OCTOBER 2023 ISSUE

ASOSAI Journal

Asian Journal of Government Audit

Asian Organisation of Supreme Audit Institutions

Sustainable Agriculture and Food Security

ASIAN JOURNAL

of Government Audit - October 2023

The Asian Journal of Government Audit is a popular 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 to 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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From the desk of ASOSAI Chair

General Chanathap Indamra, President of the State Audit Commission
State Audit Office of the Kingdom of Thailand

Dear Members and Readers,

As we present the October 2023 edition of the ASOSAI Journal, focusing on the crucial theme of "Sustainable Agriculture and Food Security," it is my pleasure to share some reflections on our collective journey towards sustainability and accountability.

Our central theme resonates deeply with several Sustainable Development Goals (SDGs), notably SDG 1 (No Poverty), SDG 2 (Zero Hunger), and SDG 3 (Good Health and Well-being). In our roles as Supreme Audit Institutions (SAIs), we have a unique responsibility to audit and report on the progress towards these goals. Through rigorous SDG audits, we contribute to ensuring that sustainable agriculture and food security policies are not only well-crafted but also effectively implemented and impactful.

The role of SAIs extends beyond mere financial accountability. We are the champions of transparency and good governance. In this 'next normal' era, our focus must also encompass nurturing a sustainable mindset. This means advocating for policies and practices that prioritize long-term ecological balance and social equity, ensuring that our nations not only grow but thrive sustainably.

The ASOSAI Journal, with SAI India at the helm as the Editor, has been a cornerstone in our efforts to connect and enlighten our audit communities across Asia and beyond. The journal has consistently provided a platform for sharing knowledge, best practices, and innovative approaches in public sector auditing. As we look forward to next year, with SAI India hosting the 16th ASOSAI Assembly, we are confident that ASOSAI will continue to grow and make meaningful contributions to the global auditing community.

In closing, I extend my gratitude to all contributors to this edition of the journal. Your insights and experiences are invaluable in our shared pursuit of a more sustainable and secure future. Let us continue to work together, with renewed commitment and collaboration, towards achieving our common goals.

Thank you for your ongoing support and cooperation.

Sincerely,

General Chanathap Indamra

Chairman of ASOSAI

From the desk of ASOSAI Secretary General

Mr. HOU Kai
Secretary General Of ASOSAI And Auditor General Of The National Audit Office Of the People's Republic Of China

Advancing Sustainable Agricultural Development and Food Security in Asia with Audits

Agriculture represents the cornerstone of human civilization, and its development history reflects the development history of human civilization. As one of the major origins of the global agricultural civilization, Asia's history of agricultural development dates back to 10,000 years ago. As a major advance in human history, the widespread cultivation and production of crops, and the massive domestication of livestock and poultry, not only provided a stable and sustainable food source for humans, but also transited human society from a primitive stage dominated by hunting and gathering towards an era of farming civilization based on agricultural production.

In the 20th Century, accompanied by the development of industrialization, developed countries embraced modern agriculture characterized by machinery, chemicals and energy, achieving significant benefits. However, the heavy utilization of chemical products covering fertilizers, pesticides and herbicides led to a series of negative consequences. Such problems as environmental pollution, soil erosion, and ecological destruction jeopardize the Earth's environment on which humans rely for survival, and affect human health. In 1991, the Food and Agriculture Organization of the United Nations (FAO) introduced the concept of sustainable agriculture, advocating for countries worldwide to establish a new pattern of agricultural development that is resource-saving, environment-friendly, industrially efficient, and income-generating for farmers, and can meet the needs of human at present and the future.

Currently, there are uncertainties in the global agricultural sustainable development and food security. According to the 2023 UN Report on the State of Food Security and Nutrition in the World (SOFI), the COVID-19 pandemic has been recurring since 2019, and conflicts such as climate shocks and local wars have occurred frequently. The global population facing hunger has increased by 122 million. Asia, as the most populous region in the world, faces critical challenges in eliminating hunger and poverty, safeguarding the interests of farmers, as well as advancing sustainable agricultural development and food security.

Countries worldwide have maintained a high attention on agriculture and food security. The Goal 2 in the UN 2030 Sustainable Development Goal (SDGs) is to eliminate hunger and achieve food security. Audit institutions should also make due contributions towards this goal. By sharing the best practices of SAIs in various countries on auditing agriculture and food security, this issue of ASOSAI Journal aims to evoke the attention of SAIs in Asian countries to agriculture and its audit work, and facilitate the exchanges of audit experience, knowledge sharing and competency enhancement in this field.

Through our concerted efforts to conduct audit projects in agriculture and food security, we believe that SAIs in Asia will contribute to the implementation of the 2030 Agenda for Sustainable Development, safeguarding global food security and pursuing shared development.

From the desk of the Editor

Ms. Eti Shukla
Principal Director (International Relations)
Office of the Comptroller and Auditor General of India

Mahatma Gandhi once said that "The world has enough for everyone's need, but not enough for everyone's greed." This ominous quote continues to stay relevant even today, as the governments globally struggle to feed its people, with the world population projected to reach 9.8 billion in 2050.

Post World war II, the world embraced modern agriculture to meet the ever growing need for food, fodder and fuel. This involved use of modern machinery, technological developments, high use of agrochemicals viz pesticides and fertilizers, selective breeding and genetic modification to name a few. The modern agriculture helped to meet our requirements but also contributed to serious ecological and environmental damage viz. contribution to climate change, biodiversity loss, depletion of clean water resources, antibiotic resistance, and other forms agricultural pollution.

The Sustainable Development Goal 2 (SDG 2) to "End hunger, achieve food security and improved nutrition and promote sustainable agriculture" (SDG2) encompasses addressing climate change, ensuring healthy lifestyles, empowering small farmers, advancing gender equality, ending rural poverty, and supporting sustainable agriculture.

Sustainable agriculture is an agricultural system that aims to fulfill the needs of the present human population while conserving the planet's ability to sustain future generations. It uses methods like organic farming, crop rotation, agroforestry, rainwater harvesting with the aim to maintain the health of the ecosystem, earn profit and promote socioeconomic fairness.

In order to ensure that everyone has access to wholesome food, sustainable agriculture can play a crucial role in managing natural resources in a way that preserves ecosystem balance and meets present and future human needs. Building resilience of local food systems will be critical to averting large-scale future shortages and to ensuring food security and good nutrition for all. Eradicating poverty and hunger are integrally linked to boosting food production, agricultural productivity and rural incomes.

Sustainable agricultural practices and food systems, including both production and consumption, must be pursued from a holistic and integrated perspective. An increase in integrated decision-making processes at national and regional levels are needed to adequately synergise and address trade-offs among agriculture, water, energy, land and climate change.

Around the world, the Supreme Audit Institutions are collaborating and innovating to support their governments in incorporating sustainable agriculture and food security into national development plans and in evaluating the progress being achieved in the interlinked areas of poverty alleviation, gender equality, and climate change.

The audit findings can help the policymakers, administrators, philanthropists to improve the sustainability of food systems everywhere as well as advocating for policy and regulatory reforms to improve the efficiency and integration of domestic food markets by judicious use of public funds.

I am grateful to General Chanathap Indamra, Chairman of ASOSAI and Mr Hou Kai, Secretary-General of ASOSAI, for their motivational messages. I thank SAIs of China, Egypt, Indonesia and Kuwait for contributing articles for this issue of the journal. I am indebted to the contributors for enlightening us on ways to promote sustainable agriculture and food security by sharing the audit processes of their SAIs. I shall also reiterate my request here to actively follow our Twitter handle-@AsosaiJournal for accessing the articles published in the journal.

CONTENT

ASOSAI NEWS

Instructors' Design Meeting for the ASOSAI Capacity Development Program 2023 (Workshop) on "Audit of Infectious Disease Prevention Programs in post COVID-19 situation" (Tokyo, June 2023)

The Instructors' Design Meeting for the ASOSAI Capacity Development Program 2023 (Workshop) on "Audit of Infectious Disease Prevention Programs in post COVID-19 situation" was held from June 19 to 30, 2023 in Tokyo, Japan with the administrative support of the Board of Audit of Japan.

Six resource persons from SAIs of Bangladesh, Bhutan, Malaysia, Philippines, Thailand and Vietnam attended the meeting to design the course and develop course materials for the workshop.

Two Subject Matter Experts from World Health Organization provided technical advice on public health system resilience to the resource persons and representatives of the Capacity Development Administrator of ASOSAI (SAI Japan) were in charge of overall management of the meeting.

The course material formulated during the meeting were utilized in the ASOSAI Workshop on "Audit of Infectious Disease Prevention Programs in post COVID-19 situation" held in October 2023 in Hanoi, Vietnam.

ASOSAI Capacity Development Program 2023 (Workshop) on "Audit of Infectious Disease Prevention Programs in post COVID-19 situation" (Hanoi, October 2023)

ASOSAI Capacity Development Program 2023 (Workshop) on "Audit of Infectious Disease Prevention Programs in post COVID-19 situation" was held in Hanoi, Vietnam from October 16 to 27, 2023 with the administrative support of the State Audit Office of Vietnam.

Five instructors from SAIs of Bangladesh, Bhutan, Malaysia, Philippines and Vietnam delivered the sessions of the workshop, and a Subject Matter Expert from the World Health Organization supported the instructors and participants in their knowledge of the public health and health system resilience field. A representative of the Capacity Development Administrator of ASOSAI (SAI Japan) also attended for organizing the workshop. 23 participants attended in the workshop, actively discussed their views on the topic. The course materials of the workshop is available on the ASOSAI website.

The 59th ASOSAI Governing Board Meeting Held in Busan, Republic of Korea

The Board of Audit and Inspection of Korea hosted the 59th ASOSAI Governing Board Meeting (GBM) on the 21st and 22nd of September, 2023 in Busan, Republic of Korea, with 99 delegates from 16 countries in attendance.

This ASOSAI GBM was held in person for the first time in four years, following the 54th ASOSAI GBM held in Kuwait in 2019, after being suspended due to the COVID-19 pandemic.

On the first day of the meeting, along with the activity reports presented by the Chairs of each Working Group, Secretariat, and Capacity Development Committee, the Governing Board Members approved the budget plan for the 2024-2026 fiscal year and the establishment of the ASOSAI Working Groups on State-Owned Enterprises and IT Audit with Data Analytics.

On the second day of the meeting, a vote by the Governing Board Members resulted in the nomination of SAI Indonesia as the Host for the 26th INTOSAI Assembly in 2028 and SAI Saudi Arabia as the Host for the 17th ASOSAI Assembly in 2027. The term of the ASOSAI Secretariat was also renewed to 2027.

After the conclusion of the GBM, delegates enjoyed a sightseeing tour in the enchanting city of Busan and paid a visit to a Buddhist temple to witness Korean culture and traditions.

59th Meeting of the Governing Board of ASOSAI-A Meeting Paved the Way for Progress in the Next Decade-SAI China

The 59th meeting of the ASOSAI Governing Board was held in Busan, Korea, from September 21 to 22, 2023. This was the first in-person ASOSAI Governing Board meeting since 2019, and it attracted attention from all parties. The host, the Board of Audit and Inspection of Korea, made thorough preparations for the meeting. The hospitable Korean auditors warmly welcomed delegates from various countries in Busan, a city that blends ancient and modern elements. The meeting was co-chaired by General Chanathap Indamra, Chairman of ASOSAI and President of the State Audit Commission of Thailand, and Mr. Hou Kai, Secretary General of ASOSAI and Auditor General of China. The meeting accomplished three important objectives: promoting the professional development of public sector auditing in the region, enhancing the governance capabilities of the organization, and nominating hosts for important future meetings. The outcomes of the meeting outlined a more sustainable, efficient, and transparent future for international cooperation and public sector auditing in the next decade.

1. Paving the Way Forward: Leading the Future of Auditing in Asia

The meeting reviewed reports from various ASOSAI and INTOSAI's working groups, approved plans for the working groups on environmental auditing, SDGs and crisis management auditing, encouraging SAIs in our region to further their roles and expand their impact in these fields. This supports countries in achieving SDGs and related national priorities, serving the national governance of Asian countries.

