The Transformation of Sustainability Report Assurance Concept: Contemporary Academic Perspectives and the Evolving Role of Supreme Audit Institutions

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Abstract

This paper explores the evolving concept of sustainability report assurance within the context of public sector auditing, with a particular focus on the role of Supreme Audit Institutions (SAIs) from 2015 to 2025. Anchored in contemporary academic frameworks—such as Integrated Reporting 2.0, Dynamic Accountability, and Institutional Convergence—the study examines how SAIs have shifted from traditional compliance audits to strategic, data-driven evaluations of Environmental, Social, and Governance (ESG) performance. Through a synthesis of theoretical insights and practical examples, the paper highlights key innovations including the integration of AI and big data analytics, SDG-aligned budget audits, and capacity-building efforts in developing economies. It also identifies the major challenges SAIs face, such as the lack of standardized ESG frameworks, technical expertise gaps, and political resistance. Furthermore, the study underscores the emerging importance of the International Standard on Sustainability Assurance (ISSA) 5000, recently issued by the IAASB, as a global benchmark for consistent and credible assurance practices. The paper concludes by proposing future directions that bridge academic theory with operational practice, emphasizing the need for institutional adaptation and international cooperation to advance public sector sustainability assurance.

Keywords: Sustainability Assurance, Supreme Audit Institutions, ESG Governance

การเปลี่ยนผ่านของแนวคิดการให้ความเชื่อมั่นต่อรายงานความยั่งยืน: มุมมองทางวิชาการร่วมสมัยและบทบาทที่เปลี่ยนแปลงขององค์กรตรวจเงินแผ่นดิน

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บทคัดย่อ

บทความนี้สำรวจพัฒนาการของแนวคิดการให้ความเชื่อมั่นต่อรายงานความยั่งยืน (Sustainability Report Assurance) ในบริบทของการตรวจสอบภาครัฐ โดยมุ่งเน้นบทบาทขององค์กรตรวจเงินแผ่นดิน (Supreme Audit Institutions – SAIs) ในช่วงปี ค.ศ. 2015–2025 การศึกษานี้ตั้งอยู่บนกรอบแนวคิดร่วมสมัย เช่น Integrated Reporting 2.0, Dynamic Accountability และ Institutional Convergence ที่ช่วยอธิบายการเปลี่ยนผ่านจากการตรวจสอบตามกฎระเบียบแบบเดิม ไปสู่การประเมินผลการดำเนินงานด้านสิ่งแวดล้อม สังคม และธรรมาภิบาล (ESG) อย่างมีกลยุทธ์และขับเคลื่อนด้วยข้อมูลเชิงลึก

บทความได้นำเสนอทั้งมิติทางทฤษฎีและตัวอย่างเชิงปฏิบัติ เช่น การบูรณาการเทคโนโลยี AI และ Big Data เข้าสู่การตรวจสอบ การตรวจสอบงบประมาณที่สอดคล้องกับเป้าหมาย SDGs และการเสริมสร้างขีดความสามารถขององค์กรตรวจเงินแผ่นดินในประเทศกำลังพัฒนา พร้อมกันนี้ยังระบุอุปสรรคสำคัญที่พบ ได้แก่ การขาดมาตรฐาน ESG สำหรับภาครัฐ การขาดแคลนผู้เชี่ยวชาญเฉพาะทาง และข้อจำกัดทางการเมือง

นอกจากนี้ ผู้เขียนยังชี้ให้เห็นถึงแนวโน้มสำคัญในอนาคต โดยเฉพาะการที่องค์กรตรวจเงินแผ่นดิน ต้องปรับตัวให้สามารถนำมาตรฐานใหม่ระดับสากลอย่าง ISSA 5000 ซึ่งพัฒนาโดย IAASB มาใช้ในการให้ความเชื่อมั่นต่อข้อมูลด้านความยั่งยืนในภาครัฐ เพื่อยกระดับความน่าเชื่อถือ ความสม่ำเสมอ และการบูรณาการกับ แนวปฏิบัติทั่วโลก บทความจึงเสนอทิศทางในอนาคตที่เชื่อมโยงทฤษฎีทางวิชาการกับการปฏิบัติจริง โดยเน้นย้ำความจำเป็นของความร่วมมือระดับสากลในการยกระดับการตรวจสอบเพื่อความยั่งยืนในภาครัฐ

