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MORALITY BEFORE KNOWLEDGE

Adaptation of Biscay model in Indonesian tax reform: SDGs-based fiscal incentive innovation to realize sustainable economic transformation towards golden Indonesia 2045

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ABSTRACT

Background: The vision of a Golden Indonesia 2045 is a great goal of Indonesia in celebrating its 100 years of independence, but a number of challenges such as demographic bonus, climate change, and economic problems can be obstacles to its achievement. Facing these challenges, the government can implement Sustainable Development Goals (SDGs), in which case, the Biscay Model is one of the evolutions in the field of taxation that can help the development of SDGs implementation in Indonesia. Spain's macroeconomic indicators show positive prospects, characterized by GNI per capita growth increasing from 1.2% in 2019 to 2.7% in 2023, as well as FDI net inflows rising from USD 10.47 billion in 2019 to 19.92 billion in 2024. **Methods:** This research uses a qualitative method with a literature study approach to examine the opportunity to apply the Biscay Model in the Indonesian tax system as an instrument that supports the achievement of sustainable development goals. **Findings:** The results show that the Biscay Model has the potential to be applied in Indonesia because it can open up space for the private sector to play an active role in financing development, strengthen government and business collaboration, and accelerate the achievement of the Golden Indonesia Vision 2045. **Conclusion:** Thus, this model not only presents an innovative alternative fiscal strategy, but also an important opportunity to promote economic, social and environmental sustainability. **Novelty/Originality of this article:** The novelty of this research lies in assessing the direct connection between the SDGs-based taxation model and Indonesia's long-term development vision, thus offering a new perspective on the role of taxation in supporting sustainable transformation.

KEYWORDS: the vision of a golden Indonesia 2045; Biscay model; sustainable development goals (SDGs).

1. Introduction

The economy plays a crucial role in determining the progress, welfare, and stability of a country. Saragih (2022) explains that improving the country's economic conditions will have positive implications for aggregate supply and demand in the market. A nation can be said to have a good economy if it meets a number of indicators that reflect prosperity, stability, and development in various economic, social, and technological aspects. Dwi (2023) explains that there are at least several indicators that illustrate the success of a country in economic development, namely per capita income, human development index (HDI), inflation, and quality of life index (QOL). In carrying out economic development,

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Indonesia wants to carry out economic transformation as a strategic step in encouraging economic development. This economic transformation plan is listed in the development agenda of the National Long-Term Development Plan/*Rencana Pembangunan Jangka Panjang Nasional* (RPJPN) 2025-2045 or what is often known as the Golden Indonesia Vision 2045.

Furthermore, what kind of economic transformation does Indonesia want to realize in its 100 years of independence. In accordance with the Golden Indonesia Vision 2045 to realize a united, sovereign, developed and sustainable country, Indonesia wants a transformation towards a sustainable economy. A sustainable economy emphasizes the optimal use of resources to meet the needs of humanity today without compromising the ability of future generations. An economy is said to be sustainable if economic growth preserves natural resources, does not damage the environment, and ensures social welfare in the long term (UNDP, 2024). Law No. 59 of 2024 on RPJPN 2025-2045 explains that the economic transformation carried out is the transformation of the economy from a natural resource-based economy to a knowledge-based economy, the application of circular, green, and blue economy, high and quality economic growth, reducing inequality, good governance, increasing social cohesion and trust, and mitigating and adapting to climate change to achieve the goal of an advanced Indonesia. This transformation is expected to encourage higher welfare levels and have the capability to compete in the global market (Supriyanto, 2024).

However, in carrying out the transformation towards a sustainable economy, there will certainly be complex and interrelated obstacles. The economic sector can be influenced by many things. The level of productivity of the workforce, the utilization of demographic bonuses and the ease of doing business are challenges that can affect future economic development (BKF, 2020). The dependence of the economy on the use of the extractive sector and fossil energy is an obstacle to the transition to renewable energy sources that are more environmentally friendly (Tazkia University, 2025). Inadequate infrastructure and limited access to green technology are barriers to the implementation of a sustainable economy (Zahrah & Rahayu, 2024). Not only that, the quality of human resources in understanding and implementing sustainable economic principles is also a challenge (Ekonomi Kita, 2024).

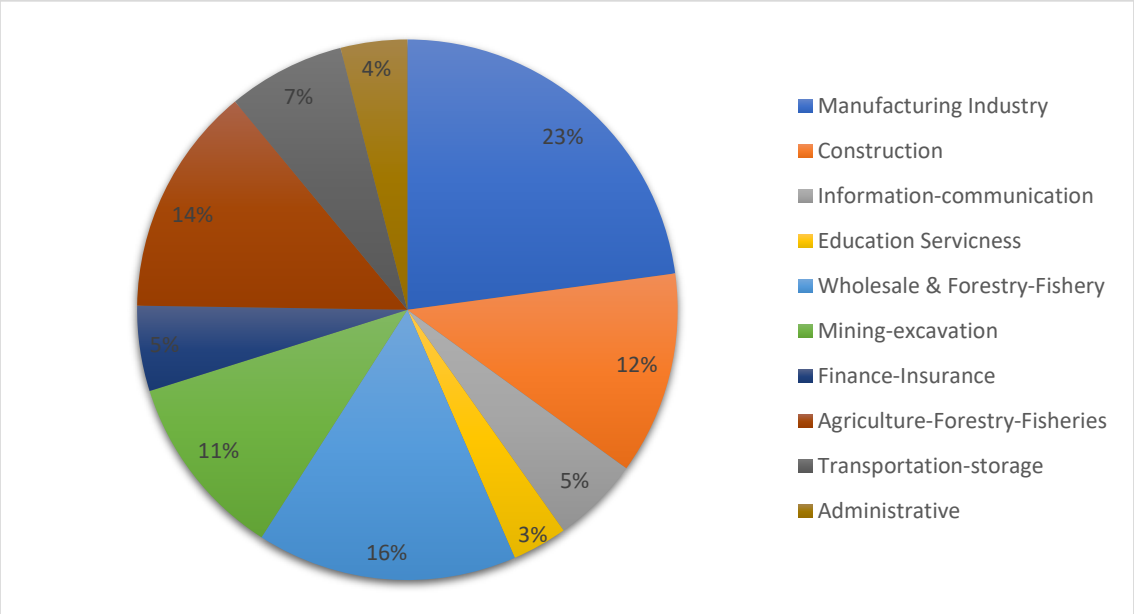

Fig. 1. Business sectors with the largest GDP value in indonesia in the first quarter of 2024 (Ahdiat, 2024)

To overcome these challenges, Indonesia needs a framework for sustainable development. One of the frameworks that the government can use is by utilizing the

Sustainable Development Goals (SDGs) which play a strategic role in helping the government to achieve sustainable economic transformation. The SDGs themselves are a new development agreement that leads to sustainable development and is based on human rights and equality to encourage economic, social and environmental development (LOCALISE SDGs, 2020). The SDGs are a commitment that is in line with the Vision of a Golden Indonesia 2045. The benchmark for achieving the development direction of the Golden Indonesia 2045 can be seen from the achievement of the SDGs in Indonesia (Bappenas, 2023). Therefore, it is understood that the SDGs can contribute to the economic transformation stated in the Golden Indonesia Vision 2045.

