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Crude Nickel Export Moratorium Policy: Implications for Indonesia's Economy and International Trade Relations

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Abstract

Introduction: *This article discusses the legal and economic implications of Indonesia's raw nickel ore export moratorium policy, implemented through Ministerial Regulation Number 11/2019. The focus includes the dynamics of industrial downstreaming, value-added enhancement, and the international trade dispute with the European Union at the WTO.*
Purposes of the Research: *The study aims to evaluate the policy's effectiveness in supporting sustainable economic development while addressing legal and diplomatic challenges.*
Methods of the Research: *Using a normative-juridical approach and prescriptive analysis of national regulations, WTO documents, and sectoral economic data.*
Results of the Research: *The findings show that while the policy has significantly boosted economic value and industrial growth, it has also led to legal controversies concerning global free trade principles. The article suggests strengthening both domestic and international legal instruments to support natural resource sovereignty and the formulation of sustainable trade policy.*

Keywords: Export Moratorium; Downstreaming; Nickel; Trade Dispute.

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INTRODUCTION

Indonesia is one of the countries with abundant natural resources, including nickel. As one of the largest nickel producers in the world, Indonesia has an important role in the global market, with nickel reserves reaching 72 million tons, or around 52% of the world's total nickel reserves of 139.4 million tons. Indonesia also controls about 27% of the total global nickel trade, making it a major exporter of raw nickel.[1] This significant export of crude nickel contributes greatly to state revenue through taxes, export duties, and job creation in the mining sector.

Nickel is a mineral resource that is a vital commodity in the global market because of its role as a main raw material in the electric vehicle battery industry, steel industry, automotive, and geothermal energy generation.[2] Nickel can be mixed with a variety of other metals, resulting in a metal alloy that is strong, durable, and has resistance to corrosion and oxidation, even at high temperatures. In addition, nickel is also known to have low maintenance costs and can be recycled, making it a highly valuable metal in various

[1] Dicky Dwi Radhica, "Proteksionisme Nikel Indonesia Dalam Perdagangan Dunia," *Jurnal Cendikia Niaga (JCN)* 7, no. 1 (2023): 74–84.
[2] A Nieto, V Montaruli, dan M Cardu, "The Strategic Importance of Nickel: Scenarios and Perspectives Aimed at Global Supply" 334 (2013).

industrial sectors. These advantages are what make nickel an important raw material and in great demand in the development of modern technology.[3]

On January 1, 2020, Indonesia imposed a moratorium on raw nickel exports through the Regulation of the Minister of Energy and Mineral Resources Number 11 of 2019, which prohibits the export of nickel with a level of <1.7%. This policy is a continuation of the export restriction measures that began in 2015, this moratorium step is not a new initiative, but an acceleration of the steps to downstream minerals that have been planned gradually over the previous five years.[4] The root of this policy is contained in Law Number 4 of 2009 concerning Mineral and Mineral Mining, especially Articles 103 and 107 which require mining permit holders to build smelters in the country within a period of five years after the enactment of the Law. Although this policy was supposed to be implemented in 2014, its implementation was delayed due to pressure from the industry and limited infrastructure readiness, in 2014, the government began to implement a conditional relaxation policy through Government Regulation Number 1 of 2014 which allowed the export of raw nickel ore on the condition that the mining company had a plan to build a smelter and pay progressive export duties, namely The type of state levy imposed on export goods, where the amount of the tariff increases gradually (progressively) according to the export volume, international price, or level of processing of the goods. These duties are mainly applied to control the export of strategic commodities so that they are not exported in the form of raw materials and to maintain domestic supply. Since 2018, this policy has begun to enter a consolidation phase with the enactment of the Regulation of the Minister of Energy and Mineral Resources Number 25/2018 which sets the deadline for the export of nickel ore with a grade of <1.7% on January 11, 2022, the government then accelerated this policy to January 1, 2020 by issuing the Regulation of the Minister of Energy and Mineral Resources Number 11/2019. This step is driven by the existence of 11 operational smelters and 25 smelters that are in the development stage, which are considered to be able to absorb nickel ore production, as well as to support the electric vehicle battery industry with the use of low-grade nickel.

