TPM Vol. 32, No. S6, 2025 ISSN: 1972-6325 https://www.tpmap.org/



ANALYSIS OF THE COMMODITY BALANCE POLICY IN CONTROLLING IMPORT AND EXPORT OF IRON AND STEEL COMMODITIES

DR. MAS WIGRANTORO ROES SETIYADI¹

¹GRADUATE STUDENT, POST DOCTORAL PROGRAM IN ECONOMICS FACULTY OF ECONOMICS AND BUSINESS, TRISAKTI UNIVERSITY, JAKARTA, INDONESIA EMAIL: maswig@gmail.com, ORCID ID: 0009-0004-5274-9141

PROF. MUHAMMAD ZILAL HAMZAH²

²SENIOR LECTURER AND PROMOTER, POST DOCTORAL PROGRAM IN ECONOMICS FACULTY OF ECONOMICS AND BUSINESS, TRISAKTI UNIVERSITY, JAKARTA, INDONESIA EMAIL: mhd zilal hamzah@trisakti.ac.id, ORCID ID:²0000-0002-5105-8208

PROF. DR. ELEONORA SOFILDA³

³SENIOR LECTURER AND CO-PROMOTER, POST DOCTORAL PROGRAM IN ECONOMICS FACULTY OF ECONOMICS AND BUSINESS, TRISAKTI UNIVERSITY, JAKARTA, INDONESIA EMAIL: eleonora@trisakti.ac.id, ORCID ID: 0000-0001-6546-4736

ABSTRACT

The Commodity Balance Policy was established through Presidential Regulation No. 32 of 2022. This dissertation analyzes the policy using qualitative methods, collecting data through interviews and Focus Group Discussions (FGD) with five informants representing regulators, operators, the iron and steel industry association, and academia. At the time of the study, only five commoditiesrice, beef, fish, sugar, and salt—were included in the Commodity Balance, while iron and steel, as strategic commodities, were not mandated. This delay is attributed to the unpreparedness of regulators and businesses, alongside the numerous HS Codes for iron and steel, impacting the readiness of the National Commodity Balance System (SINAS NK). Data analysis using NVIVO version 14 for Mac revealed that technology significantly influences the successful implementation of the commodity balance policy, with stakeholder synergy as a secondary factor. To establish novelty, a Systematic Literature Review (SLR) was conducted, referencing prior studies on the topic and integrating multiple theories (Economic, Social, Political, National Sovereignty, and National Resilience) to support public policy analysis. The findings suggest that government regulation is essential for domestic products to compete with imports in global markets. The dissertation recommends that the implementation of the Commodity Balance Policy should leverage information technology and ensure disciplined usage among stakeholders. The government must also upgrade data storage capacity and information technology to facilitate the process effectively.

KEYWORD: commodity balance policy; Iron and steel commodities; Qualitative methods; HS Codes; Technology implementation; Public policy analysis

INTRODUCTION

This research discusses the significance of Indonesia's Commodity Balance policy, established by Presidential Regulation No. 32 of 2022, as a tool to control imports and exports to support national economic stability, particularly in the iron and steel sectors. The policy's design is grounded in supporting trade balance and controlling the influx of imports, especially in critical industries like iron and steel, where domestic competitiveness faces challenges [1]. However, technical challenges in implementation have raised concerns among business stakeholders who argue that the policy is not fully prepared, especially in the iron and steel industry, which has historically struggled with competitiveness issues due to external pressures [2].

On the international stage, the Commodity Balance policy aims to protect local producers from the influx of inexpensive imported goods that threaten the sustainability of domestic industries. For Indonesia, iron and steel are strategic sectors, but the global market's competitiveness poses a challenge. Strengthening non-tariff measures such as the Commodity Balance could benefit local industries by ensuring the availability of necessary raw materials, even in challenging global market conditions [3]. However, studies indicate that regulatory changes without sufficient infrastructure or stakeholder engagement can introduce new operational complexities, affecting both compliance and efficiency [4].

https://www.tpmap.org/



The theory of national interest serves as a framework for understanding how states make decisions in international relations based on their perceived national interests [5]. This theory assumes that states are the primary actors in the international system, and their behavior is driven by their national interests, which are shaped by various factors such as geography, history, culture, and economics.

