ENVIRONMENTAL TAX AS A DRIVER OF GREEN INNOVATION: PERCEPTIONS OF MSMES IN ARU ISLANDS REGENCY AND IMPLICATIONS FOR SUSTAINABILITY REPORTING

Ester Melania Pasamba[1], Yohana Magdalena Kalorbobir[2]

Program Studi Akuntansi, Program Studi Diluar Kampus Utama Universitas Pattimura, Indonesia[1,2]

e-mail : estermpasamba@gmail.com

Abstract

This study aims to analyze the perceptions of Micro, Small, and Medium Enterprises (MSMEs) in Aru Islands Regency regarding the potential application of environmental tax as a driver of green innovation and its implications for sustainability reporting practices. The research approach used is qualitative with a case study method. Data were collected through in-depth interviews and focus group discussions (FGD) with five MSME owners from various sectors. The results show that MSMEs' perceptions of environmental tax are divided; some view it as an additional financial burden, while others begin to see it as a stimulus to innovate and adopt more environmentally friendly business practices, especially to maintain competitiveness. The green innovations adopted are still simple, such as waste management, energy efficiency, and the selection of sustainable raw materials. This study also found that awareness of sustainability reporting is still very low. However, pressure from stakeholders, such as consumers and local governments, as well as fiscal incentives, can be a catalyst for MSMEs to start adopting simple sustainability reporting. The implications of this study are the importance of a gradual and educational approach to socialization and implementation of environmental taxes, accompanied by technical assistance for MSMEs to facilitate the transition to a green economy and increase accountability through sustainability reporting.

Keywords: Environmental Tax, Green Innovation, MSMEs, Sustainability Reporting, Aru Islands Regency.

1. INTRODUCTION

Climate change and environmental degradation have become urgent global challenges, demanding a paradigm shift from conventional economic models to a sustainable green economy. In this context, governments around the world, including Indonesia, are increasingly turning to market-based instruments to internalize the negative external costs of industrial activities that have not been taken into account in economic calculations (OECD, 2021). One policy instrument that is gaining traction is environmental tax or green tax. Unlike the command-and-control approach, which is often considered rigid, environmental taxes are designed to provide clear price signals, making environmentally damaging activities less economical and, conversely, encouraging investment and innovation towards cleaner and greener practices (Pigou, 1920; as cited in Metcalf, 2021).

The concept of environmental tax is rooted in Pigouvian economic theory, which suggests taxation to correct market failures by aligning private costs with social costs. Ideally, the application of this tax is not only intended to fill state coffers, but more importantly to drive behavioral change among business actors. This theory implies that by imposing costs on pollution or resource exploitation, companies will be financially encouraged to innovate in order to avoid or minimize the tax burden. Green innovation, which includes the development of new products, processes, or business models that significantly reduce environmental impact, is a logical and expected response from the business world (Porter & van der Linde, 1995). Porter's hypothesis asserts that well-designed environmental regulations can stimulate innovation that improves resource efficiency, ultimately enhancing corporate competitiveness.

However, the effectiveness of environmental taxes in promoting green innovation does not occur in a vacuum. Its success depends heavily on the context, business sector, and, most importantly, the perceptions and capacities of the business actors targeted by the policy. In Indonesia, Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the economy, contributing more than 60% of GDP and employing 97% of the workforce (Ministry of Cooperatives and SMEs, 2022). On the one hand, MSMEs have a significant cumulative contribution to environmental pressures due to their limited capital, technology, and knowledge. On the other hand, they are the most vulnerable to new policy shocks such as taxes, as they have limited financial resilience and adaptive capacity. Therefore, understanding MSMEs' perceptions of environmental taxes is crucial. Do they view them as an additional financial burden that is detrimental, or rather as a catalyst and opportunity to innovate and shift to more sustainable business practices? These perceptions will determine the level of acceptance, compliance, and ultimately, the success of environmental policies themselves.

The location of this research is Aru Islands Regency, an archipelago in Maluku Province that has a very rich and relatively well-preserved marine and terrestrial ecosystem, including coral reefs and mangrove forests that are important carbon sinks. The local economy is highly dependent on the fisheries, agriculture, and plantation sectors, which are largely driven by MSMEs. Development pressures and the exploitation of natural resources to meet economic needs are beginning to threaten its sustainability. The unique geography of the archipelago also means that MSMEs in Aru face logistical and access challenges that can affect their ability to adopt green technologies. Research in regions with unique and sensitive biophysical characteristics such as the Aru Islands is highly relevant, as it provides insight into how national policies are translated and responded to in frontier areas that serve as the last bastion of Indonesia's biodiversity.