2. Enhancing Governance Capabilities: Empowering the Development of ASOSAI

ASOSAI, with 48 members, is one of the largest regional organization of INTOSAI. Enhancing the internal governance capabilities of ASOSAI has been a priority of the Board. At the meeting, members discussed and updated organizational structures, rules and regulations, and strategic planning implementation plans. They decided to conduct a new round of ASOSAI mapping and expand key organs of the organization, aiming to increase member involvement in ASOSAI activities and demonstrating the Board's commitment to improving governance and performance capabilities.


GOVERNING BOARD MEETING
Busan, Republic of Korea, 21-22 September 2023

3. Nominating Hosts for Meetings: Reflecting a Democratic Decision-Making Process

On September 22, the Board nominated the SAI Saudi Arabia as the host for the 17th ASOSAI Assembly in 2027, and SAI Indonesia for the XXVI INCOSAI in 2028. The nomination process reflected ASOSAI's democratic, transparent, and fair decision-making mechanism, and showed the commitment, aspiration, and desire of Asian SAIs to contribute more to the international community.

As the first in-person Governing Board meeting of ASOSAI after the pandemic, this event also witnessed rich bilateral and multilateral exchanges among delegates during breaks, fostering deeper understanding, friendship, and cooperation among auditors from various countries.

The 59th meeting of the ASOSAI Governing Board not only focused on current tasks but also paved the way for future cooperation, development, and innovation. ASOSAI members, as a community with a shared destiny, are gradually realizing the vision of becoming a more inclusive, efficient, and forward-looking model international organization.

THEME ARTICLES

Highly concerned with agricultural audit, the National Audit Office of China (CNAO) always emphasizes on auditing the stable production and sufficient supply of food and important agricultural products. Prioritizing food security, CNAO conducts relevant policy implementation and fund using audits, giving full play to the constructive role of audit in improving the policies on food security, enhancing fund's security and performance, and holding to account all acts of corruption involving food and agriculture.

I. China's Remarkable Achievements in Food Security

With arable land accounting for 9% of the world's total and freshwater resources accounting for 6% of the world's total, China succeeds in feeding a population of nearly 1.4 billion, about 20% of the world's total. Furthermore, China has remarkably improved the people's nutrition and life quality. Its people now have not only enough to eat, but also a greater range of choice. With its food production capacity and modernization level of food circulation enhanced, China keeps improving its food-supply structure for steady development of the grain industry. This is manifested in the following aspects.

First, there is steady growth in food production. China's total food output reached 680 million tons in 2022, remaining above 650 million tons for the eighth year in succession. The per-capita food output reached about 486 kg, higher than the world average. In 2022, China's average food yield per hectare reached up to 5,802 kg, with the per unit yield of rice and wheat over 50% higher than the world average.

Second, self-sufficiency in grain supply is ensured. In 2022, China's grain output reached 633 million tons, accounting for more than 90% of the total food output. At present, China boasts a food self-sufficiency ratio of over 100% and a grain self-sufficiency rate of over 95%, with the basic self-sufficiency of grain supply and absolute security of staple grains.

Third, food storage capacity is enhanced. In 2022, the storage capacity of qualified food warehouses was about 700 million tons across China. Food storage is further modernized, with China's food storage facilities generally reaching world advanced levels. Moreover, a multimodal transport network for food logistics composed of highways, railways and waterways, and a network of emergency reserves, processing and distribution have taken shape basically, playing an important role in response to major natural disasters and public emergencies.

Fourth, the health and nutritional status of residents is improved. China features various foodstuffs, enabling Chinese residents access to sufficient intake of the three major nutrients, protein, fat and carbohydrates. Hence, with residents having more diversified food and healthier diets, the proportion of carbohydrates intake has decreased, with an increase in the proportion of fat and quality protein intake. Furthermore, there is an improvement in nutritional level of target population including children, pregnant women and the elderly.

Fifth, the difficulty in feeding the poor is overcome. As of the end of 2020, a total of 98.99 million impoverished Chinese villagers were all lifted out of poverty according to the current standard. China, with a population accounting for nearly one-fifth of the world's total, has completely eradicated absolute poverty, achieving the poverty reduction goal in the 2030 Agenda for Sustainable Development Goals 10 years in advance, basically solving the problem of feeding the poor. The impoverished rural residents' average disposable income reached RMB 12,588 in 2020. The rise of income has enhanced food accessibility to the distressed areas, with a steady increase in the grain intake among the poor.

While ensuring food security, China is an active promoter of free trade, shares food market resources, and expands international cooperation in food and agriculture, to contribute to promoting the sound development of the food industry in Asia and the world and maintaining global food security.

II. Policy Background of Food Security in China

The following supportive policies and measures have been formulated in China, to promote sustainable agricultural development and ensure food security:

The first is to lay a solid foundation for food production capacity. China implements the strictest farmland protection system, with the policy of balancing the occupation and replenishment of farmland and a complete and special protection system for permanent basic farmland introduced, to draw a red line for its 120 million hectares of farmland. With focus on improving the quality of farmland, China implements an overall plan for the development of high-standard farmland to promote the practice of returning straw to the field and the application of organic fertilizers. It carries out a pilot system of fallow rotation of farmland and controls the application of chemical fertilizers and pesticides to gradually eliminate non-point source pollution for the environmental protection. China also builds functional areas for food production and protected areas for the production of important agricultural products, and major water conservancy projects for water saving and water supply, projects for support facilities and modern and efficient water-saving reconstruction in irrigation districts, projects for standardizing and improving the quality of small-scale irrigation facilities, to strengthen the utilization efficiency of water resources.

The second is to cultivate and arouse the enthusiasm of grain planting. In 2006, China abolished the agricultural tax, which had existed for 2,600 years, lightening the burden on the farmers. China keeps improving the mode of production and operation and cultivating new-type agricultural business entities and socialized service organizations to promote moderate-scale operations. To protect farmers from low grain prices and problems in selling their output, China has introduced procurement policies, covering minimum purchasing price procurement and temporary state collection and storage.

The third is to develop grain industry economy. China is accelerating the construction of a modernized grain industry system, to promote the integrated development of primary, secondary and tertiary industries. China implements Quality Food Projects, builds demonstration cities and counties, develops exemplary industrial parks and incubates backbone enterprises to promote the transformation and upgrading of the grain industry. Professional post-production grain service centers have been established to provide farmers with cleaning, drying, storage, processing and marketing services. A grain quality and safety inspection and monitoring system has been established, with a series of standards for grain and oil set for food quality.

The fourth is to facilitate grain storage and logistics. China has established a system of central and local grain storage. Besides, China keeps modernizing grain storage and logistics, improving the inspection methods of grain inventory and the quality and safety supervision system, and building a responsibility system and code of conduct for safe storage of grain and oil. China promotes application of key technologies for grain storage and preservation, pest and mildew control, loss reduction in grain storage and transportation to improve the freshness and quality of grain.

The fifth is to strengthen the scientific and technological support for grain production. Emphasizing on seed innovation and development, China has promoted research on high-quality varieties of corn, soybean, rice and wheat, basically realizing wide applications of all major food crops. China has concentrated efforts to increase crop yield through science and technology, promoting agricultural techniques such as scientific fertilization, water-saving irrigation, green prevention and control, thereby advancing the transformation and upgrading of agricultural mechanization and agricultural machinery and equipment industries.

The sixth is to strengthen responsibility for agricultural development and food production. The Chinese central government takes overall responsibility for food security, while the provincial governments bear the primary responsibility. Administrative powers and responsibilities have been clarified for the provincial governments in safeguarding national food security in terms of production, circulation and consumption. An assessment mechanism has been established and a working group composed of relevant state departments has been formed, responsible for carrying out the assessment, further consolidating the responsibility of local governments in maintaining national food security.

III. Auditing as a Strong and Effective Safeguard for National Food Security

In recent years, CNAO monitors the policy implemenation and funds for sustainable agricultural development and food security, through special audits of the farmland water conservancy, seed development funds, and grain reserves projects.

First, in terms of laying a solid foundation for food production capacity, CNAO has conducted the audits on the effectiveness of farmland protection, high-standard farmland construction, large and medium-sized projects for support facilities and water-saving reconstruction in irrigation districts and related funds, black soil conservation and treatment, reduced application of pesticides and chemical fertilizers, recycling of straw and agricultural film, livestock and poultry manure disposal, etc. Audits also identify prominent problems concerning farmland quantity and quality protection, irrigation and water conservancy facilities construction, and green agricultural development.

Second, in terms of cultivating and arousing the enthusiasm of grain planting, CNAO has performed the audits on the implementation of pilicies to benefit farmers, the use of agricultural insurance, the cultivation of new-type agricultural business entities such as cooperatives and family farms, the implementation of agricultural credit support policies. Audits reveal prominent problems concerning the efficiency of protecting farmers' income and improving agricultural production and operation, promote the establishment of the agricultural insurance system, and punish the minor corruption, thereby protecting farmers' interests and motivating grain growing.

Third, in terms of facilitating grain storage and circulation management, CNAO has implemented the audits on the quality of circulated food, the construction of emergency food supply outlets, the development of post-production service capacity for scientific storage and drying of grain, and loss prevention management for mechanized wheat harvesting. Audits find out prominent problems and latent risks concerning the management and utilization of related fiscal funds, as well as the implementation of food storage and circulation policies. Furthermore, audits reveal corruption in grain purchase and sales, to promote strict implementation of the responsibilities for the safety management of grain storage, and improve the grain reserve mechanism.

Fourth, in terms of strengthening the scientific and technological support for food production, CNAO has conducted audits on the conservation and utilization of germplasm resources, scientific and technological innovation in breeding, the construction of national high-quality varieties breeding bases, seed reserves for disaster relief and preparation, and supervision over the seed market. Audits identify prominent problems influencing the foundation and capacity of seed innovative development, to facilitate the high-quality development of seed technology in the form of self-reliance and self-improvement.

Fifth, in terms of implementing the responsibility system of provincial governors for food security, CNAO has considered food security as a key audit subject matter, and the assessment of the responsibility system of provincial governors for food security as an important basis of accountability audit over leading officials. Audits related to food security are conducted over the completion of tasks, the implementation of policies and measures, and the management and utilization of funds.

For the above audit findings, CNAO reports to the relevant departments, and also puts forward practical audit recommendations on relevant issues. Meanwhile, CNAO strengthens post-audit rectification, urges relevant departments and local governments to establish a ledger of audit findings requiring rectification, and promotes competent authorities, including the departments of agricultural and rural affairs, water resources, grain and material reserves, and public finance, to assume their regulatory responsibilities. Moreover, CNAO explores to improve the rules and regulations, establish strict procedures and standards, and reduce loopholes and risks. CNAO takes the lead in solving problems at source and gathering forces together for post-audit rectification, to give full play to the important role of supervision through auditing in "solving problems after occurrence and preventing potential problems before occurrence".

Annex: Introduction to Audit Cases of High-standard Farmland Construction

High-standard farmland construction[1] is a key measure taken by China to consolidate and improve its food production capacity and ensure national food security. As is pointed out in the National Development Planning for the "14th Five-Year" Plan, China will build about 71.67 million hectares of high-standard contiguous farmland. The National Plan for High-Standard Farmland Construction (2021-2030), issued with the approval of the State Council, clarified goals, contents and requirements for high-standard farmland construction. From 2020 to 2021, CNAO has audited the funds and projects for high-standard farmland construction among 138 counties in 21 provinces.

[1] High-standard farmland refers to a kind of farmland that is level, contiguous, well-equipped, water-saving and efficient, available with rural electricity, suitable for machine operation, fertile, eco-friendly, highly resistant to disasters, and productive in spite of drought and flood, with modern modes of agricultural production and operation.

(I) Focus of Audit

On the basis of the national planning and local task performance, CNAO has performed audits over the entire process covering project planning, project construction, fund utilization, and post-construction management and maintenance, with funds, projects and policies. Audits are focused on the planning and management of high-standard farmland construction, the progress of task execution, the quality of project construction, the management and maintenance, the post-construction effectiveness, etc.