The establishment of the National Commodity Balance System (SINAS-NK), managed by Indonesia National Single Window [6], adds a dimension of digital integration in trade control. However, as initial reactions have shown, implementation hurdles related to technical infrastructure and administrative challenges affect its performance [7]. The National Association of Indonesian Importers (GINSI) has reported issues such as delays in licensing, unfamiliarity with the new digital format, and limited system accessibility, which complicate the importation of essential raw materials [8]. Furthermore, inconsistencies between market demands and regulatory policies in sectors such as iron and steel reveal ongoing adjustments needed to align the SINAS-NK with the unique needs of the industry [6].

This research aims to examine the effectiveness of the Commodity Balance policy in addressing international trade issues, especially for national iron and steel products, and to propose strategies to improve its implementation.

LITERATURE REVIEW

The study of public policy theory delves into the framework and principles guiding government decisions. Dye in 2017, posits that public policy consists of any choice by the government to act or refrain from action, essentially defining policy as the embodiment of government's authoritative power to direct societal outcomes. Anderson in 1979 further specifies that public policy emerges from governmental bodies and officials, hence reflecting the priorities and values endorsed by formal authority. This perspective aligns with Easton's interpretation of public policy as the authoritative allocation of values for the collective welfare, where the role of policy transcends individual interests and seeks societal alignment with broader, equitable goals.

The theory of public policy includes varied analytical models that illustrate how policy is developed, debated, and implemented. Dunn in 2000 categorizes these models into four main approaches: the Elite, Group, Process, and Needs models. The Elite Model suggests that policy is shaped primarily by influential, powerful groups who control key resources, information, and decision-making processes. This group, typically comprising economic elites and high-ranking officials, shapes policy outcomes based on interests aligned with their power structures. Meanwhile, the Group Model perceives policy as the product of interactions between competing interest groups, each seeking to influence the policy landscape. These groups may include civil society organizations, businesses, or advocacy groups, whose collective input shapes policy through negotiation and competition within the public sphere.

Further expanding on policy development models, Dunn in 2000 presents the Process Model, which conceptualizes policy as a complex, iterative process where various actors—including policymakers, stakeholders, and citizens—interact within stages such as formulation, implementation, and evaluation. This model highlights that policy is not only a linear process but also involves feedback loops where each stage influences the others. Lastly, the Needs Model bases policy development on the identification of public needs through mechanisms such as consultation and community participation. In this model, policy serves as a response to the articulated needs of the populace, thus prioritizing societal welfare in policy design and implementation.

A fundamental component of policy development is the policy cycle, which Kingdon in 1995 describes as a sequential process involving agenda-setting, formulation, implementation, and evaluation. During agenda-setting, policy issues are identified and brought to the attention of decision-makers. This phase is crucial, as it determines which issues receive government focus and resources. The formulation phase follows, where policymakers develop and analyze potential solutions, drawing from expert input and balancing competing interests. Implementation, the third stage, transforms policy into actionable steps through regulations, funding, and programs, involving collaboration among different stakeholders to ensure compliance and effectiveness. Finally, the evaluation phase assesses the policy's effectiveness, determining whether it achieves the intended goals and suggesting modifications if necessary.

In examining the role of multidisciplinary perspectives, Potùček in 2017 emphasizes the importance of integrating disciplines like law, sociology, economics, political science, and management in public policy analysis. By utilizing a multidisciplinary approach, policymakers can understand the complexities of policy-making, assess the broader social, economic, and cultural impact, and ensure that policies are robust, adaptable, and socially responsive. This inclusive framework not only enhances the effectiveness of policy formulation but also fosters greater transparency and accountability, which are essential for maintaining public trust in governmental processes.

