

**TRANSFORMATION OF THE ROLE OF INTERNAL AUDITORS IN
OVERSIGHT OF FINANCIAL MANAGEMENT AND FRAUD PREVENTION
Case Study of the FOLU Net Sink 2030 Program of the Ministry of Forestry**

Yanie Sugianto¹

Universitas Pamulang, Tangerang Selatan, Indonesia

yanie.itjen3@gmail.com



Sugiyanto²

Universitas Pamulang, Tangerang Selatan, Indonesia

dosen00495@unpam.ac.id

Firman Tatariyanto³

Universitas Pamulang, Tangerang Selatan, Indonesia

dosen02739@unpam.ac.id

Abstract

This study examines the transformation of the role of internal auditors (APIP) in overseeing financial management and preventing fraud within the FOLU Net Sink 2030 Program of the Ministry of Forestry, a results-based climate financing initiative. Using a qualitative case study approach, the research explores how internal auditors adapt from traditional compliance-oriented functions toward more strategic and consultative roles as trusted advisors. Data were collected through in-depth semi-structured interviews with internal auditors and relevant officials, supported by document analysis and qualitative data processing using NVivo. The findings indicate that, although internal auditors conceptually understand their oversight mandate in the FOLU and Results Based Contribution (RBC) framework, fraud prevention practices remain largely focused on administrative controls and post-factum verification. Structural constraints, including limited data interoperability, restricted access to donor information, and the absence of explicit regulatory mandates for APIP oversight of climate-related grants, constrain the effectiveness of preventive fraud control. The study further reveals that the transformation of the internal audit role is gradual, evolutionary, and highly influenced by program dynamics rather than formal regulation. Internal auditors have begun to perform advisory, risk warning, and accompaniment functions for implementing units; however, capabilities in digital fraud detection and technical verification of Measurement, Reporting, and Verification (MRV) are still developing. Conceptually, the study contributes an “APIP Assurance–Advisory Continuum” model and introduces the notion of a “Digital-Governance Enabler,” highlighting the importance of data integration, multidisciplinary competence, and digital adaptation in strengthening oversight of climate finance programs. These findings underscore the need for regulatory reform, risk-based auditing, and enhanced digital governance to improve fraud prevention and accountability in results-based environmental programs.

Keywords: Fraud Prevention, FOLU Net Sink 2030, Results-Based Contribution, Climate Finance Governance

INTRODUCTION

Climate change represents one of the most pressing global challenges of the 21st century, affecting environmental, social, and economic systems simultaneously. The increasing frequency of climate-related disasters underscores the urgency of collective mitigation efforts, particularly through the conservation of tropical forests as natural carbon sinks. As the country with the world's third-largest tropical forest area, Indonesia holds a strategic position in supporting global climate targets. This commitment is reflected in national initiatives that integrate environmental objectives with accountable public financial governance, positioning climate action as both an ecological and governance challenge.

Indonesia's FOLU (Forestry and Other Land Use) Net Sink 2030 program embodies this commitment by aiming to achieve net carbon absorption in the forestry and land-use sector by 2030. The program adopts a result-based contribution approach aligned with the Paris Agreement and the Sustainable Development Goals, involving more than 120 million hectares of forest land and multiple ministries, agencies, and provincial governments. With a budget allocation of approximately IDR 19.6 trillion, FOLU Net Sink 2030 constitutes one of the largest publicly and internationally funded environmental programs in Indonesia, making transparency and accountability in financial management critically important (Kementerian Lingkungan Hidup dan Kehutanan, 2023).

However, the program's cross-sectoral governance structure, multi-actor involvement, and reliance on international climate finance significantly increase oversight complexity and fraud risk. Prior studies indicate that climate-financed projects are often implemented in contexts characterized by weak institutional integrity, fragmented coordination, and inadequate accounting and reporting systems, which collectively create structural opportunities for fraud (Bozhenko et al., 2023). Similar risk patterns are evident in FOLU Net Sink 2030, where inconsistent reporting standards and limited supervisory capacity may undermine effective control over large-scale, results-based funding mechanisms.

