatory frameworks and best practices into an assurance program for testing the confidentiality, integrity and availability factors related to the digital payment modes in India.

INTRODUCTION

With the advent of digital money, traditional modes of transactions have given way to a multitude of delivery channels that require the interplay of enabling technologies, protocols and several intermediary service providers. Digital payment, also known as electronic payment, is a virtual transfer of funds between the banks of the payer (Issuing Bank) and that of the payee (Acquiring Bank). The payer and the payee use digital modes to send and receive money. No hard cash is involved and all the transactions are completed online. The transaction is real-time and instant (in most cases).

The digital economy provides India a way to start off the journey toward becoming a developed nation without waiting for costly and time-consuming industrial infrastructure investments to bear fruit. India's economy is rapidly converting into a digital economy which is expected to touch the \$1-trillion mark by 2022. By 2030, India will be a \$10-trillion economy, with half of this accounted for by the digital economy. This makes it more critical to cover the risks of the payment process from an audit perspective.

Merits and demerits

Digital money, for this reason, epitomizes an abrupt turnaround in the

way transactions were conducted in this country. As with any transformation that is sudden and revolutionary in character, it comes with a host of benefits that make it appear as an elixir to all existing ills, and on the other hand, with drawbacks that hardly seem to matter. It is not until the transformation has progressed considerably that the consequences of digital adoption become visible. Here is a brief consideration of the relative merits and demerits of digital money that should, on the one hand, equip us to better harvest its potential benefits and on the other, put us on guard against the possible hazards.

Merits	Demerits
Time savings. Money transfer between virtual accounts usually takes just a few minutes in addition to the saving on travel time to the vendor premises and the waiting time spent in queues.	Restrictions. Each payment system has its limits regarding the maximum amount in the account, the number of transactions per day and the amount of output.
Payment History. Digital payments retain a trail of transactions that can be verified and traced easily.	The lack of anonymity. An obvious consequence of the availability of trail is the loss of anonymity.
Reduced risk of loss and theft. Digital systems have security features that protect the users from physical theft of money.	The risk of being hacked. However digital systems are susceptible to digital modes of fraud like identity theft that can result in loss of money.
User-friendly. Usually every service is designed to reach the widest possible audience, so it has the intuitively understandable user interface. In addition, there is always the opportunity	Interoperability. Usually the majority of electronic payment systems do not cooperate with each other.

to submit a question to a support team, which often works 24/7.

Convenience. All the transfers can be performed at anytime, anywhere. It's enough to have an access to the Internet.

Low commissions. Low overheads of digital payments ensure that the commission is usually never more than 1 percent of the transacted value.

The necessity of Internet access. If Internet connection fails, you cannot get to your online account.

Stakeholders

Digital payment systems operate at a higher level of complexity and involve the interplay of technology, communications, specialized devices and specialized services. Typically a transaction is effected through the involvement of:

- ✓ Customers
- ✓ Vendors

- ✓ Banks (Account providers, card providers etc.)
- ✓ Internet Service Providers
- ✓ Gateway authenticators (Middlemen who provide gateways for making the payment)
- ✓ Device manufacturers
- ✓ Software providers
- ✓ Regulatory Authorities

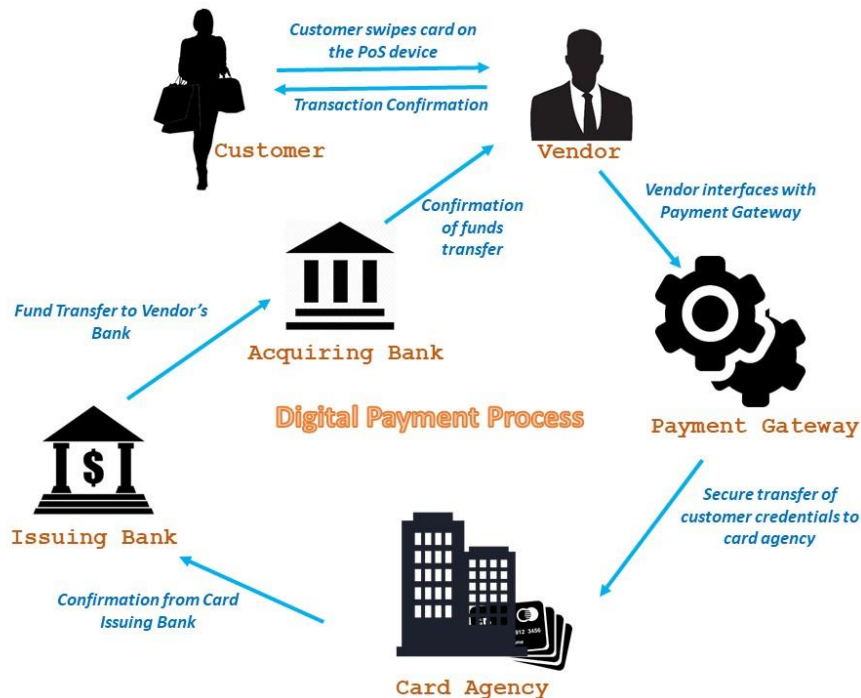


Figure 1: The Digital Payment Process

The system requires interfaces and communication channels between the customer (payer) to his bank (issuer), issuer to acquirer, and acquirer (merchant's bank) to the merchant. These channels and interfaces should enable the secure exchange of authentication and financial information between the participating banks/financial institutions. With greater sophistication the universe of threats has expanded and vulnerabilities exist at each step and interface. The following is a description of the main players involved in digital transactions, delivery channels and enabling technologies in the Indian scenario.

Payment Service Providers

Such channels are typically provided by intermediary players who go by the generic term of payment service providers. The following are the major roles under which financial services can be classified:

1. **Payment Gateway:** A payment gateway (PG) is an online application that conducts payment authorizations for merchants, securely connecting an e-Commerce application or in-house payment application to the

internet banking portals of participating financial institutions. It encrypts authentication credentials of the customers' payment instrument as well as details of the purchase and routes the same to the merchants' banks for transaction authentication. PayU, PayUMoney, CCAvenue, EBS, DirecPay etc., are some of the PG options available in India.

2. **Payment Aggregator:** PG services provided to merchants involve the payment of fees (Transfer Development Rights - TDRs) for each transaction as a percent of the transaction value. The TDR can be reduced if the merchants can guarantee a substantial transaction volume. Payment aggregators are intermediaries that subscribe to a PG on behalf of a number of client companies. Since the aggregate transaction volume is high, it is possible to bring down TDR rates.

Delivery Channels

Digital payment systems have revolutionized the way funds are obtained and transferred. The huge

inconvenience associated with carrying cash about, with the attendant threat of theft of money, the difficulties of safe custody, delivery to the rightful recipient and authenticity and validity of acknowledgement, particularly where intermediaries are involved where the major problems associated with hard cash. There was also the problem of limited traceability of transactions. The advent digital money has, in one go, resolved these issues and made monetary transactions convenient and transparent. The following are a few delivery channels of digital payments currently prevalent in India.

1. **Banking Cards (Debit/Credit Cards):** Banking cards are Pre-paid Payment Instruments (PPIs) issued by banking institutions which offer the facility for purchase at stores (through Point of Sale (PoS) devices), and on the internet.
2. **Internet Banking:** It is an electronic payment system that enables customers of a bank or other financial institution to conduct financial transactions through the financial institution's website.
3. **Mobile Banking:** Mobile banking service is offered by banks or other

financial institutions to enable customers to conduct financial transactions remotely using mobile devices. Each Bank/Financial institution which offers this service provides its own mobile banking application to be installed in the mobile device.

4. **Unstructured Supplementary Service Data (USSD):** This is a service that facilitates mobile banking transactions using basic feature mobile phones which does not have internet data facility. Customers can dial a prescribed number on their mobile phone and transact through an interactive menu displayed on the mobile screen. Services include interbank account to account fund transfer, balance enquiry, mini statement etc.
5. **Aadhaar Enabled Payment System (AEPS):** AEPS is a bank led model which allows online interoperable financial transaction at PoS (Point of Sale / Micro ATM) through the Business Correspondent (BC)/Bank Mitra of any bank using Aadhaar authentication.
6. **Mobile Wallets:** Mobile wallets are mobile phone applications that

allow the customer to link his/her credit/debit card information to the mobile device, permitting the customer to use the mobile device for cash transactions instead of the cards.

7. **Micro ATMs/ Point-of-Sale (PoS) devices:** are devices that are connected to banks across the country, permitting even small scale merchants to instantly deposit or withdraw funds regardless of the bank associated with the merchant.

8. **Unified Payments Interface (UPI):**UPI is a mobile payment interface developed by the National Payment Corporation of India, which provides access to multiple bank accounts from a single mobile application (of any participating bank) to enable seamless fund routing, merchant payments, peer-to-peer" collect requests etc.

9. **Bharat Interface for Money (BHIM):** BHIM is a mobile application that allows users to make payments using the UPI application. This also works in collaboration with UPI and transactions can be carried out using a VPA. One can link his/her bank

account with the BHIM interface easily. It is also possible to link multiple bank accounts. The BHIM app can be used by anyone who has a mobile number, debit card and a valid bank account. Money can be sent to different bank accounts, virtual addresses or to an Aadhaar number. There are also many banks that have collaborated with the NPCI and BHIM to allow customers to use this interface.

10. Enabling Technologies

Digital payments methods harness available technologies to provide greater convenience and simplicity of usage to users. Some of the newer forms of customer authentication and funds transfer are the following:

1. **Quick Response (QR) Codes:**

This is a two dimensional matrix bar code that stores encoded information, which can be decoded using a QR Code scanner and associated application. QR decoding applications are now available as mobile apps, enabling the scanning of QR codes using the built-in mobile camera and decoding the same within the

device. The encoded information may relate to product information, or even the website of the merchants payment gateway.

2. **Near Field Communication**

(NFC): is a form of contactless communication between devices like smart phones or tablets. Contactless communication allows a user to wave the Smart phone over an NFC compatible PoS device to send information without needing to touch the devices together or go through multiple steps setting up a connection.

3. **Authentication using wearables:**

This is a technology related to the concept of internet of things (IoT). Customers can simplify the authentication process at a merchant store by tapping a piece of jewellery or wrist watch that carries the credentials and make payments without having to go through the steps of card swiping and pin entry.

4. **Biometric authentication:**

It is also possible to harness biometric technology like face recognition

to authenticate the customer and enable transfer of money to the merchant.