The theory of Incrementalism, pioneered by Lindblom and later expanded by Wildavsky, argues that policy decisions typically evolve through incremental changes rather than radical shifts. Lindblom and Wildavsky posit that this approach, characterized by gradual adjustments, allows policymakers to address issues flexibly and responsively without risking unforeseen consequences associated with sweeping reforms. The Incrementalism

https://www.tpmap.org/



model attributes this gradual approach to limitations in information, vested interests, and uncertainties in the policy environment. The model, therefore, serves as a realistic reflection of how decision-making often occurs within constraints, focusing on smaller adjustments that accumulate over time into significant change. This model's applicability is apparent in many governmental decisions, where policies evolve in response to shifting public needs and priorities, ultimately creating sustainable and adaptable policies.

Proponents of the Top-Down Theory [9], such as Pressman and Wildavsky [10], Van Meter and Van Horn [11], Sabatier and Mazmanian [12], and Mazmanian and Sabatier [13], argue that policy implementation begins with decisions made at the central government level. Advocates of this theory adopt a prescriptive approach, viewing policy as the input and implementation as the output. Policy objectives are defined by policymakers within the central government. Implementation, in this framework, is seen as the interaction between goal-setting and the actions directed toward achieving those goals in Pulzl & Teib, as cited in Fischer, Miller, & Sidney [14]. There is a linear relationship between the agreed policy goals and their implementation. Consequently, implementation implies the use of bureaucratic procedures to ensure policies are executed as accurately as possible. Sufficient resources and monitoring systems are required to ensure that implementers' actions align with the policy objectives.

The concept of the "Invisible Hand," as introduced by Adam Smith (as cited in Smith [15], stands as a cornerstone in economic theory advocating for minimal government intervention. Smith argues that the market, if left unregulated, possesses self-correcting mechanisms that align individual self-interest with societal benefit. This laissez-faire approach underpins much of classical economic thought, asserting that economic agents, in pursuing their interests, inadvertently contribute to the collective good. However, Keynesian economics presents an opposing view, particularly relevant during economic downturns. John Maynard Keynes in 1986 argues for governmental intervention in the economy, especially during periods of recession or market failure, as a means to stabilize employment and stimulate demand. Keynesian theory underscores the need for fiscal policies, monetary adjustments, and public spending initiatives to counterbalance economic contractions and prevent severe social and economic dislocations.

Following Keynesian prescriptions, governments in various countries have taken on a greater role in regulating the economy. This includes measures such as regulating monopolies, imposing income taxes, and providing social security in the form of unemployment compensation and pensions [16]. Governments, whether conservative or liberal, have intervened in economic affairs. In today's modern society, governments are expected to play a role in addressing the flaws of market mechanisms, managing the military, providing infrastructure, operating public schools, running community health centers, and undertaking other activities that require government funding. The concept of market failure [17] has been studied by economists for many years, with no single individual credited as its sole originator or advocate. However, several key contributors have played significant roles in developing the theory of market failure:

- 1. **Arthur Pigou**: An English economist active in the early 20th century, Pigou, is renowned for his work in welfare economics. He is often credited with developing the concept of externalities—costs or benefits that affect third parties not directly involved in a transaction.
- 2. **Ronald Coase**: A 20th-century English economist, Coase is well known for his work on transaction costs and property rights. His seminal paper, The Problem of Social Cost, argues that externalities can be resolved through negotiation and the reassignment of property rights.
- 3. **Paul Samuelson**: An American economist from the 20th century, Samuelson [18] made substantial contributions to modern economic thought. In his book Economics, he explored the concept of public goods, highlighting how markets may fail to allocate resources efficiently for their provision.
- 4. **Joseph Stiglitz**: An American economist and Nobel laureate in 2001, Stiglitz has extensively written about market failures, focusing on issues such as information asymmetry and imperfect competition.
- 5. **Kenneth Arrow**: An American economist and Nobel laureate in 1972, Arrow made significant contributions to the economics of information and uncertainty, further advancing the understanding of market failure.

The analysis of international trade further illustrates the intersection between policy, economic theory, and governance. David Ricardo's theory of comparative advantage, as cited by Nopirin [19], underlines the rationale behind global trade policies, suggesting that nations benefit by specializing in goods they can produce more efficiently relative to others. Through trade, countries can optimize their resources, achieve economies of scale, and improve productivity, ultimately leading to mutual benefits for trading partners. The comparative advantage framework provides a basis for examining commodity balances, whereby countries evaluate their trade strengths and adjust their policies to maintain economic stability and competitive advantage.