(II) Problems Identified in Audits

First, high-standard farmland construction is not well-connected with the planning for water conservancy and food production. Some local departments of agriculture, water resources and electric power have less communication, with high-standard farmland construction disconnected from the implementation of large and medium-sized projects for support facilities in irrigation districts and rural power grid upgrading. Thus, some high-standard farmland contains “ditches but no water” and “wells but no electricity”. Several regions do not prioritize the development of permanent basic farmland protection zones, functional areas for food production, protected areas for the production of important agricultural products and national seed bases, to build the high-standard farmland. In some other regions, high-standard farmland is built in areas that are geographically poor and unsuitable for farming, with supporting facilities and financial funds going down the drain.

Second, high-standard farmland construction is not yet completed, even with false declaration. Due to the lack of rigorous statistical methods for high-standard farmland construction and the measures for substantive verification, some regions have submitted a false report on the progress of high-standard farmland construction and the built area. Some have reported projects in progress as completed or repeatedly reported the projects. Some have even reported the built area of projects in progress according to the proportion of used construction costs, with the projects not yet finished.

Third, the quality of high-standard farmland construction is not up to standard. Some project sites are unqualified, i.e., farmland is built on a slope of 25° or higher or scattered, not compatible with the modern mode of agricultural production and operation. Some projects are located in the core and buffer zones of nature reserves, afforestation areas, and grasslands, with benefits barely generated. In some regions, high-standard farmland construction is carried out with engineering for road, bridge, ditch and well construction, incapable of enhancing the farmland fertility and quality. Additionally, in some other cases, project quality is not strictly controlled, e.g., the construction company ignores the design drawing or uses inferior materials, resulting in the quality dissatisfaction.

Fourth, the management, maintenance and utilization of high-standard farmland are unqualified. In some cases, the transfer of assets is not implemented, with undefined responsibilities and a lack of the guarantee for the management and maintenance fund. Hence, the damaged irrigation and water conservancy facilities, covering pump stations, pumping wells, bridges and culverts, ditches, field paths, water-saving irrigation equipment, fail to be repaired in time, only left unused.

The high-standard farmland protection mechanism is not implemented efficiently. Some high-standard farmland is illegally occupied for other projects after construction. Some is not used for grain production as required, but is left unused or used for “non-agricultural purposes” or “non-grain purposes” such as fruit tree planting and fishpond construction.

In response to the above problems, we have offered advice on improvement to the relevant competent departments, suggesting that the local governments and competent departments should further rationalize their responsibilities for the management of farmland construction and strengthen the integrated construction of the main project and supporting facilities. Information technology can used to enhance the comprehensive supervision over farmland construction from project approval to acceptance inspection, management and maintenance. Moreover, the comprehensive evaluating system on the construction quality should be established with emphasis on “increasing food production capacity”. Funds can be raised from multiple channels and the primary responsibilities should be clarified to improve substandard projects and damaged old facilities as soon as possible.

(III) Major Experience and Practices

1. Research-based auditing is an effective way to improve audit findings

First, deeper research on auditees were conducted. We visited the relevant departments, including the departments of agricultural and rural affairs and departments of natural resources, and had discussions with them to learn about their overall planning, fund arrangement and assessment results for high-standard farmland construction. We read more than 50 documents about the planning, implementation, tasks and fund management related to high-standard farmland construction; and were briefed on the difficulties and advice of the competent departments in carrying out high-standard farmland construction.

Second, field research and industry studies were strengthened. We conducted field research in provinces with large-scale construction, such as Henan, Heilongjiang and Sichuan provinces, learned about high-standard farmland construction and utilization. We also visited agricultural enterprises, villages and farmers for collecting information about task execution, funding, and the demand. At the same time, we gathered about 100 research articles, reform proposals and opinions on the Internet for high-standard farmland construction, management and maintenance by the public.

Third, the research on audit methodology were enhanced. We systematically learned about the policy background of high-standard farmland construction, relevant laws and regulations, and audit methods for common problems, compiling methodological guidelines for audits of high-standard farmland construction. We also guided the audit team in making the detailed audit implementation plan, and clarifying pre-audit research content, including essential materials, data and information. We put forward auditing viewpoints and suggestions in advance, and allocated auditing forces for the focus of audit, ensuring the audit findings.

2. Use of big data is a key measure to increase audit efficiency

Through informatization, digitalization and networking, CNAO strives to enhance the capacity for supervision through auditing, process control and decision support to increase the quality and efficiency of supervision through auditing. To be specific, the audit of high-standard farmland construction requires a long period of time, involving many items on a large scale. Considering this, geographic information technology can be used to effectively improve the efficiency and quality of audit. For example, remote sensors were used to identify buildings, roads and other structures built on farmland by aerial detection, and GPS was used to measure the area, slope and completion time of farmland and locate the farmland. The work was mainly carried out in three aspects:

First, data sources were expanded. According to the objectives and key contents of the audit work, we visited the relevant government authorities and had discussions with them, with an accurate understanding of the management entities, the implementation of construction responsibilities and the construction and utilization of information system. We collected 11 types of data from 5 departments and made an overall analysis of the data in advance.

Second, data cleansing was carried out. For audit, spatial data conversion processing software converted DWG, TXT and other types of data into data in SHP, available for the unified GIS analysis software. Then, the GIS analysis software, featuring projection transformation, converted the data of different coordinate systems into data of the same coordinate system, with the data compared and analyzed in the same coordinate system.

Third, data analysis and extended verification were conducted. For example, the data on high-standard farmland construction and latest land survey data can be superimposed on previous orthographic remote sensing image data for statistical analysis, to reveal a false report on the area of high-standard farmland. The data on high-standard farmland construction and uncultivated land data can be superimposed on previous orthographic remote sensing image data for analysis, to reveal the “non-grain” and “non-agricultural” usage of high-standard farmland by artificial cognition and extended verification. The data on high-standard farmland construction can be superimposed on the data on permanent basic farmland for comparison, to check whether high-standard farmland is protected as permanent basic farmland or not.

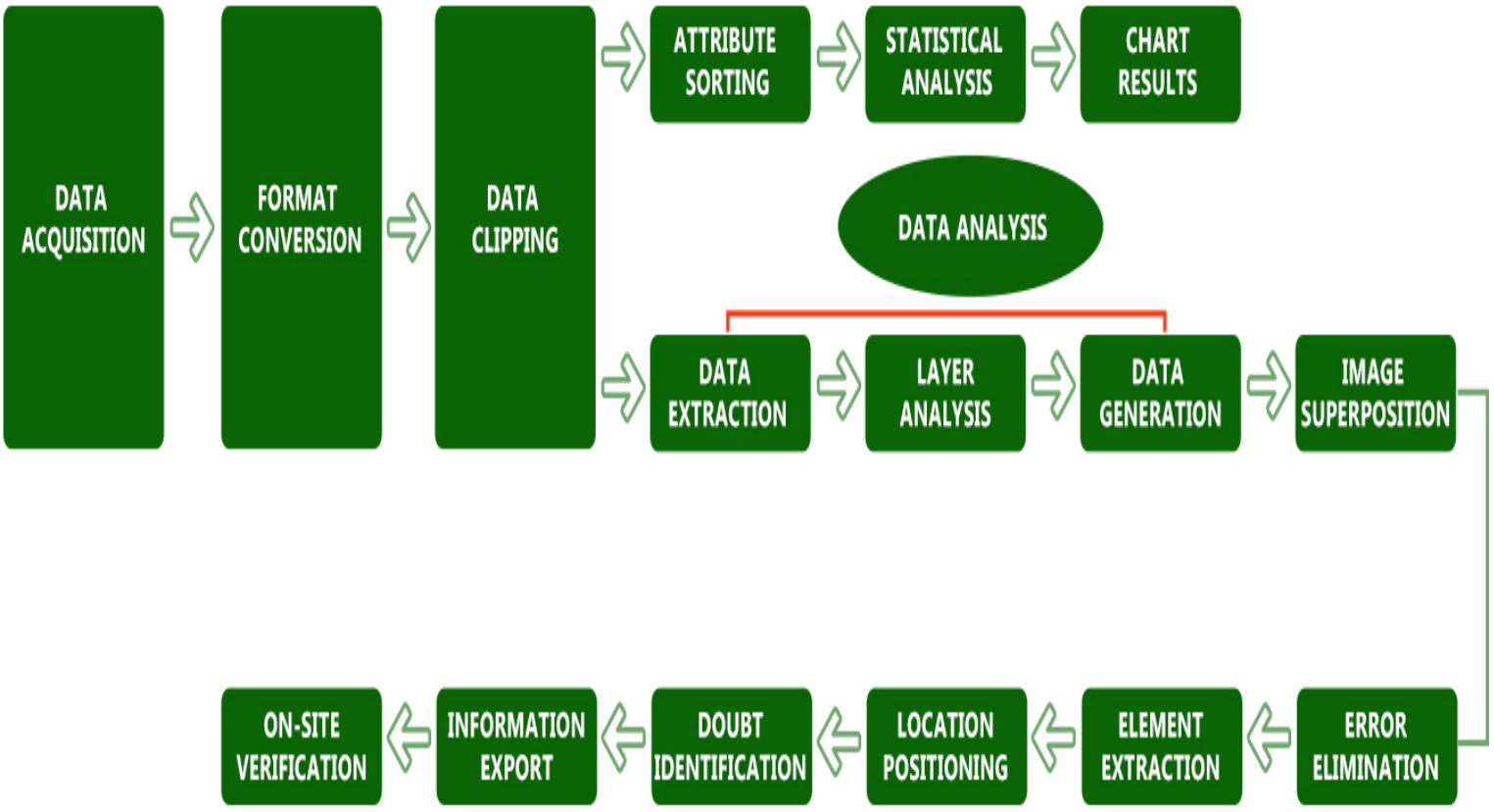

Diagram of applying GIS to the audit of high-standard farmland construction

3. Following up audit rectification is important to improve the effectiveness of audit

With regard to the problems identified during the audit of high-standard farmland construction, China's auditing institutions have strengthened oversight and inspection of the rectifications:

First, requirements for rectification is clarified. Every year, the audit department prepares the list to cover problems identified by auditing and the audit suggestions, and develops rectification requirements and measures for every problem with limited time, forming a rectification ledger. Then, the audit team follows up and supervises rectification in accordance with the ledger to ensure that every problem is solved. At present, with the information technology and electronic office system, the CNAO has established a relatively complete post-audit follow-up system, enabling the audit institutions at all levels to enter, query and follow up the rectification progress.

Second, the results of rectification are inspected. The auditees are responsible for comprehensively rectifying the problems identified in the audit and regularly reporting the progress and results of rectification to the audit team and higher authorities. The audit team is responsible for reviewing and inspecting all the results of rectification, to ensure the authenticity, completeness and legitimacy. For example, for the rectification of problems concerning finance and assets, the audit team should check the accounting documents on turning the funds over to the national treasury, returning the funds to the owner, paying back taxes or giving the funds back. For problems concerning project construction, the audit team should check the results of project rectification to ensure the effectiveness of reconstruction and renovation. For what is related to improving policy implementation and rules and regulations, the audit team should check the evidence on related policies and the revision of relevant rules and regulations. For any solved problems, the number can be "canceled" in the ledger.

Third, interdepartmental collaboration is strengthened. For common or emerging problems identified in the audit, the audit team should urge the relevant central authorities to enhance rectification at source by improving the system, establishing efficient standards, and boosting supervision and assessment. Measures are taken to solve problems after occurrence and prevent potential problems before occurrence. In the audit of high-standard farmland construction, the audit team urges the departments of agricultural and rural affairs to improve the annual construction task and statistical dispatching system, to solve the problem of misrepresentation of farmland area. For the problem that high-standard farmland is arbitrarily used for other purposes, the audit team urges the departments of agriculture and natural resources to make overall planning for construction, management and maintenance, to improve the permanent basic farmland delimitation mechanism.

Sustainable Agriculture & Food Security - SAI Egypt

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Introduction

Agriculture represents one of the most fundamental sources of life on Earth; Sustainable Agriculture can play a vital role in ensuring Food Security.