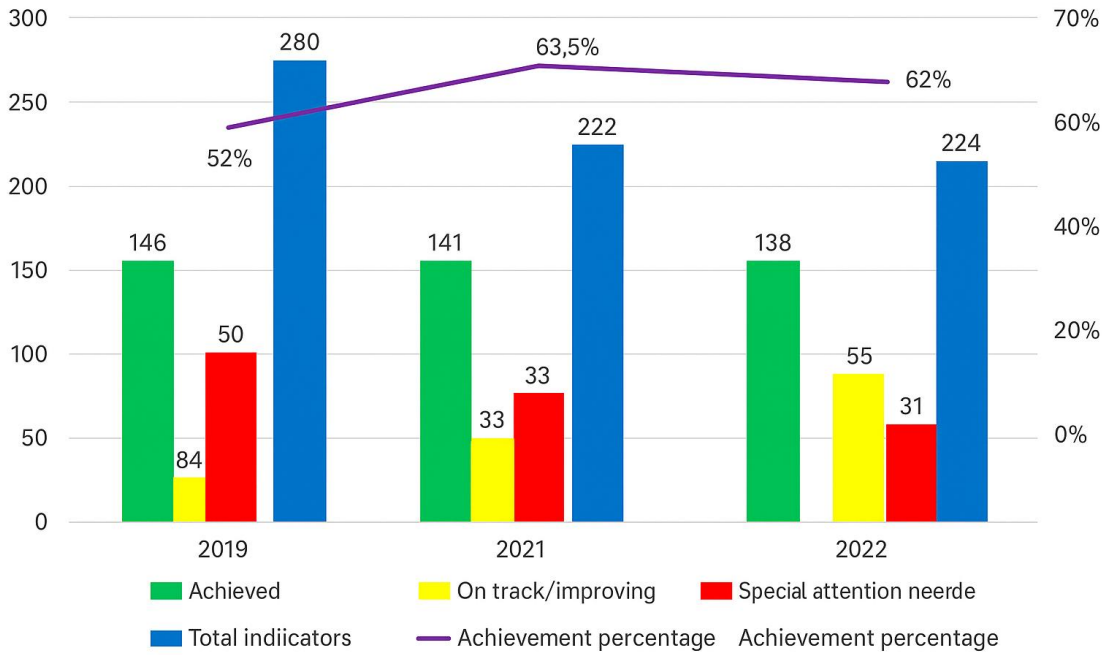

Fig. 2. Achievement of SDG Indicators in 2019, 2021, and 2022 (Bappernas 2023; Bappenas, 2019)

Biscay, a region in Spain, collaborated with University College Lonsdon (UCL) to create a tax policy innovation that is linear with the SDGs (Roll & Chugh, 2022). This revolution is known as the Biscay Model, a concept that changes the role of taxes not only as an instrument of state revenue but also to contribute to the SDGs. Broadly speaking, this model will assess how companies contribute to the areas that have been determined in the model. Furthermore, the authorized party will assess the contribution of the company and then the company will be given an incentive according to the amount of performance that has been carried out. This incentive will encourage companies to contribute to areas that have positive implications for the SDGs. Through this concept, it can be understood that the tax incentives from this model are performance-based so that the more participation the company makes, the greater the incentive it will receive.

A critical gap in Indonesia's tax incentive landscape is the absence of a mechanism that directly ties fiscal benefits to measurable sustainability outcomes. Existing incentives remain primarily input-oriented which focused on investment value or sectoral classification without evaluating the actual environmental or social impact generated by taxpayers. This limits the government's ability to steer corporate behaviour toward sustainable practices in line with the SDGs and the Golden Indonesia 2045 agenda. The Biscay Model offers a distinctive value proposition in this regard, as it operationalizes a performance-based SDGs scoring system, strengthens accountability through transparent verification, and promotes multisectoral collaboration between government, business, and civil society. These characteristics make the model both promising and challenging to adapt within Indonesia's regulatory and institutional context, thereby underscoring the relevance of assessing its feasibility for national tax reform.

In strengthening Indonesia's economic transformation agenda, fiscal policy plays a central role as a state instrument to manage income redistribution, encourage investment, and ensure macroeconomic stability. A sound fiscal system must balance state revenues and expenditures through efficient taxation and equitable budget allocation. As stated by Faruq et al. (2024), effective and fair tax policies can not only increase state revenue but also achieve equitable wealth distribution, requiring robust law enforcement and a strong regulatory framework to support fiscal justice. Furthermore, fiscal decentralization policies have demonstrated that political and institutional stability are crucial for effective fiscal implementation at both central and regional levels. The transformation of Indonesia's taxation system through institutional reform such as the proposed establishment of a Tax Revenue Agency also reflects an effort to realize a more progressive and autonomous fiscal structure that aligns with national development goals (Sihombing, 2020). Therefore, fiscal policy reform, including tax system renewal and institutional strengthening, becomes a strategic foundation to ensure that the country's economic transformation towards sustainability is supported by transparent, accountable, and socially responsive fiscal governance.

When reflecting on Indonesia's current condition, this model can assist the government in improving the achievement of SDGs that contribute to the economic transformation that the government wants to achieve in the 2045 Golden Indonesia Vision. The tax incentives offered will encourage companies to change economic activities towards a sustainable direction so that the desired transformation can be realized. On the other hand, the government does not need to make massive expenditures that burden the budget to implement economic transformation. Therefore, this paper aims to discuss how to adapt the Biscay Model into the tax system in Indonesia. This paper will discuss how the integration of the Biscay Model into the tax system can help Indonesia in the transformation towards a sustainable economy by providing encouragement for companies to move towards sustainability.

2. Methods

This research uses a qualitative approach with a library research method to analyze the potential adaptation of the Biscay Model in the Indonesian tax system to support the achievement of the Sustainable Development Goals (SDGs) and the Golden Indonesia Vision 2045. The scope of the research focuses on the study of SDGs-based taxation policies in Spain, with special attention to tax incentive mechanisms, transparency in measuring SDGs contributions, and implications for economic sustainability and green investment. The data used is sourced from secondary data, including scientific articles and journals, official government reports, international documents published by institutions such as the OECD and IMF, and tax regulations in Indonesia for comparison.

The data collection process is carried out from document review and review of relevant literature. Data analysis uses content analysis techniques to evaluate the effectiveness of the tax incentive model, taking into account aspects of transparency and the mechanism for reporting SDGs contributions by companies. Through this approach, the research is expected to produce strategic recommendations regarding the calculation of SDGs contributions, tax incentive design, policy management by the Directorate General of Taxes, and policy socialization strategies so that the implementation of the Biscay Model in Indonesia can run optimally.

3. Results and Discussion

3.1 Adopt Biscay model to Indonesia

Indonesian President Joko Widodo on June 15, 2023 presented the Final Draft of the National Long-Term Development Plan*/Rencana Pembangunan Jangka Panjang Nasional*

(RPJPN) 2025-2045 prepared by the Ministry of National Development Planning/*Badan Perencanaan Pembangunan Nasional Republik Indonesia* (Bappenas) to realize the Golden Indonesia Vision 2045. The pillars of the priority program designed in the 2025-2045 RPJPN focus on 3 main things, namely maintained national stability, sustainability and sustainability, and quality human resources. This program is in line with the Sustainable Development Goals (SDGs) agenda, which emphasizes sustainable economic growth, poverty alleviation, and equitable distribution of welfare.

The SDGs program in the economic context is in line with the implementation of the green economy. The implementation of a green economy is able to encourage national economic recovery and problems in the multilateral field, while contributing to maintaining a healthy environment and forming the right ecosystem for current and future generations (Anwar, 2022). For a green economy to be realized in a sustainable manner, policymakers need to get support from various parties. However, the main challenge is to ensure that fiscal policy can increase investment in the sustainability sector and industrial competitiveness. The Biscay Model is a potential strategy in optimizing tax incentives for priority sectors such as renewable energy, digital economy, and green infrastructure.

Adopting the Biscay Model in Indonesia can optimize tax incentives for priority industries such as renewable energy, digital economy, and green infrastructure, which play a role in economic growth and job creation. With the SDGs scoring mechanism, tax incentives are given based on the company's contribution to sustainable development. The implementation of this model in Spain shows positive economic prospects. Spain's macroeconomic indicators record GNI per capita growth increasing from 1.2% in 2019 to 2.7% in 2023, as well as FDI net inflows rising from USD 10.47 billion in 2019 to USD 19.92 billion in 2024. In addition, tax revenue to GDP also increased from 13.7% in 2019 to 15% in 2023. This increase in tax revenue shows that the provision of incentives through the Biscay Model does not erode state revenues, but rather strengthens the tax base and maintains fiscal stability. Tax incentives in the renewable energy sector need to be directed to two groups, namely taxpayers who invest or build and develop renewable energy projects and taxpayers who carry out decarbonization activities by utilizing renewable energy (Haptari, 2023).