AUDIT PERSPECTIVE ON RISKS INVOLVED IN A DIGITAL TRANSACTION

While addressing the safety, security and transparency issues related to cash transactions, the digital payment systems, with its interplay of myriad intermediaries, protocols and technologies, come with a host of their own specific vulnerabilities. These range from the hazards associated with the technologies involved, inadequate regulation and availability of policy frameworks, often to a complete lack of awareness on the part of prospective users. Any attempt to promote digital transactions, therefore, need to be accompanied by a multipronged risk mitigation process involving policy development, regulation and customer awareness. Vulnerabilities confronting digital payment systems can be broadly classified as below:

	Risks	Mitigation Approach		
		User Awareness	Regulation	Merchant/PSP end
1	Perception and adaptability risks of lay users whose exposure to technology is limited (rural population, people from low income/education strata).	√		
2	Lack of adequate grievance redressal mechanisms	√	√	√
3	Though the transaction cost of a digital payment is typically low, for the lay user the convenience comes with the requirement of investment in smart phones, computers, internet connections etc.			
4	Theft of identity, data etc. from the third party stakeholders may result in the loss of confidentiality and/or money for the customers and loss of credibility for the service provider.		√	√
5	Weaknesses in specific regulations/laws covering various aspects of digital transactions that may not adequately provide for: <ul style="list-style-type: none"> 1. The legal structure for implementing an electronic signature law 2. The legal recognition of an electronic signature 3. The relationship among licensing, accreditation and limitation of liability 4. How technical standards interact with the law 5. Cross-border recognition 		√	
6	Susceptibility of payment systems to denial of service attacks, hacking and such cybercrimes.		√	√
7	Delay in payment recognition on account of transaction failure after the amount is debited from the account.			√
8	Lack of clearly defined boundaries in a digital transaction makes it difficult to fix the responsibility for failed transactions.		√	
9	Instantaneous services pose a challenge for fraud countermeasures as the time span for analytical mechanisms dramatically decreases.			√

10	Malicious QR Codes may lead the customer to make payments to the accounts of the perpetrator, or to phishing websites that steal their personal information or exploit their device itself.	√	√	
11	Protocols adopted for communication of information might have weak encryption standards that are susceptible to interception and theft of data.		√	√
12	Mobile applications that are on offer in app stores might carry malicious codes or back doors that could be exploited later to compromise the device or data.	√		
13	Payment interface applications developed by third party vendors may contain security vulnerabilities that can be exploited by customers.		√	√
14	The mobile device is susceptible to phishing attacks resulting in theft of identity and credentials.	√		
15	Theft of credentials can also happen through malware attacking the mobile device.	√		
16	SMS spoofing as part of social engineering to lure users to malicious websites.	√		
17	Physical loss of digital devices like mobile phones may result in the information becoming available to malicious perpetrators.	√		
18	Vulnerabilities in the code or configuration of mobile applications that are used for mobile banking can be exploited by malicious intruders.		√	√
19	Fake mobile applications may be developed by malicious agents and made available in popular market places.	√		√
20	IoT Devices lack the common standards in security like encryption, and are therefore more susceptible to malware, data theft and similar attacks than digital devices.	√	√	√

In fact these risks cannot be termed as static. They are dynamic risks as new challenges keep evolving with the advent of new technological innovations and communication protocols being developed. The various laws and the regulatory frameworks act as a guidance mechanism and it is the internal control framework and constant monitoring of the payment mechanisms through audit, which will provide the assurance needed.

REGULATORY FRAMEWORKS

To keep up with the explosive pace at which the digital payment systems proliferated and spread in India, there has been a progressive development of policies, guidelines and rules that

sought to regulate the main players and protect the interests of the customers. The following table summarizes the efforts on the part of the government and regulatory bodies in this direction during the past decade.

Timeline	Policy/ Regulation/ Guideline
December 2007	<p>The Payment and Settlement Systems Act, 2007</p> <p>The Central Act was enacted to <i>provide for the regulation and supervision of payment systems in India and to designate the Reserve Bank of India as the authority for that purpose</i>. It can be looked upon as an early attempt to bring regulation to the activities of the main service providers of digital payment systems. Payment system was defined as a system that enables payment to be effected between a payer and a beneficiary, involving clearing, payment or settlement service or all of them, but does not include a stock exchange. It includes the systems enabling credit card operations, debit card operations, smart card operations, money transfer operations etc.</p> <p>The Act specified that no payment system should operate without the authorization issued by RBI. The RBI was empowered to conduct necessary enquiries before issue such authorization and to prescribe standards under which such systems should operate.</p> <p>It also laid down the rights and duties of system providers provided for settlement of disputes.</p>
July 2013	<p>National Cyber Security Policy, 2013</p> <p>The GoI released the National Cyber Security Policy in July 2013 with a view to laying down the broad principles within which the cyber ecosystem of the country can be regulated and made secure for the use of the general public. The policy envisaged the creation of a National nodal agency to coordinate all matters of cyber security in the country, and to encourage organizations to designate a Chief Information Security Officer, develop IT policies and to commit adequate budgetary resources for implementing cyber security initiatives. It also provided for the creation of an assurance framework for designing security policies and ensuring adherence to global security standards and best practices.</p> <p>The policy seeks to encourage use of open standards to facilitate interoperability among services. It provides for the creation of a regulatory framework and its periodic review to address the cyber security challenges arising out of technological developments in cyber space and to mandate periodic audit and evaluation of the security of the information infrastructure.</p>

	<p>The National Level Computer Emergency Response Team (CERT-In) was envisaged as a nodal agency for coordination of cyber security efforts towards crisis management. To further the spread of e-Governance to all sections, the policy outlined the broad requirements of infrastructure, human resources, research and development, user awareness and the development of effective public private partnerships. The policy was sought to be operationalized through the promulgation of detailed guidelines and plans of action at various levels.</p>
November 2016	<p>Guidelines for Adoption of Electronic Payments and Receipts, MeitY, GoI</p> <p>The guidelines were formulated to enable all government departments to collect and make payments in an electronic mode, against the back drop of the move to transfer the funds under central schemes directly to the beneficiaries (Direct Beneficiary Transfer - DBT).</p> <p>The Digital India Program of the GoI aimed at providing electronic payment systems for all Government payments and receipts by 31 March 2016 and at least 90 percent of all payments and receipts to be made online by 31 December 2016. To achieve this, the Government Departments required a framework to engage with various payment service providers and actionable instructions to adopt modes of transaction for various services/ payment channels. The guideline sought to enable departments to expeditiously enable electronic payments and receipts leveraging all the payment channels.</p> <p>The document attempted a categorization of services offered by departments on the basis of IT readiness with respect to payments integration, and brought out separate guidelines for Citizen/Business to Government, Government to Citizen/Business, between Government Departments, and Departments to employees.</p> <p>Annexures to the document provide lists of licensed Payment Service Providers, white label ATM operators, authorized Prepaid Payment Instruments, payment aggregators etc.</p>
December 2016	<p>CERT-In Advisory (CIAD-2016-0069): Safeguarding Smart Phones against Cyber Attacks</p> <p>The Indian Computer Emergency Response Team, MeitY, GoI, brings out advisory notes that outline the threat landscape associated with digital applications and suggest best practices for users. These are not regulatory in nature and are essentially steps in the direction of generating beneficiary awareness.</p> <p>The present document sought to inform users about attack vectors like denial of service, cryptocurrency mining, mobile phishing and ransomware attacks associated with the use of Smart</p>

	<p>Phones and suggested best practices including use of passwords and encryption, avoiding following unknown web links, avoiding jail breaking and rooting of devices, avoiding unknown Wi-Fi networks, updating of OS and instructions on how to dispose off the device after use.</p>
December 2016	<p>CERT-In Advisory (CIAD-2016-0070): Securing Mobile Banking</p> <p>This document identified threats to mobile banking like mobile banking malwares, Phishing/ SMiShing/ Vishing attacks, Jail broken or rooted devices, outdated operating systems and non-secure network connections. Suggested best practices included use of security software, strong passwords, not storing sensitive information on the mobile phone, reporting theft of devices immediately to the service provider, suggesting trusted sources for download of mobile banking applications</p>
December 2016	<p>CERT-In Advisory (CIAD-2016-0071): Mobile and Cloud Data Security</p> <p>This advisory note reviewed the progressive migration of data to digital devices and to the cloud storage and processing systems and identified the steps to be taken to protect such data. The document recommended the use of multifactor authentication, authorization, access control methods in the mobile devices, along with encryption of data in storage as well as transit. It also advised use of Mobile Device Management (MDM) and Mobile Application Management (MAM) systems for monitoring, updating and configuring devices properly.</p>
March 2017	<p>Information Technology (Security of Prepaid Payment Instruments) Rules 2017, Draft</p> <p>Under powers conferred by Sections 10 and 87 of the Information Technology Act, 2000, MeitY, GoI brought out the draft rules for security of PPIs and posted it for public comments. The rules are intended to ensure adequate integrity, security and confidentiality of electronic payments effected through prepaid payment instruments.</p> <p>The Rules (draft) require every PPI issuer to develop an Information Security Policy and privacy policy, perform risk assessment, observe due diligence in the identification and authentication of customers and protecting their personal information. Personal information has been clearly defined and terms of its protection determined. The rules require the service providers to adopt end-to-end encryption for data exchange, ensure traceability of transactions at every step, retention of information, reporting of cyber incidents, customer education, grievance redressal and adoption of appropriate security standards</p>

October 2017	<p>Master Direction on Issuance and Operation of Prepaid Payment Instruments</p> <p>These directions were issued by RBI in October 2017 and updated as on December 2017 for the purpose of providing a framework for authorization, regulation and supervision of PPI service providers in the country, to foster competition and encourage innovation in this segment while also ensuring safety and security of customers and to provide for interoperability among PPIs. The document lays down detailed procedures for application, authorization, deployment of money collected from customers, security and fraud prevention, grievance redressal, and audit of issuers of PPI instruments.</p>

CONCLUSION

With the Government of India seeking to leverage a wide variety of payment channels for delivery of services, particularly scheme funds directly to the beneficiaries under the Direct Beneficiary Transfer program, it is necessary to develop assurance programs with a comprehensive as well as specific approach, to make an initial general review to be followed by a detailed evaluation of the particular aspects of the payment instrument/delivery channel. It has been attempted in the following programs to address the general and specific aspects of delivery through Prepaid Payment Instruments, focusing on compliance to existing regulations.

AUDIT PROGRAMS

A. Preliminary Assessment

Audit of digital payment systems adopted by a government/public sector body should involve a general review of issues related to organizational control, technology, security of communication channels and user/beneficiary awareness. The following audit checks may be exercised as a preliminary to a more detailed assessment on the basis of available standards and best practices.

1. **Organizational Issues:** Risk analysis, research, resource adequacy & monitoring
 - a. Has the department made an assessment of the specific risks associated with the particular digital payment method adopted/proposed to be adopted?

- b. Whether the risk assessment was carried out in a structured and documented manner?
 - c. Whether the assessment is comprehensive and includes all known threat vectors?
 - d. Whether a structured program of continuous research into emerging threats and mitigation measures established in the department?
 - e. Whether available anti-malware solutions have been researched to identify the best possible solution to be distributed/recommended?
 - f. Whether there is adequate administrative and financial commitment for adoption of mitigation measures?
 - g. Whether a system is established to log transactions, in line with available best practices/regulations?
 - h. Whether unusual patterns of use are defined and specific checks established to automatically monitor and report such transactions?
 - i. Has the department established a round the clock incidence response/ grievance redressal mechanism?
 - j. Whether adequate staff and resources have been assigned to the incidence response/ grievance redressal function?
 - k. Is the response time monitored and steps taken to ensure prompt and effective response?
2. **Technology:** Choice of solutions adopted, acquisition practices, secure SDLC
- a. When a digital payment technology/platform is adopted/ recommended for adoption by users, a thorough scrutiny has been conducted to ensure that the same is free from backdoors, malicious codes etc.
 - b. Whether secure development practices have been adopted in development of the payment application?
 - c. Whether communication channels are secured by robust encryption methods?
3. **User/ beneficiary education and awareness**

- a. Whether a dedicated program for beneficiary education established?
- b. Whether each beneficiary is informed of the specific risks and mitigation measures at the time of enrollment?
- c. Whether information is imparted in a simple and easy to understand manner, in the vernacular of the intended beneficiaries?
- d. Whether continuous education through leaflets or other media effected?
- e. Whether awareness of phishing and social engineering modes included in the continuous education program?
- f. A mature appreciation of the threat landscape or alertness to the same cannot be expected of the entire beneficiary population. Hence it would be ideal to have adequate protection to the beneficiaries' money in the form of insurance coverage. In this context:
- g. Are affordable insurance schemes covering loss of money due to digital threats conceived/made available to beneficiaries?
- h. Are the terms of such insurance, if available, easy in a manner not to be an additional burden on his/her resources?