คำสำคัญ: การให้ความเชื่อมั่นต่อความยั่งยืน องค์กรตรวจเงินแผ่นดิน ธรรมาภิบาลด้าน ESG

1. Introduction: The Evolving Landscape of Sustainability Assurance

Since the adoption of the United Nations Sustainable Development Goals (SDGs) in 2015, organizations worldwide—including academic institutions and Supreme Audit Institutions (SAIs)—have increasingly focused on integrating sustainability into their mandates. Over the past decade (2015–2025), *sustainability reporting and its assurance* have gained prominence due to the growing global emphasis on Environmental, Social, and Governance (ESG) risks, climate change, and corporate social responsibility (CSR).

In response to these developments, SAIs have expanded their auditing methodologies to incorporate sustainability assurance as a core component of public sector oversight. This shift reflects a broader transformation in public accountability, moving beyond traditional financial and compliance audits to evaluating sustainability performance, policy effectiveness, and long-term environmental impact.

Simultaneously, the academic landscape has introduced new theoretical frameworks that extend beyond classical auditing approaches. These include ***Integrated Reporting Theory, Dynamic Accountability, and Institutional Isomorphism in ESG Auditing***, which provide valuable insights into how sustainability assurance has evolved from a voluntary corporate practice to a structured mechanism for public accountability.

This article explores the ***intersection between contemporary sustainability assurance concepts and the evolving role of SAIs*** in ensuring governmental transparency and accountability in sustainability governance. As global challenges increasingly demand robust sustainability reporting and independent oversight, SAIs must adapt their methodologies to align with evolving academic insights, international auditing standards, and emerging best practices. This paper seeks to establish a conceptual and practical linkage between academic perspectives on sustainability assurance and the auditing profession's role in evaluating sustainability reports, offering a forward-looking approach to the future of public sector sustainability auditing.

2. Contemporary Theoretical Foundations of Sustainability Report Assurance

The adoption of the United Nations Sustainable Development Goals (SDGs) in 2015 marked a fundamental shift in sustainability governance and accountability. Over the past decade (2015-2025), both academic research and institutional practices have evolved to align public sector auditing with global sustainability objectives. This shift has influenced SAIs, which have had to adapt their methodologies to provide sustainability assurance in an era of increased environmental, social, and governance (ESG) reporting requirements.

Three major theoretical advancements have emerged in the SDGs accountability landscape, shaping how sustainability assurance is conducted in public sector audits as follows.

a) **Extended Integrated Reporting Theory (IR 2.0)** – Moving beyond traditional financial and non-financial disclosure towards SDG-aligned reporting.
b) **Dynamic Accountability and Adaptive Governance** – Emphasizing real-time sustainability assurance and policy responsiveness.
c) **Institutional Convergence in SDG Accountability** – Standardizing sustainability reporting across public and private sectors, reflecting the need for harmonized ESG auditing frameworks.

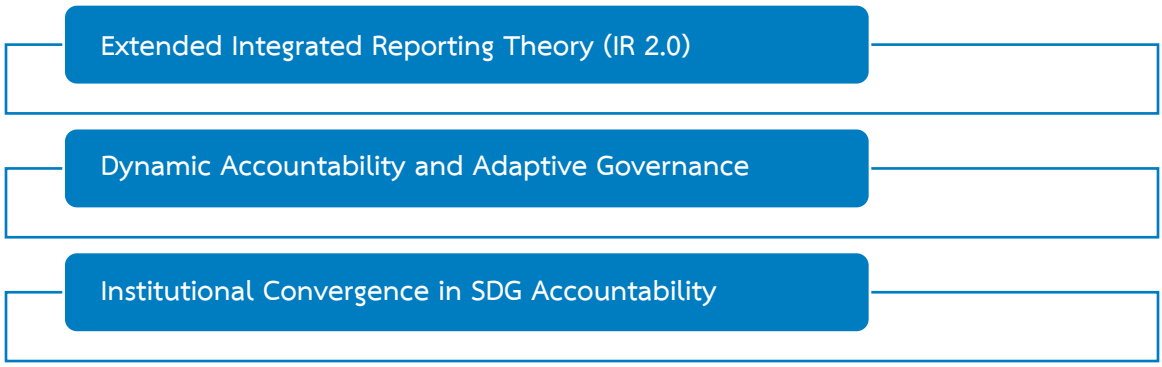

Figure 1 Three major theoretical advancements have emerged in the SDG accountability landscape.

