

Antecedents and Consequences of Wetland-Based Forensic Accounting in South Kalimantan: A Qualitative Study

Susi Apriana^{1*}, Syahrial Shaddiq², Achmad Suhaili³, Muhammad Ihsanul Arief⁴, Erlan Titoe⁵, Steven Kenli⁶

^{1,3,4,6} Accounting Study Program, Faculty of Economics and Business (FEB), Universitas Lambung Mangkurat, Indonesia; susi.apriana@ulm.ac.id

^{2,5} Master of Development Economics (MEP) Study Program, Faculty of Economics and Business (FEB), Universitas Lambung Mangkurat, Indonesia

* Corresponding Author: Susi Apriana

Abstract. Forensic accounting has become a global concern in facing increasingly complex economic and environmental challenges, particularly in detecting and preventing non-transparent financial practices, fraud, and misuse of resources. The concept of forensic accounting focuses on evidence-based financial investigations to uncover irregularities in asset management, including in sectors related to the wetland environment and sustainable economics. Amidst increasing concerns about climate change, environmental degradation, and natural resource exploitation, forensic accounting plays a crucial role in ensuring accountability and transparency in financial management, thereby supporting sustainable development policies more effectively. This study aims to evaluate the antecedents and consequences of the application of forensic accounting to economic, environmental, and social aspects, particularly in improving accountability, transparency, and mitigating financial risks. This study uses a qualitative approach with ethnographic methods, in-depth interviews, participant observation, and document analysis. The results show that antecedent factors include weak understanding of regulations, limited human resources, and limited data, while the consequences of the application of forensic accounting have a positive impact on the efficient use of public funds, strengthening governance, and improving social welfare. These findings are expected to be a foundation for policymakers in designing strategies for implementing forensic accounting that are more effective, inclusive, and sustainable in South Kalimantan.

Keywords: Forensic Accounting; Fraud; Sustainable Development; Transparency; Wetlands.

1. Introduction

Forensic accounting is a branch of accounting that focuses on the application of audit and financial investigation techniques to detect, prevent, and uncover fraud in various financial activities (Albrecht, Albrecht, & Albrecht, 2019). In the context of modern financial governance, forensic accounting plays a crucial role in creating transparency and public accountability, particularly in public sector organizations vulnerable to abuse of authority (Crumbley, Heitger, & Smith, 2017). The Association of Certified Fraud Examiners (ACFE, 2022) reports that global fraud losses reach billions of dollars annually, largely due to weak internal controls and a lack of early detection systems.

In Indonesia, the rise in corruption cases, embezzlement of public funds, and manipulation of financial reports has reinforced the need for forensic accounting (Efendi & Hartono, 2020). A report by the Supreme Audit Agency of the Republic of Indonesia (BPK RI, 2021) indicates that many findings of financial management irregularities in public institutions are due to low auditor competence and minimal application of fraud risk management principles. Within the framework of international auditing standards, the International Federation of Accountants (IFAC, 2020) emphasizes the importance of a risk-based approach and professional ethics in the audit and financial investigation process to ensure the integrity of financial statements.

Received: September 17, 2025

Revised: September 30, 2025

Accepted: October 29, 2025

Online Available: October 31, 2025

Curr. Ver.: October 31, 2025



Copyright: © 2025 by the authors.

Submitted for possible open

access publication under the

terms and conditions of the

Creative Commons Attribution

(CC BY SA) license

([https://creativecommons.org/li](https://creativecommons.org/licenses/by-sa/4.0/)

[censes/by-sa/4.0/](https://creativecommons.org/licenses/by-sa/4.0/))

Beyond regulatory aspects, the application of forensic accounting is also closely linked to environmental governance and sustainable development. The World Bank (2020) highlighted that public fund management in the environmental sector, particularly wetlands, often faces challenges such as lack of transparency, conflicts of interest, and weak financial controls. This is relevant to the context of South Kalimantan, known for its extensive and complex wetland ecosystem. This sector contributes significantly to the regional economy, but is vulnerable to corruption, misuse of project funds, and low financial management accountability (Shaddiq et al., 2025).