The basis of this moratorium policy is the mandate of Article 33 paragraph (3) of the 1945 Constitution which states that natural resources must be used for the greatest possible welfare of the people. This policy aims to encourage nickel processing in the country, increase the added value of nickel products and strengthen downstream industries including the establishment of smelters and processing facilities. Nickel that was previously exported in raw form can be processed into semi-finished products and processed products of higher value. This decision was taken as part of the Indonesian government's efforts to optimize the use of natural resources and encourage industrial-based economic growth, as well as reduce dependence on raw material exports. This step has resulted in a significant transformation in the national nickel industry, with the export value of nickel-derived commodities increasing by 263% in 2022 compared to 2019.[5]

This policy, while having a positive impact on the national economy, has also sparked international disputes with the European Union (EU) which is one of the main global consumers of nickel ore. The EU sued Indonesia to the WTO, claiming that the crude nickel export ban policy was detrimental to their steel industry, which relies heavily on nickel ore

[3] Markus Speidel dan Josef Bernauer, Nickel-based alloy for high-temperature technology, United States US6797232B2, https://patents.google.com/patent/US6797232B2/en.

[4] Hanina Haddad, Helitha Novianty, dan Huala Adolf, "Larangan Ekspor Bijih Nikel Indonesia Diantara Stabilitas Perdagangan Internasional," *Mimbar Hukum* 34, no. 2 (2022): 559–88, https://doi.org/10.22146/mh.v34i2.2686.

[5] "Website DJKN," https://www.djkn.kemenkeu.go.id/kanwil-kalbar/baca-artikel/15503/Gugatan-Uni-Eropa-di-World-Trade-Organization-WTO-Mengancam-Hilirisasi-Industri-Pertambangan-di-Indonesia.html.

supplies from Indonesia. The EU considers that this policy violates the principle of the free market and could increase global nickel prices, which has an impact on the cost of steel production in Europe. Indonesia responded to the lawsuit by arguing that the policy aims to increase the added value of nickel products and protect limited natural resources. However, in November 2022, the WTO granted the EU's lawsuit and stated that Indonesia's policy violated the International Trade Agreement, namely Article XI.1 of the 1994 GATT.[6]

Although this moratorium policy triggers international disputes, it also has a very important role in national economic development. By curbing crude nickel exports and encouraging industrial downstreaming, Indonesia seeks to optimize the added value of its natural resources and strengthen Indonesia's position as a major player in the global nickel market with higher-value products to ensure a more independent, competitive and sustainable future of Indonesia's economy. Therefore, the urgency of a deeper understanding of the impact of the nickel export moratorium policy on the Indonesian economy, both domestically and globally, is important to be researched. This research is needed to evaluate the extent to which the policy is able to optimize the use of Indonesia's natural resources in the long term and support the sustainability of the national economy.

METHODS OF THE RESEARCH

This article uses a juridical-normative research method with a conceptual and legislative approach. Legal sources consist of primary legal materials in the form of national laws and regulations and international provisions, as well as secondary legal materials in the form of academic journals, reports of international institutions, and government publications. The analysis was carried out in a descriptive-prescriptive manner, by examining the consistency of the nickel export moratorium policy against the principles of national law and international trade law.

RESULTS AND DISCUSSION

A. Downstreaming and Strategies to Increase Natural Resources Added Value

On September 2, 2019, the Ministry of Energy and Mineral Resources officially announced Ministerial Regulation Number 11 of 2019 which states that the export of nickel ore with a content of less than 1.7% can only be carried out until December 31, 2019 with a transition period of four months to give the company time to adjust its operational activities. The Director General of Minerals and Coal of the Ministry of Energy and Mineral Resources, Bambang Gatot Ariyono, stated that this policy was issued by the government so that the development of smelter construction, especially nickel, could run faster. This policy aims to encourage increased added value through the mineral downstream program. The normative basis of this policy refers to Law Number 4 of 2009 concerning Mineral and Coal Mining, which explicitly mandates the implementation of downstream as an effort to increase the added value of national mineral resources.[7]

Furthermore, the policy of moratorium on nickel ore exports is based on several considerations. First, it is related to the limited resilience of national nickel reserves. Indonesia's nickel reserves, which reach 698 million tons, are estimated to be able to support

[6] "WTO | Dispute Settlement - DS592: Indonesia - Measures Relating to Raw Materials," https://www.wto.org/english/tratop_e/dispu_e/cases_e/ds592_e.htm.