These theoretical frameworks provide insights into how SAIs and other accountability institutions are evolving to meet the complex challenges of SDG implementation and sustainability auditing.

2.1 Extended Integrated Reporting Theory (IR 2.0) – Linking SDG Reporting to Public Accountability

The original Integrated Reporting (IR) framework, developed by the International Integrated Reporting Council (IIRC) in 2013, encouraged organizations to merge financial and non-financial (ESG) disclosures into a single, holistic report. However, since 2015, academic discourse has moved towards an Extended Integrated Reporting model (IR 2.0), incorporating SDG-aligned sustainability disclosures into public and private sector reporting frameworks.

The main idea show that organizations should not only integrate financial and ESG performance but also explicitly align their reporting with the SDGs to demonstrate their contribution to global sustainability goals.

SAIs play a key role in assessing the credibility of SDGs reporting by evaluating whether government agencies effectively integrate SDGs targets into their financial and strategic plans. This function aligns with the *INTOSAI Framework for Public Sector Auditing (IFPP)*, which emphasizes sustainability-linked auditing and long-term value creation (INTOSAI, 2019). Furthermore, the *European Court of Auditors (ECA)* has implemented Integrated Reporting (IR) 2.0 principles in its evaluation of EU government sustainability disclosures, ensuring transparency and accountability in SDG-aligned

public finance management. These efforts reinforce SAIs' responsibility in enhancing public sector governance, promoting sustainability, and ensuring that national policies align with global development commitments.

A practical example of SDG-aligned public sector auditing is the *World Bank's Sovereign ESG Framework (2020)*, which encourages national governments to integrate SDG-linked sustainability indicators into financial reporting and budget allocation models, enhancing transparency and accountability in fiscal decision-making. Similarly, the *Netherlands Court of Audit (NCA)* has embedded SDGs performance metrics into national budget audits, ensuring that public sector investments align with long-term sustainability objectives (de Villiers et al., 2021). These examples demonstrate how audit institutions can play an essential role in embedding sustainability considerations into public finance management, fostering responsible governance and policy coherence.

2.2 Dynamic Accountability and Adaptive Governance – Real-Time SDGs Assurance

The concept of Dynamic Accountability, first introduced by *Bebbington, Unerman, & O'Dwyer* (2019), has gained further traction in sustainability governance research between 2015–2025. As SDGs implementation is an ongoing process, academic discourse has increasingly emphasized real-time, adaptive governance models that allow institutions to continuously monitor and adjust sustainability policies.

The key idea underpinning this theoretical shift is that traditional ex-post sustainability audits, which are conducted only after policy implementation, are increasingly viewed as insufficient in addressing the complexities and dynamism of sustainable development governance. In their place, scholars advocate for the development and adoption of real-time SDGs assurance mechanisms that enable continuous oversight, early detection of sustainability risks, and adaptive policy interventions. This approach emphasizes *the need for proactive, forward-looking audit frameworks* that support governments and public institutions in responding to emerging ESG challenges in a timely and effective manner, thereby strengthening the accountability and resilience of public sector sustainability governance.

SAIs are increasingly transitioning from static, retrospective SDGs performance audits to more dynamic, AI-driven monitoring systems capable of tracking the effectiveness of sustainability policies in real time. This transformation allows SAIs to move beyond traditional audit cycles and instead provide continuous, adaptive oversight of government initiatives aimed at achieving the SDGs. By integrating machine learning and predictive analytics, SAIs can identify emerging environmental, social, and economic risks, evaluate policy effectiveness proactively, and issue timely recommendations for improvement. Reflecting this trend, the International Federation of Accountants (IFAC, 2023) has called for public sector auditors to embrace data-driven and forward-looking assurance models that are better suited to the evolving nature of sustainability governance.