Within this context, the role of internal auditors becomes pivotal yet remains underdeveloped in Indonesia's public sector. Existing practices tend to position internal auditors in administrative and ex post verification roles rather than as proactive, consultative risk advisors (Santika et al., 2024; Fatimah & Pramudyastuti, 2022). This gap between normative expectations and operational realities highlights the need for a transformation of internal audit functions toward risk-based, preventive, and consultative approaches. Addressing this gap is essential to strengthening fraud prevention, enhancing governance effectiveness, and ensuring the long-term credibility of strategic environmental programs such as FOLU Net Sink 2030.

REVIEW OF LITERATURE

Agency Theory

Agency Theory explains the contractual relationship between principals and agents, highlighting conflicts of interest arising from information asymmetry (Jensen & Meckling, 1976). In the context of the FOLU Net Sink 2030 program, international donors act as principals, the Ministry of Forestry as the agent, and internal auditors as monitoring mechanisms to reduce moral hazard. The theory provides a useful framework for understanding how internal auditors mediate divergent interests, ensure accountability, and

safeguard the integrity of financial and performance reporting in large, politically sensitive, and results-based environmental projects.

Fraud Triangle Theory

Fraud Triangle Theory identifies pressure, opportunity, and rationalization as the three core conditions enabling fraud (Cressey, 1953). Within the FOLU program, performance pressure, weak cross-sectoral controls, and informal justifications for fund misuse may jointly create a high-risk environment. Empirical evidence shows that these elements significantly influence fraud behavior in public-sector organizations (Owusu et al., 2022). This theory supports a risk-based and preventive audit approach, enabling internal auditors to detect early warning signs of fraud by integrating behavioral analysis with institutional control mechanisms.

Accountability Theory

Accountability Theory emphasizes the obligation of public institutions to explain and justify the use of resources to legitimate stakeholders through both vertical and horizontal accountability mechanisms (Bovens, 2007). In complex, multi-actor programs such as FOLU Net Sink 2030, internal auditors play a critical role in reinforcing transparency, answerability, and responsibility across hierarchical authorities and societal stakeholders. The theory provides a normative framework for evaluating the effectiveness of internal audit functions in ensuring credible reporting and sustaining public and donor trust.

Internal Audit Practices at the Ministry of Forestry

The Government Internal Supervisory Apparatus (APIP) at the Ministry of Forestry operates under the Inspectorate General and is responsible for auditing, reviewing, and monitoring ministerial programs. Based on the Internal Audit Capability Model, APIP's current capability level remains at Level 3 (Integrated), indicating partial adoption of consultative and risk-based audit practices (BPKP, 2023). While this level reflects progress toward modern internal auditing, limitations persist in technological utilization, early auditor involvement, and thematic expertise in climate finance, constraining APIP's effectiveness in overseeing complex programs such as FOLU Net Sink 2030.

Comparison with Internal Audit Practices at the Ministry of Health

In contrast, the Inspectorate General of the Ministry of Health has achieved Level 4 (Managed) in the internal audit capability framework through the adoption of risk-based audits, digital supervision tools, and a strong consultative orientation (Ministry of Health Regulation No. 5/2022). Its positioning of internal auditors as trusted advisors and strategic partners has enhanced oversight effectiveness in large, cross-sectoral health programs. This comparison demonstrates that organizational readiness, encompassing leadership support, human capital, technology, and institutional culture, plays a decisive role in determining the maturity and impact of internal audit functions, offering valuable lessons for strengthening APIP at the Ministry of Forestry.

RESEARCH METHOD

This study adopts a qualitative research approach using a case study design to gain an in-depth understanding of the transformation of internal auditors' roles in financial oversight and fraud prevention within the FOLU Net Sink 2030 program. A qualitative case study is considered appropriate for capturing meanings, perceptions, and social dynamics that cannot be adequately explained through quantitative methods (Creswell, 2013; Yin,

2018). The research is exploratory–descriptive in nature, allowing initial exploration of a relatively new phenomenon namely the shift of internal auditors from compliance-based functions toward strategic and consultative roles followed by a systematic description of how these roles are practiced in a real-world governance context (Saunders et al., 2019; Sekaran & Bougie, 2016). The unit of analysis focuses on (1) the form of internal audit role transformation and (2) auditors' contributions to fraud prevention, particularly in mitigating pressure, opportunity, and rationalization risks in line with Fraud Triangle Theory (Neuman, 2014).