Public policy also extends to trade barriers and interventions, especially in protecting national industries. Trade barriers, whether through tariffs, quotas, or regulations, serve to shield domestic industries from foreign competition while allowing nascent sectors to grow. The idea of trade barriers as a selective protective measure, as discussed by Jagdish Bhagwati in 2008, illustrates how governments use targeted policies to support industries with the potential for global competitiveness. This approach is particularly relevant for industries like agriculture, steel, and high-tech manufacturing, where strategic government support can foster development and long-term economic sustainability.

https://www.tpmap.org/



In the field of agriculture, Cadoni and Angelucci in 2013 examine Nigeria's reliance on rice imports, demonstrating how policies aimed at protecting domestic production can influence national food security and economic stability. Nigeria's government faced challenges balancing domestic rice production with rising demand, often turning to import tariffs and subsidies to support local farmers. This case illustrates the challenges faced by nations attempting to maintain commodity balances in essential goods, where policy decisions directly affect economic resilience, trade deficits, and food security.

Furthermore, the Multi-Regional Input-Output (MRIO) model discussed by Zheng et al. [20] highlights the complexity of urban consumption patterns and their environmental implications. The MRIO model, employed in Chinese city-level studies, uses an entropy-based framework to analyze consumption-driven environmental impacts. This methodology, while complex, enables policymakers to evaluate the interplay between urbanization and ecological strain, providing valuable insights for developing sustainable policies at both local and national levels. This research underscores the importance of considering environmental factors within economic models, offering a holistic view that aligns with broader public policy goals of sustainability.

The cumulative insights from public policy theories and their practical applications reflect the dynamic relationship between economic frameworks and governmental decision-making. Public policy theory highlights the need for strategic, flexible, and data-informed approaches, whether addressing national security, economic resilience, or social welfare. Each theoretical framework contributes uniquely to understanding how governments can adapt to evolving challenges and ensure that policies are not only economically viable but also socially equitable.

Research Method

Kuhn [21] defines a paradigm as a mode of thought or inquiry that shapes how reality is understood. Robert Frederick in 1970 expanded this idea, viewing paradigms as foundational perspectives within a discipline that guide the study of key issues. In research, paradigms serve as the framework for researchers to explore facts and address problems [22]. Guba and Lincoln [23] explain that paradigms affect how researchers interpret problems and establish evaluation criteria. Broadly, research paradigms are divided into quantitative, based on positivism, and qualitative, grounded in post-positivism [24].

This study adopts a qualitative paradigm due to the depth of analysis required, with the researcher as the primary instrument. The critical theory approach is used to explore social realities, recognizing that the observer's values influence the interpretation of facts [25]. Critical theory, distinct from positivism, offers a critical evaluation of both capitalism and Marxism [26].

Heran Zheng et al. [20], in their study titled Entropy-based Chinese City-level MRIO Table Framework published in Economic Systems Researc, conclude that cities serve as crucial hubs of socio-economic activity, with urban consumption significantly contributing to global environmental pressures. Constructing city-level multi-regional input-output (MRIO) tables poses a challenge due to the scarcity of city-specific data. To address this, Zheng et al. propose an entropy-based framework for developing city-level MRIO tables. They demonstrate this novel construction method through an analysis of the carbon footprint of cities in China's Hebei province. A sensitivity analysis was conducted by introducing weights to account for heterogeneity between city and provincial data, given that a key source of uncertainty is the extent to which cities and provinces share identical ratios of local demand to total demand. Additionally, Zheng et al. compare consumption-based emissions derived from the newly constructed MRIO tables with those from MRIO tables based on individual city input-output data. The results reveal significant differences in consumption-based emissions between the two MRIO tables, largely attributable to conflicting benchmark data used in their construction.

sIn terms of methodology, Zheng et al. integrate Network Knowledge (NK) within their framework and methods for subnational-level analysis. Their approach aligns with established methods such as the Location Quotient Method (LQM) proposed by Bonfiglio & Chelli [27] and Kowalewski [28] as well as the Cross-Hauling Adjusted Regionalisation Method (CHARM) introduced by Kronenberg in 2012 and Többen & Kronenberg in 2015.