[7] "Bijih Nikel Tidak Boleh Diekspor Lagi per Januari 2020," ESDM, https://www.esdm.go.id/id/media-center/arsip-berita/bijih-nikel-tidak-boleh-diekspor-lagi-per-januari-2020.

the need for raw materials for refining facilities for 7.3 years if no new reserves are found.[8] Second, this policy is in line with the provisions of Article 33 paragraph (3) of the 1945 Dasar Law , which emphasizes that natural resources must be managed for the greatest possible prosperity of the people.[9] The export moratorium is intended as a strategic step by the government to optimize the use of added value from non-renewable natural resources to support national welfare. Third, nickel has an important role in the development of technology and renewable energy, especially in the production of electric vehicle batteries. As the world's largest nickel producer, Indonesia has a responsibility to maintain a balance between the utilization and conservation of nickel resources.[10]

The policy of a moratorium on nickel ore exports below 1.7%, as stated in the Regulation of the Minister of Energy and Mineral Resources Number 11 of 2019, is a strategic effort by the Government of Indonesia in encouraging industrial downstreaming and increasing national added value. This policy was issued against the background of the low contribution of crude nickel exports to Gross Domestic Product, limited job creation, and high dependence on foreign markets. As an example, before the enactment of downstreaming, Indonesia exported about 60 million tons of crude nickel ore per year to China with an average economic value of only $30 per ton and generated about $1.8 billion in revenue per year.[11] In addition , based on 2019 data, this raw material export activity only contributes around 0.3% to the national Gross Domestic Product with a fairly limited contribution to state revenue, namely from 4-7% of royalties and export taxes, the available employment in this sector is also very minimal, with an average of 5,000 workers per mine site.[12]

From the perspective of *Value Added and* Industrial Downstream theory as stated by Michael Porter and Todaro and Smith (2015), this policy is a strategy to increase national competitiveness through the transformation of the industrial structure from a raw material-based economy to a processing and manufacturing-based economy. Nickel products that have gone through domestic smelter processes, such as ferronickel and *Mixed Hydroxide Precipitate* (MHP), have a much higher selling value, ranging from $8,000 to $18,000 per ton. This means an increase in added value of 300 to 500 times compared to raw ore. The moratorium policy has succeeded in increasing the volume of refined nickel exports by 1,100% (from $3.3 billion in 2017 to $30 billion in 2022).[13] The impact is very significant on the national economy, where in 2023 the sector's contribution will increase to 1.8% of Gross Domestic Product. In addition, the construction of 111 smelters until 2023 has created industrial clusters in Morowali and Halmahera, with direct labor absorption reaching 350,000 people, as well as expanding the state revenue base through Corporate Income Tax (22%), Value Added Tax (11%), and Non-Tax State Revenue (4–10%).[14] On the other hand, this policy also reflects the principle of sustainable development as conveyed in the Brundtland Report (1987), namely the use of natural resources to meet the needs of the present without sacrificing the needs of future generations, with the current national nickel

[8] "Bijih Nikel Tidak Boleh Diekspor Lagi per Januari 2020."

[9] Alya Amelia, Farhan Firdaus, dan Ridhwan Wibowo, "Advokasi Hukum Sebagai Pilar Kedaulatan Energi: Kajian Putusan World Trade Organization Tentang Regulasi Pembatalan Ekspor Mineral Mentah," *Jurnal Dedikasi Hukum* 4, no. 1 (2024): 96–111, https://doi.org/10.22219/jdh.v4i1.32217.

[10] "Berita - PT. Djoyoline Pusaka Indonesia," diakses 22 Mei 2025, https://www.djoyolinepusaka.co.id/user/berita_detail/23.

[11] Nickel.co.id, "Menambang Isu HAM, Muluskan Ekspor Nikel Mentah ke Jerman?," *Media Nikel Indonesia* (blog), https://nikel.co.id/2020/12/23/menambang-isu-ham-muluskan-ekspor-nikel-mentah-ke-jerman/.

[12] Nickel.co.id.

[13] Jeffrey Neilson, ed., *Global Value Chains and Global Production Networks: Changes in the International Political Economy* (London: Routledge, 2015).