This shows that the right incentive policy can be a catalyst for economic growth without sacrificing fiscal stability. In order for the Biscay Model to be implemented effectively, it is necessary to align regulations with tax policies that have been implemented in Indonesia such as tax holidays, incentives for EBT products, and carbon tax. This effort is made to avoid the possibility of companies claiming tax benefits more than once or double counting. In addition, it is also necessary to integrate the SDGs scoring system in the existing tax incentive scheme and increase transparency in tax reporting and monitoring.

While the implementation of the Biscay Model in Spain has been successful in driving a significant increase in foreign direct investment (FDI), conditions in Indonesia indicate an exciting gap that needs to be bridged for the adoption of a similar model to be effective. These differences mainly lie in the aspects of tax regulation, institutional readiness, and integration of fiscal policy with the sustainable development agenda. Spain has a relatively well-established legal and fiscal infrastructure to support SDGs-based tax incentives, while Indonesia still faces challenges in the form of overlapping incentive policies, limited verification systems, and the risk of double counting of tax benefits. This is in line with (Andariyani, 2024) findings that developing countries often face limitations in developing a stable financial system, while developed countries have greater flexibility in adjusting their economic policies. Therefore, the solution that can be offered is to harmonize tax regulations by aligning existing incentive schemes with the SDGs scoring mechanism used in the Biscay Model. In addition, the government needs to build a technology-based verification system such as blockchain and real-time data analytics to improve reporting credibility and prevent data manipulation. On the institutional side, the supervision of incentives can not only be left to the Directorate General of Taxes, but also involve independent institutions, academics, and international organizations to ensure transparency and objectivity of

evaluation. By closing these exciting gaps, Indonesia has the potential to adapt the Biscay Model not only as a fiscal instrument, but also as a catalyst for sustainable economic transformation, increased industrial competitiveness and accelerated achievement of the 2045 Golden Indonesia Vision.

Beyond Spain, other countries are also operationalizing SDG aligned taxation, but often through a system wide diagnostic and governance approach rather than a firm level incentive scoring model. For example, Ghana supported by UNDP's Tax for SDGs initiative has been using a Sustainable Taxation Framework STF evaluation to map how tax policy and administration can directly support priority SDGs including Goals 2, 3, 4, 9, 13, and 17 through multi stakeholder involvement from the Ministry of Finance, the revenue authority, sector ministries, and academia, highlighting that institutional coordination and shared metrics are foundational before scaling incentive schemes (UNDP Ghana, 2024). This contrasts with the Biscay Model's more micro incentive orientation that rewards companies based on their SDGs contribution, because Ghana's STF process first strengthens the enabling system through capacity building, compliance improvement, and governance safeguards so that SDG linked tax measures are credible, measurable, and less exposed to manipulation or double counting (UNDP Ghana, 2024). At the global level, UNDP frames taxation not only as domestic revenue mobilization to finance the SDGs, but also as a policy lever to influence behaviour toward climate, nature, well being, and governance outcomes, supported through country engagement plans, technical assistance, and cooperation to curb tax evasion, tax avoidance, and illicit financial flows (Beloe & Khan, 2024). In practice, this implies that Indonesia could combine the Biscay style SDGs scoring for incentives with a Ghana like STF diagnostic layer to ensure readiness by aligning sector priorities, building verification capacity, and embedding cross ministry accountability so that SDG based incentives expand investment without weakening compliance or fiscal legitimacy (UNDP Ghana, 2024; Beloe & Khan, 2024).

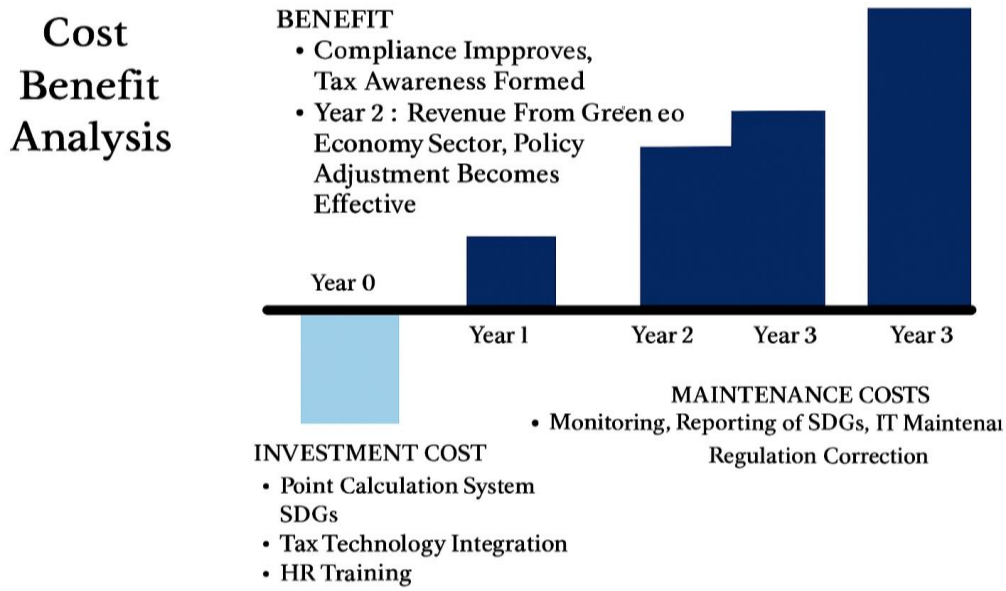

Fig. 3. Cost-benefit analysis framework for Biscay model adoption in Indonesia (qualitative CBA)

In assessing the feasibility of adopting the Biscay Model in Indonesia, a cost benefit analysis was used as a preliminary framework to illustrate the balance between investments made and benefits gained. This analysis is still conceptually descriptive, so it does not include detailed numerical calculations or comprehensive fiscal projections. The initial investment is estimated to include the development of the SDGs point calculation system, integration of tax technology, human resource training, and potential temporary operational disruptions. At the implementation stage, maintenance costs such as

monitoring, SDGs reporting, IT system maintenance, and regulatory adjustments are factors that must be considered. However, the medium to long-term benefits show positive prospects. In the first year, increased taxpayer compliance and SDGs-based tax awareness began to take shape. In the second year, revenues from the green economy sector and the effectiveness of regulatory adjustments begin to appear, while in the third year it is projected that MSMEs grow, employment increases, and SDGs targets are increasingly connected to tax incentives.

With a payback period of around three years, this analysis provides an initial illustration that although the implementation costs are relatively large, the long-term benefits in promoting green economy growth and strengthening Indonesia's fiscal credibility are potentially greater. Therefore, further research with a quantitative cost benefit analysis approach is still needed so that the projected fiscal and macroeconomic impacts can be measured more accurately. While the above cost-benefit analysis provides an initial overview of the potential long-term benefits of implementing the Biscay Model in Indonesia, the successful implementation of this policy is not only determined by fiscal calculations, but also by broader external environmental factors. Therefore, a political, economic, social and technological analysis (PEST analysis) is required to assess the macro opportunities and risks that may arise in the adoption process. This analysis will help ensure that the Biscay Model is not only fiscally feasible, but also relevant and adaptive to Indonesia's structural conditions.