Data were collected through methodological triangulation, primarily via in-depth semi-structured interviews with internal auditors and structural officials at the Inspectorate General of the Ministry of Forestry, complemented by document analysis of regulations, audit reports, and FOLU-related records (Creswell, 2013; Yin, 2018). Data organization and analysis followed a thematic analysis approach, involving stages of familiarization, initial coding, category development, and theme construction (Braun & Clarke, 2021; Saldaña, 2021). NVivo 15 software was utilized to support systematic coding, data management, and visualization of analytical relationships, enhancing rigor and transparency in the qualitative process (Usman & Awaliah, 2025). Through this analytical framework, the study aims to generate meaningful insights into institutional readiness, governance challenges, and strategic implications for strengthening internal audit functions in results-based environmental programs such as FOLU Net Sink 2030.

RESULTS AND DISCUSSION

Presentation of Research Data

The presentation of research data is structured based on the results of data collection obtained through in-depth interviews, document observation, and analysis assisted by NVivo 15 software. All data obtained from twelve internal auditor participants of the Inspectorate General of the Ministry of Forestry, the 2025 FOLU activity reports, and the Regulation of the Minister of Environment and Forestry Number P.2/Menlhk/Setjen/Keu.3/1/2016 concerning Guidelines for Grant Management within the Ministry of Environment and Forestry dated January 22, 2016, were systematically processed through transcription, open coding, node development, and thematic visualization. This procedure enabled the construction of thematic and sub-thematic structures that reflect perceptions, experiences, and empirical findings related to auditors' contributions to fraud prevention and the transformation of internal audit roles. All processes were conducted transparently and measurably through an audit trail in NVivo to ensure validity and reliability.

The analysis stages began with data familiarization, namely re-reading interview transcripts and documenting field notes to obtain an in-depth understanding of the internal dynamics of FOLU oversight. This was followed by open coding, in which each significant excerpt was labeled with a relevant topical code. The coding process was conducted iteratively to identify recurring patterns and group them into nodes and child-nodes. In the next stage, categorization was carried out based on the two main research focuses, namely: (1) auditors' contributions to fraud prevention in FOLU, and (2) the transformation of internal auditors' roles in FOLU financial oversight.

The results of categorization were then visualized in several forms: Project Map, Sunburst Chart, Tree Map, and Word Cloud. Subsequently, the researcher developed project

technique used to visualize the frequency of keywords most frequently mentioned in interview transcript data. The larger the word size, the more frequently the word appears, indicating its level of relevance to the research theme. This visualization assists in identifying dominant issues and shared perceptions among informants regarding the role of internal auditors in overseeing the FOLU Net Sink 2030 program and preventing fraud.

Based on the Word Cloud, words such as auditor, oversight, fraud, risk, finance, and FOLU appear larger than others. This indicates that the central issue of the research focuses on the role of auditors in risk-based financial oversight to prevent fraud in the FOLU program. Words such as transformation, role, prevention, grants, data, and results-based also appear significantly, indicating a progressive shift in the APIP function toward a trusted advisor role with a risk-based approach.

In addition, the emergence of terms such as Measurement, Reporting, and Verification (MRV), regulation, documents, systems, work units (satker), and digital audit indicates that oversight implementation in the context of climate finance requires policy support, MRV technical literacy, and integrated digital systems. This aligns with findings that the transformation of auditors' roles is still occurring gradually, influenced by regulatory limitations, PKPT bureaucratic structures, cross-system data access, and readiness for audit digitalization.

The following table summarizes the main thematic categories resulting from NVivo coding that describe auditors' contributions to fraud prevention and elements of internal audit role transformation:

Table 1.
List of NVivo Coding Results

Focus	Theme	Sub-theme
Contribution	Auditors' Contribution to FOLU/RBC Prevention	Potential fraud in HLN or other funding (FOLU): incomplete reporting, double funding, fictitious outputs, conflicts of interest
	Current condition of auditors' roles	Passive roles, document analysis, fraud triangle not explicitly applied, limited involvement
	Fraud prevention channels	Preventive advisory, document review, and control education
	Fraud prevention barriers	Absence of internal grant guidelines, limited data access, defensive culture of work units
	Auditor value added	Risk warnings, governance support, and increased donor trust
Transformation	Internal Auditor Role in FOLU	Current role status: administrative review, limited data access, sporadic involvement
	Role shift patterns	From watchdog → advisor, documents → risk-based
	Concrete forms of transformation	Input in RKA-K/L, planning discussions, 2024 risk management