[14] "BPS: Ekspor Turunan Nikel Melonjak Pascalarangan Ekspor Bijih Mentah," Republika Online, https://republika.co.id/share/ri8qpl349.

reserves, the moratorium step is important in the context of strategic resource conservation. The Theory *of Conservation of Resources* (COR) from Hobfoll (1989) is also relevant,[15] which emphasizes that the system will seek to maintain, protect, and develop resources that are considered valuable. The moratorium on nickel ore exports reflects the state's protection of non-renewable resources as well as a resource investment strategy for long-term economic value.

This policy also has an economic sovereignty dimension. Previously, Indonesia's dependence on foreign market demand made the national bargaining position weak in the global supply chain, by downstreaming and developing the domestic industrial ecosystem, Indonesia was able to increase economic independence and reduce dependence on the international market. This approach is in line with the mandate of Article 33 paragraph (3) of the 1945 Constitution, which emphasizes that natural resources must be managed for the greatest possible prosperity of the people. Therefore, this moratorium policy not only has an economic purpose, but also serves as a means to strengthen state sovereignty over resources as well as as an instrument to create more equitable economic justice. The nickel ore export moratorium is a multi-dimensional policy that is relevant in encouraging national economic transformation, while reflecting the integration between the principles of economic efficiency, resource conservation, and state sovereignty.

B. International Implications: WTO Dispute Between Indonesia and the EU

This moratorium policy tests the principle of natural resource sovereignty in the GATT agreement. The multilateral trading system, the EU submitted a lawsuit to the WTO in November 2019 basing its demands on Article XI:1 of the GATT 1994, regarding the prohibition of quantitative restrictions that prohibit quantitative restrictions on exports by member states.[16] Indonesia argues that this moratorium policy is a form of implementation of permanent sovereignty *over natural resources (PSNR*) in accordance with UN Resolution 1803/1962 and also based on Article XX of the GATT 1994 which allows exemptions on the basis of conservation of natural resources and security of domestic supply. The Indonesian government also emphasized that until 2024, 111 smelters have been built with a total investment of $15.6 billion, mainly located in Morowali and Halmahera. In addition, from the conservation aspect, Indonesia said that the reserves of saprolite ore with high levels are estimated to be sufficient for the next 6.3 years, so the moratorium policy is an important step in maintaining the sustainability of this important mineral resource.[17]

However, the WTO panel rejected the argument, arguing that this policy was disproportionate and violated international trade rules, in particular Article XI:1 of the GATT 1994 regarding the prohibition of quantitative restrictions. The panel considered that Indonesia does not have the mature downstream industry capacity to justify the export ban policy, and it is not enough to prove that the policy is solely for conservation purposes.[18] In response to the ruling, Indonesia had appealed in December 2022 but faced obstacles due to a deepening legitimacy crisis in the WTO's dispute settlement system, which led to many disputes not being resolved due to the vacancy of *the Appellate Body*, with 36% of WTO cases

[15] Christina King, "Conservation of Resources Theory," *Work and Family Researchers Network* (blog), https://wfrn.org/encyclopedia/conservation-of-resources-theory/.

[16] "WTO | Dispute Settlement - DS592."

[17] "Indonesia Appeals Panel Report in Dispute Regarding Indonesian Measures on Nickel Ore," https://www.wto.org/english/news_e/news22_e/ds592apl_12dec22_e.htm.

[18] Cahya Putri Febiola dkk., "Nickel Ore Export Prohibiton in the Framework Wolrd Trade Organization as an Effort to Protect Natural Resources (Wto Study Case Ds592: Indonesia Measures Relating to Raw Materials)," *Jurnal Ilmiah Advokasi* 12, no. 3 (2024): 444–55, https://doi.org/10.36987/jiad.v12i3.6223.

unresolved since 2022.[19] Meanwhile, pending the outcome of the appeal, Indonesia maintains its nickel downstream policy with the aim of increasing economic sovereignty, creating added value in mineral products, and reducing dependence on raw material exports.