Previous research has shown that the application of forensic accounting can improve the transparency and efficiency of public financial governance (Setiawan & Putra, 2019; Rahmawati & Sari, 2021). In the context of financial digitalization, the role of information technology is also a crucial supporting factor. Digital financial management systems enable more accurate and rapid recording, reporting, and monitoring of public funds (Yolanda et al., 2023). Therefore, the integration of forensic accounting and digital transformation is believed to strengthen internal control systems in both the public and private sectors (Sari et al., 2023).

Furthermore, forensic accounting serves not only as an investigative tool but also as a preventive mechanism that strengthens organizational integrity by increasing ethical awareness and professionalism of government officials (BPK RI, 2021; IFAC, 2020). In the context of environmentally-based development, a forensic accounting approach can be applied to ensure the use of public funds aligns with sustainability goals, such as ecosystem protection and local community empowerment (World Bank, 2020; Shaddiq et al., 2025). The application of these principles in South Kalimantan is expected to create clean, accountable, and adaptive financial governance to socio-ecological challenges.

Thus, the urgency of implementing wetland-based forensic accounting in South Kalimantan is becoming increasingly important as part of an integrative strategy between economic, social, and environmental aspects. This study aims to : identify the antecedents of implementing forensic accounting in wetland-based financial management, evaluate the consequences of implementing forensic accounting on economic, social, and environmental aspects, and provide strategic recommendations for strengthening equitable and sustainable public financial governance in South Kalimantan.

2. Literature Review

Forensic Accounting

According to Crumbley *et al.* (2017), forensic accounting is the application of accounting skills for legal investigative purposes, combining auditing, accounting, and legal investigations. The ACFE (2022) emphasizes that *fraud* can be minimized through the implementation of a robust forensic accounting system.

Forensic Accounting in the Public Sector

Efendi & Hartono (2020) stated that forensic accounting in the public sector plays an important role in improving financial governance, especially in managing APBN/APBD funds.

Wetlands and Financial Governance

The World Bank (2020) emphasizes the importance of transparency in environmentally-based financial management. In the context of wetlands, this is key to maintaining economic and ecosystem sustainability (Yolanda *et al.*, 2023).

Antecedents and Consequences of Forensic Accounting

Previous studies (Rahmawati & Sari, 2021; Setiawan & Putra, 2019) showed that antecedent factors for forensic accounting implementation include regulations, human resource capacity, and organizational awareness. Consequences of forensic accounting implementation include increased financial efficiency, *fraud detection*, and increased public trust (Sari *et al.*, 2023).

3. Research Methodology

Research Approach

This study uses a qualitative approach with ethnographic methods to gain an in-depth understanding of forensic accounting practices in South Kalimantan.

Data Collection Techniques

1. Participatory observation in wetland-based financial management institutions.
2. In-depth interviews with the auditors of the Audit Board of Indonesia (BPK) Representative Office of South Kalimantan (August 5, 2025), forensic accounting

expert Dr. Gemi Ruwanti (August 14, 2025), and accounting and finance expert Dr. Saipudin (September 12, 2025).

3. Document analysis in the form of financial reports, regulations, and audit standards (SPKN BPK RI, 2021).

Data Analysis

The data was analyzed using qualitative analysis with the Miles & Huberman interactive model, including data reduction, data presentation, and drawing conclusions.

4. Results and Discussion

Antecedents of Forensic Accounting

The results of the study show that the antecedents or factors influencing the implementation of forensic accounting in South Kalimantan are divided into three main dimensions: regulations and institutions, human resource (HR) capacity, and access and integration of financial data.