A practical example of SDG-aligned public sector auditing is the OECD's Real-Time ESG Audit Model (2022), which enables governments to conduct scenario-based sustainability assessments, ensuring that SDGs policies remain adaptable to evolving global and national conditions. Similarly, the *Office of the Auditor General of Canada* has integrated *climate risk analytics* into its *natural resource governance audits*, allowing for continuous evaluation of environmental sustainability performance and enhancing long-term policy effectiveness (Bebbington et al., 2023). These initiatives highlight how SAIs can leverage data-driven approaches to improve public sector resilience, accountability, and sustainability governance.

2.3 Institutional Convergence in SDGs Accountability – Standardizing Public and Private Sector ESG Auditing

Over the past decade, sustainability assurance has evolved into a multi-sectoral challenge, requiring convergence between public and private sector accountability frameworks. Institutional theory suggests that public sector sustainability auditing is increasingly shaped by global ESG assurance standards, leading to harmonization across jurisdictions.

A key emerging trend is institutional convergence, which is fostering the adoption of global sustainability assurance frameworks and creating a unified methodology for SDGs accountability across both corporate and government auditing bodies. For SAIs, this convergence is highly relevant, as many are increasingly aligning their sustainability audit methodologies with corporate ESG assurance standards such as ISAE 3000, the GRI Standards, and the ISSB's Global Sustainability Disclosure Framework (IFAC, 2023). The EU's Corporate Sustainability Reporting Directive (CSRD, 2023) further reinforces this shift by mandating independent sustainability audits for both private and public sector organizations, underscoring the need for harmonized ESG assurance practices. In response, the *INTOSAI Working Group on Environmental Auditing (WGEA)* has advocated for cross-sectoral SDGs audit methodologies, enabling SAIs to benchmark public sector sustainability performance against evolving global standards and promote greater coherence, comparability, and accountability in SDGs implementation.

A practical example of institutional convergence in sustainability assurance is the German Federal Court of Auditors, which has incorporated ISAE 3000 principles into its SDG-linked financial audits, ensuring that government sustainability reporting adheres to international best practices and enhances public trust (Greenwood et al., 2022). Similarly, the Asian Organization of Supreme Audit Institutions (ASOSAI, 2023) has developed and introduced an SDGs-aligned budget auditing framework, aimed at ensuring that national expenditures on sustainability initiatives are both transparent and measurable. These examples illustrate how SAIs are operationalizing global ESG standards within their audit mandates, thereby strengthening the credibility and comparability of sustainability performance across sectors.

3. The Evolution of Modern Supreme Audit Institutions and Sustainability Report

The modern role of SAIs in sustainability report assurance has evolved profoundly between 2015 and 2025, reflecting the shifting landscape of public governance and the growing global emphasis on Environmental, Social, and Governance (ESG) accountability. Over this decade, SAIs have transitioned from traditional compliance-focused audits *to adopting strategic, data-driven, and future-oriented approaches* that evaluate sustainability performance across national and institutional dimensions. This transformation has been shaped by key drivers such as the integration of the United Nations Sustainable Development Goals (SDGs) into public finance systems, the increasing relevance of climate-related financial risks, and the deployment of digital technologies for real-time monitoring and assessment. *This section explores four fundamental developments that have redefined the modern role of SAIs in assuring sustainability reporting and strengthening accountability for long-term value creation.*

A. Expansion from Compliance Audits to Strategic ESG Audits

Traditionally, SAIs concentrated on compliance-based environmental audits, focusing on whether governments adhered to national environmental laws and international agreements. These audits were regulatory in nature, aimed at verifying the execution of environmental policies within the confines of existing legal frameworks. While essential for ensuring legal accountability, this approach often limited the scope of audit impact, particularly in addressing the dynamic and interconnected challenges of sustainability governance.

Since 2015, however, the role of SAIs has expanded significantly toward conducting *strategic ESG audits* that assess broader, long-term risks and policy effectiveness. These audits move beyond legal compliance to examine how governments and state-owned enterprises (SOEs) are planning for complex sustainability challenges such as climate change adaptation, biodiversity conservation, and social equity. A leading example is the *UK's National Audit Office (NAO)*, which has adopted climate resilience audits to evaluate the effectiveness of government strategies in achieving net-zero carbon targets. These audits critically assess the adequacy of policy planning, financial resource allocation, and cross-sectoral coordination—ensuring that the UK's environmental policies are not only compliant but also forward-looking and resilient to future risks (NAO, 2023).

