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**Critical Minerals Value Added Policies: Indonesia's Story**

By

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The views expressed are those of the author and do not necessarily reflect the views of UNCTAD.



**Coordinating Ministry of Maritime Affairs and Investment  
Republic of Indonesia**

## **Critical Minerals Value Added Policies: Indonesia's Story**

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# Outline Agenda



Introduction to Indonesia's Nickel Industry

Indonesia Downstream Strategy to Increase Value Added of Critical Minerals

Creating Sustainable EV Battery Ecosystem in Indonesia

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Creating Sustainable EV Battery Ecosystem in Indonesia



# Indonesia is The Largest Archipelagic Country in The World, Supported with Abundant the Natural Resources Needed for Energy Transition



*Largest archipelagic in a strategic location with the world's fourth largest population*



17,500 islands with  
**+108,000 km** of coastline



Population of **281.6**  
million people



Located along major sea lanes connecting East Asia,  
South Asia and Oceania

*Rich in energy transition mineral reserves and high RE potential*



World's  
biggest  
nickel  
reserves



World's  
2<sup>nd</sup>  
biggest  
tin  
reserves



World's 6<sup>th</sup>  
biggest  
bauxite  
reserves



World's  
7<sup>th</sup>  
biggest  
copper  
reserves



437.4 GW  
of  
potential  
RE



# Majority of Nickel Mining in Indonesia Is Located in Sulawesi and Halmahera Islands



APPROXIMATE ANALYSIS (%)				EXTRACTION PROCESS
Ni	Co	Fe	MgO	
<0.8	<0.1	>50	<0.5	
<b>Limonite</b>				
0.8 to 1.5	0.1 to 0.2	40 to 50	0.5 to 5	
<b>Saprolite</b>				
1.5 to 4	0.02 to 0.1	25 to 40	5 to 15	
1.8 to 3		10 to 25	15 to 35	
0.3	0.01	5	35 to 45	