The logical implication of encouraging green innovation through policy instruments such as taxes is an increased need for accountability and transparency. This is where the concept of Sustainability Reporting becomes very significant. Sustainability reporting is a practice in which organizations disclose their economic, environmental, and social performance,

providing stakeholders with information about their impact and contribution to sustainable development (Global Reporting Initiative, 2021). If environmental taxes succeed in encouraging MSMEs to pursue green innovation—for example, by reducing waste, using renewable energy, or adopting sustainable agricultural practices—then there will be a need to communicate these efforts. This reporting is not only a tool to demonstrate commitment and legitimacy in the eyes of the government and consumers, but also an internal management tool to measure efficiency, manage risk, and identify new opportunities (Schaltegger & Burritt, 2017).

However, for the majority of MSMEs, sustainability reporting is still considered a complex, expensive practice that is only relevant for large companies listed on the stock exchange. There is a wide gap between green initiatives that may already be carried out informally and the capacity to report them in a structured manner. Therefore, this study hypothesizes that there is a dynamic relationship between perceptions of environmental taxes, the adoption of green innovations, and readiness for sustainability reporting. A positive perception that views taxes as a driver of innovation is expected to create a virtuous cycle: policies encourage innovation, innovation creates material to report, and reporting ultimately increases company value and encourages more innovation.

Thus, this study entitled "Environmental Tax as a Driver of Green Innovation: Perceptions of MSMEs in the Aru Islands Regency and Its Implications for Sustainability Reporting" is urgent. This study aims to fill a gap in the literature by empirically analyzing the perceptions of MSMEs in an ecologically vital island region regarding environmental tax policy, and linking it to green innovation motivation and its ultimate implications for the sustainability accountability framework.

The findings of this study are expected to contribute academically to the discourse on environmental economics and sustainability accounting, as well as provide practical and contextual policy recommendations for the local government of Aru Islands Regency and relevant stakeholders in designing inclusive and effective green policies for MSMEs, which will ultimately lead to the achievement of sustainable development goals at the local level.

2. LITERATURE REVIEW

2.1. Environmental Tax

The basic theory of environmental tax is rooted in the concept of Pigouvian tax introduced by Arthur Pigou (1920). This tax aims to correct market failure by imposing the costs of negative externalities (such as pollution) on the actors who cause them. The goal is not merely to increase state revenue, but to change the behavior of economic actors by making environmentally damaging activities less financially attractive (OECD, 2021).

Research on "Environmental Tax as a Driver of Green Innovation: Perceptions of MSMEs in Aru Islands Regency and Its Implications for Sustainability Reporting" requires a comprehensive theoretical basis to analyze the complex relationship between environmental fiscal policy, MSME behavior, and sustainable reporting practices. This theoretical basis integrates various relevant theoretical perspectives to build a holistic framework of understanding.

Pigouvian Tax Theory is the main foundation for understanding the essence of environmental tax. This concept, developed by Arthur Pigou (1920), emphasizes the need to correct negative externalities through tax instruments. In the context of MSMEs in the Aru Islands, this theory explains how economic activities that have an environmental impact can be corrected through appropriate tax mechanisms. According to Metcalf (2021), Pigouvian taxes function as price signals that internalize external costs, thereby encouraging businesses to consider environmental impacts in their production decisions. This theory provides economic justification for the implementation of environmental taxes as a tool for allocative efficiency of resources.

2.2 Green Innovation as a developer

Green innovation is defined as the creation and implementation of new products, processes, services, or business models that contribute to sustainable development by reducing negative impacts on the environment (Kemp & Pearson, 2007). In the context of MSMEs, green innovation does not always take the form of advanced technology, but can also include modifications to production processes, energy efficiency, waste recycling, or the use of environmentally friendly raw materials.

2.3. *Theory of Planned Behavior* (TPB)

To analyze the behavioral response of MSMEs to environmental tax policies, this study adopts the Theory of Planned Behavior (TPB) developed by Ajzen (1991). This theory provides a conceptual framework for understanding how attitudes, subjective norms, and perceived behavioral control shape the intentions and actual behavior of MSMEs in adopting green innovations. In the specific context of MSMEs in island regions, factors such as limited access to technology, infrastructure, and financial capacity are important determinants of perceived behavioral control. Research by Schaltegger et al. (2016) shows that perceived ease of implementation is a critical factor in the adoption of sustainable business practices among MSMEs.

2.4. Legitimacy Theory and Sustainability Reporting

The aspects of legitimacy and accountability are explained through Legitimacy Theory proposed by Suchman (1995). This theory explains how organizations strive to maintain and enhance their social legitimacy through practices that are in line with community values and norms. In the context of the Aru Islands, which are rich in biodiversity, pressure for legitimacy from local communities and other stakeholders can encourage MSMEs to adopt sustainability reporting. Research by Deegan (2002) shows that sustainability reporting is often used as a strategy to gain, maintain, or restore social legitimacy.