B. Adoption of AI and Big Data in ESG Auditing

The integration of Artificial Intelligence (AI) and Big Data Analytics (BDA) has revolutionized the way SAIs conduct sustainability audits, enhancing both efficiency and accuracy. In the past, SAIs relied heavily on manual data collection and retrospective analysis, which often resulted in delays in identifying sustainability risks and inconsistencies in reporting. Today, AI-driven technologies enable real-time auditing of vast and complex datasets, allowing for more dynamic and responsive

assurance processes that are better suited to the fast-evolving nature of environmental and social governance challenges.

Cutting-edge tools such as *remote sensing, satellite imagery, and machine learning models* now empower SAIs to monitor key environmental indicators—ranging from deforestation and air pollution to carbon emissions—with far greater precision. These technologies facilitate *predictive analytics*, enabling auditors to identify emerging ESG risks, detect anomalies in sustainability reporting, and issue evidence-based recommendations for policy improvements. By shifting from reactive to proactive auditing, SAIs are not only improving oversight but also supporting strategic decision-making for long-term sustainability.

A notable example is the *European Court of Auditors (ECA)*, which has implemented AI and satellite data to verify the real-world impact of EU agricultural and climate policies (ECA, 2023). Through the use of remote sensing, the ECA can track land-use patterns, assess the effectiveness of carbon offset initiatives, and uncover discrepancies in sustainability claims. Moreover, SAIs are increasingly adopting AI-powered ESG risk assessment models to project the long-term economic implications of environmental degradation—thereby equipping policymakers with the insights needed to design more resilient and sustainable fiscal strategies.

C. Integration of Sustainability Reporting into National Budget Audits

As governments increasingly embed SDGs performance indicators into national budgets, sustainability has become a central pillar of public financial management. This development has prompted SAIs to expand their audit mandates—moving beyond traditional financial scrutiny to evaluate whether public expenditures effectively support national and international sustainability objectives. *SDGs-aligned budget audits now assess whether government funding is being allocated to key sustainability initiatives such as renewable energy, climate adaptation, and biodiversity conservation*. SAIs also examine the alignment between fiscal policies and ESG commitments, identifying policy and funding gaps that could undermine long-term sustainability goals.

To support this evolving role, the INTOSAI Development Initiative (IDI) has introduced the *SDGs Audit Model (ISAM)*—a structured framework that enables SAIs to systematically integrate sustainability considerations into national budget audits (INTOSAI, 2023). ISAM guides SAIs in tracking public spending on sustainability programs, evaluating the transparency and integrity of climate finance mechanisms (including carbon credits and green investments), and assessing the risks of greenwashing or underreporting environmental liabilities. Countries adopting ISAM-based audits have reported enhanced public financial accountability, improved tracking of sustainability outcomes, and greater policy coherence—ensuring that SDGs commitments are not only declared but also strategically implemented and adequately funded.

D. Strengthening Sustainability Report Assurance in Developing Economies

While high-income countries have made notable progress in embedding sustainability assurance within their public auditing systems, SAIs in developing economies often face significant barriers. These include limited institutional capacity, inadequate access to reliable ESG data, and underdeveloped regulatory frameworks. As many SAIs in the Global South are still in the early stages of building environmental and sustainability audit systems, there is a pressing need for technical assistance, knowledge transfer, and institutional development to support their transition toward comprehensive sustainability auditing.

In response, international and regional organizations—such as INTOSAI, the World Bank, the UNDP, and the OECD—are actively supporting capacity-building initiatives to strengthen the sustainability assurance capabilities of SAIs in developing contexts. For example, the OECD (2023) recommends that SAIs begin by establishing basic ESG reporting guidelines before progressing to advanced tools like AI-driven audits. Encouragingly, despite these challenges, a growing number of developing countries are integrating climate risk assessments into their audit strategies, ensuring that public sector investments align with long-term sustainability goals and contribute to resilient, accountable governance.