1. Research Design

Following the qualitative-critical theory paradigm, this study employs a qualitative descriptive design. According to Bungin [29], qualitative descriptive research aims to describe and summarize various social conditions or phenomena. This approach is suitable for issues that require in-depth exploration, such as consumer behavior or public policy implementation.

2. Data Sources and Informants

The primary data for this research will be collected from interviews and Focus Group Discussions (FGDs) with key informants, such as government officials and steel industry leaders. Secondary data will be gathered from official documents and validated online sources. Informants will provide responses through structured and semi-structured interviews, and FGDs will offer additional perspectives to enrich the analysis.

3. Data Collection Techniques

The data collection techniques include:

- 1. Structured and unstructured interviews with informants.
- 2. FGDs to gather insights through open discussion moderated by the researcher.
- 3. Document analysis of secondary sources from government institutions.

https://www.tpmap.org/



4. Browsing and downloading relevant data from validated online sources.

Patton [30] classifies qualitative data into observational, conversational, and written categories, which will be used in this study according to the principles of adequacy, efficiency, and ethics.

4. Data Analysis

Data analysis will be conducted using NVIVO for Mac version 14, following the steps of data reduction, presentation, and conclusion drawing. Data will be continuously filtered and organized to align with the study's conceptual framework.

5. NVIVO Data Analysis

Using NVIVO, data from interviews and FGDs will be coded, classified, and organized into themes or patterns. Creswell [31] outlines several steps in qualitative data analysis, including reading data repeatedly, coding, and identifying patterns, which will be applied in this study.

6. Systematic Literature Review (SLR)

The Systematic Literature Review (SLR) method, introduced by Jesson et al., [32] will be used to systematically collect, evaluate, and synthesize relevant literature. The review will follow a structured format to ensure comprehensive coverage of the research topic.

DISCUSSION

Development of Indonesia's Iron and Steel Industry Indonesia's steel and iron manufacturing industry began with President Soekarno's order to establish the Trikora steel mill in the 1960s. With Russian assistance, the plant was built in Cilegon, Java, a strategic location near the Sunda Strait with deep shores, ideal for docking large vessels. In 1970, the steel plant was officially inaugurated as PT Krakatau Steel, producing up to 750,000 tons per year of steel, mainly hot rolled coil (HRC), cold rolled coil (CRC), and wire rods.

Initially, PT Krakatau Steel had a monopoly on steel production, but in 1973, the national industry faced competition. From the 1980s to the 2020s, Indonesia's steel industry saw rapid growth, with many private companies entering the market. However, the Asian financial crisis in 1997-1998 caused a significant decline in demand, resulting in the closure of several steel mills.

In the early 2000s, the government took measures to revitalize the steel sector. Foreign partnerships, such as with Nippon Steel and POSCO, led to the establishment of modern joint ventures, increasing production capabilities. By 2023, new technological investments, infrastructure development, and growing domestic demand for steel in construction, automotive, and household appliances helped sustain industry growth.

Export/Import License Conditions The current regulatory framework for Indonesia's import/export is still burdened by structural and situational issues, including unclear licensing procedures and bureaucratic inefficiencies. High import dependence on raw materials like iron ore and coal exposes Indonesia's steel industry to external risks. A balance between imports and exports, facilitated by transparent government policy, is crucial for Indonesia's self-reliance and competitiveness.

Commodity Balance Policy Implementation To combat corruption in export/import licensing, the government introduced the Commodity Balance Policy (CBP). Its purpose is to ensure the transparency of supply and demand for strategic commodities. Though implemented in sectors like agriculture, the steel sector still awaits full integration into the CBP.