B. Audit of Pre-Paid Instruments - Detailed Compliance Testing

Prepaid Payment Instruments (PPI) is defined as payment instruments that facilitate purchase of goods and services, including funds transfer, against the value stored on such instruments. The value stored on such instruments represents the value paid for by the holders by cash, by debit to a bank account, or by credit card. The prepaid instruments can be issued as smart cards, magnetic stripe cards, internet accounts, internet wallets, mobile accounts, mobile wallets, paper vouchers and any such instrument

which can be used to access the prepaid instrument.²⁸

Prepaid instruments are broadly classified as²⁹:

1. Closed System PPIs: issued by an entity for facilitating the purchase of goods and services from that entity only and do not permit cash withdrawal. As these instruments cannot be used for payments or settlement for third party services, the issuance and operation of such instruments is not classified as payment systems requiring approval/authorization by the RBI
2. Semi-closed System PPIs: these are used for purchase of goods and services, including financial services, remittance facilities etc., at a group of clearly identified merchant locations/establishments which have a specific contract with the issuer (or contract through a payment aggregator/ payment gateway) to accept the PPIs as

payment instruments. These instruments do not permit cash withdrawal, irrespective of whether they are issued by banks or non-banks

3. Open System PPIs: These PPIs are issued only by banks and are used at any merchant for purchase of goods and services, including financial services, remittance facilities etc. Banks issuing such PPIs shall also facilitate cash withdrawal at ATMs/ Point-of-Sale (PoS)/ Business Correspondents etc.

Two major steps in the development of a regulatory framework for effective control digital payment systems were the introduction of Master Direction on Issuance and Operation of Prepaid Payment Instruments by RBI in October 2017 and the Department of Electronics and Information Technology, Government of India bringing out the Draft Rules for Security of Prepaid Payment Instruments. These two documents, as discussed before, seek to build a regulatory framework that encourages competition and dynamism in the industry on the one hand and provides for customer protection on the

²⁸ Information Technology (Security of Prepaid Payment Instruments) Rules 2017 – Draft, Ministry of Electronics and Information Technology, Government of India

²⁹Master Directions on Issuance and Operation of Prepaid Payment, Reserve Bank of India, October 2017

other. An assurance framework for audit the Master Direction (MDPPI) or Draft of a PPI instrument adopted for delivery Rule (SPPI) is referenced against each of Government funds is proposed as audit question. below based on the tenets of the above documents. The relevant provision of

1. Eligibility, approval and authorization

S. No.	Audit Questions	Reference
1.	Banks: Whether the PPI issuer meets the eligibility criteria set by the regulatory department of RBI (for semi-closed and open system PPIs)?	MDPPI 3.1
2.	Non-banking PPI issuer: Whether eligibility criteria for issue of semi-closed PPIs have been met?	MDPPI 3.2
3.	Whether PPIs have been issued after obtaining proper approval from RBI?	MDPPI 3.1, 3.2
4.	Whether the PPI Issuer has developed an information security policy for security of prepaid instruments operated by it?	SPPIRule 3
5.	Whether the issuer has adopted and published on its website and mobile applications, a privacy policy?	SPPIRule 4
6.	Whether terms and conditions for use is published in a simple language capable of being understood by a simple person?	SPPIRule 4
7.	Whether the privacy policy includes:	SPPIRule 4
	a. Information collected directly from the customer and information collected otherwise?	
	b. Uses of the information?	
	c. Period of retention of the information?	
	d. Purposes for which information can be disclosed and the recipients?	
	e. Sharing of information with law enforcement agencies?	
	f. Security practices and procedures?	
	g. Name and contact details of grievance redressal officer and mechanism for such redressal?	
8.	Whether a risk assessment was carried out to identify the risks associated with the security of the payment system?	SPPIRule 5
9.	Whether adequate security measures are implemented to address the identified risks?	
10.	Whether the security measures are reviewed periodically?	
11.	Whether there has been any incident of security breach? If so, whether	

	the security measures were reviewed in the light of the same and appropriate modifications carried out?	
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2. Customer Protection and Grievance Redressal

S. No.	Audit Questions	Reference
12.	PPI issuers shall disclose all important terms and conditions in clear and simple language (preferably in English, Hindi and a local language) to the holder while issuing the Instrument including All charges and fees associated with the use of the instrument Expiry period and related terms and conditions	MDPPI 16.1
13.	Whether the issuer has put in place a formal, publicly disclosed customer grievance redressal framework?	MDPPI 16.2
14.	Whether a nodal officer for handling customer complaints designated?	MDPPI 16.2
15.	Whether escalation matrix and turn-around-times for complaint resolution clearly defined?	MDPPI 16.2
16.	Whether the complaint facility is clearly accessible? Through internet? Through mobile?	
17.	Whether a customer protection and grievance redressal policy is formulated, approved and disseminated to all users in clear and simple language (preferably in English, Hindi and a local language)?	MDPPI 16.2
18.	Whether customer care contact details (telephone numbers, email addresses and postal addresses) are available on website, mobile apps and cards?	MDPPI 16.2
19.	Whether the above contact details of nodal officers similarly made available?	MDPPI 16.2
20.	Whether PPI agents display proper signage of the PPI issuer and the above contact details?	MDPPI 16.2
21.	Complaint tracking: Whether complaint numbers are assigned and communicated to the complainants and facility to track the status of the same made available?	MDPPI 16.2
22.	Whether action is initiated preferably within 48 hours, and resolved not later than 30 days from the date of receipt of such grievance? <u>Audit Tests:</u> a. Number of complaints b. Average initiation and resolution times of complaints c. Pattern of complaints - whether systemic causes of complaints are investigated and resolved through process re-engineering, adoption of proper security measures etc.	MDPPI 16.2
23.	Whether detailed list of authorized/designated agents are made	MDPPI 16.2

	available on the website/mobile app?	
24.	Evaluate the adequacy, reach and effectiveness of the consumer awareness programs for secure use of the instruments, including a. Confidentiality of passwords b. Procedure to be followed in case of loss or theft of card or authentication data c. Procedure to be followed if any fraud/abuse is detected	MDPPI 16.3
25.	Customer liability: whether the amount and process of determining customer liability in case of unauthorized/ fraudulent use PPIs clearly outlined and disseminated to the customers?	MDPPI 16.4
26.	Whether the above process is in line with RBI (Department of Banking Regulation) circular DBR NO. Leg.BC.78/09.07.005/2017-18 dated 06/07/2017 on customer protection - Limiting Liability of Customers in Unauthorized Electronic Banking Transactions?	
27.	Account Statement: Whether detailed account statement can be generated at least for the past 6 months? Whether transaction history for at least the last 10 transactions made available?	MDPPI 16.5
28.	Report on Complaints and action taken status: Whether quarterly returns in the required format is being submitted to the designated authority in a timely manner?	MDPPI 16.7
29.	Transparency: a. Whether uniformity of charges at agent level is ensured? b. Whether information on charges are disclosed and effectively disseminated? c. Whether contract with agents contain specific clauses to prohibit them from charging fees to customers directly for services rendered on behalf of the PPI issuer? d. Whether retail outlets/sub-agents are required to post a signage indicating their status as service providers for the PPI issuer? e. Whether a receipt is given for the fee collected from customers?	MDPPI 16.8
30.	Whether FAQs are displayed on the websites/mobile apps?	MDPPI 16.10

3. Information System Security

S. No.	Audit Questions	Reference
Security Frameworks		
31.	Whether source code of key application systems have been subjected to source code audit to ensure the same is free from embedded fraudulent/ malicious code?	MDPPI 17.4

32.	If not whether an assurance has been obtained from application providers/ OEMs ³⁰ to that effect?	MDPPI 17.4
33.	Whether Security Operations Centre (SOC) is established for centralized monitoring of security incidents?	MDPPI 17.4
34.	Whether server and mobile application level logs are integrated and a mechanism is established to monitor the same at the SOC?	MDPPI 17.4
35.	Whether a system is established to detect and log phishing attacks and rogue mobile apps?	MDPPI 17.4
36.	Whether the PPI issuer has subscribed to anti phishing and anti-rogue apps for protection against the above?	MDPPI 17.4
37.	Whether a risk based transaction monitoring/ surveillance process has been established?	

IS Audit

38.	Non-Banking Entity: Whether system audit, including cyber security audit is being done by a CERT-IN empaneled auditor annually?	MDPPI 17.1
39.	Whether the system audit report is submitted to the regional office of DPSS, RBI within two months of closure of every financial year?	MDPPI 17.1
40.	Whether such audit has covered: <ul style="list-style-type: none"> a. Effectiveness of security control design (Test of Design-ToD)? b. Operating effectiveness (Test of Operating Effectiveness-ToE)? c. Adequacy of deployed technology for safe, secure and efficient operation? d. Evaluation of hardware structure, operating systems and key application systems? e. Access controls on key applications? f. Disaster recovery planning? g. Training of staff managing systems and applications? h. Documentation? i. Adequacy of information security governance? j. Adherence to best practices in application security lifecycle, patch/vulnerability and change management? k. Adherence to process flow approved by RBI? 	MDPPI 17.3

³⁰ Original Equipment Manufacturer

Web Application Security -Issues and Challenges - SAI India

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Introduction

Majority of Government departments are now using web-based applications for improving government efficiency and transparency in delivery of various citizen services like tax, treasury, procurement, vehicle registration, licenses, railway booking and Aadhaar etc. The Union and many State Governments are also giving thrust to implement various welfare schemes through Direct Benefit Transfer (DBT), program to transfer benefits/subsidies directly to the people through their bank accounts such as scholarships, gas subsidies, wages, housing subsidies and subsidies to farmers.

Although the Web applications, through which the services are delivered, increases the efficiency of the Government, they interact with database systems storing sensitive and critical information, thereby bringing a set of vulnerabilities, risks and Security

threats posing challenges to the smooth operation of an organization.

In the recent times, we have witnessed security breaches of web applications like the scholarship disbursement scam in one district of Maharashtra and misuse of Aadhaar data for unauthorised diversion welfare funds (mainly LPG subsidies) by telecom companies. These incidents demonstrate the vulnerabilities in the systems relating to DBT. This highlights the need for serious thinking on web security so as to avoid and prevent damage to the information assets.

A web application is any programme that runs in web browser, typically created in a browser -supported programming language and relies on web browser to render the application. Typically, attackers attacks or exploits vulnerabilities in the application. A software "vulnerability" is an unintended flaw or weakness in the software that leads it to process critical

data in an insecure way. By exploiting these “holes” in applications, cybercriminals can gain entry into an organization's systems and cause damage to the information assets like confidential data.