First, from a regulatory and institutional perspective, field findings reveal that the role of the Supreme Audit Agency (BPK) in fraud investigations remains limited. Full investigative audit authority rests solely with the central unit, while regional representative offices lack the capacity and legal mandate to conduct independent forensic audits. This situation aligns with findings by the Indonesian Supreme Audit Agency (BPK RI) (2021) and the OECD (2021), which emphasize the importance of decentralizing authority and strengthening institutional structures for effective forensic audits in the regions.

Second, from a human resources capacity perspective, frequent staff rotation, lack of ongoing training, and a limited understanding of forensic audit regulations are major obstacles to detecting fraud in the public sector. The professional competence of public auditors must encompass technical expertise, investigative skills, and an understanding of the social and environmental context in which projects are implemented (Crumbley, Heitger, & Smith, 2017; IFAC, 2020). Efendi and Hartono (2020) emphasized that the performance of forensic accountants in Indonesia is still affected by limited audit technology literacy and low awareness of professional ethics.

Third, from a data access perspective, research has found that the lack of integrated financial data is a significant obstacle. Several regional agencies lack digital financial information systems that can be accessed across agencies. This delays the investigation and verification process for financial transaction data. Yolanda et al. (2023) and Sari et al. (2023) emphasize that adopting digital financial management is a strategic step in supporting transparency and efficiency in public oversight.

Overall, these results indicate that the antecedents of forensic accounting implementation in South Kalimantan are not fully supported by adequate institutional infrastructure, human resource capacity, and information systems. This situation underscores the need for a systemic approach involving regulatory aspects, professional education, and information technology to strengthen the implementation of forensic accounting in natural resource-based areas such as wetlands.

Consequences of Forensic Accounting

Research findings show that the application of forensic accounting has positive consequences for the three main dimensions of sustainable development, namely economic, social, and environmental.

From an economic perspective, the application of forensic accounting has been proven to increase efficiency in the allocation and use of public funds, particularly in wetland management programs. With an investigative audit process and a robust internal control system, budget leakage can be minimized. This aligns with research by Setiawan and Putra (2019), which shows that the implementation of forensic audits contributes to optimizing regional financial management and reducing costs due to fraud. Furthermore, the application of forensic accounting encourages value for money in public projects, as funds are used appropriately and efficiently (Efendi & Hartono, 2020).

Socially, the application of forensic accounting has an impact on increasing public trust in local governments. Transparency and accountability in the management of aid funds, for example for community empowerment programs in wetlands, can strengthen public participation and reduce potential conflicts of interest. Research by the OECD (2021) and the World Bank (2020) confirms that strong public accountability can create social legitimacy for local community-based development policies.

From an environmental perspective, forensic accounting contributes to strengthening the governance of environmental projects and natural resource conservation. Transparent

financial reporting mechanisms mitigate the risk of misuse of conservation funds and overexploitation of resources. This approach also supports the principle of environmental accountability, which is the responsible use of public funds for ecosystem sustainability (World Bank, 2020; Putri & Santoso, 2022). Therefore, integrating forensic accounting and environmental audits is a strategic step towards achieving sustainable development in wetland-based areas.

Discussion

The results of this study reinforce previous findings (Efendi & Hartono, 2020; Setiawan & Putra, 2019) that the effectiveness of forensic accounting is highly dependent on three main factors: strong regulatory support, professional human resource competency, and the availability of transparent financial information systems. However, the South Kalimantan context adds a new dimension to forensic accounting studies by incorporating issues of eco-accountability and sustainable governance.

The wetland context presents its own complexities. Environmental projects in this region are not only concerned with financial management but also encompass broad socio-ecological aspects, such as local community involvement and ecosystem sustainability (Shaddiq et al., 2025). Therefore, the success of forensic accounting implementation cannot be measured solely from the technical side of the audit, but also from the ability of public institutions to integrate ethical, social, and environmental values into accounting practices (IFAC, 2020; Lestari & Nugroho, 2022).