As the world population continues to grow, much more effort and innovation will be urgently needed in order to increase agricultural production sustainably, as well as developing unconventional ideas to improve the global supply chain, decrease food losses and waste, and ensure that all who are suffering from hunger and malnutrition have access to food. Many in the international community believe that it is possible to eradicate hunger within the next generation, and are working together to achieve this goal.

World leaders at the 2012 Conference on Sustainable Development (Rio+20) reaffirmed the right to have access to safe and nutritious food, consistently with the right to have adequate food and the fundamental right to be free from hunger. The UN Secretary-General's Zero Hunger Challenge launched at Rio+20 called on governments, civil society, faith communities, the private sector, and research institutions to unite to end hunger and eliminate the worst forms of malnutrition.

This article explores the importance of Sustainable Agriculture and the smart agriculture practices in addressing Food Security challenges and also highlights key strategies for achieving a more sustainable and secure food system, referring to the close-knit relationship between Sustainable Agriculture and Food Security.

Food security & Climate change

About 80% of the global population who are most at risk from crop failures and hunger due to climate change are in Sub-Saharan Africa, South Asia, and Southeast Asia, where climate change poses numerous challenges to Sustainable Agriculture and Food Security.

Sustainable Agriculture role in facing climate change challenges

Some key aspects that control their relationship **are:**

Changes in the climate patterns: Agriculture contributes to a large share of greenhouse gas emissions, such as nitrous oxide resulting from agricultural fertilizers that has raised the temperature of the atmosphere at a rate 265 times more than that caused by carbon dioxide which leads to changing the growing seasons, increasing the frequency and intensity of extreme weather phenomena (such as drought, floods and storms), and having unpredictable weather patterns. Its features have appeared in the Horn of Africa region (Somali Peninsula), which is suffering from drought for the sixth season consecutively. These changes make it difficult to predict and plan agricultural activities, affecting yields and food production.

Water Availability: Rising temperatures and altered precipitation patterns can lead to water scarcity, affecting crop irrigation, livestock, and fisheries. Sustainable Agriculture practices, such as water-efficient irrigation techniques and water management systems, are crucial in adapting to these changes.

Crop Productivity: Some areas may benefit from increased carbon dioxide and longer growing seasons, others may face reduced yield potential due to heat, stress, changes in pest and disease patterns, and altered nutrient availability.

Sustainable Agriculture practices, such as crop diversification, improved soil management, and conservation agriculture, can enhance resilience and maintain or increase yields under changing climatic conditions.

Environmental Security and Biodiversity: Climate change affects biodiversity, which plays a vital role in maintaining ecosystem balance and supporting Sustainable Agriculture. Loss of biodiversity affects pollinators (such as bees) crucial for crop production, natural pest control, soil health, and nutrient cycle.

Sustainable Agriculture practices; including agroforestry, organic farming, and the preservation of natural habitats, help conserve biodiversity and the ecosystem services that agriculture relies on.

Mitigation and Adaptation: Sustainable Agriculture can contribute to mitigating climate change by reducing greenhouse gas emissions associated with the agricultural sector. Practices like agroforestry, precision farming, and use of organic fertilizers can sequester carbon, enhance soil health, and reduce emissions from synthetic fertilizers and livestock, providing greater resilience and adaptability to changing climatic conditions, thus contributing to food security.

Smart Agriculture for saving global Food Security

The world resorts to adapting its modern technologies and to be able to ensure a safe exit from the food crisis through many agricultural technology initiatives, known as Smart Agriculture, which seeks to use and adapt digital technology and remote sensors in managing agricultural systems.

Smart Agriculture prominent features

Relying on information management and analytic systems to make the best possible production decisions at the lowest costs, introducing artificial intelligence into agricultural operations in order to avoid severe food crises, as well as adapting to climate change and the scarcity of natural resources, especially water, are among the most prominent features of Smart Agriculture.

Smart Agriculture applications to ensure the sustainability of agricultural production

Soilless Farming & Vertical Farming: To overcome water need, Smart Agriculture has rationalization mechanisms by providing soilless farming systems inside silos or air-conditioned plastic pipes, and remote control of irrigation, ventilation, and cooling.

Improving agricultural productivity: by using Artificial Intelligence to obtain accurate data and adapting "Internet of Things" (IoT) technology to operate agricultural equipment such as irrigation devices, pesticide sprayers, and robotic farms, and using agricultural robots that carry programs to identify pests or diseases that affect crops and work to treat them.

Reducing agricultural costs: Providing a base of information about Agricultural Systems that consume less-financial and natural resources.

Regional participation and cooperation: Enhancing opportunities for agricultural industries and production chains between neighboring countries.

Water resources management: through modern irrigation techniques that save water consumption.

The Egyptian Strategy for Sustainable Agricultural Development and its future vision

Egypt is keen to formulate and implement policies, programs, and projects that enable maximum benefit from the available agricultural potential through a specific strategy.

The agricultural sector in Egypt possesses many natural, human, capital, technological, and administrative capabilities, but at the same time, like other agricultural sectors in developing countries, it faces many international, regional and local challenges, such as global climate change, maintaining biodiversity, desertification, transient diseases, water scarcity, and population increase at high rates.

However, Egypt's vision is to achieve comprehensive economic and social development based on rapid, sustainable and comprehensive growth of the agricultural sector and also integrated rural development to help the most-in-need groups and reduce rural poverty.

The Horizontal Agricultural Expansion Project

The project aims to:

- Reconstruct the project's area and turn it into a production area.
- Add new areas of agricultural land.
- Increase the country's production from various agricultural and industrial sources and increase the country's export potential.

Some Auditing results:

- The percentage of reclaimed and cultivated areas reached 31% of the total allocated areas.
- Lack of optimal and economic exploitation of the wells constructed within the project.

Recommendations:

- Rapid reclamation of the rest of the areas to benefit from the spent investments on the giant pump station.
- Rapid construction of an advanced irrigation network instead of using the flood irrigation.

Conclusion:

Achieving food security requires following a multifaceted approach that combines sustainable agricultural practices with innovative solutions, technological advancements, and policy interventions. By conserving natural resources, adapting to climate change, promoting localized food production, and enhancing food safety, sustainable agriculture can achieve a crucial role in ensuring a secure and resilient food system.

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Supporting Food Security Program – Lesson learned from SAI Indonesia's Audit on Fertilizer Subsidy - SAI Indonesia

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BPK's Role on SDGs Implementation Audit

As stated in Law Number 15 of 2006 concerning on Audit Board, BPK has a duty to audit state financial management through financial, performance, and special purposes audits. In addition, Referring to United Nations General Assembly Resolution on December 2022, and **INTOSAI Principles 12**, BPK, as a member of INTOSAI recognized that public sector auditing has an essential role in promoting the efficiency, accountability, effectiveness, and transparency of public administration while supporting the global response to the COVID-19 crisis and Sustainable Development Goals (SDGs) implementation.

To support SDGs implementation, BPK adopted and carried out an active role through **four** INTOSAI approaches which are based on INCOSAI XXII. **The first** approach is **auditing the SDGs preparedness**. BPK has audited the Government of Indonesia's SDGs preparedness in 2017. **The second** is **auditing SDGs implementation**. BPK conducts performance audit on SDGs implementation which is reported in BPK's semester reports. **The third is promoting the achievement of the SDGs target 16 and 17 especially in relation to effective, transparent, and accountable institution**. BPK continues to encourage the achievement of effective, transparent and accountable institutions, such as auditing government financial reports. And **the last** is **becoming a model organization in terms of transparency and accountability**.

Through the INTOSAI four-approaches, BPK has continued its activities to follow up and review through dedicated SDGs audits and embedded SDGs audits that are attached to regular audits. **Dedicated audit** is an audit on the process and achievement of SDGs targets that are listed within national targets and monitored specifically, while an **embedded audit** is an audit that is attached to audit that aims to assess programs, activities, and entities that have one or more SDGs targets that are linked to the main program. One of the embedded SDGs audits that is executed every year by BPK is the subsidy audit linked to Goal 2, which is Zero Hunger. Goal 2 of the SDGs aims to end hunger, **achieve food security** and improved nutrition, and **promote sustainable agriculture**. The goal has two targets: (2.1) end hunger and ensure access to food for all, and (2.2) eliminate all forms of malnutrition. These targets are the results of sustainable food systems development, improving community nutrition and health services, and community welfare.

Food Security Program to Achieve SDG 2 "Zero Hunger"

The priority of the SDGs in the Indonesian development agenda in the 2020-2024 National Medium-Term Development Plan (RPJMN) is reflected in some of the indicators and targets used, such as the prevalence of food insufficiency, population prevalence with moderate or severe food deprivation, value added per labor force in agriculture, and the global food sustainability index. The government has also set targets for rice availability (national production and rice stocks in government and non-government) in 2024 of 46.8 million tons, corn production of 35.3 million tons, and bubble production of 25.5 million tons, as well as the use of certified seeds of 80%. Thus, the big picture of the direction of agricultural policy under RPJMN is to undertake a transformation of agriculture by increasing the productivity of the soil to support food resilience, strengthening added value, and agricultural competitiveness to support the economic growth and well-being of the farmers' families, along with taking into account the sustainability of the agricultural resources. One strategy to maintain the sustainability of agricultural resources as well as the availability of farms and agricultural facilities is to improve the accessibility and monitoring of fertilizer circulation.

Based on indications of funding needs for RPJMN, of the overall Priority Program for improving food availability, access, and quality of consumption, 71.41% was funded for the Priority Project for enhancing grain production. In the Priority Project for increasing grain output, fertilizer subsidies became the most significant project, amounting to 84.80% or 142.5 trillion Rupiah. This indicates that in terms of food supply, government policy is still focused on **increasing grain output**, and **fertilizer subsidy** becomes the **main instrument** in achieving the food production target especially grain. This program inline with Chirwa and Dorward (2013) argument that access to fertilizers can improve the health of the recipient through increased food security and nutrition from increased production, increased income, and increased capacity to finance health care. In addition, the wider impact is on consumer well-being through lower food prices, increased demand for labor, higher wages and incomes, as well as poverty reduction, and ultimately affecting overall economic growth gains measured through GDP (Wiggins dan Brooks, 2012; Hemming et.al, 2018).

In Indonesia, subsidized fertilizer has been identified as a strategic commodity, and its circulation is monitored. The government gives subsidies to farmers/groups of farmers through State-Owned Companies that produce fertilizer. Subsidized fertilizers are allocated only to eligible parties, which are:

a. farmers who undertake farming activities in the subsectors of food crops, plantations, horticulture, and/or farms with a maximum area of 2 ha per growing season;
b. farmers that undertook farming operations in subsector of food crops on New Growth Area Expansion (PATB); and
c. fish farming with the largest area of farming activity of 1 ha each growing season.

Fertilizer distribution to farmers is carried out by the authorized retailer designated in the territory of their work based on Definitive Plan of Group Requirements of Farmers (RDKK) limited by the allocation of subsidized fertilizer in their territory, with the Highest Retail Price (HET) as set out in the Regulations of the Minister of Agriculture. The method of calculation of the fertilizer subsidy established is the gap between the Fertilizer Sales Price (HPP) of each producer and HET.

RDKK is a plan for subsidized fertilizer that is needed in one year prepared based on farmer or group of farmers deliberations. In the end, the RDKK becomes a tool for ordering subsidized fertilizers to farmer or group of farmer that meet the criteria. RDKK is set manually or through the RDKK information system. Developing RDKK involves multistakeholders with below process:

a. **The regency/city government and provincial government as an inputter**

   The process of preparing the RDKK starts from the regency/city government and provincial government with the help of a technical implementation team involving extension workers, technical officers, heads of official branches, and local village/lurah heads. The district or city government submits the proposed plan for fertilizer subsidy recipients (according to the criteria set) to the provincial government.

b. **The provincial government as a compiler**

   The provincial government compiles the RDKK proposal based on data from district or city governments within its jurisdiction. Then the data is submitted to the Ministry of Agriculture after being validated based on proposed recipient criteria.

c. **The Ministry of Agriculture**

   The Ministry of Agriculture reviewed the RDKK and issued the final data based on proposals that meet the criteria.