Attackers can potentially use many different paths through the application to inflict damage to any business or organization. Each of these paths represents a risk that warrants our attention.

Web Security Standards

As far as international web security standards are concerned, the Open Web Application Security Project (OWASP) is an open-source application security community whose goal is to spread awareness surrounding the security of applications. This organisation publishes a list of what it considers the current top 10 web application security risks worldwide, known as OWASPTop 10 (See Table I), every

three/four years prioritizing the top 10 according to their prevalence and their relative exploitability, detectability, and impact. Because the risks to applications are always evolving, the OWASPTop10 list is revised each time to reflect these changes, along with the techniques and best practices for avoiding and remediating the vulnerabilities. These top 10 vulnerabilities can be used as a point of reference in any security audit relating to web application.

In the Indian scenario, in the year 2011, Standardisation Testing and Quality Certification (STQC), Directorate, Ministry of Communication and Information Technology, GOI also issued Guidelines for compliance to Quality requirements covering Security and Transparency. These guidelines and standards help determine the focus areas in a Web Application Security Audit.

Table I: OWASPTop 10 2017

Risk	How it Works	Impact
1. Injection of queries	Injection flaws, such as SQL injection, refers to an injection attack wherein an attacker can execute malicious SQL statements that control a web application's data base server	Injection can result in data loss, corruption, or disclosure to unauthorized parties, loss of accountability, or denial of access. Injection can sometimes lead to complete host takeover.
2 Broken Authentication	Application functions related to authentication and session management are often implemented incorrectly, allowing attackers to compromise passwords, keys, or session tokens, or to exploit other implementation flaws to assume other users' identities temporarily or permanently.	Attackers have to gain access to only a few accounts, or just one admin account to compromise the system which may result in money laundering, social security fraud, and identity theft, or disclosure of legally protected highly sensitive information.
3 Sensitive Data Exposure	Sensitive data may be compromised without extra protection, such as encryption at rest or in transit, and requires special precautions when exchanged with the browser.	Failure frequently compromises all data that should have been protected. Typically, this information includes sensitive personal information data such as health records, credentials, personal data, and credit cards, which often require protection as defined by laws or regulations or local privacy laws.

<p>4. XML External Entities (XXE)</p>	<p>Many older or poorly configured XML processors evaluate external entity references within XML documents. External entities can be used to disclose internal files using the file URI handler, internal file shares, internal ports, remote code execution, and denial of service attacks.</p>	<p>These flaws can be used to extract data, execute a remote request from the server, scan internal systems, perform a denial-of-service attack, as well as execute other attacks.</p>
<p>5 Broken Access Control</p>	<p>Access control is meant to control what "authorized" users are allowed and not allowed to do with in an application. A flawed access control may be caused by unenforced user restrictions and this allows attackers to exploit and access unauthorized functionality or data.</p>	<p>The technical impact is attackers acting as users or administrators, or users using privileged functions, or creating, accessing, updating or deleting every record.</p>

<p>6 Security Misconfiguration</p>	<p>Security Mis-configuration arises when Security settings are defined, implemented, and maintained as defaults. Good security requires a secure configuration defined and deployed for the application, web server, data base server, and platform. It is equally important to have the software up to date.</p>	<p>Such flaws frequently give attackers unauthorized access to some system data or functionality. Occasionally, such flaws result in a complete system compromise.</p>
<p>7 Cross-Site Scripting(XSS)</p>	<p>XSS flaws occur whenever an application includes un-trusted data in a new web page without proper validation or escaping, or updates an existing web page with user-supplied data using a browser API that can create HTML or Java Script. XSS allows attackers to execute scripts in the victim's browser which can hijack user sessions, deface websites, or redirect the user to malicious sites.</p>	<p>The impact of XSS is remote code execution on the victim's browser, such as stealing credentials, sessions, or delivering malware to the victim.</p>

8 Insecure Deserialization	Insecure Deserialization is a vulnerability which occurs when untrusted data is used to abuse the logic of an application, inflict a denial of service (DoS) attack, or even execute arbitrary code upon it being deserialized.	The impact of deserialization flaws cannot be understated. These flaws can lead to remote code execution attacks, one of the most serious attacks possible.
9 Using Components with Known Vulnerabilities	Applications and APIs using components with known vulnerabilities may undermine application defences and enable various attacks and impacts. There are automated tools to help attackers find unpatched or misconfigured systems.	While some known vulnerabilities lead to only minor impacts, some of the largest breaches to date have relied on exploiting known vulnerabilities in components.
10. Insufficient Logging & Monitoring	Insufficient logging and monitoring vulnerability occurs when the security-critical events aren't logged properly, and the system is not monitoring the current happenings	Most successful attacks start with vulnerability probing. Allowing such probes to continue can raise the likelihood of successful exploit on early 100%. To prevent such attack, establish effective monitoring and alerting so that suspicious activities are detected and responded to in a timely fashion.

Web security in the Government of Maharashtra

The recent CAG audit of e-Procurement system implemented by the Maharashtra Government (published in

2017) and Property Tax system implemented in the Municipal Corporation of Greater Mumbai indicated that periodic cyber security

audit was not conducted on these web applications as required.

Government of Maharashtra (GoM) has formulated a comprehensive e-Governance policy in 2011 to ensure standardized and seamless implementation of e-Governance projects across the State, thereby encouraging inter operability, data collaboration, sharing and linkage with UID. It also covers various aspects of web application security. Various citizen services have been made available online through the State Portal in-line with the National Portal of Government of India and through other channels like Common Service Centres, Setu, CFC, Mobile platforms etc.

GoM policy also states that all websites and Web-based applications are required to comply with Website design guidelines issued from time to time by Government of India and should have proper security certifications. Periodic cyber security audit of all State government websites is also mandatory, and no website or portal or application shall be hosted at the State Data Centre without security audit and compliance.

Web Security Audit strategy

- Identify the risk and categorise the risk as High, Medium, low.
- Verify controls associated with four important risks
 - a. **Input validation** – controls such as initial values, error/exception handling, logging, fail safe vs fail open and resource exhaustion controls
 - b. **Authorization** – controls such as tokens & Two-Factor Authentication(2FA), authorize transaction, not user, use of Certificates for non-repudiation, Adaptive Authorization, site keys and out of band (SMS/voice)
 - c. **Data Protection**– controls such as valid SSL certs, encrypted connection strings, encrypted cookies and encrypted database
 - d. **Session Management**– controls such as session time limits, Geo location, IP, known PC and hard to guess session variables/IDs
- Performing the tests–what, who and where
 - a. What: what do you have? What data is in the system? And what is the value of the data?

- b. Who: trusted third party developer or ASP, unknown third party developer or ASP, trained and seasoned development team, eager and inexperienced development team and business unit management purchase.
- c. Where: Local Internet Web application, public website hosted internally, customer portal hosted internally, remotely hosted web application and connectivity, fire-wall, transport, etc.
- OWASP-Testing Guide: Web Goat is a deliberately insecure web application maintained by OWASP designed to teach web application security. Once deployed, the user can go through the lessons and track their progress with the scorecard. There are currently over 30 lessons.

OWASP Testing Guide essentially provides for framework for Security Audit of web application giving in detail various security testing and Audit checklist associated with it, such as Configuration and Deployment Management Testing, Identity Management Testing, Authentication

Testing, Authorization Testing, Session Management Testing, Input Validation Testing, Business Logic Testing and Client Side Testing etc. This will help the auditor in assessing the web application security risks and conducting security audit of such systems.

Way Forward

It is needless to say that all web-based applications of the Government Departments and Local Authorities need to comply with e- Governance policy of the Centre and State Governments. IT auditors will have to use international standards and guidelines like OWASP in addition to the national policies in the web security audits to ensure a secure web and cyber space.

REFERENCES:

- i. Information Technology Audit of e-Tendering System in Government departments - Principal Accountant General (Audit)-I, Maharashtra - AR on General and Social Sector for the year ended March 2016 (Para - (i) Open Web Application Security Project (OWASP), (ii) Broken Access Control)
- ii. STQC Guidelines for compliance to Quality requirements of e-Procurement Systems (Para - Open Web Application Security Project (OWASP).
- iii. https://www.owasp.org/index.php/Top_10-2017_Top_10(Para- OWASPTop 10 2017Application Security Risks 1 to 10)
- iv. e-Governance policy of Government of Maharashtra (Para - e-Governance policy in the Government of Maharashtra)
- v. ISACA - IT Audit strategies for web applications(Para - What Auditors should do)

Glass facade: A concept needs to be re-looked - SAI India

The trend of glass facade has increased at the world-wide level in the recent decades. Due to the globalization and imitation of western society, this trend has also increased in developing countries like India. Further, in the 90s the policy changes in India, viz Economic Liberalization, Privatization, IT revolution etc. have also accelerated the pace of urbanization. During this state of urbanization, the construction industry has developed at a rapid pace, so as the conscious demand for sustainable building materials. Since the glass provides designers with fascinating creative options, the popularity of the material has increased over the last few decades.

Advantages of glass structures

As we know Glass is a far lighter material than concrete or wood, and so the weight of the building is reduced by using glass. This leads to lesser stress on the building and its foundations. Use of glass also allows outside greenery and natural beauty to be enjoyed inside the building and it ensures a better working environment. Further, Glass can be easily manufactured and installed in

lesser time compared to other conventional materials like cement or steel. Basically, Glass is now a protective sheath that protects occupants of a building from heat, noise, fire, and even from dirt and grime through self-cleaning properties.

Green Building Rating Systems

To evaluate the performance of a building and its impact on the environment in India, there is a tool like green building rating system. At present there are three rating systems in our country - Leadership in Energy and Environmental Design (LEED), the rating system from Indian Green Building Council (IGBC) and the Green Rating for Integrated Habitat Assessment (GRIHA). In addition there is also the Energy Consumption Building Code (ECBC) and the National Building Code (NBC) which provide guidelines on energy consumption.

The Energy Conservation Building Code 2007 (ECBC) of India has prescriptive standards for use of glass. The code allows a maximum limit of 60% of glazed area, but 40% is the recommended optimum upper limit. The ECBC then goes on to define the

insulation and energy efficiency specifications of glass. Double-glazed or triple-glazed glass, which is solar reflective, is preferred since it provides superior thermal performance. GRIHA the indigenously developed rating system by TERI with support from MNRE has very effectively integrated the ECBC requirements. A GRIHA compliant building cannot exceed prescriptive glazing requirements of ECBC and GRIHA also mandates compliance with stringent energy performance benchmarks and day lighting provisions.

Problems associated with glass facades

Though, these glass structures come up very quickly and are also cost effective, other than looking good, such buildings are a major cause for higher consumption of electricity. Since the glass is transparent, higher amount of infra-red radiation comes in. They are short wave radiation when they enter, but the moment it enters the room it becomes long-range radiation. Hence, a higher capacity air-conditioner is required to keep the indoors cool. Glass buildings are a very European concept because those countries are cold and they don't get sufficient sunlight.