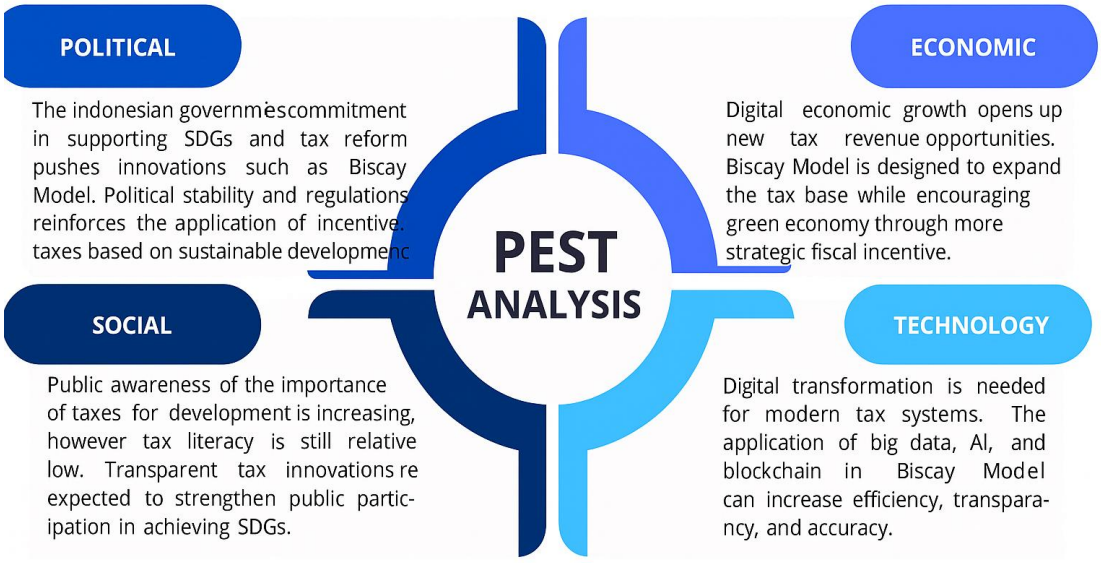

Fig. 4. PEST analysis of Biscay model

The PEST analysis above shows that politically, the National Long-Term Development Plan/*Rencana Pembangunan Jangka Panjang Nasional* (RPJPN) Agenda 2025-2045 and the government's commitment to the SDGs encourage transparent tax reform. Political stability and regulatory sustainability are opportunities to test performance-based incentive models such as the Biscay Model. The main macro risks in this dimension are coordination across agencies from fiscal, technical and planning and the potential for "policy reversals" when governments change. Economically, the digital economy and green industrialization open up new tax bases and investment opportunities. Incentives linked to outcomes such as emission reductions or energy efficiency have the potential to attract investment, driving economic growth as well as decarbonization. However, the risks of this aspect are reduced state revenue in the short term and policy overlap with other tax incentive schemes.

On the social aspect, public awareness of the function of taxes for development is increasing, but literacy on taxes and sustainability is uneven. Linking incentives to tangible benefits such as waste management and clean energy access could be an opportunity to implement this model. In addition, an inclusive incentive scheme allows MSMEs and

regional actors to have opportunities and not be blocked by large companies. The risk from the social aspect is the practice of greenwashing where companies exaggerate or falsify their contribution to sustainability. The last aspect is technology, which is the basis for assessing SDGs contribution claims in a measurable manner. Strong technology utilization will increase the efficiency and accuracy of the assessment. The macro risks of this aspect are the readiness of inter-sectoral data standards, compliance costs that are too heavy for small actors, and loopholes for data manipulation. Overall, Indonesia has a realistic basis to adopt the Biscay Model as a sustainable development-based tax incentive as long as there is standardization of indicators, independent verification, and public communication that highlights social benefits. In addition to these external factors, the technical aspects of implementation are also crucial to ensure that the adoption of the Biscay Model is effective and credible in Indonesia.

In the Biscay Model Adoption scheme in Indonesia, technology integration is a crucial aspect to ensure data validity and smooth implementation of SDGs-based tax incentives. The model will be integrated in the tax administration system through Coretax, but with a special additional feature to process and verify the company's contribution to the SDGs. This feature will allow companies to digitally upload sustainability reports, which are then verified through a blockchain-based system and real-time data analysis to reduce the risk of manipulation. Although run within the Coretax ecosystem, oversight of the scheme is not only carried out by the Directorate General of Taxes (DGT), but also by independent organizations and the private sector with expertise in SDGs. External auditors from institutions such as UNDP, the Ministry of Finance, and academics will participate in the evaluation of sustainability impacts reported by companies. With this integration, the government can ensure that tax incentives are actually given to companies that have real sustainable contributions, while at the same time improving the transparency and effectiveness of tax policy in Indonesia.

The important role of technology is needed especially in terms of transparency to maintain credible and accountable information. One technology that can be utilized is blockchain technology. Blockchain technology has great potential to improve the transparency and reliability of financial reporting by providing accurate, immutable, and verifiable transaction records in real-time. In addition, blockchain can reduce the risk of data manipulation, improve operational efficiency by reducing the need for manual reconciliation, and speed up the audit process, although challenges related to scalability and regulation still need to be overcome (Ricky et al., 2024). In addition, blockchain can also improve operational efficiency by reducing the need for manual reconciliation and recurring audits. Thus, the implementation of the Biscay Model requires careful regulatory design, cross-sector coordination, and close supervision in order to run effectively and provide optimal benefits to the Indonesian economy.

3.2 Components to make the Biscay model

In general, the Biscay Model will assess companies' reports on their performance against the SDGs. This performance will be transformed into points. The points will be accumulated to get an overall score of the company's performance for one year/period. These points then determine the amount of tax incentives received by the company. This model consists of several parts, each of which can be a guide for the government in implementing this model in Indonesia.

3.2.1 Negative screening

The model is designed to be inclusive and provide opportunities for all companies in different fields to contribute. However, the model excludes some companies in certain sectors. The excluded companies are those engaged in sectors that are detrimental to the SDGs. This negative screening is the initial identification before a company can contribute to the Biscay Model.

However, there are pros and cons to this initial screening. This negative screening will maintain policy integrity. Public incentives sourced from the budget should not support corporate activities that harm health, damage the environment, or threaten world peace. CREA & IASR (2023) explain that air pollutant emissions from coal-fired power plants in Indonesia in 2022 caused 10,500 deaths. By excluding certain sectors from the outset, the government provides assurance to companies that the incentives are in favor of sustainable development. A country that consistently refuses to finance sectors that pose a high risk to the SDGs will be seen as more credible in the global market. This has the potential to attract foreign direct investment (FDI) that is more environmentally friendly and sustainable. Furthermore, this mechanism can improve the efficiency of fiscal utilization. Limited budgets can be focused on sectors that generate positive externalities such as renewable energy, green innovation or the digital economy. Thus, the potential social, economic and environmental benefits are greater.

On the other hand, this policy also has consequences. One of them is the potential to hinder a just transition. Sectors like coal still employ a lot of workers and are a source of revenue for the region. Total exclusion without a transition mechanism risks depriving these companies of the opportunity to participate in this model. Not only that, it is challenging to categorize company activities as it is not easy to determine whether a company actually falls into a negative sector. For example, should energy companies that still use coal but invest in renewable energy also be excluded? Ambiguities like this create legal loopholes and potential greenwashing practices. In fact, Cuervo-Cazurra et al. (2022) explains that in addition to greenwashing practices, such policies can lead to rainbow-washing where companies use the SDGs only as a communication tool to exaggerate their positive contributions to some SDGs despite not actually adapting to sustainable strategies. Therefore, some adjustments are needed to ensure this negative screening can work well.

3.2.2 Contribution area

The Biscay Model developed 28 Contribution Areas (CAs) that provide tax incentives based on companies' contributions to the SDGs, taking into account three strategic priorities: demographic change, climate emergency, and economic resilience. These CAs are grouped into three levels of contribution, awareness, action and achievement that allow companies to customize engagement based on their capacity to support sustainable economic development. Fair and progressive SDGs-based taxation policies are important to reduce social disparities and strengthen the transition to a green economy. From the 28 CAs, the researchers recommend 9 areas that are most relevant to the context of economic transformation in Indonesia. The selection of these 9 contribution areas as a first step is based on their direct alignment with the pillars of the Golden Indonesia Vision 2045. Furthermore, these areas were selected based on the readiness of the policy ecosystem and domestic market as well as ease of measurement so as to provide the best combination of strategic relevance and tangible economic benefits. Not only that, the fiscal instruments, especially the tax incentives used, can be utilized efficiently.