Steel Industry Regulations Regulations such as the Minerba Law (Law No. 4/2009) govern Indonesia's mining resources, including steel, imposing strict rules on environmental sustainability. Other trade-related policies like tariff protection and the enforcement of the Indonesian National Standards (SNI) ensure quality control for local production. Government subsidies and export restrictions further help domestic steel producers remain competitive globally.

1. Analysis

The study applies a Systematic Literature Review (SLR), Focus Group Discussions (FGDs), and data analysis using NVIVO.

Systematic Literature Review (SLR) The SLR conducted focused on global and domestic studies related to commodity balances and steel policy. Key findings showed that countries like the EU and China have extensive steel commodity regulations, including policies on anti-dumping, overcapacity management, and technological upgrades. Indonesia can learn from these practices to improve its steel industry competitiveness.

FGD Results FGDs revealed that both government regulators and industry operators face common challenges, such as data inaccuracies, the slow adoption of technological advancements, and a lack of synergy between stakeholders. Regulators, operators, and associations emphasized the need for accurate data, clear policies, and a more reliable monitoring system for imports to improve domestic industry performance.

Data Analysis with NVIVO highlights three core themes influencing the success of the Commodity Balance in the steel sector:

1. Implementation Factors: Challenges include system readiness and behavior of private stakeholders submitting data too late, which leads to system breakdowns.

https://www.tpmap.org/



- 2. Steel Demand Factors: Demand for steel is affected by both the quality and quantity of domestic production. Imports are often needed when local industries fail to meet required standards or volumes.
- 3. Competitiveness: The industry's competitiveness is driven by government policy, technological integration, and the ability to utilize excess capacity efficiently.

FINDING

The development of Indonesia's steel and iron industry reflects a complex interplay between historical factors, market dynamics, government policy, and global influences. Since its inception in the 1970s, the industry has grown significantly, but it has also faced numerous challenges, particularly in relation to external economic shocks like the 1997-1998 financial crisis and the ongoing pressures from global competition.

One critical factor highlighted in the findings is the role of government regulation and intervention. The establishment of PT Krakatau Steel marked a significant push for domestic production to reduce import dependence. However, as the industry evolved, especially with the influx of private companies, the limitations of state-monopolized production became apparent, leading to an increased need for competitive practices and efficiency improvements. The shift from protectionist policies to a more open market environment required strategic adaptation by the industry, particularly in the post-crisis era.

The Commodity Balance Policy (CBP), which is designed to improve the transparency and regulation of commodity supply and demand, emerges as a vital tool in ensuring that the industry can respond to both domestic and international pressures. The CBP's potential impact on steel and iron, although not yet fully realized, is significant. The policy's focus on ensuring transparency, accurate data collection, and the balancing of supply and demand could mitigate many of the challenges faced by the industry, such as overcapacity and inefficient resource allocation.

Technology also plays a crucial role in shaping the future of the steel industry. The NVIVO analysis revealed that many stakeholders, including regulators and industry operators, are concerned about the slow adoption of advanced technological systems. The successful implementation of modern technologies like Steel Import Monitoring Systems and data transparency tools could address systemic inefficiencies. Moreover, foreign partnerships, such as those with Nippon Steel and POSCO, show the importance of technological collaboration in improving production processes and product diversification.

Despite its growth, the industry faces significant challenges, particularly in the areas of data accuracy, stakeholder coordination, and import control. Inaccurate data and fragmented systems impede the ability to regulate imports effectively, which is critical in a market where oversupply, both domestically and globally, can destabilize prices and reduce competitiveness. Additionally, the industry's reliance on imports for raw materials, despite having substantial production capacity, points to underlying structural issues related to supply chain management and quality control.

Another point of discussion is the industry's response to global market dynamics, particularly anti-dumping policies and the global oversupply of steel. Countries like China, which dominate steel production, have created an environment of intense competition. Indonesia's steel industry must navigate this by enhancing its internal efficiency and improving the quality of its products to compete on the global stage. While export restrictions and protective tariffs have been used to shield domestic production, these measures must be balanced with the need to foster competitiveness and innovation within the industry.