Transformation prerequisites	HLN capacity, data transparency, and revision of grant guidelines
Success indicators	Involvement in planning, digital audit, and increased donor trust

Research Data Results

Data analysis indicates that internal auditors of the Inspectorate General of the Ministry of Forestry have made tangible contributions to fraud prevention in the FOLU program, although still within a phase of institutional transition. Auditors' primary roles are more dominant in preventive control and risk advisory activities rather than direct fraud detection. This is reflected in their involvement in reviewing program design, discussing risks at early stages, and assisting work units in preparing HLN reporting. However, most auditors stated that there are no specific FOLU grant oversight guidelines, causing current approaches to rely primarily on general SPIP principles, SAIPi standards, and donor regulations.

From the perspective of role transformation, the implementation of FOLU serves as momentum for shifting internal auditors' functions from watchdogs to trusted advisors. Auditors have begun to be involved in developing HLN risk management, providing input on budget revisions, and delivering recommendations related to the effectiveness of results-based performance reporting. Nevertheless, such involvement remains partial and situational, influenced by PKPT schedules and inter-unit relationships. Other obstacles include limited data access and inconsistent transparency in reporting by work units, resulting in digital oversight functions not yet operating optimally.

Interestingly, auditors conveyed that fraud risks in FOLU differ from those in routine ministerial programs, such as the potential for double funding, premature completion, and output reporting without field verification. This requires auditors to develop new risk lenses that integrate financial expertise, technical understanding of the FOLU program, and digital data-based audit competencies. Auditors also emphasized the importance of digital monitoring, reporting system integration, and audit-by-data to support modern oversight.

Based on these findings, the study confirms that the transformation of auditors' roles in the context of international grant oversight is not solely oriented toward administrative compliance, but also encompasses strategic organizational value, namely: enhancing government credibility in the eyes of donors, strengthening multi-level governance, and acting as a catalyst for change toward risk-based and digital oversight systems. Nevertheless, the study also identifies gaps, particularly the need to develop grant oversight guidelines and improve auditors' HLN literacy.

Discussion

After systematically presenting the data findings in the previous section, this section provides an in-depth discussion integrating empirical data with theoretical foundations and prior research findings. The discussion focuses on interpreting the research findings, explaining relationships among concepts, and assessing the extent to which the results address the research questions. The analysis is conducted critically using Agency Theory, Fraud Triangle Theory, and Accountability Theory as the main perspectives to understand the dynamics of auditors' roles in the context of the FOLU Net Sink 2030 program. Thus, this section is expected to provide a comprehensive picture of auditors' contributions to fraud

prevention and the functional transformation process of internal auditors in results-based financial oversight.

Theoretical and Empirical Reasoning of Research Findings

The research findings show that the transformation of internal auditors' roles in the FOLU Net Sink 2030 Program is moving toward a proactive trusted advisor function, although implementation remains uneven due to PKPT-based bureaucratic structures. These findings are consistent with Agency Theory (Jensen & Meckling, 1976), where internal auditors act as control mechanisms bridging donor interests as principals and government/work units as agents. As stated by an EO informant: "We no longer only check documents, but provide risk input from the early stages." This indicates that internal auditors have functioned as monitoring agents to prevent moral hazard, in line with agency theory mandates.

Furthermore, empirical findings reveal that fraud prevention remains more dominant in opportunity control aspects, consistent with Fraud Triangle Theory (Cressey, 1953). Auditors tend to focus on strengthening internal control systems, data access, performance documentation, and segregation of duties rather than intervening in pressure or rationalization aspects. This is evident from an IPG statement: "We view fraud risk from the administrative control side, not yet reaching behavioral analysis." Thus, while transformation toward risk-based auditing is underway, the approach remains administrative and not yet fully behavior-analytic. At the same time, the application of Accountability Theory (Bovens, 2007) is reflected in multi-level reporting mechanisms, from donors → the Ministry → work units, and auditors' efforts to ensure transparency and answerability. However, horizontal accountability (to the public, NGOs, and media) remains limited. FN stated: "Reporting to donors is quite strong, but public transparency regarding grant implementation is still developing." This demonstrates that change is progressing coordinatively but gradually, with internal auditors strengthening answerability before full public accountability mechanisms are established. Overall, theoretical and empirical findings indicate that the transformation of auditors' roles has begun but still requires supportive systems and culture for advisory roles to balance assurance functions.