Hence, their main aim is to get maximum sunlight. But, in our country where temperatures at times go as high as 50 degrees Celsius, these glasses take in more of sunlight. Further we have to deal with the high glare. For example, Delhi receives 2,688 hours of sunlight annually as against London that receives only 1,480 hours of sunlight in a year. Basically, India is situated above equator and the line of Tropic of Cancer passes through it. This makes sun's rays incident on India at an angle near to 90 degrees. As perpendicular rays fall on India they make it hotter than slant rays would. As we know that the glass attracts heat and prohibits heat from escaping from indoors and makes the interior hot. Hence, the offices use more air-conditioners resulting higher consumption of electricity and emission of carbon-dioxide and CFCs that harm the ozone layer.

Further, glass is also not an environment-friendly material. It consumes high amount of energy right from its manufacturing to transportation and installation. The embodied energy of glass is between 15.9 and 26.2 mega joules per kg whereas it is 1.06 MJ/kg for bricks. The embodied energy of glass

increases considerably when used as double or triple glazing or when inert gases like argon replace the air gap to further improve performance. A report (2012) by the National Environmental Engineering Institute (NEERI) said that the temperature around a glass-facade building can go up by 17 degrees Celsius. Further, a study by IIT-Delhi in the national capital city, Jodhpur and Chennai found that energy use increases with the increase in glazed area, irrespective of glass type, climate or orientation of the building. For instance, glazing on the northern wall of a building allows the least gain in heat as compared to any other facade orientation. But if the glass wall covers more than 20 per cent of the south-facing facade, the building overheats even in winters.

Though many feel that once we provide glass in a building façade, we are free from painting expenses for ever but this is not fine. We may have to spend equally for cleaning of glass. Sometimes it is as costly as expose painting. Again, we may paint building once in a 5 years but for glass we have to clean every year.

Required Solution

It is evident from the above fact that "Glass is not so Green". Instead of innovating designs to suit local conditions, identical glass buildings are being built. Building designers are using larger and larger areas of glass in facades, which does not exactly promote energy efficiency. Also, there are no such rules & regulations exist in the country at present which restricts the quality and quantity of the glass in new constructions.

As the present world is struggling between the theory of "limit to growth" and "growth has no limit". In the same manner, the environmentalist vocals for stoppage the use of glass for construction purpose; whereas the construction designers-builders-real estate developers and other wants to use glass as a key component in their constructions. Therefore, in this scenario, the planning and execution of such facades requires utmost care. The solution for a more sustainable use of glass materials in Indian structures involves certain regulations concerning usage of safety glazing with tempered and laminated glasses. Some common tips for opening / glazing selection or design are suggested as follows:-

- A building should be properly oriented so that most areas that require day lighting are facing towards north or south (in northern hemisphere).
- the east and the west should be properly shaded
- Window-wall ratio should be determined on daylight requirements of adjoining spaces and also as per ventilation requirements.
- U-factor and SHGC (solar heat gain coefficient) for a fenestration product (including the sash and frame) should be low for a hot climate, and the visible light transmittance should be high.
- Shading devices such as chajjas, vertical / horizontal projections should be used to control glare.

Improvement of CAATTs Methodology- SAI Turkey

Turkish Court of Accounts (TCA) is renewing and enhancing the usage of IT technologies on auditing processes. We aim to develop our auditing capability by making audit procedures more manageable and by using resources more efficiently.

With the abovementioned idea on mind, in June 2017 a new audit group is formed with the mission to design a methodology for using computerised audit systems, to improve the implementation of CAATTs into the auditing process and to extend the use of IT on audit.

We decided to enhance usage of CAATTs methodology since they can serve all phases of audit. Being one of the best instruments using technology to support conduction of audits, they help auditors to explore the data thoroughly, make analysis and study distinct data sets. It becomes easier to work with large data sets without adding substantial costs.

Within this scope some of the actions taken to improve CAATTs methodology are as follows;

1. *Development of Analysis Scenarios*

A centralised data processing function is designed by which the management will identify risks earlier before the annual audit programming/planning phases and will set the audit strategy. For that purpose, predefined analysis scenarios that will work on the data submitted by the auditees are developed. With these scenarios, the data is being reviewed on a regular basis with respect to the pre-set parameters.

Besides risk-detecting, these scenarios are also useful for detecting fraud evidences and accounting errors, for collecting appropriate evidence and for automatizing iterative and time taking procedures that fall upon the auditor while conducting audits.

These analyses crosscheck and control all data in the data warehouse for both data integrity and compliance. Determining the accuracy of the information which builds up the data by a computerised system and checking compliance with policies brings a comprehensive approach of testing

instead of traditional audit sampling methods.

The results provide the auditors with an assurance to some degree about the veracity of the data. If they see it necessary, further investigation is done by auditors.

2. VERA

To reach the results of these analyses a new data analysis system called VERA is designed. It runs over a newly purchased business intelligence software and compatible IT hardware. Besides collecting results of predefined analysis, auditors are able to run original analysis over VERA and get their results instantly.

It is a centralized and web based system, the data is being kept in data warehouse and the auditors are accessing the data via the system independent of their current location by using VPN as long as they have a secure internet connection. The new system puts no limits to the size or dimension of the data and that brings easiness while collecting, managing or analysing big data.

3. Collection of Data from Auditees

The data and other information of auditees within the scope of the central government are kept electronically over a system called “Integrated Public Financial Management System”.

Because municipalities are outside this system it was difficult to collect data from them. All municipalities use different software so it was not easy nor secure to take big files of data via mail or other external storage items.

As a result, a system called ‘BVAS’ is developed which enables municipalities to transfer their data over a form based smart client application securely. The system is user friendly and controls the data format before it is uploaded. It is operational since 2017 and by 2018 over 1250 municipalities have successfully started using this system and securely uploading their data to the system.

4. Risk Assessment System

More than 1400 municipalities are being audited by TCA. Every year their budgets, transaction volumes, assets and liabilities are increasing. We

are working on a project of a risk assessment system for the municipalities. With this project, municipalities will be assessed by taking into account their budget size, investments, incomes, transaction volumes, size of their expenses, demographic structure and then they will be graded and grouped by their risk profiles. The results will be used by the management before preparing annual audit plans. Implementation of

this system will make it possible to rank the auditees based on their risk levels.

Auditors have adopted the enhancements made and we receive good feedbacks including additional suggestions to be carried into effect soon. With the abovementioned systems and newly developed CAATTs methodologies, we foresee that the efficiency of audit performance will increase and the audit quality will improve.

New Head of SAIs

Supreme Audit Office of Bangladesh



Mr. Mohammad Muslim Chowdhury has taken the oath of the office as Bangladesh's 12th Comptroller and Auditor General (CAG) in July 2018.

Before assuming his office as CAG, Mr. Chowdhury served in several roles in the Ministry of Finance, including Finance Secretary, Additional Secretary, Joint Secretary and Deputy Secretary. He also held various positions under the Office of the Comptroller and Auditor General, Controller General of Accounts and Controller General Defence Finance.

Having an in-depth and broad-based knowledge and experience in public financial management, Administration and Governance, Mr. Chowdhury was also a member of Bangladesh Civil Service (Audit and Accounts Cadre).

With roughly 33 years of service, Mr. Chowdhury pioneered public sector financial management reform and was awarded the "Public Administration Award-2017" for his contribution in improving the public service delivery system. He introduced e-governance in public finance and supervised the Integrated Financial Management Information System development and implementation process. Mr. Chowdhury was actively involved in the initial formulation and implementation of the national Public-Private Partnership (PPP) framework and drafted the PPP strategy and policy ultimately issued by the Government of Bangladesh.

As a Consultant, Mr. Chowdhury worked in the Public Financial

Management reform sector with World Bank and Department for International Development funded projects.

Mr. Chowdhury holds a Master of Science in Finance and Accounting with distinction from the University of Birmingham, United Kingdom. He graduated with a Bachelor degree in Commerce and Master of Commerce in Accounting from the University of Chittagong, Bangladesh.

Mr. Chowdhury is married to Mrs. Sabina Haque, a teacher by profession. They have two daughters.

Singapore: New Auditor General



On 8 February 2019, Ms Goh Soon Poh was appointed Auditor-General of Singapore by the President of Singapore. She succeeds Mr Tan Yoke Meng Willie, who retired on the same date.

Before joining the Auditor-General's Office of Singapore, Ms Goh held senior management positions in various public agencies including the Ministry of Education, the Ministry of Finance, the Public Service Division, the Ministry of Home Affairs and the Prime Minister's Office.

For additional information on the Auditor-General's Office of Singapore, please visit us at:

Email: ago_email@ago.gov.sg

Website: <http://www.ago.gov.sg>

INTOSAI News

1. Meeting of the INTOSAI Working Group on IT Audit, Sydney, Australia, 17-18 April, 2018 and Seminar on “Embedding Data assurance to drive audit efficiency and Quality” on 19 April, 2018

The 27th meeting of the INTOSAI Working Group on IT Audit (WGITA) was held at Sydney, Australia from 17-18 April, 2018. The seminar on “Embedding data assurance to drive audit efficiency and Quality” was also held in conjunction with the WGITA meeting on 19 April, 2018.

The meeting was inaugurated by Mr. Grant Hehir, Auditor-General for Australia and was presided over by Mr. Rajiv Mehrishi, Comptroller & Auditor General and Chair of WGITA.

The meeting discussed various issues in connection with the WGITA Work plan 2020-22 in the context of next Strategic Development Plan 2020-25 of IFPP. International Centre for Information Systems and Audit (iCISA), Noida was designated as the Global Training Facility (GTF) of WGITA in the meeting.



1. 2ndINTOSAI Working Group on Big Data, Washington, DC, USA, 19-20 April, 2018

The INTOSAI Working Group on Big Data (WGBD) held its 2nd meeting at Washington D.C., at the Headquarters of the United States Government Accountability Office from 19 -20 April, 2018. 43 participants from 19 SAIs took part in this meeting. During the meeting the participants shared their experience in big data analytics in their respective countries.



The Working Group is chaired by CNAO, China with GAO, USA as vice Chair. It has currently 25 members, which are Argentina, Austria, Bangladesh, Bhutan, Brazil, Denmark, Ecuador, Finland, Fiji, India, Indonesia, Kuwait, Mexico, Netherlands, New Zealand, Norway, Pakistan, Peru, Philippines, Portugal, Republic of Korea, Russian Federation, Senegal, Thailand, United Kingdom and three observers are AFROSAI-E, European Court of Auditors and Estonia.

2. 5th Global Audit Leadership Forum (GALF), European Court of Auditors, Luxembourg, 26-27 April, 2018

The Global Audit Leadership Forum (GALF), a group of twenty four Auditors' General (including the Comptroller and Auditor General of India), meets annually for organised yet informal discussions on current and emerging issues of concern to their Governments and officers and to explore opportunities to share information and work closely. The 5th GALF meeting was held at European Court of Auditors, Luxembourg from 26-27 April, 2018. The meeting was attended by 39 members from 19 SAIs.

The discussions focused on two topics "Carrying out Performance Audits in a political context: what are the limitations" and "Communicating audit findings in a digital world: challenges and opportunities". The next meeting of GALF would be held in China in 2019 and India will host the 2020 meeting.

3. INTOSAI Professional Standards Committee (PSC) meeting, 29 May, 2018 and 15th meeting of the Steering Committee of PSC, 30-31 May, 2018, European Court of Auditors, Luxembourg

The INTOSAI Professional Standards Committee (PSC) meeting held its 15th Steering Committee of INTOSAI at European Court of Auditors in Luxembourg from 30-31 May, 2018.