Indonesia's defeat in this dispute has the potential to have significant legal impacts, not only in Indonesia, but also in global markets, especially the steel and battery sectors in Europe. One of the biggest impacts of this policy is the potential for retaliation that could be implemented by the EU, particularly through *the Carbon Border Adjustment Mechanism* (CBAM). The Carbon Border Adjustment Mechanism (CBAM) is a policy introduced by the EU to prevent "carbon leakage" – the shift of production to countries with weaker climate policies to avoid the cost of carbon regulation The aim is to ensure that the carbon cost of imported goods is aligned with the carbon cost of goods produced in the EU, thus preventing the EU from incurring a competitive disadvantage. The EU also threatened to impose additional tariffs on exports of Indonesian stainless steel products produced using dirty energy, as Indonesia is largely dependent on coal-fired power plants. This can reduce the competitiveness of Indonesia's stainless steel exports, which are 85% produced from coal energy.[20] On the other hand, this policy also causes disruptions to global supply chains. Since 2020, global nickel prices have jumped 40%, impacting the steel and battery industries in Europe.[21] Countries such as Finland and Germany are forced to look for alternative supplies from other countries, such as the Philippines and New Caledonia, at a higher cost of 15-20%. Then as part of a response to criticism regarding environmental impacts, Indonesia is also revising regulations by requiring the use of renewable energy in smelters, under the Regulation of the Minister of Energy and Mineral Resources Number 26/2023, which requires the use of 30% renewable energy by 2030,[22] This is a step to meet sustainability-linked financing standards from global financial institutions and reduce criticism related to *Environmental, Social, and Governance* (ESG).

Furthermore, this moratorium policy also complicates negotiations within the framework *of the Comprehensive Economic Partnership Agreement* (CEPA) between Indonesia and the EU.[23] The EU requires the revocation of the downstream policy as a precondition in the agreement, while Indonesia rejects this compromise, considering that the policy is part of a strategy to strengthen the domestic industry and increase the added value of nickel. In response to this international pressure, Indonesia adopted a number of strategic measures to deal with it. Indonesia strengthened its position by forming alliances with mineral-producing countries such as Congo and Chile through the establishment of the *Critical Minerals Club*, which aims to create producer blocs that can set price standards and downstream policies. In addition, despite facing pressure from the EU, Indonesia managed to attract an investment of $21.3 billion from China for the construction of smelters and battery factories, with a focus on exporting refined nickel to the Asian market, especially

[19] Maria Angeline Putri, Emma Valentina Teresha Senewe, dan Natalia Lana Lengkong, "Assessing Indonesia's Nickel Export Ban and Its Implications Under WTO Dispute Settlement Mechanisms," *Tumou Tou Law Review*, 24 (2025): 87–99, https://doi.org/10.35801/tourev.v3i2.59347.

[20] David Guberman, Samantha Schreiber, dan Anna Perry, "Export Restrictions on Minerals and Metals: Indonesia's Export Ban of Nickel," t.t.

[21] Sekarsari Sugihartono, "Indonesia's Trade Dispute on Nickel Ore in the WTO: Current Progress and Developments," *Modern Diplomacy* (blog), https://moderndiplomacy.eu/2024/10/28/indonesias-trade-dispute-on-nickel-ore-in-the-wto-current-progress-and-developments/.

[22] "Pemerintah Optimistis EBT 23% Tahun 2025 Tercapai," ESDM, https://www.esdm.go.id/id/media-center/berita-unit/pemerintah-optimistis-ebt-23-tahun-2025-tercapai.

[23] Maria Angeline Putri, Senewe, dan Lengkong, "Assessing Indonesia's Nickel Export Ban and Its Implications Under WTO Dispute Settlement Mechanisms."

China which now controls 68% of the market share.[24]

As a projection, Indonesia has several options in dealing with this dispute. One of them is the *status quo* scenario, where Indonesia maintains a moratorium policy while waiting for the restructuring of the WTO system. Another option is a limited compromise, which allows the granting of limited nickel ore export quotas to companies that build smelters in the EU. In addition, Indonesia can also implement retaliatory measures, by restricting imports of agricultural products from the EU as a form of retaliation. Overall, the moratorium policy on raw nickel exports has transformed Indonesia into a key player in the global mineral downstream industry. But on the other hand, this policy brings challenges in the face of international pressure, which tests Indonesia's consistency in defending its natural resource sovereignty. Strategic steps forward will depend heavily on Indonesia's ability to balance national interests and international obligations, while remaining committed to sustainable economic development and global competitiveness.