The findings suggest that collaboration between government, industry stakeholders, and foreign partners is essential for the future success of Indonesia's steel industry. Policies that promote investment in technology, infrastructure, and environmental sustainability will be key to ensuring that the industry can meet both domestic and international demand while maintaining a competitive edge.

In summary, while Indonesia's steel and iron industry has shown resilience and growth over the decades, its future will depend on addressing key challenges related to policy implementation, data accuracy, technological advancement, and global competitiveness. The effective application of the Commodity Balance Policy and enhanced stakeholder collaboration are essential to ensuring long-term sustainability and growth in the sector.

CONCLUSION

The Indonesian steel and iron industry has made significant strides since its early beginnings, marked by the establishment of PT Krakatau Steel. Over the decades, the industry has experienced phases of growth, technological advancement, and expansion, with private companies playing an increasingly important role. However, challenges such as overcapacity, import dependence, and global competition continue to pose threats to its sustainability. The industry is further impacted by external economic factors and the need for more efficient policy and technological integration.

The Commodity Balance Policy (CBP) offers a potential solution to several of the industry's key issues, especially in terms of managing supply and demand, enhancing transparency, and improving data accuracy. However, the full implementation of CBP, particularly for steel and iron commodities, remains incomplete. Additionally, global

https://www.tpmap.org/



market pressures, such as anti-dumping policies and oversupply, require that Indonesia's steel industry further enhances its competitiveness and technological capability.

The role of government regulations, such as import control policies and support for technological innovations, will be critical in shaping the industry's future. Collaboration between domestic stakeholders and international partners is essential to achieving sustained growth and improving the overall efficiency of the sector.

Recommendations

- 1. Accelerate the Implementation of the Commodity Balance Policy (CBP): The government should prioritize the full implementation of the CBP for the steel and iron industry. This will help in balancing supply and demand, improving transparency, and supporting strategic decision-making for imports and exports.
- 2. Improve Data Accuracy and System Integration: A unified, accurate data system is essential for managing industry challenges. It is recommended that the government and industry stakeholders invest in advanced technological tools, such as real-time monitoring systems, to streamline data collection and analysis.
- 3. Promote Technological Innovation and Investment: To stay competitive in the global market, the industry must adopt advanced production technologies. Joint ventures with foreign partners like Nippon Steel and POSCO should be expanded, and investments in green technologies should be prioritized to meet international standards and environmental regulations.
- 4. Strengthen Global Competitiveness: The industry should focus on improving product quality and efficiency to compete with global steel producers. The government should continue to provide support through export incentives and measures to counter dumping practices, particularly from large producers like China.
- 5. Encourage Sustainable Practices: Addressing environmental concerns through clean production technologies and efficient waste management will ensure the long-term sustainability of the industry. Collaboration with other industries, such as cement production, for waste utilization should be expanded.
- **6.** Enhance Stakeholder Coordination: There must be stronger coordination between government bodies, industry associations, and private companies to align policy objectives with market realities. Clear communication channels and regular stakeholder consultations can improve the industry's ability to adapt to both domestic and international changes.