The first area of contribution is well-being and health. This area is the foundation of labor productivity. Healthy human capital increases labor force participation and reduces long-term health costs. Second, quality employment promotes formality, safety standards, and skills-based wage increases and is related to Pillar 1. Next, quality education is the bridge between education, vocational, and industry needs. This area can solve the skills mismatch problem that often occurs in the labor market. Fourth, renewable consumption and production are key to decarbonization. This area synergizes with pillars 2 and 4 while making companies more competitive and less dependent on energy imports. The next area is the circular economy where companies can turn waste into resources, reduce the cost of primary raw materials, and open up recycling markets. As part of the transformation, the circular economy expands local employment opportunities and reduces emissions. The sixth area, resilience to climate change, ensures continued operations in vulnerable sectors. Investments for adaptation will protect productive assets and maintain the continuity of

national supply chains. Then, entrepreneurship, focusing on the birth of new ventures to make the economy more adaptive and innovative, accelerate technology diffusion, and broaden the base of value-added exports. The eighth area is the digital economy, an economic activity capable of reducing transaction costs, expanding markets, and increasing data transparency. In economic transformation, digitization of operations, cybersecurity, and cloud computing will accelerate productivity across sectors. The last area is productive infrastructure development that can reduce logistics bottlenecks and strengthen connectivity between regions.

The choice of this contribution area is in line with the main pillars in the Golden Indonesia Vision 2045. The First Pillar, Human Development & Science & Technology Mastery is supported through incentive policies for the education and health sectors. The Second Pillar, Sustainable Economic Development is facilitated with incentives for renewable energy and circular economy. Meanwhile, the Third Pillar, Equitable Development and the Fourth Pillar, Strengthening National Resilience and Governance are strengthened by investing in productive infrastructure and improving the quality of employment. Accelerating the achievement of the SDGs can have a positive impact on GDP growth of up to 7.12% per year if implemented with the right fiscal policy (UNDP, 2024). This shows that a model like Biscay can deliver significant economic benefits if implemented effectively.

Table 1. Contribution areas relating to the vision pillars golden Indonesia 2045

Priority Area	Pillars Of Indonesia's Golden Vision For 2045	Related SDGs	Contribution Area
Demographic Changes	Pillars 1 and 3	SDG 3 - Good health and well-being	welfare and health
	Pillars 1	SDG 3 - Quality education and health	quality employment
Climate Crisis	Pillars 2 and 4	SDG 7 - Affordable and clean energy	quality education
	Pillars 4	SDG 12 - Responsible consumption and production	renewable energy consumption and production
	Pillars 4	SDG 13 - Climate action	circular economy
Economic Resilience	Pillars 2	SDG 8 - Decent work and economic growth	resilience to climate change
	Pillars 1 and 2	SDG 8 - Industry, Innovation, and Infrastructure	entrepreneurship
	Pillars 3	SDGs 11 - Sustainable cities and communities	digital economy

3.2.3 Assessment

The Biscay Model offers an inclusive framework where companies can select contribution areas related to the SDGs and report on their annual achievements. The report contains the contribution areas selected by the company and the extent of their engagement in these areas. The Directorate General of Taxes (DGT) as the government will then validate and assess the report. Academics such as the National Research and Innovation Agency/ *Badan Riset dan Inovasi Nasional* (BRIN) and Non-Governmental Organizations (NGOs) such as Localise SDGs Indonesia can be partners for the DGT to assess company performance. Each area has a different assessment according to the correlation to the SDGs. After assessing the report, the government will calculate and convert the performance into points.

The assessment conducted in this model is ipsative or compares the company's current performance with the previous year. This assessment concept will maintain inclusiveness between MSMEs and large corporations despite financial and operational differences. This can happen because the contribution measurement is done by percentage so that the company compares its own performance and not with other companies. On the other hand,

this concept will motivate companies to improve their performance towards SDGs continuously. That way the company will continue to grow and transform in a sustainable manner. Furthermore, this model creates performance thresholds. This means that there is a minimum point threshold that a company must achieve in order to continue to be incentivized. In addition, this point threshold continues to increase every year, creating a pathway that serves as a reference for companies to improve their performance every year.

To maintain the credibility of the process, the assessment is conducted within a clear Monitoring-Reporting-Verification (MRV) framework. Companies are asked to distinguish between outputs and outcomes, e.g. number of trainees or housing units built as outputs, and employment, increased productivity, or reduced costs/emissions as outcomes. Each claim is accompanied by minimum evidence such as a contract/memorandum or e-invoice. Evidence is submitted in a standardized digital format with adequate timestamps and shelf life for easy traceability during verification. This way, the assessment relies not only on company statements, but also an audit trail that can be checked.

Assessment indicators are organized per contribution area for consistency. Each indicator has a uniform operational definition, unit, and measurement method to minimize ambiguity. Assessment weights are aligned with national priorities and the pillars of Indonesia Emas 2045 so that areas that directly support strengthening human capital, productivity, digital transformation, and equity receive relatively higher weights. This approach maintains the link between company-level micro assessments and the macro development agenda. Furthermore, the ipsative assessment remains at the core by comparing the current year's achievements against the previous year's achievements. To maintain fairness across sectors, achievements are normalized against relevant sectoral targets or minimum service standards. Furthermore, positive growth is reinforced, while a decline does not automatically lower the score if it is proven to be caused by external factors that can be proven. In this way, the model encourages continuous improvement without ignoring the operational context of each company.

To maintain the integrity of the management process and data, verification is layered through automated checks, risk-based assessments, and sample audits by independent parties. DGT acts as the scheme authority, while BRIN and NGOs become thematic verifier partners according to their competencies. Assessment results can be published without disclosing sensitive data, along with written feedback to companies for improvement the following year. With this arrangement, the assessment becomes transparent, accountable, and encourages policy learning over time.

Table 2. Examples of contribution areas and their calculation methods

No	Contribution Area	Example of Contribution Area	Example of Measurement Method
1	Wellbeing and health	Promote positive physical and mental health and wellbeing, through existing policies, systems and training as well as policies, systems and training on bullying. Promote general public health through products and services	Have a policy, provide training. Percentage of employees who have received training in the past year. Identify products and services that promote health in the general public.
2	Quality employment	Support young people (under 30 years old) and those over 45 years old to enter the workforce	Number of internships and training periods (of a certain quality) offered to students and graduates (schools and universities) as a percentage of the total number of employees
3	Quality education	Support and encourage collaboration with universities	Number of collaborative programs run Number of student lecturers involved
4	Renewable energy consumption and production	Switching to renewable energy	Total fuel consumption in the company from renewable sources, in joules and then compared to fuel consumption from non-renewable sources.

			Consumption of electricity, heating, air conditioning, steam. Identify electricity separately as electricity is more easily decarbonized than other forms of energy.
5	Circular economy	Companies contribute to the circular economy by reducing waste and diverting waste from landfills	Total weight of waste diverted from disposal in metric tons and breakdown. Based on the following recovery operations: a. Preparation for reuse b. Recycling c. Other recovery operations expressed as % of total waste generated. The reporting organization shall report the following information: a. Total weight of waste generated in metric tons and its breakdown by waste composition
6	Resilience to climate change	The company has assessed the risks and opportunities open to the company from climate vulnerability and resilience activities.	Recognition of risks and opportunities that have the potential to result in substantive changes in operations, revenues or expenses includes: a. Description of the risk or opportunity and its classification as physical, regulatory b. a description of the impact associated with the risk or opportunity c. the financial implications of the risk or opportunity before action is taken. d. Methods used to manage the risk or opportunity, including business model changes e. The cost of the actions taken to manage the risk or opportunity
7	Entrepreneurship	New entrepreneurial company or project started, driving entrepreneurial activity within the company	Invested; launch of spin-off projects (within the company) with start-ups tailored to the existing business scale Have a motivation plan Open. Percentage of staff time offered to develop new business ventures
8	Digital economy	Make full use of the knowledge and digital economy - in manufacturing, service provision or procurement	Percentage of activities (manufacturing, service provision or procurement) that are provided or enabled in: offline or digital ways
9	Productive infrastructure development	Develop infrastructure that enables productive activities	Number of infrastructure projects built under productivity-focused conditions percentage of MSME population with access to new infrastructure

3.2.4 Contribution calculation

The assessment conducted by the DGT will be accumulated in the form of points. Furthermore, the accumulated points will be compared with the points on the performance expected by the model. Through this comparison, there will be 3 categories that will be assessed, namely: performance develops in accordance with the expected target, performance develops not in accordance with the expected target, and performance is not progressing.