The main themes discussed were: Implementation of the Strategic Development Plan (SDP) for the INTOSAI Framework of Professional Pronouncements (IFPP). PSC-SC members were presented with SDP project status updates, and there was broad recognition on the SDP's value, as well as the accomplishments of various project groups. Likewise, lessons learned from implementing the SDP were discussed, and solutions were

suggested to help plan the next SDP. The FIPP's added value to the standard-setting process was also acknowledged. The revised Terms of Reference (ToR) for the FIPP was approved, as well as the number of members, which, including the Chair, stands at sixteen. The revised ToR also clarifies member qualifications and the selection process for the FIPP Chair. PSC-SC also approved the process to develop the IFPP's next SDP.

The next PSC Steering Committee meeting will be held in Luxembourg.



4. Task Force on INTOSAI Auditor Professionalization, Stockholm, Sweden, 18-19 June, 2018

The 2nd Annual meetings of the Task Force on INTOSAI Auditor Professionalization was held in

Stockholm, from 18-19 June, 2018. Task Force on INTOSAI Auditor Professionalization (TFIAP) was created at the XII INCOSAI under the CBC with a mandate to continue researching enabling mechanisms required to facilitate and structure professional development in INTOSAI, and to utilize the competency framework to provide INTOSAI with a set of professional pronouncements on auditor competence.

The meeting saw presentation and discussion on the draft guide to utilizing the INTOSAI competency framework to develop public sector audit professionals in the most context-appropriate way. SAI Senegal presented an update on Project 3 - competency requirements of SAIs with jurisdictional responsibilities. SAI Austria, France, Japan and USA also presented their approach on professionalization of staff.

5. Conference on Motivating and Equipping SAIs to carry out Peer Reviews, Bratislava, Slovak Republic, 20-22 June, 2018

The Supreme Audit Office of Slovak Republic and Chair of Sub-Committee on Peer Reviews hosted an expert

conference on “Motivating and Equipping SAIs to carry our Peer Reviews” at Bratislava, Slovak Republic from 20-22 June, 2018.

Mr. Rajiv Mehrishi, Comptroller and Auditor General of India delivered the opening address of the conference.

In keeping with International Standards of Supreme Audit Institutions (ISSAI) 12, “Values and Benefits of SAIs— Making a Difference to the Lives of Citizens,” along with the emergence of the Sustainable Development Goals (SDGs), the conference explored employing peer reviews and using the various INTOSAI tools to measure performance.

The conference, included robust panel and roundtable discussions and focused on three themes:

- Theme I: SAIs Leading by Example Through Carrying Out Peer Reviews;
- Theme II: Peer Review Tools to Improve SAI Performance; and
- Theme III: Good Practices in a Peer Review.

Organized with support from INTOSAI’s Capacity Building Committee, the conference underlined the position and supported global application of peer review as a method

to apply various INTOSAI assessment tools. The conference also saw presentation of testimonials and lessons learned on peer review tools.



6. Regions Coordination Platform Meeting, Oslo, Norway, 25-27 June, 2018

The first International Organization of Supreme Audit Institutions (INTOSAI)-Region Coordination Platform meeting was held in Oslo, Norway from 25-27 June, 2018. This platform provides INTOSAI with a single point of contact

for all INTOSAI organs and regional organizations and acts as a forum to coordinate, consult, explore synergies and align INTOSAI efforts to support the successful implementation of the INTOSAI Strategic Plan 2017-2022.



The Coordination Platform aims to identify, elevate and discuss crucial issues that impact the INTOSAI community. The meeting highlighted several INTOSAI-wide topics, programs. More than 60 delegates and INTOSAI organ executives took part in this meeting. Mr. Rajiv Mehrishi, CAG of India and Chair of Goal -3 of INTOSAI, Knowledge Sharing and Knowledge Services Committee presented the opening brief at the meeting.

7. CAROSAI 30th Anniversary Conference in Jamaica, 15-17 August, 2018

The Secretary General of CAROSAI and Auditor General of Jamaica, Pamela Monroe Ellis, hosted the 30th anniversary conference in Kingston, Jamaica, from 15 to 17 August 2018 on the theme "Building the future on the foundation of the past".

The topic for the first day was "Towards more Accountability" which had presentations and the discussions moderated by the IDI. These addressed the importance of, the need for and the value of independence of SAI. The government representatives, who participated as speakers, were unanimous in their view that independent SAIs play a decisive role in ensuring enhanced accountability and transparency.

They also agreed unanimously that, in the 21st century, SAIs should be more vigorous in raising awareness of their value and benefits for governments and citizens, in the spirit of the motto "break the silence". This would help them to generate a better and wider acceptance and understanding of government audit.

The topic for the second day was "Acting in the Public's Interest: A SAI's Response" which covered the following five topics: "SAIs Fighting Corruption", "SDG Programme and Cross Cutting Audits - Sharing of Experiences", "Strengthening the Foundation for Future Relevance", "Generation Next - Managing Talent in the Public Sector" and "Institutional Strengthening for the SAI of the Future". All topics were considered from the specific viewpoint of CAROSAI.



8. 10th KSC Steering Committee meeting, Kampala, Uganda, 20-22 August, 2018

The 10th meeting of the Steering Committee (SC) of the INTOSAI on Knowledge Sharing and Knowledge services was held in Kampala, Uganda

from 20-22 August, 2018. The meeting was presided over by SAI India and Chair of KSC.

The Working Groups and the Research Groups presented their progress reports and their reporting Dash boards in the meeting which would form the basis for the Goal-3 report to be presented at the 71st meeting of the INTOSAI Governing Board to be held in Moscow.

The meeting also saw presentations from the observers of KSC Steering Committee; INTOSAI General Secretariat, INTOSAI Development Initiative and Professional Standards Committee on the activities undertaken by them in the past year. PSC also made a presentation on Goal Chairs Collaborative efforts since last KSC SC meeting. IDI also made a presentation on the KSC-IDI Cooperative Audit Programme on SDGs.

SAI France during the presentation of the progress report on Working Group on Value and Benefit of SAIs also briefed the members on the revised proposal under SDP on Jurisdictional SAIs.

The meeting included five discussion sessions on the following topics;

Strategic Development Plan of IFPP, INTOSAI Community Portal, Emerging Issues, Engagement with Regions and Stakeholder engagement. The members were briefed about the Quality Assurance paper on the non-IFPP documents.

Apart from the above topics, issues related to the reporting dashboard of KSC and Financial matters related to utilization of Goal chair allocation was also discussed in the meeting.

The members were also briefed about the features of the INTOSAI Community Portal and encouraged to use it to its fullest measure and also promote the portal among the members of the Working Groups. The members were urged to utilize features like Communities of Practice, Video Conferencing and Webinars as an effective tool for sharing knowledge and experiences on specific subject matters. The SC acknowledged the potentialities of the INTOSAI Community Portal and agreed on taking measures to advocate its usage.

The Discussion sessions on Regions and Stakeholders engagement were chaired by SAI Uganda and SAI Indonesia respectively. Discussions were held on

how to improve the present reporting dashboard especially in the light of Performance and Accountability Report of PFAC seeking accomplishments of KSC, the possibility of quantifying the activities and impact. The members were also requested to provide ideas for the next Work Plan of KSC (2020-22). There was a general view that the focus could shift to knowledge sharing and knowledge services activities in view of considerable guidance and pronouncements already in place. The members were also advised to explore the option of creating Global training facility for the Working Group for capacity development activities.

Finally, the members were briefed about the two-tier certification of the products that are developed outside Due process. The members were requested to provide the details of non-IFPP documents alongwith the QA levels by September 2018.

The Venue for the 11th KSC Steering Committee Meeting is Manila, Philippines and for 12th KSC SC meeting is China.

9. Joint Capacity Building Committee (CBC) and INTOSAI-Donor Steering Committee (IDSC)

meeting, Kuwait, 3-6 September, 2018

The themes of the 2018 International Organization of Supreme Audit Institutions (INTOSAI) joint Capacity Building Committee (CBC) and INTOSAI-Donor Steering Committee (IDSC) meeting was "Inspiring and Encouraging One Another," "Putting Our People First," and "Forward Together".

The event saw presentations and discussions on the latest Global SAI Stocktaking Report, analyzing human resource management dimensions, brainstorming staff training methods, peer-to-peer cooperation, and seeking different perspectives on capacity development.

Keynote speaker, Mr. Jens Wandel, Special Advisor to the United Nations Secretary General, laid out several aspects to strengthening human capital, including increasing staff engagement and building trust. He emphasized that building in-house change capacity was crucial to navigating external threats and opportunities and stressed that effective employee on-boarding positively impacts productivity.



10. 15thPolicy, Finance and Administration Committee (PFAC) meeting in Riyadh, Saudi Arabia, 7 September, 2018

The General Auditing Bureau (GAB) of the Kingdom of Saudi Arabia hosted the International Organization of Supreme Audit Institutions' (INTOSAI) 15thPolicy, Finance and Administration Committee (PFAC) meeting in Riyadh, where members came together for the committee's annual meeting.

Dr. Hussam Alangari, GAB President, welcomed participants to the September 2018 meeting, which included the Governing Board's Chair (United Arab Emirates) and First Vice-Chair (Russian Federation); INTOSAI Goal Chairs:

Professional Standards Committee (Brazil), Capacity Building Committee (South Africa) and Knowledge Sharing Committee (India); General Secretariat (Austria); immediate past Chair of the Governing Board (China); Chair of the INTOSAI Development Initiative (IDI) (Norway); and the head of the SAI responsible for the International Journal of Government Auditing (IJGA) (U.S. GAO)—all of whom Dr. Alangari commended for steadfast, continued contributions.

In her report, Dr. Margit Kraker, INTOSAI General Secretariat, touched on three main issues: draft INTOSAI Financial Regulations and Rules; draft INTOSAI Statutes; and INTOSAI financial matters, including 2016-2017 financial statements, actual 2018 budget performance, and the proposed budget for 2020–2022.

Mr. Victor Hart, representing the Professional Standards Committee (PSC), presented PSC progress in 2018 and elaborated on various strategic objectives and actions taken. Chairman of INTOSAI's Capacity Building Committee (CBC) and Auditor General of South Africa, Mr. Kimi Makwetu, highlighted the enhanced cooperation

among all INTOSAI goal chairs. Mr. Andrew Langstich, representing the Knowledge Sharing Committee (KSC), provided a summary report on the KSC's latest meeting held in Kampala, Uganda, in August.

GAB's Dr. Mohammed Alhabib provided an overview of recent PFAC activities and presented the first ever INTOSAI Performance and Accountability Report (PAR)—seeking the committee's recommendation to submit the PAR to the GB in November.

Dr. Al Amimi updated participants on the Supervisory Committee on Emerging Issues (SCEI), where he underscored the committee's goal to canvas INTOSAI membership (through the KSC portal) to further identify emerging issues and provide progress feedback prior to the committee's submission to the INTOSAI GB. Mr. Dodaro suggested creating a new INTOSAI working group to focus on emerging issues related to Science and Technology and potential implications for audit professionals. Updates on IDI and the INTOSAI Journal of Government Auditing closed out the PFAC meeting. IDI's Mr. Martin Aldcroft discussed the organization's

strategic priorities, including strategic shifts to increase impact and sustainability. As the IJGA President, Mr. James-Christian Blockwood, Managing Director of GAO's Strategic Planning and External Liaison Office, briefed PFAC members on the Journal's latest modernization plans and initiatives, including the launch of the redesigned website, which provides a more responsive and engaging user experience. The PFAC meeting approved the first ever INTOSAI Performance and Accountability Report that highlights key issues for INTOSAI Governing Board consideration.