Audit on Subsidy Fertilizer

Initially, all processes for preparing and proposing RDKK were carried out manually with no assistance from an information system. In 2018, BPK recommended the Ministry of Agriculture establish an information system that integrates farmer data with location and land area information. The purpose of the information system transition is to improve the accuracy of subsidized fertilizer allocation and distribution. Furthermore, BPK proposed that the Ministry of Agriculture incorporate all data under their coordination into the system, taking into account all stakeholders engaged, in order to support the information system's deployment. In response to the audit report, the Ministry of Agriculture has begun to use information systems for subsidized fertilizer planning and budgeting in 2019, which are called e-RDKK.

In order to achieve more accountable and comprehensive fertilizer subsidy planning, BPK has pushed the improvement of this new information system, which involves many stakeholders, as part of encouraging SDGs implementation on Goal 2. The use of information technology during the planning stage is projected to improve planning accuracy as well as the distribution of subsidized fertilizers, resulting in enhanced farm productivity and accessibility of agricultural products.

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In What Ways does BPK Assist Indonesia in Attaining SDG 2? - SAI Indonesia

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Sherlita Nurosidah has been in the Audit Board of Indonesia (BPK) for over five years. Prior to that, she gained her bachelor's degree in accounting at Brawijaya University in 2015 and a master's degree in economic science at the same university in 2023. She has served as an auditor for various local governments at the institution. Upon completing her master's, she is currently a competency development analyst and in charge of a bureaucracy reformation project as one of the strategic unit transformation members. To this date, she has actively written academic journals and conference papers on diverse topics, such as accounting, public auditing, economic issues, flypaper effects, sustainable energy, and legal studies.

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Muhammad Rafi Bakri is a Polytechnic of State Finance graduate who was then assigned to the Audit Board of Indonesia (BPK). Rafi was appointed to plan, manage, and make reports for BPK. Rafi is a young researcher who actively writes opinions and journals about economics, finance, and auditing. To support his career, Rafi took several certifications, such as CertIPSAS and CertDA.

Background

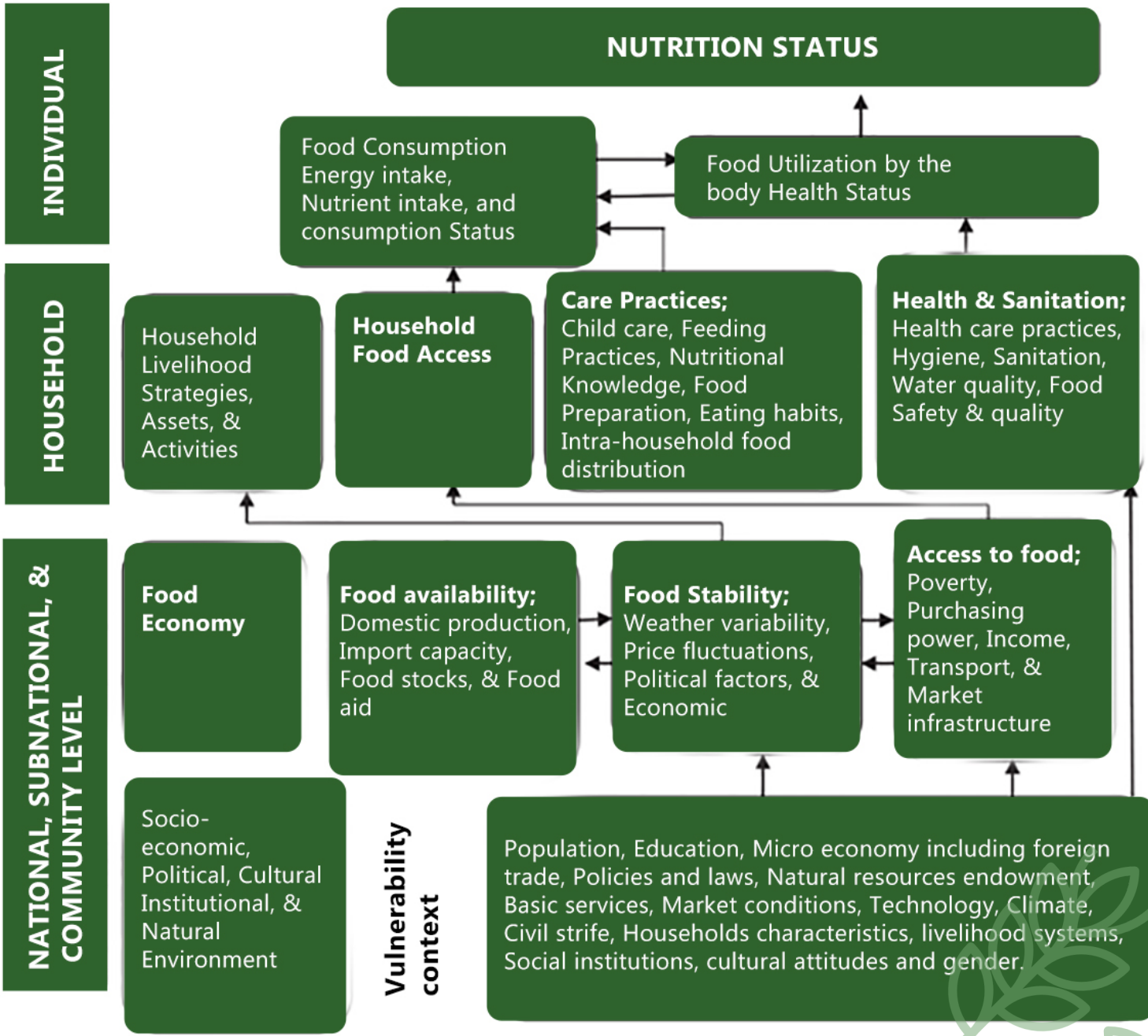
As the global population continues its expansion, there is an urgent need for increased efforts and innovation to sustainably enhance agricultural production, optimize the global supply chain, reduce food losses and waste, and ensure that those experiencing hunger and malnutrition can access nutritious food. Many in the international community are optimistic about the possibility of eliminating hunger within the next generation and are collaborating to realize this objective.

During the 2012 Conference on Sustainable Development (Rio+20), world leaders reaffirmed every individual's right to safe and nutritious food, aligning with the right to adequate food and the fundamental entitlement of everyone to be free from hunger. The UN Secretary-General's Zero Hunger Challenge, launched at Rio+20, called upon governments, civil society, faith communities, the private sector, and research institutions to unite to end hunger and eradicate the most severe forms of malnutrition.

The Zero Hunger Challenge has received extensive backing from numerous member States and entities. The initiative encompasses the following objectives: achieving zero stunted children under the age of two, ensuring 100% access to adequate food throughout the year, establishing sustainability in all food systems, realizing a 100% increase in smallholder productivity and income, and striving for zero loss or waste of food.

In Indonesia, the Audit Board of Indonesia (BPK) plays a significant role in safeguarding and ensuring that the state finances are utilized to the fullest for the welfare of the people. All development activities in any field involve public funds, one aspect of which is Agriculture and Food Security. BPK fully supports the goals of the Sustainable Development Goals (SDGs), one of which focuses on SDG 2. In Indonesia, current projects related to SDGs is implemented through the Medium-Term Government Plan (RPJM) for the years 2020-2024. BPK audits ministries and institutions tasked with achieving these SDGs targets to support and ensure that state finances are used in line with the welfare of the people and harmony with global programs.

Figure The Food and Agricultural Organization-Vulnerability Information and Mapping Systems (FAO-FIVIMS) Framework



Source: Simelane and Worth (2020)

Food Security Theory

According to Chapter VII of Law Number 7 Year 1996 on Food, Indonesia has determined several steps to ensure food security. These steps include regulations, fosters, controls, and supervisions of food availability which shall be sufficient in quantity and quality, safe, nutritious, diverse, evenly distributed, and affordable for citizens' purchasing power. The program contributes to the national food reserves. However, many cases in developing countries reveal that the availability of food does not necessarily transform into food security (Simelane and Worth 2020).

The absence of food scarcity shall be unavoidable as well as its accessibility, acceptance, and sustainability for inhabitants. The attainment of food security is contingent upon the universal availability of sufficient, uncontaminated, and nourishing food that meets the dietary requirements and preferences of individuals, so enabling them to lead an active and healthy lifestyle. The term food in this article will exclude water regardless its essentiality in daily life as prior research does.

Methodology

This is a qualitative study that employs semi-structured interviews and content analysis. To supplement and persuade researchers concerning the content analysis that has been performed, interviews were conducted. Interviewees consist of BPK auditors who participated in the audit of sustainable agriculture and food security.

The research primarily employs content analysis as its methodology. Aiming to provide knowledge, new insights, empirical presentations, and practical guides to behavior, content analysis is a research technique that derives valid and reproducible conclusions from data regarding the context (Elo & Kyngas, 2008). White & Marsh (2006) and Bengtsson (2016) discovered that content analysis applies to all categories of texts, irrespective of their origin. Detailed interviews, focus group interviews, individual written questions, and open-ended inquiries such as surveys and situational observations, images, and films do not require adherence to any set of guidelines. The materials utilized in the content analysis comprise audit reports and a comprehensive summary of semester audit outcomes sourced from the Ministry of Agriculture.

Effectiveness of Food Security Research Program

Over the years, food security has become part of Indonesia's National Strategic Projects (PSN), enshrined in the five-year development planning, not to mention for 2010-2014. BPK has audited various activities within the stream of food security programs and investigated the research scheme carried out by the Biological and Biotechnology Research Center, Indonesian Institute of Sciences (LIPI). BPK concluded that the outcome was ineffective in supporting the food security plan. Despite their efforts to initiate internal and external collaborations, several issues were still encountered.

These findings include the absence of full-fledged SOP, inadequate necessary infrastructures, inconformity with the plans initiated, unreliable output, and uncertain quality. SOP of planning, execution, and evaluation are undoubtedly paramount tools for any program to operate. BPK found that such procedures were determined in 2014, which makes it four years behind. The delay caused a lack of guidance throughout the five-year agenda. Thus, the aimed objectives of the research program cannot be achieved.

Moreover, the institution has insufficient greenhouse infrastructure, lack of advanced technology and available rooms to facilitate research studies. These lacking create a barrier towards their goal. Apart from a shortfall in infrastructure, the panel's proposed research proposals shall also be revised. Incompetent planning causes slack and unsustainable output targets. The last problem experienced was the unavailability of research quality assurance. The external party, i.e. Inspectorate, needed to thoroughly examine the effectiveness of planning, execution, and evaluation and its conformity to related procedures.

Due to these concerns, BPK recommends that the chief of LIPI instruct the principal secretary to arrange and enact a research procedure or guidance that holds a quality management system for their primary activities. Furthermore, LIPI's head of the planning and finance bureau should compose an analysis of essential infrastructure along with its budget and gradual allocation plans. Regarding research suggestions, BPK proposed forming a team led by the head of Puslit to assess research and evaluation activities' planning. As mentioned by BPK, there should be an essential indicator manual, program performance indicator, and activity performance indicator, which define specifically not only critical definition but also formulation technique and data location. Lastly, BPK advised the head of Inspectorate to organize and issue an SOP of inspection on the essence of research programs and any activities ushered by the panel.

Program to Boost Horticultural Product Production, Processing, and Marketing

BPK audited the efficacy of the Ministry of Agriculture's program to increase the production, processing, and marketing of horticultural commodities from 2014 to 2017. West Nusa Tenggara, East Nusa Tenggara, Java, Sulawesi, Lampung, and East Kalimantan were all subject to audits. The objective of the audit is to assess the program's efficacy in encouraging price stability and diminishing Indonesian imports of horticultural products. In the coming years, lower import reliance and price stability will contribute to an increase in Indonesia's food security.