C. Domestic Challenges: Foreign Investment Dependence and Ecological Vulnerability

Although the moratorium policy on the export of crude nickel ore has brought a significant increase in economic added value, its implementation in Indonesia is faced with complex multidimensional challenges. These challenges not only come from the dynamics of the global market, but are also closely related to environmental, social, governance, as well as technological capacity and resource sustainability. One of the main challenges lies in the dependence on foreign investment, especially from China which controls more than 85% of investment in Indonesia's nickel smelter sector, creating economic dependence and reducing sovereignty space in industrial policy-making.[25] At the global market level, Indonesia is facing pressure due to oversupply of refined nickel products, such as ferronickel and *nickel pig iron* (NPI). This condition has driven the decline in world nickel prices significantly, from around $26,000 per ton in 2021 to around $15,500 per ton in 2025.[26] The imbalance between global production and demand reduces the smelter's profit margin, which is now only in the range of 3-5%. In addition, the high dependence on the Chinese market—which absorbs about 78% of Indonesia's nickel exports—makes the domestic industry vulnerable to external economic dynamics. The slowdown in China's economy and the shift in battery technology towards the LFP *(lithium iron phosphate) type,* which does not require nickel, further exacerbated stock accumulation and suppressed demand in the domestic market.[27]

Data from the US Geological Survey noted that Indonesia's nickel exports to China reached more than 8 million tons between 2017-2021, the volume of exports to the country far exceeded that of other countries which were only hundreds of thousands of tons.[28] In addition to being the main export destination, Chinese companies also control about 75% of the nickel refining capacity in Indonesia, mainly through massive investments in smelter construction and mastery of processing technology.[29] This dominance causes Indonesia to

[24] Guberman, Schreiber, dan Perry, "Export Restrictions on Minerals and Metals: Indonesia's Export Ban of Nickel."

[25] "China Menang Banyak dari Nikel Indonesia," betahita.id, https://sorot.betahita.id/news/lipsus/10569/china-menang-banyak-dari-nikel-indonesia.html?v=1726492929.

[26] "Nickel (Ni) – Commodity markets – Nornickel 2021 Annual Report," https://ar2021.nornickel.com/commodity-market-overview/nickel.

[27] Shiddiq, "Sekum APNI Soroti Tantangan dan Paradoks Industri Nikel Indonesia dalam Forum Tiongkok-Indonesia," *Media Nikel Indonesia* (blog), https://nikel.co.id/2025/05/14/sekum-apni-soroti-tantangan-dan-paradoks-industri-nikel-indonesia-dalam-forum-tiongkok-indonesia/.

[28] "China Menang Banyak dari Nikel Indonesia."

[29] "AS Sebut 75 Persen Nikel Indonesia Dikuasai Perusahaan China," VOI - Waktunya Merevolusi Pemberitaan, https://voi.id/ekonomi/457835/as-sebut-75-persen-nikel-indonesia-dikuasai-perusahaan-china.

be highly dependent on Chinese industrial demand and policies. Over-reliance on a single market or source of capital poses economic, geopolitical, and lost value-added opportunities. In overcoming this, Indonesia needs to diversify export markets, strengthen domestic industrial capacity, and improve investment governance and technology transfer so that the economic benefits and nickel resources can be optimally felt domestically.

The next challenge relates to the environmental and social impacts of downstream policies that are not planned holistically. The RKEF *(Rotary Kiln Electric Furnace) smelter* based on pyrometallurgy produces high carbon emissions, which is around 45 tons of CO_2 per ton of nickel, accounting for up to 12% of total industrial emissions. Massive deforestation has occurred in the Sulawesi and Maluku regions, with the loss of more than 520,000 hectares of forest in the last five years, accompanied by soil and sea pollution due to unmanaged slag waste, such as those recorded in the Morowali region.[30] In addition, social conflicts are also increasing, especially related to customary land disputes covering more than 15,000 hectares, as well as increasing poverty rates in nickel-industrial areas, such as South Halmahera. Between 2017 and 2020, poverty in South Halmahera increased from 4.10% to 5.21%. This increase is in line with the construction of a large nickel smelter on Obi Island, which diverts 40% of productive agricultural land to mining land. Most of the population that depends on fisheries and subsistence agriculture is affected by the conversion of the land.[31] Although the smelter began full operation in 2021, the poverty reduction was not significant, with poverty rates remaining volatile: 5.19% in 2021, 4.99% in 2022, 5.68% in 2023, and 5.13% in 2024. The Head of BPS South Halmahera, M. Budiman Johra, revealed that although the economy grew by 6.2% in 2024, only 12% of the local workforce was absorbed in the smelter.[32] This shows that while the mining sector is driving economic growth, its impact on poverty reduction is still limited, especially in terms of local labour absorption.