11. SDG event held by the Austrian Court of Audit, 25 September, 2018

On 25 September 2018, the Austrian Court of Audit (ACA) and the Austrian Ombudsman Board (AOB) organized a joint symposium entitled "Good Public Administration and Benefits for Citizens - the Role of Parliamentary Control Bodies". The event was held in the framework of the Austrian Presidency of the Council of the EU. The issues related to how SAIs and ombudsman institutions as parliamentary control bodies can ensure good administration and thereby contribute to the implementation of the United Nations Sustainable Development Goals (SDGs) were addressed in this event.



12. 71st Meeting of the INTOSAI Governing Board in Moscow, Russian Federation, 15-16 November, 2018

Upon the invitation of the Accounts Chamber of the Russian Federation the 71st INTOSAI Governing Board meeting took place in Moscow with around 90 participants on November 15 and 16, 2018. The meeting was held under the chairmanship of Dr. Harib Al Amimi, SAI of United Arab Emirates.

The major decisions taken by the Board included:-

- Creation of a Memorandum of Understanding between INTOSAI and the United Nations Office on Drugs and Crime (UNODC) to foster the participation of SAIs in the Conference of the States Parties to the UN Convention against Corruption.
- Approval of the Rules of Procedure for INCOSAI XXIII in 2019.
- Approval of the format of the outcome document of INCOSAI XXIII - the Moscow Declaration.
- Approval of the INTOSAI Handbooks for Congresses and Handbooks for Governing Board Meetings.
- Postponement of the decision regarding the application for full membership in INTOSAI of the SAI of Kosovo until the 72nd GB Meeting in 2019.
- Approval of revised Financial Regulations and Rules for INTOSAI.
- Approval of the necessary financial resources for the re-launch of the INTOSAI website.
- Approval of a proof of concept exercise for a Technical Support Function (TSF) of the Forum for INTOSAI Professional Pronouncements (FIPP) and the adoption of the necessary measures. The TSF will, in a first phase, work virtually and a job profile for the collaborators and the criteria for the host of the TSF will be elaborated
- Creation of a section for the work of SAIs with jurisdictional responsibilities in the INTOSAI competency framework for public sector audit professionals
- Encouragement of SAIs to undergo SAI PMF assessments and to engage actively in such an assessment
- Transition of the leadership in the Workstream for Guides and Occasional Papers, from the SAI UK to the SAI Kenya
- Support of the draft guide on Developing Pathways for the

Professional Development of Auditors in a SAI, aimed at utilizing the INTOSAI competency framework to develop public sector audit professionals in the most context-appropriate way, including the recently completed global research results

- Approval of the first INTOSAI Performance and Accountability Report
- Recognition of the current status of the development of the Strategic Development Plan 2020-2025 of the FIPP
- Creation of an interim Task Force on the Impact of Science and Technology on Auditing
- Support for the IDI Strategic Plan 2019-2023 for adoption by INCOSAI XXIII
- Elaboration of a manual for ensuring consistency in content, branding and

a clear purpose for all INTOSAI websites

- Updating the communication strategy in the light of technological developments including stakeholder definitions
- Follow-up on the dialogue with the United Nations and other stakeholders on the Independence of SAIs
- Elaboration of a roadmap for INCOSAI XXIII, UN/INTOSAI Symposium 2020 and HLPF to promote advocacy and more clarity on the SDG programs within the framework of the INTOSAI strategic vision regarding the SDGs.



ASOSAI News

1. eLearning course of ASOSAI Capacity Development Program on "IT Audit"-(February to April, 2018)

ASOSAI has successfully concluded the eLearning course of ASOSAI Capacity Development Program on "IT Audit" that was held from February 26 until

April 27, 2018. As many as 76 participants from 29 SAIs joined in the eLearning course which was the first activity of the ASOSAI Capacity Development Program from 2018 to 2019. The course required participants

to work for at least 10 hours every week to complete all compulsory reading materials, quizzes, discussion forum assignments and exercises on the ASOSAI Learning Management System (LMS).

During the nine week of the course, six Resource Persons from SAIs of China, India, Indonesia, Malaysia and Philippines provided the online support together with the Program Manager and LMS Administrator from SAI Thailand.

Those who successfully completed the necessary activities proceeded to the next stage, "Development of draft Audit Plan".

2. Sub-regional Audit Planning Meetings of ASOSAI Capacity Development Program on "IT Audit" - (Noida, India in June, Ankara, Turkey and Nilai, Malaysia in July, 2018)

Sub-regional Audit Planning Meetings of ASOSAI Capacity Development

3. Seminar for Knowledge Sharing - ASOSAI Seminar on "IT Audit"- (Astana, Kazakhstan in July 2018)

An ASOSAI Knowledge Sharing Seminar on "IT Audit" was held in Astana, Kazakhstan from July 9 to 13, 2018 with the administrative support of the Accounts Committee for Control

Program on "IT Audit" were successfully concluded in three countries, namely India, Turkey and Malaysia for five days each in June and July with the administrative support of Comptroller and Auditor General of India, Turkish Court of Accounts, and National Audit Department of Malaysia, respectively. In each Meeting two of six resource persons from SAIs of China, India, Indonesia, Malaysia and Philippines facilitated the sessions with the support of the Program Manager from SAI Thailand. A representative of the Capacity Development Administrator of ASOSAI (SAI Japan) also attended the two Meetings to organize them. In the three Meetings, total 61 participants from 27 SAIs attended the Meeting and actively discussed about their audit plans.

over Execution of the Republican Budget of the Republic of Kazakhstan. Twenty nine participants from twenty seven member SAIs attended the seminar with facilitation and technical guidance provided by Subject Matter Experts (SMEs) from the SAIs of

Indonesia and Turkey. A representative of the Capacity Development Administrator of ASOSAI (SAI Japan) also participated in the seminar for the management of the seminar.

The purpose of the seminar was to share experience and knowledge on IT audit, as well as identify good practices of IT Audit. During the seminar, selected participants made presentations based on their country reports on the above theme, which were followed by Q&A sessions. At the end of the seminar, participants agreed on the identified good practices of IT audit, and the seminar was successfully concluded on July 13th, 2018.

4. 14TH ASOSAI ASSEMBLY,

The 14th Assembly of Asian Organization of Supreme Audit Institutions (ASOSAI) was held during 19th - 22nd September 2018 in Hanoi, Vietnam. This Assembly attracted attention of more than 250 delegates from 41 member SAIs, international organizations and observers. The 7th Symposium “Environmental Auditing for Sustainable Development” was held in conjunction with this Assembly on

20th September 2018 in Hanoi, Vietnam. This Symposium welcomed more than 400 delegates and guests from member SAIs, International Organization of Supreme Audit Institutions (INTOSAI), professional associations, multinational auditing firms, institutions and universities. The Courtesy call on the President of the Socialist Republic of Vietnam and the visit to the Headquarters of the State Audit Office of Vietnam, as the side events, were held after the first plenary session on the 19th September 2018.

Opening Ceremony of the 14th ASOSAI Assembly and the Commemoration of the 40th Year of the ASOSAI Charter.





The Opening Ceremony of the 14th ASOSAI Assembly, on 19th September, was held to not only commence the Assembly but also celebrate 40 years of establishment of the ASOSAI Charter. Approximately 1000 participants including delegates from member SAIs and international organizations, and representatives from many agencies of the Party, Central and Local Governments, National Assembly, civil societies, universities, institutions and embassies of several Asian countries in Vietnam attended this event. Her excellency Madam Nguyen Thi Kim Ngan, Chairwoman of the National Assembly of the Socialist Republic of Vietnam, and His excellency Mr. Trinh Dinh Dung, Member of the Party Central Committee and Deputy Prime Minister of the Socialist Republic of Vietnam, were the Guests of Honor.



This Ceremony commenced with a welcome address by Dr. Ho Duc Phoc, Auditor General of Vietnam, followed by opening remarks by Dr. Madinah Binti Mohamad, Auditor General of Malaysia and Chairwoman of ASOSAI, and Dr. Harib Al Amimi, President of the State Audit Institution of United Arab Emirates and Chairman of INTOSAI. Her excellency Madam Nguyen Thi Kim Ngan, Chairwoman of the National Assembly of the Socialist Republic of Vietnam, delivered the welcome remarks before striking the gongs to commence the Assembly.

First Plenary Session



On the 19th September 2018, before the session commenced, Dr. Harib Al Amimi, President of the State Audit Institution of United Arab Emirates and Chairman of INTOSAI addressed the Assembly.

The documents approved at the first plenary session included the report of the Secretariat activities of ASOSAI since the previous Assembly; the ASOSAI Financial Statements for FYs 2015-2017 and report of the Audit Committee; the ASOSAI Strategic Plan; the amendment of Section 1, Article IV of the ASOSAI Charter; Rule 14, Chapter V of the ASOSAI Rules and Regulations; Chapter II of the Established Selection Procedures of ASOSAI Post and the report on the ASOSAI capacity development activities. The ASOSAI Secretary General gave further clarification on the budget for the Capacity Development Program 2021 and the budget for e-learning course 2019-2021 in the ASOSAI Budget for FYs 2019-2021. In this regard, he explained that ASOSAI, during the first year (2019), is expected to require substantial budget to set up a system; once, the system is set up, such large budget may no longer be needed.



The session also saw the adoption of the reports on the IDI activities, the 11th Research Project, cooperation between ASOSAI and European Organization of Supreme Audit Institutions (EUROSAI) and between ASOSAI and African Organization of Supreme Audit Institutions (AFROSAI), and the ASOSAI Journal. Mr. Moermahadi Soerja Djanegara, Chairman of the Audit Board of the Republic of Indonesia, was awarded for the best article in the ASOSAI Journal for his article titled “The Role of SAIs to achieve more transparent, accountable, and sustainable REDD+ scheme: the case of Indonesia”. The Assembly also approved the reports on the ASOSAI Working Group on Environmental Audit, the INTOSAI Professional Standards Committee, the INTOSAI Knowledge Sharing Committee, the INTOSAI Compliance Audit Sub-Committee, the INTOSAI Working

Group on Environmental Audit and the INTOSAI Working Group on IT Audit, the INTOSAI Working Group on Big Data, the INTOSAI Policy, Finance and Administration Committee on the activities of the INTOSAI Governing Board.

The plenary also approved the State Audit Office of the Kingdom of Thailand as the host for the 15th Assembly in 2021 and National Audit Office of the People's Republic of China as the ASOSAI Secretariat for 2018-2021 Governing Board.

The ex-officio members of the Governing Board for 2018-2021 are:

- i. Supreme Audit Institution (SAI) Vietnam as the Chair for 2018-2021;
- ii. SAI Thailand as the host of the 15th Assembly to be held in 2021;
- iii. SAI Malaysia as the ex-Chair;
- iv. SAI China as the ASOSAI Secretariat for 2018-2021;
- v. SAI Korea as the ex-Chair for 2015-2018;
- vi. SAI Japan as the Capacity Development Administrator for 2018-2021; and
- vii. SAI India as the Chair, Board of Editors of ASOSAI Journal.