The auditing findings of BPK reveal that the program is not entirely effective now. This conclusion is predicated, in part, on several audit findings. First, the planning for producing chilies and onions at the General Directorate of Horticulture needs to be improved. The Strategic Plan of the Directorate General of Horticulture lacks substantiating data and information that are reliable and valid, which has compromised the determination of production target figures. Consequently, activities conducted at the directorate might not resolve national issues about chili, onion, and fruit commodities, neglected objectives of national planning, or failure to align the execution of activities with the intended completion of those objectives.

Second, the management of planting patterns to ensure production stability for onions and chilies is suboptimal. From 2014-2016, they presented a variety of chilies and onions. The Directorate General of Horticulture's Strategic Plan specifies that most production objectives have been met; however, revisions and a forecast for national requirements remain unstable throughout the year. To preserve production stability, the policy for managing cultivation patterns that the Directorate General of Horticulture devised has failed. It is therefore unfeasible to implement in the regions. Therefore, the presence of production instability gives rise to the possibility of price instability. This occurs due to the absence of a legally binding policy governing cropping pattern management between the Ministries of Agriculture and regional work divisions, considering monthly demand data for each commodity.

Last, the efforts of the Directorate General Horticulture to promote local fruit development have proven insufficient in supplanting the demand for imported fruit. Indonesia imports a considerable amount of fruit. Orange imports occur during the harvest season, which is improper and should be prohibited. Hence, when viewed through the lens of diversification, the success of government programs is neither measurable nor sustainable. This occurs because the policy of the Director General of Horticulture regarding the provision of fruit import recommendations disregards national and regional requirements.

Considering the findings above, BPK advises the Minister of Agriculture to develop a planning standard operating procedure (SOP) for creating activities and programs that are more measurable and targeted in their execution. The Ministry of Agriculture must cooperate with the Ministry of Trade and the Directorate General of Customs and Excise to regulate fruit imports by the domestic fruit harvest schedule.

Securing National Production for Food Autonomy and Diversification

Indonesia's National Strategic Projects (PSN) for 2015 to 2019 also prioritizes food sovereignty as one of its mandatory agendas. It is believed to be a state of being capable of setting and fulfilling national needs on food. To strengthen national production capacity, especially in five critical commodities nationally, i.e., rice, corn, soybeans, sugar and meat. The Ministry of Agriculture has set seven major strategies, namely increasing land availability and utilization; improvement of agricultural infrastructure and facilities; development and expansion of seed/seedling logistics; strengthening agricultural institutions; development and strengthening of agricultural financing; development and strengthening of bioindustry and bioenergy; and strengthening agricultural product market networks.

The audit covers financial statements from 2014 to semester 1, 2016, at the Directorate General of Agricultural Infrastructure and Facilities (PSP) of the Ministry of Agriculture. The primary subject faced by the institution in agricultural development was a downfall in the quantity and quality of agricultural infrastructure and facilities. Hence, PSP issued several policies in the emergence of agricultural infrastructure in food crops, horticulture, plantations and livestock supported by the management of land, irrigation water, financing, fertilizers, pesticides and machinery.

BPK reported twelve findings, which revealed 21 issues amounted to Rp3 billion. Government assistance funds to develop outstanding varieties of rice in order to raise rice production in 2015 in Sigi Regency, Central Sulawesi Province, by Rp1.047 billion, was used to cover personal expenses. Revenues other than fines have yet to be received, approximately Rp811.76 million. Seven projects in the rural agribusiness development program were behind schedule, totaling Rp700 million. Unconformity of social assistance fund's spending due to undelivered and kept in farmer groups' account around Rp445,1 million.

From these cases, BPK commands the Minister to compile data on the supply and demand of agricultural tools and machinery accurately as a guide for future allocation. Any damage and fines that need to be deposited to the treasury fund shall be handled accordingly. Instructions were also made to PSP to adhere to any necessary coaching to farmer groups to consider their responsibility in incomplete receivables. The head of the regency's or city's department of agriculture should consider fund allocation to accompany the farmer's groups in the creation of organic fertilizer.

Food Availability

BPK audit work is based on the BPK Strategic Plan 2016-2020, which refers to the National Medium-Term Development Plan (RPJMN) 2015-2019. The strategic plan stipulates examinations of government development programs in various dimensions, one of which is food availability. The examination of licensing, certification, and the implementation of sustainable oil palm plantation management and its compliance with international policies and regulations was carried out at the Ministry of Environment and Forestry, Ministry of Agriculture, and other institutions in several regions in Indonesia. BPK concluded that the management of oil palm plantations did not meet the criteria. Some palm oil companies need the Indonesian Sustainable Palm Oil (ISPO) system requirements, resulting in a reduction in the competitiveness of the national palm oil commodity for plantations that do not have ISPO certification. In response to these issues, the BPK recommends that the Minister of Agriculture instruct relevant parties to increase supervision of ISPO certification bodies and regulate the authority to impose sanctions by the ISPO commission.

On the other hand, the Ministry of Agriculture's Strategic Plan mentions that the 2015-2019 period will implement efforts for the protection, preservation, and expansion of agriculture. In the second semester of 2019, the BPK completed an examination report on the expansion of paddy fields, which contained 17 findings encompassing 21 issues. These issues consist of 9 weaknesses in the internal control system, 6 instances of non-compliance with legal provisions, and 6 issues related to economy, efficiency, and effectiveness (3E).

Management of Food Import System

In 2017, BPK was overseen food import system by the Ministry of Trade Republic of Indonesia for 2015 – the first semester of 2017. The examination comprises policy and control evaluation in export-import, e.g. protection and safeguarding of national interests from the backlash of foreign trade. In contrast, foreign trade control encompasses licensing, standards, prohibitions, and restrictions. Specifically, the audit focused on the internal control system's effectiveness and its conformity to the law, e.g. holding limited meetings, determining import allocations, issuing import permits, reporting import realization as well as monitoring and evaluating imports for food commodities in the form of sugar, rice, beef and beef, soybeans and salt. The finding stipulated that the internal control system was ineffective yet incompliant with the law.

The issues were pointed towards the nonexistence of an integrated information system and pertinent analysis that helps the institution estimate the suitable import figure, including the relation to price stabilization. The current application, i.e., Inatrade, did not automatically link to other institutions that provide applicable data on the outcome coordination and recommendation documentation. In addition, the Import and Export Facility Director has yet to initiate any mandatory evaluation. No sanctions were given to import companies that gave late import realization reports. Aside from internal systems, the entity shall respond to Rp11.04 billion of conformity findings. BPK urged the Ministry to abide by regulations on issuing import approval and maintaining Inatrade portal automation. The Ministry should sanction parties who acted unfavorably towards the institution's value. Hence, these predicaments will not be repeated.

Business Sector Activities Relating to Seed and Rice

A performance audit of the effectiveness of seed and rice business activities in 2017-first semester of 2018 was carried out at PT Pertani and related agencies in DKI Jakarta, East Java, South Sulawesi, West Java, Central Java, West Kalimantan, and East Kalimantan. An organizational structure has supported PT Pertani and SOP for rice receipt and production, SOP for branch office supplies, as well as SOP for customer service and handling customer complaints.

According to the BPK's audit findings, PT Pertani's management of its inbred rice seed business operations was remarkably effective. Active participation in the rice industry, on the other hand, could have been more productive. The ongoing challenges encountered at PT Pertani are outlined below.

The Cirebon Branch Office's management of sales and collection of receivables for subsidized inbred rice seed in 2017 was insufficient, despite exceptional efforts; the functions of distribution, invoicing, and payment receipting were multifaceted. In addition, officers failed to deposit seed income receipts from farmer organizations totaling Rp553.23 million into the PT Pertani's bank. Consequently, PT Pertani incurred financial losses totaling Rp553.23 million due to undeposited seed income from operational officers into the company's account. This transpired due to the Cirebon Branch Head's suboptimal oversight and control over the 2017 Seed Subsidy Program and Food Self-Sufficiency Upsus implementation.

The execution of the collaborative agreement between PT Pertani and PT PT Sakti regarding the manufacturing and distribution of premium Delman brand rice has not quite reached its full potential. Consequently, 230.50 tons of premium quality rice valued at Rp2.40 billion have remained unsold as a result of the subpar marketing performance of PT Sakti and the Sragen-specific rice milling unit, in addition to the disruption of cash inflow for outstanding receivables amounting to Rp9.10 billion that exceeded the deadline as per the directors' policy. This transpired due to the evaluation team's carelessness in conducting a feasibility study or test regarding the rice market's Rp9.10 billion absorption. PT Sakti's appointed distributor failed to make timely payments on receivables.

Improvement of Food Resilience

Performance examination of efforts to enhance food resilience has been conducted on a specific examination object, namely the evaluation of the effectiveness of improving food resilience in the aspect of food availability within the scope of the Provincial Government of Banten. The efforts made include various activities carried out by the Provincial Agriculture Office of Banten, such as facilitation, dissemination, and utilization of food research results. One of the implemented activities is the farming demonstration (demfarm) and plot demonstration (demplot) for rice and corn crops.

In ensuring adequate, safe, quality, and nutritious food consumption, the Government has enacted Regional Regulation Number 2 of 2017 concerning Food Management, which encompasses regulations related to the application of diverse, balanced, and safe food consumption patterns (B2SA).

The examination results conclude that there are significant issues that, if not promptly addressed, can affect the effectiveness of improving food resilience, especially in the aspect of food availability. Therefore, BPK recommends that the Provincial Government of Banten develop plans for research and development of agricultural technology. Additionally, BPK also recommends that the Government formulate plans and policies related to the extensification and intensification of food agricultural land.

Food Production Security

The examination of rice production security in supporting food self-sufficiency for the year 2018 – Semester 1 of 2019 was conducted in the Regency Governments of Pidie Jaya, Southwest Aceh, and North Aceh. BPK examination results concluded that there are issues that will affect the effectiveness of regional governments in improving rice production security to support food self-sufficiency, including distributors and retailers not fulfilling their obligations to ensure the availability of subsidized fertilizer stocks, lack of documentation related to the realization of subsidized fertilizer utilization by each farmer group, the condition of irrigation networks is not fully adequate, there is no up-to-date network data, and there is no standard operating procedure (SOP) as a guide in the implementation of borrowing/rental of agricultural machinery.

Management and Oversight of Forest Area Utilization

Forests comprise biological resources and are an integral component of an ecosystem. BPK audited the Ministry of Environment and Forestry to preserve Indonesia's forests' functionality by recommending measures to restrict or prevent further deforestation. This audit aims to determine whether governance by statutory regulations has effectively regulated and monitored the utilization of forest areas or if it has benefited forest areas in their lack of forestry permit sanctions.

Several noteworthy findings emerged from BPK's audit. Predominantly occurring in forested regions without forestry permits, mining operations encompassing an area of 841.79 thousand hectares involve an unidentified legal entity. In addition, another company cleared forest areas beyond the scope of permission on an area of 3402.38 ha within a major corporation's mining business permit area.

Secondly, as of 2020, the legal entity associated with a 2.90 million hectares oil palm plantation in a forested region without a forestry permit has yet to be determined. This affects prospective non-tax state revenues (PNBP) of Rp20.22 trillion and $6.15 billion from reforestation funds (DR) and forest resource provisions (PSDH) are not yet billable to business entities. If the legal subject of plantation activities is unknown, the Ministry of Environment and Forestry can also not administer administrative sanctions.

Additional operations, including establishments, agricultural zones, open land, rice fields, reservoirs, and production forests devoid of forestry permits, encompass conservation forest areas with a total area of 3866.76 thousand ha and protected forest areas with an area of 33.74 million ha. The absence of legal status regarding this activity is well-documented. This circumstance arises from the Ministry of Environment and Forestry's inability to conduct additional operations within forested regions without forestry permits.

BPK suggests that the Ministry of Environment and Forestry collaborate with law enforcement officials, process the resolution, and identify legal subjects for palm oil plantations, mining, and other activities in forest areas without forestry permits. By consulting relevant regulations, the Ministry of Environment and Forestry may also develop a strategic plan to facilitate the cessation of mining operations, oil palm plantation activities, and other prohibited activities in forest regions.