Complementary to legitimacy theory is Stakeholder Theory, developed by Freeman (1984). This theory emphasizes the importance of considering the various interests of stakeholders in organizational decision-making. In the context of MSMEs in the Aru Islands, stakeholder theory helps to understand how pressure from various stakeholders such as the government, local communities, consumers, and environmental NGOs influences decisions to adopt green innovations and sustainability reporting. According to Gray et al. (1996), the intensity of stakeholder pressure determines the level of environmental information disclosure in corporate reporting.

Conceptual Framework

Based on the above theories, the research framework is as follows: The implementation (or discourse on implementation) of environmental taxes will influence the perceptions and strategies of MSMEs. These perceptions (which can be threats or opportunities) will encourage or hinder the adoption of green innovations. The adoption of green innovations, in turn, will create a need or pressure to demonstrate legitimacy and accountability, which will lead to the initiation of sustainability reporting practices, albeit in a simple and informal manner

3. RESEARCH METHODS

3.1 Research Approach and Type

This study uses a qualitative approach with a case study type. This approach was chosen to gain an in-depth and contextual understanding of the perceptions and experiences of MSMEs in the specific research location (Aru Islands Regency).

3.2 Research Location and Subject

The research was conducted in the Aru Islands Regency, Maluku Province. The location was chosen based on its characteristics as an archipelago with a vulnerable ecosystem and economic dependence on natural resources. The research subjects were five MSME owners who were purposively selected from various sectors, namely capture fisheries and processing, plantations (such as coconut), and tourism.

3.3 Data Collection Techniques

Data was collected using two main techniques:

1. In-depth Interviews: Semi-structured interview guidelines were used to explore perceptions of environmental taxes, motivations and barriers to implementing green innovations, and understanding of sustainability reporting.

2. Focus Group Discussion (FGD): One FGD session was conducted with 8 MSME representatives to discuss preliminary findings and obtain group dynamics related to the research topic.

3.4 Data Analysis Techniques

The collected data were analyzed using thematic analysis techniques according to Braun & Clarke (2006). The process included data transcription, theme identification, theme review, theme definition and naming, and analysis report compilation.

4. FINDING AND DISCUSSION

4.1. MSMEs' Perceptions of Environmental Tax

The findings reveal two dominant perceptions. The first group, dominated by micro MSMEs with limited capital, views environmental taxes negatively as an "additional cost burden" that will reduce profits and make their products less competitive. They admit that they are not yet financially and technically ready.

Quote from Informant 1 (Dried Fish Entrepreneur): "If there is another environmental tax, those of us who sell dried fish could go bankrupt. Production costs are already high, not to mention inter-island transportation costs."

In contrast, the second group, consisting of small and medium MSMEs that already have access to broader markets (including exports), began to view environmental taxes as a

"necessity" and even an "opportunity." They are aware of demands from buyers, especially from outside the region, regarding environmentally friendly product standards.

Quote from Informant 2 (Coconut Oil Entrepreneur): "We once received an offer from a buyer in Java. They asked if we had a halal certificate and if our production process was environmentally friendly. If there are incentives, environmental taxes could actually force us and our competitors to improve."

4.2. Environmental Tax as a Driver of Green Innovation

The drive to innovate is particularly evident among MSMEs that are beginning to see opportunities. The green innovations adopted are still incremental and low-tech, but significant in the local context.

a. Waste Management: Some fish processing MSMEs have begun separating solid waste (bones, heads) to be processed into animal feed or fertilizer, instead of dumping it directly into the sea.

b. Energy Efficiency: MSMEs in the processing sector (such as copra and coconut oil) are beginning to consider switching from firewood to more efficient boilers or renewable energy, despite the initial investment costs.

c. Sustainable Raw Materials: Craft MSMEs are becoming more selective in choosing wood sources and are trying to use alternative materials such as sawdust or shell waste.

These findings are in line with Pigouvian theory, whereby price signals (in this case, the threat of additional costs from taxes) can change business behavior by encouraging efficiency and innovation to avoid these costs (OECD, 2021).

4.3. Implications for Sustainability Reporting

Formal awareness of sustainability reporting is virtually non-existent among the MSMEs studied. However, the seeds of this reporting practice are already visible in the form of informal accountability. MSMEs that have implemented green innovations tend to actively share these practices with buyers or local government officials as "proof" that they are responsible businesses.

Quote from Informant 3 (Craft Entrepreneur): "We usually tell customers that the shells we use are not from catches that damage coral reefs. They are happy to hear that."