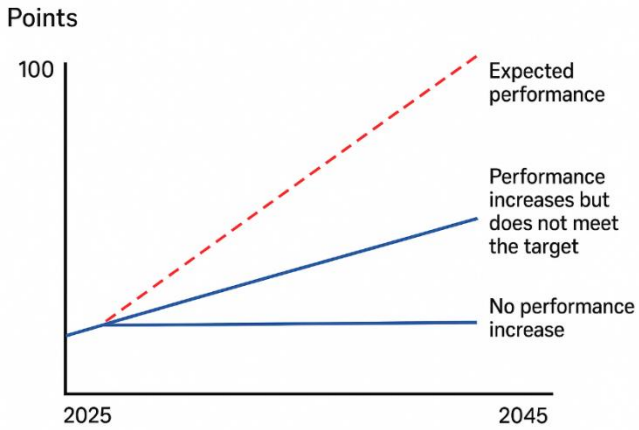

Fig. 5. Expected performance and accumulated points classification chart 2025-2045: on target, off target, and no improvement

The "expected performance" line is set as an annual target trajectory that departs from the baseline in the initial year of participation. This trajectory takes into account sector characteristics, business scale, and national priorities, so that the rate of increase is reasonable but progressive. Targets are reviewed annually with stakeholders to ensure alignment with economic conditions and the development agenda. Furthermore, there are companies categorized as "improved performance and on target" if the accumulated points are at or above the set target. Then "improved but not on target" if it is below the set target and "no improvement" if it is below the minimum threshold or stagnant compared to the previous year. This approach maintains consistency while providing realistic room for adaptation. For new companies, a baseline is set in the first year of reporting so that comparisons in subsequent years are equivalent. During this phase, a limited adjustment period can be provided so that companies have sufficient time to compile reports, build evidence, and adjust internal processes before fully comparing against expected targets.

Accumulated points are only recognized if supported by verifiable evidence. Data quality ranging from completeness, accuracy, and consistency are part of the assessment, including the prohibition of double counting of an activity. Verification is carried out in layers through risk-based assessments and sample audits by authorized parties so that the final results compared to targets can be justified. Furthermore, each performance category is directly linked to the level of incentive earned. Companies that are at or above target are entitled to a larger incentive, while companies that are below target receive a partial incentive accompanied by a measurable improvement plan for the following year. Companies that do not show progress will not receive incentives and are directed to make program adjustments before reapplying.

3.2.5 Provision of incentives

In the document explaining the Biscay Model, it is not further explained about the form and type of incentives provided. Therefore, the author recommends several other tax incentives that can be used as benchmarks in providing tax relief for companies that contribute to the SDGs.

Table 3. Tax incentives for sustainable economic practices in different countries

Country	Incentive Type	Destination Sector
United States	Advanced Manufacturing Production Credit: Production tax credit for clean energy components produced and sold to unrelated parties	Clean energy manufacturing / clean energy component supply chain
Canada	Clean Technology Investment Tax Credit (CT-ITC): 30% refundable tax credit on new net technology property investment	Renewable energy, electricity storage, low

		carbon heating, zero emission vehicles
Italia	Tax Credit Transizione 5.0: graduated tax credits based on energy efficiency or digitalization of industrial processes	Industry/process efficiency
Japan	Carbon Neutrality Investment Tax Credit: 5-10% tax credit or 50% special depreciation for production decarbonization investment	Industry/ decarbonization process
Australia	Critical Minerals Production Tax Incentive: tax credit of 10% of critical mineral processing & refining capex	Sustainable critical mineral supply chains

The SDGs score-based incentive design places Tax Credit as the main instrument that is directly mapped from the assessment points. This concept is in line with the Biscay Model which develops a Composite Index of the company's SDGs performance which is then linked to tax incentives. The mapping of the incentive amount is adjusted to the amount of contribution that has been made in the previous measurement stage, so that it can be categorized as follows in Table 4.

Table 4. Incentive categories and the amount of incentives received

Performance Category	Incentives Received
Performance improved and on target	Company received full tax credit
Performance improved but not in line with expected targets	Company receives partial tax credit
No performance improvement	The company does not receive incentives

The concept of score-based tax credit is chosen to maintain the continuity of the program. The tax credit will reduce the tax payable owned by the company based on the SDGs performance score. To keep the incentive running effectively and not to burden the fiscal, there are 3 additional concepts that go hand in hand with the implementation of this incentive, namely annual limits, Carry-forward, and Carry-back.

First, the annual limit is the maximum limit on how much incentive can be used in the current tax year. This concept has been used in Malaysia's Green Investment Tax Allowance (GITA). This incentive explains that the allowance or incentive can only be used a maximum of 70% of the statutory income per year so that the excess incentive can be carried over to the next year. This concept will maintain fiscal sustainability, prevent a surge in incentive claims in one year and encourage companies to structure programs in a sustainable manner. Indonesia can adopt this concept by limiting the annual incentive to 70% of corporate income tax liability. Furthermore, Carry-forward is a continuation of the previous concept where unused incentive rights in this year can be used in subsequent tax years. This concept has been applied in the United States where the International Revenue Service stipulates that tax credits can be carried forward 1 year back and 20 years forward. It is also applied in Canada where the Investment Tax Credit on Scientific Research and Experimental Development is transferable 3 years back and 20 years forward. Finally, as explained earlier, unused incentive rights in this year can also be used in the previous year (Carry-back) so that if the tax in the previous year has been paid, the company can correct last year's tax and file a tax refund. However, if last year's tax has not been paid, tax credits can be used to reduce the amount of tax payable.

Table 5. Short scenario simulation

Company: PT Volt Nusantara (EV Manufacturer)
Policy used (assumption):
- Annual limitation = 70% of the current year's tax payable
- Carry-forward = 20 years

- Carry-back = 1 year
Current year (t)
- Tax (t) = IDR 10 billion - Annual limitation = 70% x IDR 10 billion = IDR 7 billion - Tax credit as per score = IDR 9 billion (assuming on-target performance)
Calculation
- Credit used = IDR 7 billion - Remaining tax credit = IDR 9 billion - IDR 7 billion = IDR 2 billion - Tax payable (t) = IDR 10 billion - IDR 7 billion = IDR 3 billion
Next year (t+1)
- Tax (t+1) = IDR 8 billion - Annual limitation = 70% x IDR 8 billion = IDR 5.6 billion - Carry-forward = IDR 2 billion - Tax credit according to score = IDR 4 billion
Calculation
- Carry-forward = IDR 2 billion - Remaining tax credit = IDR 4 billion - IDR 3.6 billion = IDR 0.4 billion - Tax payable (t) = IDR 8 billion - IDR 5.6 billion = IDR 2.4 billion

3.3 Implementation scheme

Law and public policy are interrelated in ensuring effective implementation of the Biscay Model. Prof. Dr. Van Kan defines law as a coercive rule of life to protect the interests of society, while Kraft and Furlong see public policy as a strategy to achieve maximum goals. Therefore, strong regulations are needed so that SDGs-based tax incentives have clear legality, avoid overlapping policies, and provide legal protection for companies.