Psychodynamics of Relationships among Concepts

The psychological dynamics between auditors and work units illustrate a clash of role perceptions between "compliance guardians" and "strategic partners." This context aligns with accountability theory, which states that governance transformation requires adaptation of organizational norms and culture. As stated by SA: "When we are involved earlier, some work units are still afraid of being audited." This indicates resistance to auditors' advisory roles despite policy directions encouraging collaboration.

On the other hand, auditors experience professional pressure to maintain objectivity while being expected to act as internal consultants. Agency Theory explains this phenomenon as a consequence of information asymmetry and the need to create trust mechanisms. Internal auditors strive to act as intermediaries balancing donor, government, and public interests. Within the Fraud Triangle context, auditors recognize that pressure to achieve FOLU outputs and opportunities arising from control weaknesses may lead to fraud. However, auditors' reflections indicate the absence of proactive psychological interventions to prevent rationalization, particularly regarding employee integrity and program ethics. This was emphasized by Tiko Prasetyo, who stated: "We still focus heavily on document compliance,

not yet on assessing whether integrity culture is functioning.” Overall, these psychodynamic factors show that auditor transformation is constrained by role duality, bureaucratic culture, and underdeveloped grant oversight infrastructure.

Integration of Findings with Previous Research

The findings of this study are consistent with Bovens (2007), who argues that public sector audit accountability requires a balance between vertical and horizontal control. In the context of internal government auditors, this study shows that Inspectorate auditors function as guardians of bureaucratic integrity through oversight mechanisms ensuring program accountability. This aligns with NC’s view that “Grant audits are not only about checking evidence, but about understanding cross-sector performance objectives and risks.”

These findings reinforce the literature indicating that the transformation of APIP toward performance-based internal auditing is underway but remains evolutionary and adaptive rather than revolutionary. In other words, this study provides new empirical contributions within the Indonesian context, particularly in results-based funding within the forestry sector.

New Findings

The results of in-depth analysis of interview data, NVivo coding, and document triangulation indicate the presence of several new findings that reflect the unique dynamics of FOLU oversight. These findings are summarized concisely in the table below:

Table 2.

Summary Table of New Research Findings

No	Findings	Brief Explanation
1	Transformation occurs gradually rather than regulatorily	There is no FOLU oversight SOP; changes occur organically
2	Fraud prevention focuses on administrative controls	Integrity-based and risk psychology approaches have not yet been addressed
3	Technical literacy in climate finance is required	Auditors need knowledge of forestry, RBC, MRV, and donor rules
4	Audit digitalization is not yet optimal	FOLU data are not integrated for early fraud detection

The findings of this study reveal several new insights that enrich the literature on the transformation of internal auditors’ roles in overseeing results-based programs, particularly in the context of the FOLU Net Sink 2030 Program. These findings emerged following a triangulation process involving interview data, documents, and NVivo visual analysis, and they depict empirical realities that have not been widely discussed in studies of public sector accountability in climate finance.

First, the study finds that the transformation of internal auditors’ roles occurs gradually, is evolutionary in nature, and is not regulatory-driven. There is no specific Standard Operating Procedure (SOP) governing FOLU oversight, resulting in role adjustments occurring organically in response to policy dynamics and program needs. This indicates that the shift toward a trusted advisor role proceeds as an adaptive process rather than a formally mandated institutional directive. As stated by one participant, HS: “We move according to program needs; there are no specific technical guidelines for FOLU yet. So the transition happens naturally.” This finding adds empirical evidence that changes in public auditors’ functions are often driven by program context rather than formal regulation.

Second, fraud prevention efforts in the FOLU program currently emphasize administrative controls rather than integrity-based or risk psychology aspects. Auditors perceive fraud awareness as being framed mainly within document verification mechanisms and formal compliance, rather than behavior-based prevention and organizational culture. This indicates that fraud risk management has not yet been fully integrated into climate grant oversight practices. One auditor stated, “We see fraud from documents; it has not yet reached the area of mindset or implementers’ motivation.” This finding suggests the need to broaden oversight approaches into domains of integrity, motivation, and organizational pressure, as articulated in Fraud Triangle Theory.