This form of communication can be seen as the embryo of sustainability reporting motivated by legitimacy theory (Suchman, 1995). MSMEs seek recognition and legitimacy from the community and consumers by demonstrating their environmental commitment. The implication is that local governments and MSME associations can take advantage of this momentum by introducing a very simple and easy-to-fill sustainability reporting template that focuses on green innovation practices that have already been implemented.

5. CONCLUSION

Based on the results of the research and discussion, it can be concluded that:

1. The perception of MSMEs in Aru Islands Regency towards environmental tax is polarized; it is considered both a burden and a stimulus, which is greatly influenced by business scale and market access.

2. Environmental taxes have the potential to encourage simple and contextual green innovations, such as waste management and energy efficiency, in response to financial pressures and market demand.

3. Implications for sustainability reporting have not yet reached the stage of formal reporting, but have emerged in the form of informal communication and accountability as an effort to gain legitimacy from stakeholders.

6. RECOMMENDATIONS

Based on the above conclusions, several recommendations are proposed:

1. For Local Governments: The socialization of environmental tax policies must be carried out gradually and educationally, accompanied by incentive schemes (for example, tax breaks for MSMEs that have implemented green innovations) to prevent shock and increase acceptance.

2. For MSMEs: There needs to be increased awareness that sustainable business practices are not only an obligation, but also a strategy for building competitive advantage and access to broader markets.

3. For Future Researchers: Further research can be conducted using a quantitative approach to measure the extent of the relationship between these variables, or to explore the role of fintech and green financing in supporting the transition of MSMEs towards a green economy.

References

Arfan, M., & Pasrun, Y. P. (2022). *Environmental taxation and green innovation: Evidence from small and medium-sized enterprises in Eastern Indonesia*. Journal of Asian Economics, 78, 101432.

Badan Pusat Statistik Kabupaten Kepulauan Aru. (2023). *Statistik UMKM dan lingkungan hidup Kabupaten Kepulauan Aru tahun 2023*. Dobo: BPS Kabupaten Kepulauan Aru.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.

Dinas Lingkungan Hidup dan Perindustrian Kabupaten Kepulauan Aru. (2023). *Laporan kinerja pengelolaan lingkungan hidup UMKM tahun 2023*. Pemerintah Kabupaten Kepulauan Aru.

European Commission. (2021). *EU green taxation: A study on environmental tax reforms and their economic impacts*. Directorate-General for Taxation and Customs Union.

Global Reporting Initiative. (2021). *GRI standards 2021: The global language for sustainability reporting*. GRI.

Kementerian Lingkungan Hidup dan Kehutanan RI. (2022). *Kajian implementasi pajak lingkungan dalam mendukung pertumbuhan ekonomi hijau di Indonesia*. Jakarta: KLHK.

Kemp, R., & Pearson, P. (2007). Final report of the MEI project measuring eco-innovation. UM Merit, Maastricht.

Liu, Y., & Wang, A. (2020). *Linking environmental regulation and firm performance: The mediating role of green innovation*. Journal of Cleaner Production, 267, 122026.

OECD. (2020). *Taxation, innovation and the environment: Policy perspectives*. OECD Publishing.

OECD. (2021). Environmental tax policy review of Indonesia. OECD Publishing. https://doi.org/10.1787/6f028e38-en.

Pigou, A. C. (1920). *The economics of welfare*. Macmillan.

Porter, M. E., & van der Linde, C. (1995). *Toward a new conception of the environment-competitiveness relationship*. Journal of Economic Perspectives, 9(4), 97-118.

Rudiawan, R., & Saraswati, E. (2023). Tantangan dan strategi UMKM dalam menghadapi

regulasi lingkungan di Indonesia. *Jurnal Akuntansi dan Bisnis, 19*(1), 45-60.

Sari, D. K., & Prasetyo, A. D. (2023). *Sustainability reporting practices among Indonesian SMEs: Barriers and drivers*. Asian Journal of Sustainability and Social Responsibility, 8(1), 45-62.

Smith, J. A., & Brown, K. L. (2022). *Environmental taxation and small business innovation: A qualitative study of stakeholder perceptions*. Journal of Environmental Management, 305, 114387.

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review, 20*(3), 571–610.

UNDP. (2022). *Sustainable development goals report for Eastern Indonesia: Progress and challenges*. United Nations Development Programme Indonesia.

Wang, C., & Zhang, Y. (2021). *The impact of environmental tax on green technology innovation: Evidence from China's manufacturing sector*. Technological Forecasting and Social Change, 166, 120636.

World Business Council for Sustainable Development. (2022). *The importance of sustainability reporting for small and medium enterprises*. WBCSD Publications.

Zhang, L., & Li, X. (2020). *How environmental regulations affect corporate green innovation: The mediating role of organizational learning*. Sustainability, 12(5), 1977.