Furthermore, this study found that financial digitalization is a driving force in increasing the effectiveness of forensic accounting. Digital-based financial systems can accelerate fraud detection and expand data access across institutions (Yolanda et al., 2023). This supports the concept of smart governance, where technology is used as a means to strengthen public transparency (Sari et al., 2023).

Thus, the results of this study not only broaden the understanding of the antecedents and consequences of forensic accounting in the public sector, but also emphasize the importance of a multidimensional approach that combines financial, social, and ecological aspects in the governance of sustainable development in Indonesia, particularly the wetland areas of South Kalimantan.

5. Conclusion

This study identified that the antecedents of wetland-based forensic accounting implementation in South Kalimantan include regulations, human resource capacity, and data availability. The consequences are increased economic efficiency, social transparency, and environmental sustainability. To strengthen implementation, strategies are needed in the form of : Increasing human resource capacity through forensic accounting training, Strengthening regulations and public access to investigative reports, and Integrating forensic accounting into sustainable development policies.

References

- Albrecht, W. S., Albrecht, C. C., & Albrecht, C. O. (2019). *Fraud examination* (6th ed.). Cengage Learning.
- Association of Certified Fraud Examiners (ACFE). (2022). *Report to the nations: 2022 global study on occupational fraud and abuse*. ACFE.
- Crumpley, D. L., Heitger, L. E., & Smith, G. S. (2017). *Forensic and investigative accounting* (8th ed.). Wolters Kluwer.
- Efendi, M., & Hartono, J. (2020). Forensic accounting in supporting public financial governance in Indonesia. *Multiparadigma Accounting Journal*, 11(3), 567–582. <https://doi.org/10.21776/ub.jamal.2020.11.3.33>
- International Federation of Accountants (IFAC). (2020). *Handbook of international standards on auditing (ISA)*. IFAC.
- Kurniawan, H., & Wibowo, T. (2021). Fraud detection and prevention through forensic accounting implementation in Indonesian local governments. *Journal of Regional Government Accounting*, 5(2), 89–102.
- Lestari, D., & Nugroho, P. (2022). Forensic accounting and digital audit as tools to prevent financial statement fraud in public sector institutions. *Asian Journal of Accounting Research*, 7(3), 412–425.
- Organisation for Economic Co-operation and Development (OECD). (2021). *Public integrity handbook: Strengthening governance against corruption*. OECD Publishing.
- Putri, A., & Santoso, D. (2022). The role of forensic accounting in enhancing financial transparency and accountability in environmental projects. *Journal of Environmental Economics and Policy*, 9(1), 66–78.
- Rahmawati, D., & Sari, R. (2021). Implementation of forensic accounting in detecting public sector fraud. *Indonesian Journal of Public Accounting*, 6(2), 101–115.
- Sari, M. P., Ar, F., Pibriani, W. A., Shaddiq, S., Siregar, B. A., & Alhemp, R. R. (2023). Effect of environmental uncertainty, competence of human resources and infrastructure on quality of financial statements. *International Journal of Latest Technology in Engineering, Management & Applied Science*, 12(1), 18–28.

- Setiawan, A., & Putra, B. (2019). The role of forensic accounting in increasing transparency in public fund management. *Journal of Accounting and Auditing Research*, 10(1), 45–58.
- Shaddiq, S., Imansyah, M. H., Nur, M. A., Rahmini, N., Suhaili, A., & Apriana, S. (2025). Socialization of wetland-based sharia economics in Banjar Regency, South Kalimantan Province. *Waradin Community Service Journal*, 5(1), 131–134.
- The Audit Board of the Republic of Indonesia (BPK RI). (2021). *State financial audit standards (SPKN)*. BPK RI.
- World Bank. (2020). *Environmental and social accountability in wetland management*. The World Bank Group.
- Yolanda, S., Shaddiq, S., Faisal, H., & Kurnianti, I. (2023). The role of digital financial management in financial management of MSMEs in Banjarmasin. *Indonesian Red Crescent Humanitarian Journal*, 2(1), 23–32.