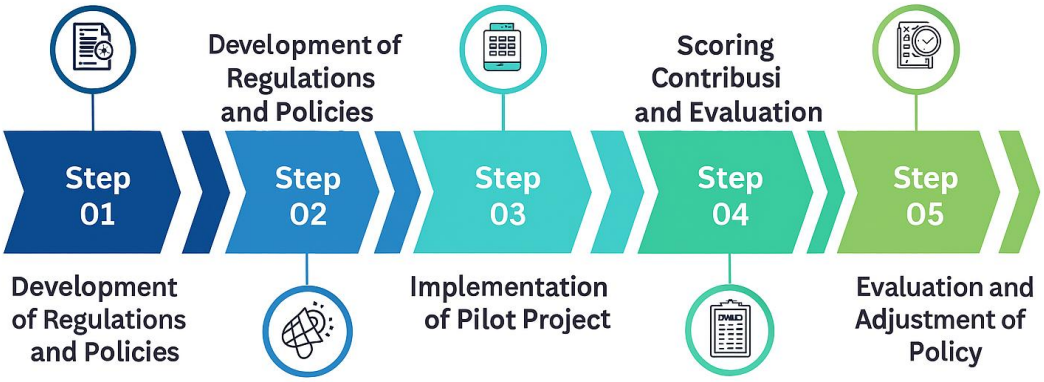

Fig. 6. Flowchart of Biscay model realization

The main legal product that can be issued is a Minister of Finance Regulation/*Peraturan Menteri Keuangan* (PMK) as the basis for implementing tax incentives in the Biscay Model. This PMK must refer to Law No. 59 of 2024 on the Vision of a Golden Indonesia 2045 and Law No.6 of 2023, with the principles of inclusiveness, performance-based, transparency, sustainability. requires collaboration and policy-oriented integration of DGT, Bappenas, Ministry of Finance, academics such as BRIN, and NGOs such as INFID and Localise SDGs Indonesia to ensure that regulations are made based on ex-ante evaluation and feedback.

In implementation, the effectiveness of the PMK can be evaluated based on the impact of the policy. If there are obstacles in the field or changes in economic conditions, the government can issue a new PMK or Presidential Regulation/*Peraturan Presiden* (Perpres) as a form of adjustment. Periodic evaluation will ensure that the taxation policy remains relevant and optimal in supporting the SDGs and the Golden Indonesia Vision 2045. This regulation should include incentives for sustainability sectors and disincentives for fossil energy-based industries to accelerate the transition to a green economy. In addition to

regulation, public communication plays an important role in making this policy understood and accepted by stakeholders. The government can utilize social media, seminars, and international conferences by involving global organizations such as UNDP and OECD.

The effectiveness of socializing the Biscay Model requires a strategic approach, including circulars to business associations, academics, and NGOs to encourage their involvement in the development of this policy. In Indonesia, tax incentives are provided through tax rate exemptions to subjects and objects with certain criteria. Therefore, its effectiveness is highly dependent on continuous evaluation and clear socialization so that the benefits can really be felt by the community (Azzahra & Ramadhan, 2022). Therefore, an education campaign through taxation training, public consultation, and online education modules is needed to increase understanding of the benefits of SDGs-based fiscal incentives.

In addition to businesses, inclusive tax education for the public is also important to ensure optimal implementation. Micro, small, and medium enterprise taxes play an important role in helping Indonesia achieve the Sustainable Development Goals (SDGs). The right tax policy not only encourages the growth of MSMEs, but also contributes to poverty alleviation, improved education quality, and inclusive economic growth. Therefore, tax policy planning for MSMEs must consider the SDGs so that its implementation is more effective in supporting sustainable development in Indonesia (Siregar & Rahman, 2024). Therefore, the government can collaborate with universities, media, and digital platforms to disseminate information about the Biscay Model through infographics and panel discussions. With a well-directed communication strategy, the integration of the Biscay Model into tax regulations can run optimally and support regular policy evaluation, as reflected in the issuance of new PMK or Perpres to adjust policies to field conditions.

To ensure the effectiveness of the Biscay Model implementation, the government can run Pilot Projects in several Indonesian provinces. This pilot aims to measure the contribution of companies to the SDGs and assess the effectiveness of tax incentive policies in promoting sustainability, with a focus on priority sectors such as renewable energy that have program commitments to the SDGs. The pilot project can also serve as a means to assess the extent to which the tax system is able to support sustainability-based incentives. With this approach, the government can measure the initial impact, conduct annual evaluations, and adjust incentive policies to be more optimal in supporting a sustainable economic transition.

In evaluating the pilot, the model uses several indicators such as a 20% increase in clean renewable energy, a 5% decrease in greenhouse gas emissions, a 27% increase in transportation using renewable energy, and an increase in tax transparency and compliance. Based on UNDP (2024), fiscal policies integrated with the SDGs have the potential to increase economic growth by 7.12% per year, compared to the business-as-usual scenario of 5.43%. Thus, this scheme is expected to accelerate the transition to a sustainable economy through tax policies that are well-targeted and based on real contributions to the SDGs. Through the implementation of the Biscay Model, Indonesia will experience various positive impacts in the economic, energy and social fields, while supporting the achievement of the Golden Indonesia Vision 2045. This model promotes sustainable development by balancing economic, social, and environmental aspects through tax incentives for companies that contribute to the SDGs, thereby increasing economic competitiveness and industrial innovation towards a green economy. In addition, the Biscay Model accelerates the transition to clean energy in line with SDG 7 by incentivizing the renewable energy sector and promoting proactive green energy policies. With these benefits, the integration of the Biscay Model into Indonesia's tax policy is expected to accelerate the transition to a sustainable economy and improve people's welfare through a more inclusive and sustainability-based fiscal policy.

The government integrated the Biscay Model as a new instrument in the tax system. This scheme incentivizes tax based on a company's contribution to the SDGs, not just on investment or profits. By doing so, the function of tax shifts from not only for state revenue, but also as a driver of sustainable development. Then, because the amount of incentives is

determined by real achievements, companies are encouraged to invest in clean energy, increase efficiency, reduce waste, improve supply chains, and innovate with environmentally friendly technology. These incentives catalyze changes in business behavior towards sustainability. These sustainable practices accelerate the achievement of SDGs such as clean energy (SDG 7), decent work (SDG 8), innovation and industry (SDG 9), sustainable consumption and production (SDG 12), and climate action (SDG 13). In addition, there are tangible impacts such as employment, better sustainability literacy, and the involvement of MSMEs through a fair assessment system. Then, fiscal policy is no longer solely about revenue, but also oversees the transformation of the green economy. This strengthens fiscal governance that is more participatory, transparent, and balanced between economic, social, and environmental aspects. The combination of all these stages encourages a paradigm shift from an extraction-based economy to a green and inclusive economy. Indonesia is moving towards an economic structure that is more resilient, globally competitive, and aligned with the Golden Indonesia Vision 2045 and the global SDGs agenda.

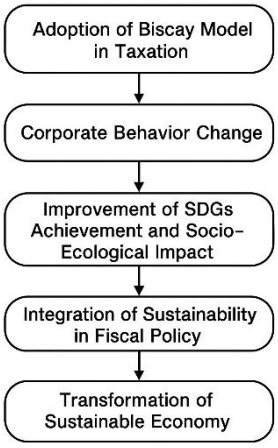

Fig. 7. Implementation flow of Biscay model in supporting sustainable economic transformation

3.4 Implementation challenges and mitigation strategies

Despite the promising potential of a sustainability-linked tax incentive scheme such as the Biscay Model, several challenges arise when considering real-world implementation in Indonesia. First, effective coordination among multiple institutions is required between tax authorities, ministries responsible for environment, investment, energy or industry, and possibly independent verifiers or civil-society bodies. Indonesia's existing fiscal framework and recent tax reform efforts reveal persistent issues such as regulatory complexity, overlapping mandates, and limited institutional capacity which may hinder coherent policy design and enforcement. Second, without robust fiscal transparency and systematic reporting of tax expenditures, the scheme risks becoming a source of fiscal opacity rather than public-interest funding. Preferential tax treatments often result in "revenue foregone" which could be large and diffuse across sectors, but remain difficult to track or evaluate. Without mandatory public disclosure of beneficiaries and detailed accounting of fiscal costs, it becomes challenging for stakeholders including civil society and media, to assess whether tax incentives genuinely deliver sustainable outcomes or simply erode public revenue for uncertain returns. Third, linking tax benefits to performance or sustainability outcomes can open the door to misreporting, "green-washing" especially when oversight and verification mechanisms are weak or under-resourced. Moreover, tax incentives generally carry the risk of distorting behaviour without delivering commensurate social benefits, or even compromising tax revenue base.