Conclusion

The examination sheds light on how the Audit Board of the Republic of Indonesia (BPK), functioning as an external audit institution in Indonesia, has played a crucial role in advancing the objectives of SDG 2 for the past 13 years, particularly in food security. By meticulously scrutinizing government policies and expenditures, BPK has actively contributed to fostering sustainable practices and ensuring effective strategies for achieving food security goals in the country. Following a thorough examination of policies and expenditures, BPK has also contributed to promoting and implementing sustainable agricultural practices, aligning with the broader goals of environmental conservation and responsible resource management.

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OTHER ARTICLES

Review: "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective"

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Introduction

“Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective” by AL NAQVI is a highly informative and practical guide that explores the applications of AI in the domains of audit, forensics, and accounting. This book provides readers with a comprehensive understanding of how artificial intelligence can be effectively utilized in these fields, offering insights and strategies to enhance professional practices and decision-making. AL NAQVI is an esteemed expert in the field of artificial intelligence (AI) and its applications in audit, forensics, and accounting, bringing a wealth of knowledge and expertise to the book. With years of experience and a solid industry background. The title of the book, “Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective,” succinctly captures its focus and intended audience. The primary purpose of this book is to provide professionals in the fields of audit, forensics, and accounting with a comprehensive understanding of AI and its potential applications. It serves as a practical guide for utilizing AI technologies to enhance practices in these domains, enabling professionals to leverage the power of AI to improve efficiency, accuracy, and decision-making processes. In this article, an overview of this book is introduced.

Content and Structure

The Structure of "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" is as follows:

- PART I: FOUNDATIONS FOR AI AND AUDIT
  - o Chapter 1: Introduction: Staying Ahead of the Emergent Risk.
  - o Chapter 2: Fourth Industrial Revolution and Its Impact on Audit.
  - o Chapter 3: What Is Artificial intelligence?
  - o Chapter 4: Rise of Machine Learning.
  - o Chapter 5: Machine Learning.
  - o Chapter 6: Building an IAA Audit Firm: The Planning Toolkit.
- PART II: BUILDING THE AUTOMATED AUDIT FUNCTION IN THE ENTERPRIE
  - o Chapter 7: Obtain, Retain, and Preplan with AI.
  - o Chapter 8: Automated Inherent Risk Assessment.
  - o Chapter 9: Automating Internal Controls Assessment.

Chapter 1: Introduction: Staying Ahead of the Emergent Risk

In the chapter titled "Staying Ahead of the Emergent Risk," the author discussed the importance of proactively addressing emerging risks in the context of artificial intelligence (AI) technology. He emphasized the need for organizations to stay vigilant and adaptive in a rapidly changing technological landscape, where new risks continuously emerge. The author began by explaining the concept of emergent risk, highlighting how technological advancements and digital transformations have given rise to new and unique challenges. He also discussed the potential risks associated with AI implementation, such as data breaches, cyber threats, algorithmic biases, and the ethical implications of AI-driven decision-making. Furthermore, the author explored the role of AI in managing emergent risks itself. He discussed how AI-powered systems can enhance risk assessment, fraud detection, and incident response capabilities. This could encompass the use of machine learning algorithms and data analytics to analyse large volumes of data, identify patterns, detect anomalies, and improve overall risk mitigation strategies. This chapter likely aims to raise awareness about emergent risks in relation to AI technology and provide practical guidance on staying ahead of these risks. By understanding the unique challenges associated with emerging technologies and implementing appropriate risk management strategies, organizations can better navigate the dynamic landscape of technological advancements and protect themselves against potential threats.

Chapter 2: Fourth Industrial Revolution and Its Impact on Audit

In this chapter, the author delves into the concept of the Fourth Industrial Revolution and its implications on the field of audit. He explored how transformative technologies and digital advancements are reshaping the business landscape and disrupting traditional audit practices. The chapter begins by introducing the concept of the Fourth Industrial Revolution, which is characterized by the convergence of digital technologies, including artificial intelligence (AI), robotics, the Internet of Things (IoT), and big data. The author discusses the profound impact of these technologies on companies, industries, and society as a whole. The author then focuses on the specific impact of the Fourth Industrial Revolution on the field of audit. He also explored how emerging technologies are transforming audit processes, methodologies, and expectations. This involved discussions on the automation of routine audit tasks using AI, the use of data analytics to analyze large volumes of financial and non-financial data, and the application of advanced technologies in fraud detection and risk assessment. Furthermore, the chapter addressed the evolving role of auditors in the face of technological advancements. The author discussed the changing skill set required for auditors, emphasizing the importance of digital competence, data analysis, and an understanding of emerging technologies. Ultimately, this chapter aims to create awareness among auditors and professionals in the field about the impacts of the Fourth Industrial Revolution. By examining the transformative technologies associated with the Fourth Industrial Revolution, readers can better understand the potential benefits, challenges, and opportunities that arise in the audit profession.

Chapter 3: What Is Artificial intelligence?

In the chapter titled "What Is Artificial Intelligence?" the author introduces the foundational concepts of artificial intelligence (AI) in the context of audit, forensic accounting, and valuation. The aim of this chapter is to provide readers with a clear understanding of AI and its relevance to these fields. The chapter started with a definition of AI, highlighting its broad scope and diverse applications. The author explained that AI refers to the development of computer systems and algorithms that can perform tasks that typically require human intelligence, such as perception, reasoning, learning, and decision-making. To help readers grasp the key components of AI, the author discussed various subfields within AI, including machine learning, natural language processing (NLP), computer vision, and robotics. Furthermore, the author discussed the potential benefits and challenges associated with AI in the fields of audit, forensic accounting, and valuation. Also, he explored how AI technologies can enhance accuracy, speed, and efficiency in these disciplines, while also considering potential ethical and privacy concerns. The chapter concluded with a reflection on the future trajectory of AI in accounting and related professions. The author also discussed emerging trends, such as explainable AI, interpretability, and the need for human-AI collaboration in decision-making processes.

Chapter 4: Rise of Machine Learning

In the chapter titled "Rise of Machine Learning," the author explored the growing significance of machine learning as a key component of artificial intelligence (AI) in the fields of forensic, accounting, audit, and valuation. The chapter aims to provide readers with an understanding of the underlying principles, techniques, and applications of machine learning. The chapter started by defining machine learning and its relevance in the context of AI. The author explained that machine learning includes the development of models and algorithms that allow computer systems to learn from data and make predictions or decisions without being explicitly programmed. To illustrate the rise and prominence of machine learning, the author discussed its historical development, advancements, and breakthroughs. He explored the pivotal role of increased computational power, availability of large datasets, and algorithmic innovations in driving the rapid progress of machine learning in recent years. The chapter explored considerations and challenges associated with implementing machine learning in practice. The author addressed topics such as data quality and availability, interpretability and explain ability of machine learning models, model bias, and ethical considerations. Towards the end of the chapter, the author discussed the future outlook and potential advancements in machine learning within the audit, forensic accounting, and valuation fields. He also highlighted emerging techniques, such as deep learning and neural networks, and the integration of machine learning with other AI technologies. Overall, the chapter on the "Rise of Machine Learning" provides readers with a comprehensive overview of the principles and applications of machine learning in the context of audit, forensic accounting, and valuation. By understanding the rise and potential of machine learning, readers can explore the strategic integration of these technologies in subsequent chapters to enhance their professional practices.

Chapter 5: Machine Learning

The chapter on Machine Learning in the book "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" provides a comprehensive overview of this powerful technology and its applications in the mentioned fields. The chapter begins with a clear and concise introduction to the concept of Machine Learning. It explains how Machine Learning algorithms enable computers to learn from data and make intelligent decisions without being explicitly programmed. The chapter highlights the various ways in which Machine Learning can enhance audit procedures and forensic accounting investigations. It emphasizes how Machine Learning algorithms can analyze large volumes of financial data, identify anomalies, and detect potential fraud or financial misstatements. By automating these processes, Machine Learning can significantly improve the efficiency and effectiveness of audits and investigations, enabling professionals to focus on higher- value tasks. The book also explores the integration of Machine Learning in the field of valuation. It discusses how Machine Learning algorithms can analyse historical financial data, market trends, and other relevant factors to predict future valuations with greater accuracy. This application of Machine Learning can optimize the valuation process, providing insights and reducing subjective biases inherent in traditional valuation methods. The chapter also addresses the challenges and risks associated with implementing Machine Learning in these domains. It covers topics such as data quality and availability, model interpretability, and ethical considerations. By acknowledging these challenges, the book underscores the importance of a holistic approach to Machine Learning implementation that includes robust data management and ethical guidelines. In conclusion, the Machine Learning chapter in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" provides a comprehensive overview of the applications and challenges of Machine Learning in these fields. It offers valuable insights into how this technology can revolutionize auditing, forensic accounting, and valuation practices, making the book an essential resource for professionals seeking to leverage the benefits of Machine Learning in their work.

Chapter 6: Building an IAA Audit Firm: The Planning Toolkit

The chapter "Building an IAA Audit Firm: The Planning Toolkit" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" likely focuses on providing guidance and tools for individuals or organizations looking to establish an Internal Audit Agency (IAA) or enhance their existing audit firm. The chapter started with an explanation of the importance of Internal Audit Agencies and their function within an organization. It also discussed how IAAs play a vital role in ensuring effective risk management, compliance with regulations, and the safeguarding of corporate assets. This chapter highlighted the benefits of establishing a strong IAA to enhance overall governance and control processes. This chapter delves into the strategic aspects of planning and establishing an IAA firm. It provides a step-by-step guide on structuring the firm's key functions, including developing a mission statement, defining objectives, and designing the organizational structure. This section discusses considerations such as resource allocation, staffing requirements, and training needs. The chapter also introduced various tools and methodologies that can facilitate effective auditing processes within an IAA. This includes techniques to identify and assess risks, establish audit plans, and conduct risk-based internal audits. It discusses the use of technology and data analytics to streamline audit procedures, improve efficiency, and enhance the quality of audit findings. The chapter also discusses the importance of monitoring and evaluating the performance of an IAA firm. It outlines key performance indicators (KPIs) that can be used to measure the effectiveness and efficiency of internal audit activities. Additionally, it provides guidance on designing reporting mechanisms to communicate audit findings, recommendations, and overall performance to key stakeholders.

The chapter "Building an IAA Audit Firm: The Planning Toolkit" likely provides a comprehensive toolkit and guidance for individuals or organizations involved in establishing or improving an IAA. By offering practical advice on strategic planning, auditing tools, performance monitoring, and ethical considerations, this chapter aims to assist readers in building a robust and effective internal audit firm.

Chapter 7: Obtain, Retain, and Preplan with AI

The chapter "Obtain, Retain, and Preplan with AI" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" focuses on the intersection of artificial intelligence (AI) and the critical aspects of obtaining and retaining clients, as well as preplanning audit engagements. This chapter discusses how AI technologies can be leveraged to augment client acquisition strategies. It explores the use of AI-powered tools to identify potential clients, analyse market trends, and enhance the targeting of marketing campaigns. By utilizing AI, firms are be able to automate the process of lead generation and improve the efficiency and effectiveness of their client acquisition efforts. The chapter delves into how AI can aid in client retention by analysing client feedback, preferences, and behaviour. It explores how sentiment analysis and natural language processing (NLP) can be used to gain insights from client communications and provide personalized services. By leveraging AI, firms can proactively address client needs, identify areas for improvement, and enhance overall client satisfaction and retention. The chapter also highlighted how AI can be utilized in the preplanning phase of audit engagements to optimize the process. It discusses the use of AI-powered tools for data analysis, risk assessment, and scoping audits. These technologies help auditors to identify areas of higher risk, prioritize resources, and design efficient audit procedures. By incorporating AI in preplanning, firms can enhance the effectiveness and accuracy of their audits. This chapter also consider the benefits, challenges, and ethical considerations of implementing AI in client acquisition, retention, and preplanning processes. It discusses the potential pitfalls and risks associated with relying solely on AI technologies, emphasizing the importance of maintaining human judgment and expertise. The chapter provides guidance on mitigating biases, ensuring data privacy and security, and establishing an ethical framework for AI utilization. The chapter "Obtain, Retain, and Preplan with AI" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" serves as a guide for professionals seeking to leverage AI in obtaining and retaining clients, as well as preplanning audit engagements. By harnessing AI technologies for client acquisition, retention, and preplanning, firms can enhance their competitive edge, improve efficiency, and deliver more value to their clients while considering the associated challenges and ethical considerations.