REFERENCES

- [1] Center for Indonesian Policy Studies, Analisis kebijakan neraca komoditas dan dampaknya pada ekonomi domestik, Jakarta: CIPS, 2023.
- [2] Indonesia Iron and Steel Industry Association, Laporan tahunan kinerja ekspor dan impor besi dan baja nasional, Jakarta: IISIA, 2023.
- [3] Kementerian Koordinator Perekonomian, Implementasi kebijakan Neraca Komoditas dalam mendukung stabilitas ekonomi nasional., Jakarta: Kemenko Perekonomian, 2022.
- [4] Bisnis Indonesia, Respon pelaku usaha terhadap kebijakan Neraca Komoditas di Indonesia, Jakarta: Bisnis Indonesia Publishing., 2023.
- [5] H. J. Morgenthau, Politics among nations: The struggle for power and peace, New York: Alfred A. Knopt, 1948.
- [6] Indonesia National SIngle Window, Implementasi Sistem Nasional Neraca Komoditas (SINAS-NK) dan dampaknya terhadap perdagangan, Jakarta: INSW, 2023.
- [7] Gabungan Importir Nasional Seluruh Indonesia, Reaksi terhadap implementasi SINAS-NK di sektor perdagangan Indonesia, Jakarta: GINSI, 2023.
- [8] K. Gupta, Kompleksitas rantai pasok dan Neraca Komoditas: Tantangan dan peluang bagi sektor industri.Kompleksitas rantai pasok dan Neraca Komoditas: Tantangan dan peluang bagi sektor industri, Jakarta: Center for Indonesian Policy Studies, 2023.
- [9] E. Bardach, The implementation game: What happens after a bill becomes a law, ambridge, Massachusetts (MA): MIT Press, 1977.
- [10] J. L. Pressman and A. Wildavsky, Implementation, Berkeley, California: University of California Press., 1973.
- [11] C. E. Van Horn and D. S. Van Meter, "The policy implementation process: A conceptual framework," Administration & Society, vol. 6, no. 4, pp. 445-488, 1975.
- [12] P. A. Sabatier and D. Mazmanian, "The implementation of public policy: A framework of analysis.," Policy Studies Journal, vol. 8, no. 4, pp. 538-560, 1980.
- [13] D. Mazmanian and P. Sabatier, Implementation and public policy, Glenview, Illinois: Scott Foresman., 1983.
- [14] F. Fischer and J. Forester, The argumentative turn in policy analysis and planning, Durham, North Carolina: Duke University Press., 1993.
- [15] A. Smith, The wealth of nations (Modern Library ed.), New York: Modern Library., 2003.
- [16] A. B. Abel and B. S. Bernanke, Macroeconomics (3rd ed.), Reading, Massachusetts (MA).: Addison-Wesley., 1998.

https://www.tpmap.org/



- [17] K. J. Arrow, Social Choice and Individual Values (2nd Ed)., New Haven, Connecticut: Yale University Press,
- [18] P. A. Samuelson, Economics: An introductory analysis, New York: McGraw-Hill., 1948.
- [19] Npopirin, Ekonomi internasional, Yogyakarta: BPFE, 1992.
- [20] H. Zheng, X. Zhang and S. Liang, "Entropy-based Chinese city-level MRIO table framework," Economic Systems Research, vol. 34, no. 4, p. 519–544, 2022.
- [21] T. S. Kuhn, The Structure of Scientific Revolutions, Chicago: University of Chicago Press., 1970.
- [22] Z. Ariifin, Paradigm of Educational Research, Jakarta: Bumi Aksara, 2012.
- [23] E. G. Guba and Y. S. Lincoln, The Constructivist Credo, Walnut Creek, California: Left Coast Press, 2018.
- [24] D. Mulyadi, Qualitative and Quantitative Research, Jakarta: Erlangga, 2011.
- [25] M. Tahir, Critical Theory Paradigm in Social Science Research, Surabaya: LPPM Universitas Negeri Surabaya, 2011.
- [26] S. Poespowardojo and A. Seran, Critique of Capitalism and Marxism in Contemporary Political Philosophy., Yogyakarta: Kanisus, 2016.
- [27] A. Bonfiglio and F. Chelli, "Location quotient and the cross-hauling problem in regional I-O models: A Monte Carlo simulation.," Economic Systems Research, vol. 20, no. 4, pp. 397-409, 2008.
- [28] J. Kowalewski, "Cross-hauling adjusted regionalization method (CHARM): A case of application to European regionalization of the world input-output database.," Economic System Research, vol. 27, no. 3, pp. 270-290, 2015.
- [29] B. Bungin, ualitative Research: Communication, Economics, Public Policy, and Social Sciences, Jakarta: Kencana, 2007.
- [30] M. Q. Patton, Qualitative Evaluation and Research Methods, Thousand Oaks, California: Sage Publications., 1990.
- [31] J. W. Creswell, Qualitative Inquiry and Research Design: Choosing Among Five Approaches, Thousand Oaks, California: Sage Publications., 2017.
- [32] J. K. Jesson, L. Matheson and F. M. Lacey, Doing Your Literature Review: Traditional and Systematic Techniques., Thousand Oaks, California: Sage Publications, 1996.