Given these risks, the adaptation of the Biscay Model in Indonesia would require several mitigation measures to safeguard fiscal integrity and ensure effectiveness. First, establishing a formal inter-agency coordination mechanism to ensure clarity of roles and

accountability across tax, environment, investment and verification bodies. Second, enacting mandatory tax-expenditure reporting and public disclosure of all tax incentives granted, including "revenue foregone" and beneficiary data similar to emerging best practices in tax transparency and sustainability reporting globally. Third, implementing independent verification and audit processes for claimed sustainability contributions to reduce the risk of misreporting or green-washing. Fourth, designing the incentive regime to be rule-based, transparent, and non-discretionary, with clear performance metrics and regular monitoring, to minimize rent-seeking, favoritism, or unintended fiscal leakage. In the absence of these safeguards, there is a substantial risk that the introduction of performance-based tax incentives may lead not to sustainable development but to weakening of fiscal capacity, increased fiscal opacity, and erosion of public trust which undermining both the short-term revenue base and the long-term goals of sustainable transformation. Therefore, a careful, phased pilot implementation, combined with institutional strengthening, transparency regulations, and independent oversight, would be critical to realizing the potential benefits of the Biscay Model in Indonesia.

3.5 Fraud risk in the Biscay model scheme

SDGs-based tax schemes such as the Biscay Model provide incentives for companies that contribute to sustainable development, but are at risk of being abused through tax fraud, such as financial statement manipulation and double incentives from carbon tax, tax holidays, and renewable energy incentives. The OECD notes that the level of R&D tax incentive concessions is increasing and in 2019 provided large benefits to large profitable companies, especially in France, Portugal, Chile, and Spain. This condition reflects a potential loophole when tax incentives are more utilized by large corporations rather than actually encouraging inclusive innovation. This phenomenon shows that the design of tax incentives that are too lenient without strict oversight mechanisms can open up the risk of abuse, making it relevant to highlight various forms of compliance risk. Adverse compliance risks arise when the revenue incentive regime is used for domestic and international profit shifting, as well as through abusive tax planning schemes, particularly transfer pricing abuses. For example, ineligible companies may shift profits to related entities operating under tax holiday or free zone facilities through inflated interest payments, management fees, or reinsurance premiums, thereby lowering the overall tax burden of the business group.

In the context of the Biscay Model, one of the main risks is companies claiming tax benefits more than once for the same emission reductions (double counting) and greenwashing where companies provide exaggerated or even falsified sustainability reports for tax incentives. In addition, there is potential for companies to create new entities for the sole purpose of obtaining tax incentives without any real contribution to sustainable development. On the other hand, there are still many companies that carry out illegal tax planning such as tax evasion that harms the state. Whereas this tax revenue is utilized for sustainable national development. Therefore, companies need to understand the concept and practice of strategies or loopholes from existing provisions in order to minimize tax payments appropriately, without violating the rules (Setiawan, 2023). In the context of SDGs, these loopholes can be used to divert profits to sectors with high tax incentives without real contribution to sustainable development. However, even though the utilization of these tax loopholes is basically legal, the practice still requires strict monitoring and regulation mechanisms so that it does not transform into a means of disguised tax avoidance that has the potential to reduce state revenue and hinder sustainable development goals.

To minimize fraud in the implementation of the Biscay Model in Indonesia, a transparent verification system is needed to ensure that tax incentives are only given to companies that truly meet the criteria for SDG contributions. The positive screening and negative screening mechanisms in the Biscay Model have the potential to cause tax disputes related to the contribution criteria to the SDGs, especially in determining whether

companies are truly eligible for incentives. To ensure objectivity and transparency in contribution measurement, the government can implement technology-based verification systems and independent audits. Based on World Bank recommendations, data-driven evaluation and real-time monitoring can improve accountability and detect abuse of tax incentives. According to Prihadini et al. (2022), the implementation of tax incentives for MSMEs faces challenges in the form of weak supervision, technical application constraints, and low taxpayer literacy in reporting realization. The OECD study in 2020 also emphasizes the importance of utilizing corporate tax databases and anonymized CbC reports as data-based monitoring instruments, as well as the application of mandatory disclosure rules to identify cross-border aggressive tax planning schemes.

For example, a technology-based audit mechanism can be implemented to digitally monitor carbon emissions to ensure that claims of tax incentives to the carbon or environmental sectors in the biscay model are not manipulated. In addition, the use of blockchain in recording tax transactions can increase transparency and reduce the possibility of data manipulation. This technology creates an immutable ledger of transactions, so that any claims related to contributions to the SDGs can be transparently traced and verified by authorized parties. On the other hand, well-monitored tax incentives can increase taxpayer compliance, especially when combined with tax sanctions that strengthen the monitoring effect. In addition, UNDP (2024) emphasizes that the integration of digital technology and global partnerships with international institutions such as the World Bank and IMF are key elements in strengthening transparency, governance, and effectiveness of SDGs funding in Indonesia.

By applying the SDGs scoring scheme and Risk Differentiation Framework (RDF) as in Biscay, Indonesia can ensure that tax incentives are given only to companies that truly contribute to sustainability. The Risk Differentiation Framework (RDF) used allows tax authorities to categorize companies based on compliance risk levels. Adapting the tax monitoring system from the Biscay Model in Spain will strengthen transparency, prevent misuse of incentives, and ensure that tax policies effectively support sustainable development.

4. Conclusions

The application of the Biscay Model in Indonesia has great potential as an innovative fiscal instrument to support sustainable economic transformation within the framework of the Golden Indonesia Vision 2045. This model is able to shift the role of tax from a mere source of state revenue to a development instrument based on the real contribution of companies to the SDGs. With a score-based incentive system, companies are encouraged to increase investment in renewable energy, resource efficiency, and environmentally friendly business practices. This not only strengthens industrial competitiveness and encourages job creation, but also accelerates the achievement of the SDGs global agenda through the integration of economic, social and environmental aspects.

However, the adaptation of the Biscay Model also faces risks and challenges, ranging from potential fraud in the form of greenwashing, double counting, to abuse of tax loopholes. Therefore, strong regulations, transparent verification mechanisms, and the utilization of digital technologies such as blockchain are key to maintaining the credibility of implementation. Collaboration across institutions, academics, and international organizations is needed to strengthen governance and reduce the risk of abuse. With strict oversight and adaptive regulations, the Biscay Model has the potential to be an important catalyst for Indonesia in strengthening the foundation of a green economy, improving fiscal transparency, and accelerating the realization of sustainable development towards a Golden Indonesia 2045.

Given these findings, this study recommends that the government adopt a phased pilot project approach to test the feasibility of the Biscay Model within Indonesia's institutional and fiscal environment. A pilot could be implemented in selected provinces or targeted

sectors such as renewable energy, waste management, or digital-based industries where SDGs alignment and reporting capacities are relatively stronger. Establishing a public–private partnership (PPP) framework would be essential to ensure shared responsibility among government agencies, businesses, and independent verifiers, while also enabling co-financing and technology transfer. Such a pilot initiative would allow policymakers to refine the SDGs scoring mechanism, evaluate administrative readiness, strengthen inter-agency coordination, and identify regulatory or operational bottlenecks before nationwide implementation. Moreover, periodic monitoring and transparent reporting from the pilot project would build evidence for whether performance-based tax incentives can reliably steer private-sector behaviour toward sustainable practices.

Future research should expand this analysis through quantitative feasibility studies, including fiscal impact modeling, cost–benefit simulations, and sensitivity analyses to estimate potential revenue implications and behavioural responses from firms. Empirical studies comparing pilot implementation outcomes across regions or sectors could also provide more robust evidence on the effectiveness and equity of SDGs-linked tax incentives. Additionally, further inquiry into digital verification mechanisms such as blockchain-based reporting or AI-assisted monitoring may offer valuable insights for strengthening transparency and reducing fraud risk in the adaptation of the Biscay Model.

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