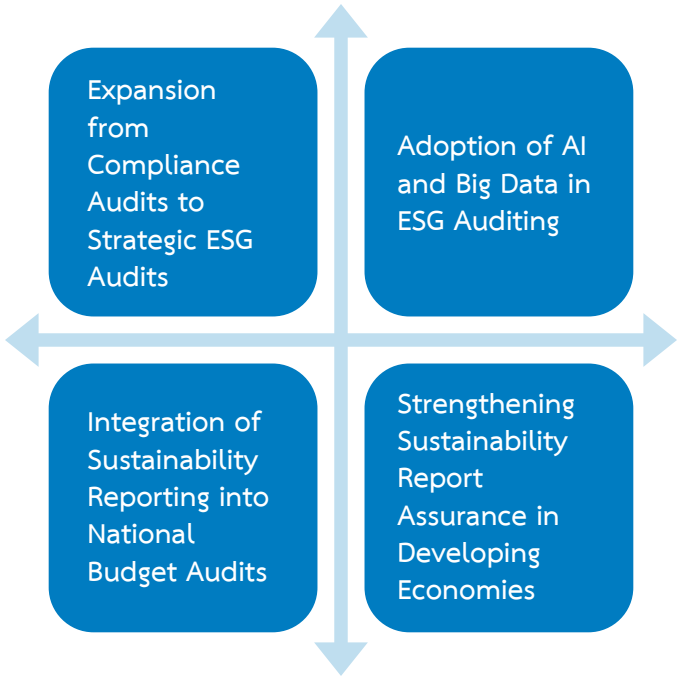

Figure 2 The modern SAIs and Sustainability Report

From this figure, it illustrates the evolving role of SAIs in assuring sustainability reports through four interconnected dimensions. **First**, SAIs have moved from compliance-based environmental audits to strategic ESG audits that evaluate long-term risks and policy effectiveness, emphasizing foresight and systemic impact. **Second**, the integration of Artificial Intelligence and Big Data Analytics enables real-time and predictive audits, allowing SAIs to detect ESG anomalies and provide forward-looking policy advice. **Third**, the embedding of sustainability indicators into national budget audits reflects a paradigm shift, where fiscal oversight now includes tracking climate finance, green investments, and SDG alignment using structured models like ISAM. **Fourth**, recognizing capacity gaps in the Global South, international collaboration has intensified to support SAIs in developing economies with tools, training, and institutional development—ensuring inclusive progress toward robust sustainability assurance systems. Together, these elements redefine SAIs as dynamic enablers of long-term value creation and accountable governance in the sustainability era.

4. Challenges and Future Directions: Bridging Academic Perspectives with Practical Implementation in SAIs

4.1 Key Challenges in Advancing Sustainability Assurance in SAIs

From both academic and practitioner standpoints, the implementation of sustainability assurance within SAIs continues to face multi-dimensional challenges as follows.

- **Absence of Uniform ESG Assurance Standards for the Public Sector**
  While academic literature emphasizes the need for robust and comparable sustainability metrics, there remains a lack of universally accepted ESG assurance frameworks tailored to public sector auditing. This fragmentation limits the ability of SAIs to benchmark performance across jurisdictions and undermines consistency in evaluating SDG outcomes.
- **Capacity and Knowledge Gaps in ESG Methodologies**
  Practical implementation often lags behind conceptual advancement. Most SAIs lack *interdisciplinary ESG specialists* capable of integrating economic, environmental, and social dimensions into audit procedures. As highlighted in academic studies, this calls for *systematic upskilling*, particularly in data analytics, climate finance, and sustainability science.
- **Political and Institutional Resistance to Independent Oversight**
  Academic discourse underscores the importance of autonomy in public oversight; however, political resistance and institutional inertia often obstruct the mainstreaming of sustainability audits. Some governments view independent ESG assurance as politically sensitive, leading to constrained mandates or restricted access to data—undermining the very foundation of public accountability.

4.2 Future Directions for Advancing ESG Assurance in SAIs

To bridge the gap between academic frameworks and operational realities, the following future directions are essential.

- **Co-developing Global Public Sector ESG Assurance Standards**

  There is a growing need for collaboration between SAIs, academia, and international organizations (e.g., INTOSAI, OECD, IFAC) to establish public-sector-specific ESG assurance frameworks. These standards should be grounded in academic rigor, while remaining flexible for adaptation across diverse national contexts. Research institutions can support this process by conducting comparative studies and piloting audit methodologies.