In terms of technology and sustainability, this policy is also not optimal in utilizing Indonesia's nickel reserve structure. The majority of smelters (87%) still use pyrometallurgical technology (RKEF) which can only process high-grade saprolite ore (>1.7%), even though 83% of Indonesia's nickel reserves are low-grade limonite (<1.2%) which can only be processed with HPAL technology. This imbalance has led to massive exploitation of saprolite reserves that are estimated to be only left for a period of 6.3 years, threatening the long-term sustainability of the industry. In addition, partial governance exacerbates the impact of these policies. The development of industrial estates such as the one in Morowali is often carried out without integration with basic infrastructure by using environmentally friendly energy and adequate waste management. This has an impact on poor air quality, for example, based on a report by CREA (Centre for Research on Energy and Clean Air) and CELIOS (Center of Economic and Law Studies), the nickel industrial estate in Morowali produces a concentration of harmful pollutant PM2.5 which is a very small air particle, which is ≤ 2.5 micrometers (microns). It is about 30 times smaller than the diameter of a human hair, so it cannot be seen with the naked eye and can be inhaled into the lungs, even into the bloodstream, almost three times higher than the national standard that currently sets the 24-hour PM2.5 threshold of 55 µg/m3, this is also far beyond the daily

[30]"Betahita | Nikel Ditambang, Deforestasi Terbilang," https://sorot.betahita.id/news/detail/10571/nikel-ditambang-deforestasi-terbilang.html?v=1729810648.

[31] "Bagaimana Keterlibatan Ifc Di Kawasan Industri Nikel Obi Menghancurkan Pulau Obi," https://trendasia.org/wp-content/uploads/2023/11/bahasa-indonesia-ifc-in-obi-.pdf.

[32] "Tambang Berdampak Terhadap Angka Kemiskinan di Halmahera Selatan Maluku Utara," Tribunternate.com, https://ternate.tribunnews.com/2024/12/05/tambang-berdampak-terhadap-angka-kemiskinan-di-halmahera-selatan-maluku-utara.

safe limit set by the WHO (World Health Organization) which is 15 µg/m³ for an average of 24 hours.[33]

Corruption and weak licensing supervision add to the complexity of downstream challenges. The practice of bribery in the mining licensing process that causes state losses of up to hundreds of trillions shows that the governance of this sector is not yet solid. On the other hand, the global transition to clean energy is also suppressing demand for nickel, as market preferences shift to nickel-free battery technology. Meanwhile, pressure from global investors on the fulfillment of *Environmental, Social, and Governance (*ESG) standards has not been adequately answered, based on a report by the Ministry of Energy and Human Resources and Research (IESR), out of around 50 smelters operating in Indonesia, only 18% of smelters in Indonesia meet sustainability criteria.

CONCLUSION

The moratorium policy on raw nickel exports is a concrete form of the implementation of the strategy to downstream natural resources in Indonesia, with the aim of increasing national added value, strengthening the domestic industrial base, and reducing dependence on raw material exports. This policy reflects the government's efforts in carrying out the mandate of laws and regulations to manage natural resources for the greatest possible prosperity of the people. The positive impact of this policy is reflected in a significant increase in exports of nickel processed products, job creation, and investment growth in the processing industry sector. However, the implementation of this policy also faces various challenges, both domestically and internationally. Domestically, Indonesia is still faced with inequality in processing technology, dominance of foreign investment, environmental degradation, social conflicts, and limitations in the sustainable management of nickel reserves. Meanwhile, internationally, this policy has triggered a trade dispute with the EU at the WTO that questions the compatibility of the moratorium with free trade principles. This situation shows the importance of striking a balance between national interests and international commitments in managing strategic resources. Therefore, the moratorium on crude nickel exports must be seen as a multidimensional policy that requires comprehensive and sustainable cross-sector governance. Its success is determined not only by economic aspects, but also by its commitment to environmental sustainability, resource sovereignty, and social justice for affected communities. Corrective and adaptive measures need to be continuously developed so that this policy can support the structural transformation of the Indonesian economy towards an inclusive, sovereign, and globally competitive development model.

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