Seven SAIs who had self-nominated themselves for Governing Board members were announced. These

included SAIs of Bangladesh, Indonesia, Iraq, Kuwait, Nepal, Pakistan and Russia. There were also five self-nominations for two positions of the Audit Committee for 2018-2021 which included SAIs of Azerbaijan, Jordan, Saudi Arabia, Kazakhstan and Turkey.

The ASOSAI Secretariat General explained the voting procedure for selecting the Governing Board and the Audit Committee members for the period 2018-2021.



The first plenary session ended with changing the chairpersonship of ASOSAI from the Auditor General of Malaysia to the Auditor General of Vietnam.

Second Plenary Session

The second plenary session was held on 22nd September 2018. Five SAIs namely Indonesia, Kuwait, Russia, Nepal and Bangladesh were elected as members of the ASOSAI Governing Board; and SAIs

of Turkey and Kazakhstan were elected as ASOSAI Audit Committee for the period 2018-2021. The report on the 7th ASOSAI Symposium “Environmental Auditing for Sustainable Development” was presented by SAI Vietnam.

A special presentation on “The revised due process for INTOSAI documents” was delivered by Mr. Praveen Kumar Tiwari, Director General (International Relations) of the Office of the C&AG of India, followed by two speeches on the activities of ASEANSAI Organization of Supreme Audit Institutions (ASEANSAI) and Economic Cooperation of Supreme Audit Institution (ECOSAI) by Ph.D. Viengthong Siphandone, President of State Audit Organization of Lao PDR and Mr. Seyit Ahmet BAŞ, President of SAI Turkey, respectively.

The ASOSAI Secretary General announced that ECOSAI were recognized as an observer in ASOSAI Assembly by a majority of the Governing Board members at the 52nd Governing Board Meeting.

The Hanoi Declaration was presented by Prof. Doan Xuan Tien, Deputy Auditor General of Vietnam, on behalf of Dr. Ho Duc Phoc, Auditor General of

Vietnam; and was adopted at the Assembly. This was followed by a speech by Mr. Prajuck Boonyoung, Auditor General of the State Audit Office of the Kingdom of Thailand and the next Chairman of ASOSAI.

The session saw a change of ASOSAI Secretariat from SAI Korea to SAI China. The ex-Secretary General of ASOSAI announced SAI Palestine was recognized as the 47th member of the ASOSAI community.

SAIs of India, China and Malaysia were designated as the ASOSAI Training Centers and were awarded a plaque and certificate to certify their designation as the ASOSAI Training Centres.

7th ASOSAI Symposium

This symposium held on 20th September 2018 served as a platform for member SAIs, international institutions and professional associations to exchange and share knowledge and best practices on environmental auditing and sustainable development.



The symposium was divided into 3 sessions. The first session includes opening speech by SAI Vietnam and two keynote speeches by SAIs of United Arab Emirates (UAE) and Korea, followed by 04 special reports presented by representatives from SAIs of Malaysia, Indonesia, China and Vietnam.

recommendations to strengthen the role of SAIs in sustainable development and promote cooperation among SAIs and with other organizations in conducting environmental auditing and addressing environmental issues.



At the second session (discussion), there were 02 presentations from IDI and ACCA; and 04 country papers from SAIs of Australia, Thailand, Bangladesh, Nepal and Kuwait. The final session drew many

Activities in Member SAIs

SAI India

1. Visit of four member delegation from SAI Sri Lanka to India, 2-10 May 2018

A four member delegation from the Audit Service Commission of SAI Sri Lanka consisting of Mr. V. Kandasamy, retired Deputy Auditor General, Justice Sunil Rajapaksa, Retired Judge of the Court of Appeal of Sri Lanka, Mr. W.A.S. Perera, Sri Lanka Administrative Service Officer (Retired) and Mr. Gaminiabeyrathna, retired Deputy Auditor General visited India from 02 May to 10 May 2018 for an awareness program in SAI India establishment to gain some foreign exposure with regard to execution of matters related to management of audit service activities. During their visit the delegation met with the Senior Management of SAI India.

The delegation also visited the International Center for Information Systems and Audit (iCISA) at NOIDA, the International Center for Environment Audit and Sustainable Development (iCED) at Jaipur and

National Academy of Audit and Accounts, Shimla.



2. Nomination of IT Experts from SAI India to State Audit Bureau, Kuwait, 16 April to 3rd May 2018 and 23rd April to 4th October 2018.

Two IT auditing experts were deputed from SAI India to SAB Kuwait delivering a theoretical and practical training course for duration of three weeks each to the Auditors of SAB Kuwait on IT Audit. The trainings were held at Kuwait from 16 April 2018 to 3rd May 2018 and 23rd September 2018 to 4th October 2018.

3. Bilateral Meeting with Auditor General, Norway and Chairman of IDI Board, Oslo, Norway, 25 June, 2018

Comptroller and Auditor General of India met the Auditor General of Norway and the Chairman of Board of INTOSAI Development Initiative on the side lines of the Regions coordination Platform meeting in Oslo on 25th June, 2018.

The meeting focused on discussing the framework of cooperation to provide for a long term, continuous and scaled up cooperation between SAI India and IDI. SAI India and the IDI have had a long tradition of cooperation for

contributing to the implementation of INTOSAI strategic plan and supporting SAIs in the INTOSAI community.



SAI Kuwait

1. Signed Cooperation Agreements between the State Audit Bureau of Kuwait and other SAIs:

- The State Audit Bureau of Kuwait signed a new Cooperation Agreement with the Auditor General's Office of Republic of Maldives, and adopted a work plan for the years 2019-2022.
- The State Audit Bureau renewed the Cooperation Agreement with the Office of the Comptroller and Auditor General of the Republic of Bangladesh.

2. SAB Contributions to ASOSAI Calendar 2017-2018:

- The State Audit Bureau of Kuwait hosted the 1st Phase of the Training Program "IT Audit", in cooperation with experts from the Office of the Comptroller and Auditor General of India during the period from 16th of April 2018 to 3rd of May 2018.
- The State Audit Bureau participated in a workshop on "Activating Automated Systems to Increase Audit and Control Performance Efficiency" which was held from 7th to 9th of May 2018 in the People's Republic of China, within the scope

of activating the cooperation agreement with the National Audit Office of the People's Republic of China.

- The State Audit Bureau participated in the Training Program "Environmental Audit, IT Audit Systems and Best Practices" which was held during the period from 9th to 11th of May 2018 in the Republic of Korea, within the scope of activating the cooperation agreement with the Board of Audit and Inspection of Korea.
- The State Audit Bureau participated in the first meeting of the research team for "Application of Big Data Analytics in Environmental Auditing", as well as in ASOSAI Capacity Development Program on "IT Audit 2018-2019" that was held from 20th to 22nd of June 2018 in the People's Republic of China.
- The State Audit Bureau participated in the meeting of the research team of ASOSAI 11th Research Project on "Methods for Developing Risk-based Audit Plans" during 2016-2018, which was held from 10th to 11th of July 2018 in Malaysia.

- The State Audit Bureau participated in a seminar on “IT Audit” held during the period from 9th to 13th of July 2018 in the Republic of Kazakhstan.
- A delegation from the State Audit Bureau visited the Accounts Chamber of the Russian Federation to get acquainted with their automated systems in the field of “Remote Audit, Big Data, and Interactive Map” during the period from 24th to 26th July 2018.
- The State Audit Bureau participated in a training program on “Financial and Regularity Audit”, which was held during the period from 13th of August to 7th September 2018 in the Republic of India.
- A delegation from the State Audit Bureau headed by Mr. Adel Al-Sarawi, A/President of the State Audit Bureau, participated in ASOSAI 14th Assembly held during the period from 19th to 22nd of September 2018, the 7th Symposium on “Environmental Auditing for Sustainable Development” held on the 20th of September 2018, and the 53rd Governing Board Meeting on the 22nd of September 2018 in Republic of Vietnam. SAB nominated itself for ASOSAI Governing Board membership for the period 2018-2021 and was elected as a Governing Board member for this term.
- The State Audit Bureau of Kuwait hosted the 3rd phase of the Training Program “IT Audit”, in cooperation with experts from the Office of the Comptroller and Auditor General of India. The program was held during the period from 23rd of September to 4th of October, 2018.

Email / Webpage addresses of member SAIs

SAI	Email address	Webpage
Afghanistan	sao@sao.gov.af / afghancao@gmail.com	http://sao.gov.af/en
Armenia	vpal@parliament.am	www.coc.am
Australia	ag1@anao.gov.au External.Relations@anao.gov.au	www.anao.gov.au
Azerbaijan	office@ach.gov.az chairman@ach.gov.az	www.ach.gov.az
Bahrain	info@nac.gov.bh	www.nac.gov.bh
Bangladesh	international@cagbd.org	www.cagbd.org
Bhutan	auditorgeneral@bhutanaudit.gov.bt	www.bhutanaudit.gov.bt
Brunei Darussalam	jbaudbd@brunet.bn	www.audit.gov.bn
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Electronic communication between Supreme Audit Institutions is increasing rapidly. In view of this, a list of e-mail and World Web Site Address of ASOSAI members (as available with us) have been compiled and shown in the above table. It is requested that addresses of those SAIs that do not in appear in the table may please be intimated to the Editor for incorporating in the future issues of the Journal. Please also let us know in case there are any modifications to the addresses listed above.

Other important Email/Webpage addresses

	Email address	Webpage
INTOSAI	intosai@rechnungshof.gv.at	www.intosai.org
ASOSAI	koreasai@korea.kr	www.asosai.org
EUROSAI	eurosai@tcu.es	www.eurosai.org
OLACEFS	relacionesinternacionales@contraloria.cl (Executive Secretariat, SAI of Chile) PresidenciaOLACEFS@asf.gob.mx (Presidency of OLACEFS, SAI of Mexico)	www.olacefs.com
PASAI	enquiry@oag.govt.nz	www.pasai.org
ARABOSAI		www.arabosai.org
INTOSAI Development Initiative (IDI)	idi@idi.no	www.idi.no
INTOSAI Working Group on IT Audit (WGITA)	ir@cag.gov.in	www.intosaiitaudit.org
Working Group on Environment al Auditing	info@wega.org	<a href="http://www.environmentalauditin
g.org">www.environmentalauditin g.org
Working Group on Privatisation, Economic regulation and Public Private Partnership (PPP)	Tim.burr@nao.gsi.gov.uk	<a href="http://www.nao.gov.uk/intosai/
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International Journal of Government Auditing	intosaijournal@gao.gov	www.intosaijournal.org
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rg">http://www.asosaijournal.o rg

Schedule of upcoming Events of ASOSAI

Tentative schedule of ASOSAI capacity development activities for 2019

Year	Date	Event	Venue
2019	4-8 February	Design meeting for Training Course for Resource Persons on eLearning	Tokyo, Japan
	April	ASOSAI Capacity Development Program on IT Audit: Regional Audit Review Meeting	Bangkok, Thailand
	April-May (tentative)	Training Course for Resource Persons on eLearning	(online)