- **Scaling AI and Big Data Integration in Sustainability Audits**

  The future of sustainability auditing lies in predictive, real-time ESG analytics. SAIs should invest in academic partnerships to *co-develop AI-driven models* that support risk forecasting, anomaly detection, and policy evaluation. Academic expertise in machine learning, environmental modeling, and public finance can enrich the design of next-generation audit tools that are both scientifically robust and operationally viable.

- **Institutional Innovations and Future Directions**

  Recent developments in sustainability assurance underscore the growing need for institutional innovation within SAIs. The introduction of ISSA 5000 by the International Auditing and Assurance Standards Board (IAASB) in 2024 marks a significant milestone, offering a global standard to guide consistent and high-quality sustainability assurance engagements. This framework encourages SAIs to move beyond limited assurance and adopt more robust, evidence-based approaches to auditing non-financial disclosures (See Box 1). Complementing this normative shift, SAIs are also advised to establish *internal ESG Labs* or form partnerships with universities and policy think tanks. These dedicated units can serve as hubs for methodological innovation, pilot audits, and capacity building—particularly in areas such as climate risk analysis, AI-based audit tools, and SDG impact evaluation.

Box 1: ISSA 5000 – The First Global Standard for Sustainability Assurance

In November 2024, the International Auditing and Assurance Standards Board (IAASB) released the exposure draft of *ISSA 5000: General Requirements for Sustainability Assurance Engagements*—the world's first comprehensive international standard dedicated to sustainability assurance. The release responds to the urgent global demand for consistent, high-quality, and reliable assurance over ESG and SDG-related information in both private and public sectors.

Box 1: ISSA 5000 – The First Global Standard for Sustainability Assurance (Cont.)

ISSA 5000 is designed to be framework-neutral, allowing assurance engagements across various reporting frameworks including GRI, ISSB, EFRAG, and national guidelines. The standard is principles-based and engagement-flexible, suitable for both limited and reasonable assurance, and applies to all types of sustainability topics, such as climate action, carbon disclosures, biodiversity, social equity, and governance indicators.

The draft emphasizes four foundational components of a quality sustainability assurance engagement:

1. Appropriateness of criteria used in sustainability reporting
2. Sufficiency and reliability of evidence gathered for assurance
3. Assessment of risks of material misstatement in sustainability claims
4. Clarity, balance, and accessibility of the assurance report

For Supreme Audit Institutions (SAIs), ISSA 5000 provides a credible, adaptable foundation to enhance public sector assurance engagements—especially in climate risk audits, SDG budget evaluations, and ESG performance reviews. Its adoption supports SAIs in aligning national audit mandates with globally recognized expectations, thereby increasing public trust, accountability, and governance resilience.

Source: IAASB (2024). *Proposed International Standard on Sustainability Assurance (ISSA 5000): General Requirements for Sustainability Assurance Engagements*. International Federation of Accountants (IFAC), November 2024. https://www.iaasb.org

5. Conclusion

The past decade has witnessed a profound transformation in the concept and practice of sustainability report assurance, particularly within the domain of public sector auditing. As global challenges such as climate change, social inequality, and resource scarcity intensify, both the academic community and SAIs have responded by redefining their roles and methodologies. This paper has traced the evolution from traditional compliance-based audits to a new paradigm of strategic, data-driven, and forward-looking sustainability assurance, deeply informed by contemporary theoretical models such as Integrated Reporting 2.0, Dynamic Accountability, and Institutional Convergence.

From theory to practice, SAIs have embraced this shift through innovations in audit methodologies, the integration of AI and big data analytics, and the alignment of national budgets with SDGs. These developments demonstrate how SAIs are not merely watchdogs but are increasingly becoming

strategic enablers of public value, policy coherence, and long-term sustainability governance. Yet, challenges remain—particularly the lack of uniform ESG assurance standards, capacity constraints in developing countries, and political resistance to independent oversight.

Looking ahead, the future of sustainability assurance in the public sector will depend on bridging academic insights with practical innovation. Collaborative efforts among SAIs, international organizations, and academic institutions will be shaping global ESG assurance frameworks, developing real-time auditing tools, and strengthening institutional capacities. In doing so, SAIs can position themselves as critical actors in ensuring that sustainability commitments are not only well-reported but also effectively implemented—thereby advancing both national accountability and global development goals.

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