Third, the study identifies the importance of technical literacy in climate finance among internal auditors. The FOLU program involves technical aspects of forestry, carbon governance, results-based contribution mechanisms, and international donor reporting standards that require specialized knowledge. Auditors emphasize that technical competence related to REDD+, MRV, and donor rules is a prerequisite for ensuring oversight quality. One participant, DBW, emphasized: “Auditors cannot rely solely on accounting knowledge. They must also understand forestry, RBC, and donor verification.” This finding expands the literature by demonstrating that auditor capabilities in internationally funded sectors are multidisciplinary and cross-domain in nature.

Fourth, audit digitalization has not yet been optimally implemented because FOLU data are not fully integrated into analytics-based fraud detection systems. Currently, anomaly detection relies on manual reviews and is not supported by real-time monitoring. This finding is consistent with auditors’ views that digital oversight remains at an early stage, limiting the effectiveness of data-driven fraud prevention. One respondent stated “The data exist, but they are not yet connected for automatic fraud monitoring.” Therefore, this finding contributes to the growing body of knowledge emphasizing the importance of digital audit transformation in climate finance management schemes.

Analysis of Future Trends

Future transformation of FOLU auditing is projected to move toward:

1. real-time data-based digital auditing
2. strengthening AI-based fraud analytics
3. cross-disciplinary competencies (forestry, climate, governance)
4. open public accountability systems
5. performance governance and outcome-based auditing

As stated by DB: “FOLU audits must be digital, cross-risk, and understand donor structures; a single SOP is not sufficient.”

CONCLUSION

The conclusions of this study are as follows:

1. Internal auditors conceptually understand their oversight mandate in the FOLU Net Sink 2030 Program and the Results-Based Contribution (RBC) mechanism; however, the implementation of fraud prevention remains limited. This limitation is due to the focus of supervision being aligned with the Annual Internal Audit Work Plan (PKPT), restricted access to data, and the absence of specific guidelines for overseeing FOLU-related grants. This study has addressed the research questions concerning the

- contribution of auditors to fraud prevention and the transformation of the role of APIP into a trusted advisor within results-based programs. The findings indicate that auditors have performed advisory functions, issued risk warnings, and provided assistance to implementing units (satker), yet their roles in digital fraud detection and technical verification of MRV are still evolving. The study also identifies that Minister of Environment and Forestry Regulation No. P.2/2016 on Guidelines for Grant Management within the Ministry of Environment and Forestry does not explicitly mandate APIP to supervise grants, loans, or other forms of financing. As a result, auditor involvement tends to be administrative and ad hoc rather than grounded in a formal regulatory mandate.
2. The results of the study reveal structural, technical, and cultural barriers that affect the effectiveness of APIP's role, including limited data interoperability, discrepancies between donor standards and national regulations, and resistance from implementing units toward the consultative role of auditors. Nevertheless, this research demonstrates opportunities to strengthen governance through risk-based auditing, cross-unit collaboration, data system integration, and the early involvement of advisory functions at the planning stage. These findings underscore the urgency of revising guidelines for the management of grants, loans, and other financing instruments to formally incorporate the role of APIP, in line with international donor governance requirements and RBC mechanisms. Such a transformation has the potential to accelerate preventive fraud control and enhance donor trust.
 3. Empirical findings show that the FOLU program encourages a shift in the role of APIP from watchdog to trusted advisor, although this transformation is gradual and uneven. This reinforces the relevance of Agency Theory, in which auditors function as monitoring mechanisms bridging principals (donors) and agents (government). The study also finds that fraud prevention efforts remain predominantly focused on the opportunity element (controls) of the Fraud Triangle and require further strengthening of the pressure and rationalization dimensions through the cultivation of integrity culture and reinforcement of ethics. The concept of multilevel accountability from Accountability Theory is also evident in donor-government reporting practices, although public transparency still has room for improvement.
 4. The conceptual contribution of this study lies in the identification of an initial model of the "APIP Assurance-Advisory Continuum for environmental grants," which integrates risk-based auditing functions, fraud prevention, and technical consultancy within a results-based financing system. In addition, the study introduces the concept of a "Digital-Governance Enabler," emphasizing that the effectiveness of FOLU oversight is highly dependent on data integration, technical literacy in carbon governance, and the digital adaptation of APIP. Future research may test this model in the context of REDD+ or the 2026-2030 RBC phase and develop an APIP readiness index as a trusted advisor in the forestry and climate sectors.

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