Chapter 8: Automated Inherent Risk Assessment

The chapter "Automated Inherent Risk Assessment" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" focuses on the application of artificial intelligence (AI) in automating the process of inherent risk assessment within audit engagements. The chapter begins by explaining the concept of inherent risk assessment within audits. It discusses how auditors evaluate the susceptibility of financial statements to material misstatements before considering the impact of internal controls. This chapter also provides readers with a foundational understanding of inherent risk assessment and its significance in the audit process. The chapter would delves into the ways in which AI technologies can enhance and automate the inherent risk assessment process. It also discusses the use of AI-powered tools, such as machine learning algorithms and data analytics, to analyse large volumes of financial data and identify potential risk indicators. These tools help auditors to identify areas of higher risk and prioritize their efforts more effectively. The chapter explores how machine learning algorithms can be trained to recognize patterns and identify risk indicators from historical financial data. It also discusses the various techniques and methodologies employed in machine learning for risk assessment purposes. By utilizing these techniques, auditors harness the power of AI to flag potential areas of inherent risk more accurately and efficiently. The chapter also addresses how AI can be integrated into audit software to streamline the inherent risk assessment process. It discusses the benefits of automated risk assessment tools that leverage AI technology, allowing auditors to gather data, perform risk analysis, and generate risk assessment reports within a unified platform. This integration enhances efficiency, accuracy, and consistency in risk assessment practices.

In conclusion, the chapter "Automated Inherent Risk Assessment" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" provides valuable insights into the application of AI in automating the inherent risk assessment process within audit engagements. By leveraging AI technologies and machine learning algorithms, auditors can enhance the efficiency, accuracy, and effectiveness of their risk assessment practices. This chapter serves as a valuable resource for professionals seeking to harness the transformative potential of AI in the field of auditing.

Chapter 9: Automating Internal Controls Assessment

The chapter "Automating Internal Controls Assessment" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" likely focuses on the application of artificial intelligence (AI) in automating the assessment of internal controls within audit engagements. The chapter starts by providing an introduction to internal controls assessment and its importance in audit procedures. It explains how auditors evaluate the design, implementation, and effectiveness of an organization's internal controls to mitigate risks and ensure the reliability of financial information.

This chapter aims to establish the foundation for the discussion of automating this assessment through AI.

The chapter delves into how AI technologies can streamline and automate the internal controls assessment process. It also discuss the use of AI-powered tools, such as machine learning algorithms and robotic process automation (RPA), to analyse control documentation, test controls, and identify anomalies. By leveraging these technologies, auditors can accelerate the assessment process, improve accuracy, and focus their efforts on high-risk areas. The chapter explores how machine learning algorithms can be trained to identify patterns and deviations within internal control data. By utilizing machine learning, auditors can enhance the efficiency and effectiveness of control assessment, identify control weaknesses, and identify areas for improvement. The chapter highlights the benefits and considerations of automating internal controls assessment through AI. It discusses how AI can provide auditors with deeper insights, improve efficiency, and enhance audit quality. Additionally, the chapter address potential challenges such as data quality, model interpretability, and ethical considerations related to the use of AI in internal controls assessment.

In conclusion, the chapter "Automating Internal Controls Assessment" in "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" offers valuable insights into how AI can automate and enhance the assessment of internal controls within audit engagements. By leveraging AI technologies such as machine learning and robotic process automation, auditors can streamline the assessment process, improve accuracy, and focus on critical control areas. This chapter serves as a valuable resource for professionals seeking to harness the potential of AI in the field of internal controls assessment.

Target Audience and Accessibility

The target audience for this book would likely include professionals, practitioners, researchers, and academics in the fields of audit, forensic accounting, valuation, and artificial intelligence. This could encompass auditors, forensic accountants, valuation specialists, researchers, educators, and individuals with a specific interest in the convergence of artificial intelligence and accounting practices. In terms of accessibility, the book's content would depend on multiple factors such as the writing style, technicality, and the author's intent. The author strikes a balance by assuming a foundational understanding of accounting principles and AI concepts, making the book accessible to professionals in the relevant fields. However, he might also provide explanations, contextual information, and practical real-world examples to help readers with different levels of expertise in accounting and AI grasp the content.

For readers with a strong background in accounting and AI, the book delves into advanced topics, methodologies, algorithms, and applications specific to audit, forensic accounting, and valuation. On the other hand, readers with a general interest in the subject matter or those with less expertise in accounting and AI may benefit from sections that outline fundamental concepts, industry trends, and case studies to foster understanding. It is essential for the author to strike a balance between technical rigor and accessibility, taking into account the diverse readership and their varying levels of expertise.

Conclusion

"Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective" offers a comprehensive exploration of integrating AI into the realms of accounting, forensic accounting, and valuation. The book provides a strategic lens through which readers can comprehend the potential impacts and applications of AI in these critical financial domains. The book is meticulously organized, presenting foundational knowledge about AI in accounting and finance. It delves into the specific applications of AI in auditing, forensic accounting, and valuation. The inclusion of case studies and real-world examples enhances understanding by illustrating practical implementations. The book is highly relevant in today's evolving financial landscape, where AI is increasingly becoming a pivotal tool. By focusing on strategic perspectives, the book not only showcases how AI can enhance efficiency and accuracy in auditing and accounting processes but also how it can provide critical insights for valuation and strategic decision-making. The book is accessible to a wide range of readers, including professionals in accounting and finance, auditors, forensic accountants, students, and researchers. The language and structure make it suitable for both beginners seeking an introduction to AI in accounting and experts looking to deepen their understanding of AI's strategic implications.

Based on its thorough exploration of AI in audit, forensic accounting, and valuation from a strategic standpoint, I would highly recommend "Artificial Intelligence for Audit, Forensic Accounting, and Valuation: A Strategic Perspective." It offers a valuable resource for anyone seeking to grasp the integration of AI into these financial domains and harness its potential for strategic decision-making. In conclusion, the book significantly contributes to the field of AI in accounting by providing insights and practical applications that can transform traditional processes and elevate the role of AI in strategic financial decision-making.

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ACTIVITIES
IN MEMBER SAIS

The National Audit Office (NAO) of Bahrain

The NAO Bahrain participates in INTOSAI's PSC Steering Committee Meeting

The National Audit Office (NAO) of Bahrain participated in the 23rd meeting of the Steering Committee of the Professional Standards Committee (PSC) of the International Organization of Supreme Audit Institutions (INTOSAI) held in Luxembourg from the 27th to the 28th of September, representing the Arab Organization of Supreme Audit Institutions (ARABOSAI).

During the meeting, the Strategic Plan for the Development of Professional Standards (SDP) was adopted, which had been outlined during the meetings held in the Kingdom of Bahrain in May 2023. In addition, the request of the Capacity Building Committee to launch an initiative to support SAIs facing challenges and difficulties in applying professional standards was discussed.

Participants learned about initiatives related to the provision of professional qualifications and training in performance audit. They reviewed the progress of current projects of the INTOSAI Forum for Professional Pronouncements (FIPP) and the various task forces on the issuance of new professional standards and the revision of existing professional standards and publications.

During the meeting, the NAO Bahrain, represented by Mr. Mahmood Hashem Mahmood, Director Administrative Audit, and Mr. Ahmed Mohamed Buti, Director Regularity Audit at the NAO, presented a working paper on developing and improving the process of preparing professional standards in INTOSAI. The paper addressed the importance of involving stakeholders in the process of preparing, reviewing and updating professional standards. It included proposals on possible means that would enhance the participation of stakeholders in the preparation of professional standards issued by the Organization, in application of the principle of partnership and cooperation used by the NAO Bahrain in its audit work.

World CIO 200 Summit honours NAO Bahrain employee

The World CIO 200 Summit honoured Ahmed Buti, Director Regulatory Audit at the National Audit Office (NAO) of the Kingdom of Bahrain, for successfully leading the working group on "Employing Artificial Intelligence in Regulatory Audit" in cooperation with the H.H. Shaikh Nasser Centre for Artificial Intelligence Research and Development.

Buti received the award on the sidelines of the summit held recently in the Kingdom of Bahrain under the patronage of His Highness Shaikh Khalid bin Hamad Al Khalifa, First Deputy Chairman of the Supreme Council for Youth and Sports, President of the General Sports Authority and President of the Bahrain Olympic Committee.

He presented the experience of electronic transformation and the use of artificial intelligence at the NAO at the forum, which was attended by representatives from the public and private sector, and which celebrated a group of CIOs and CEOs supporting technological innovation.

This is the eighth time that Bahrain has hosted this international forum, which included a series of workshops and knowledge sharing sessions stimulating experiences and promoting a culture of innovation to explore the latest strategies, innovations and initiatives in IT leadership.

The NAO is interested in technological development and innovative technical tools that facilitate the performance of its tasks and enhance the professionalism and accuracy of its employees.

SAI India hosts SAI20 Summit

Under the G20 Presidency of India, the Comptroller and Auditor General of India assumed the chair of Supreme Audit Institutions 20 (SAI20) Engagement Group and hosted the SAI20 Summit from 12th to 14th June 2023 in Goa. SAI India selected **Blue Economy and Responsible Artificial Intelligence** as the priority themes for SAI20. Around 85 national and international delegates from G20 member SAIs, Guest SAIs, international and national organizations and the G20 Secretariat participated in the summit.

During the Summit, the participants deliberated on ways to enhance transparency, accountability and good governance in audit of blue economy and responsible artificial intelligence and shared the best practices followed in their respective SAIs.

As a culmination of the SAI20 Summit, SAI20 Communique was adopted by the member SAIs which was a reiteration of the firm resolve of the member SAIs to enhance the effectiveness of policies and programs promoting Blue Economy and to help mitigate social challenges as well as the ethical and privacy concerns in adoption of AI.

SAI India also presented the Compendia on Blue Economy and Responsible AI. The compendia have contributions and experiences shared by the SAI20 members and other SAIs to guide future audits on the respective priority areas.

The Comptroller and Auditor General of India, Sh. Girish Chandra Murmu, along with the Heads of delegations during SAI20 Summit in Goa on 12th June 2023

HEADS
OF NEW SAIS

Mr. OKAMURA Hajime
New President and Commissioner Appointed

Mr. OKAMURA Hajime assumed the Presidency of the Board of Audit of Japan on September 12, 2023, succeeding Mr. MORITA Yuji, who retired from the position on September 1, 2023.

Prior to assuming his current position, Mr. OKAMURA served as Commissioner of the Board (since 2018) and as Acting President upon Mr. MORITA's retirement. Before that, he had worked as Secretary General of the Board of Audit of Japan.

In a related move, Dr. HIKI Fumiko was appointed as Commissioner of the Board on September 11, 2023. Before her appointment, she was a Professor of the Graduate School of Business Administration, Hitotsubashi University.

For additional information, contact us via email at liaison@jbaudit.go.jp or visit http://www.jbaudit.go.jp/english/.

TENTATIVE SCHEDULE OF ASOSAI CAPACITY DEVELOPMENT ACTIVITIES

Tentative schedule of ASOSAI capacity development activities for 2023-2024 (As of the end of October 2023)

Year	Date	Event	Venue
2024	(TBD)	Instructors' Design Meeting for ASOSAI Capacity Development Program 2024-2025 on "Dealing with Fraud and Corruption in Auditing "	Tokyo, Japan
	(TBD)	eLearning Course of ASOSAI Capacity Development Program 2024-2025 on "Dealing with Fraud and Corruption in Auditing "	Online
	(TBD)	ASOSAI Seminar (Theme: Dealing with Fraud and Corruption in Auditing)	Philippines

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OCTOBER 2023 ISSUE

ASOSAI Journal

Asian Journal of Government Audit

Asian Organisation of Supreme Audit Institutions

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