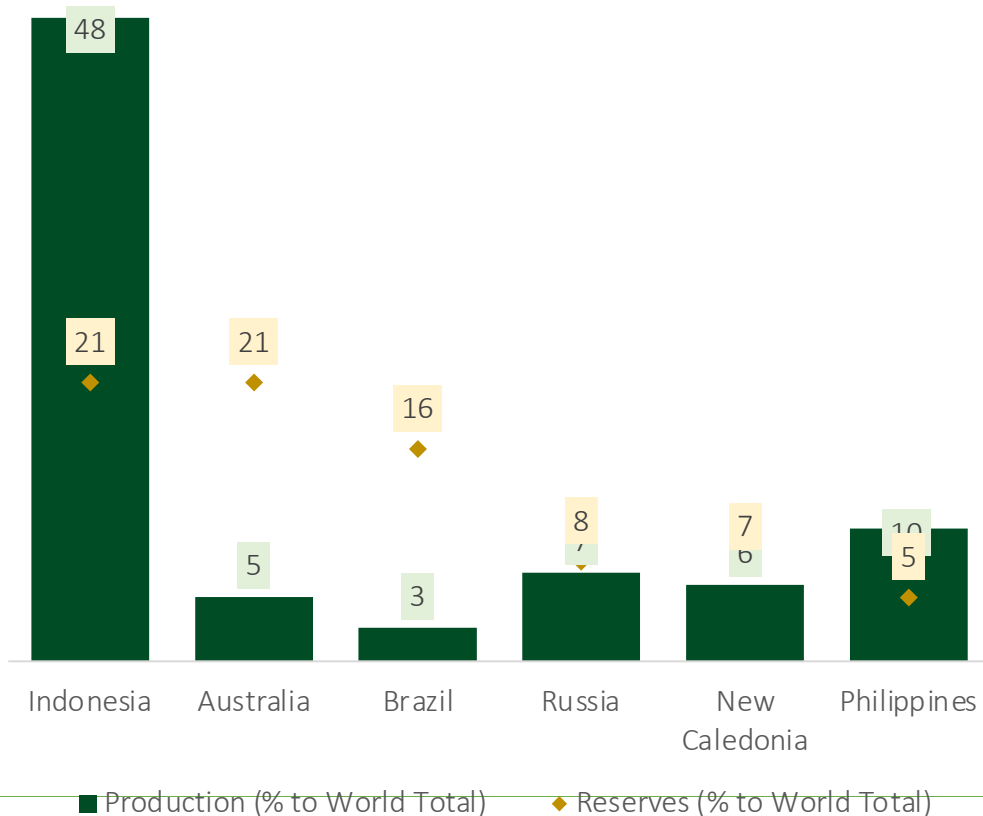


1. The most important Indonesian nickel ores are lateritic, primarily located in Sulawesi and Halmahera with mining operations centered at ultramafic rock outcrops.<sup>[8]</sup> While the lateritic nickel ores are more difficult to smelt compared to nickel sulfide ores, it is more extractable due to its location on the surface, hence lower cost of mine as well.
2. Lateritic ore consist of two type, first saprolite with nickel content of 1.5-2.0% per ton nickel ore. Second, limonite with <1.5% nickel content. Limonite ore located close to the surface while saprolite located below the limonite ore. Therefore, to extract saprolite, the miner need to remove the limonite ore. Before 2021, no limonite ore processing facilities is available in Indonesia, therefore it can't be utilized and treated as overburden (waste). But since 2021, with High Pressure Acid Leaching Technology, the limonite ore can be processed to be MHP (mixed hydrate precipitate) which contain nickel and cobalt

# Indonesia Ranked First As World Largest Nickel Reserves and Producer, Exporting Most of the World's Nickel Matte and MHP in 2022



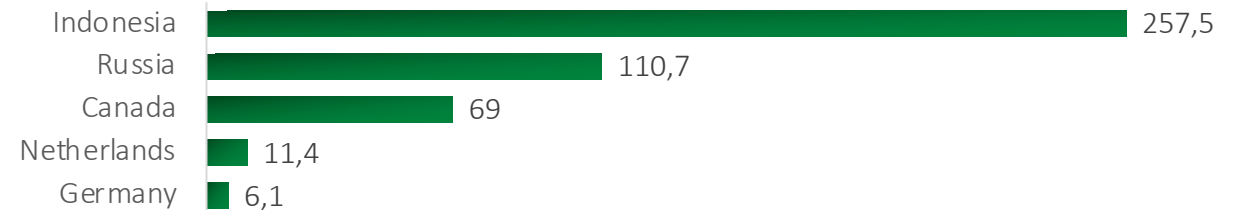
## Nickel Production and Reserves in 2022 (% to World Total)



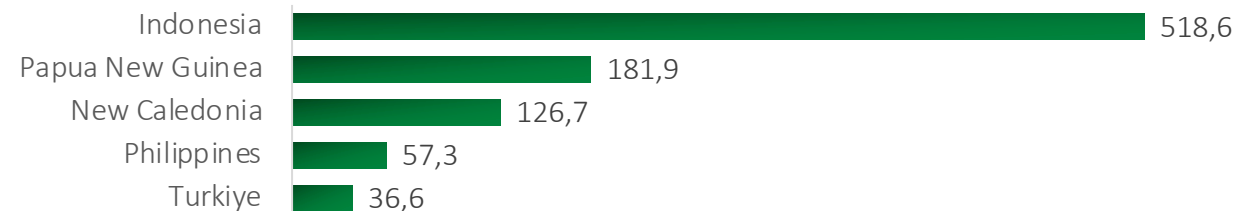
## World's Top Exporters of Nickel Ore in 2022 (in '000 tons)



## World's Top Exporters of Nickel Matte in 2022 (in '000 tons)



## World's Top Exporters of MHP in 2022 (in '000 tons)



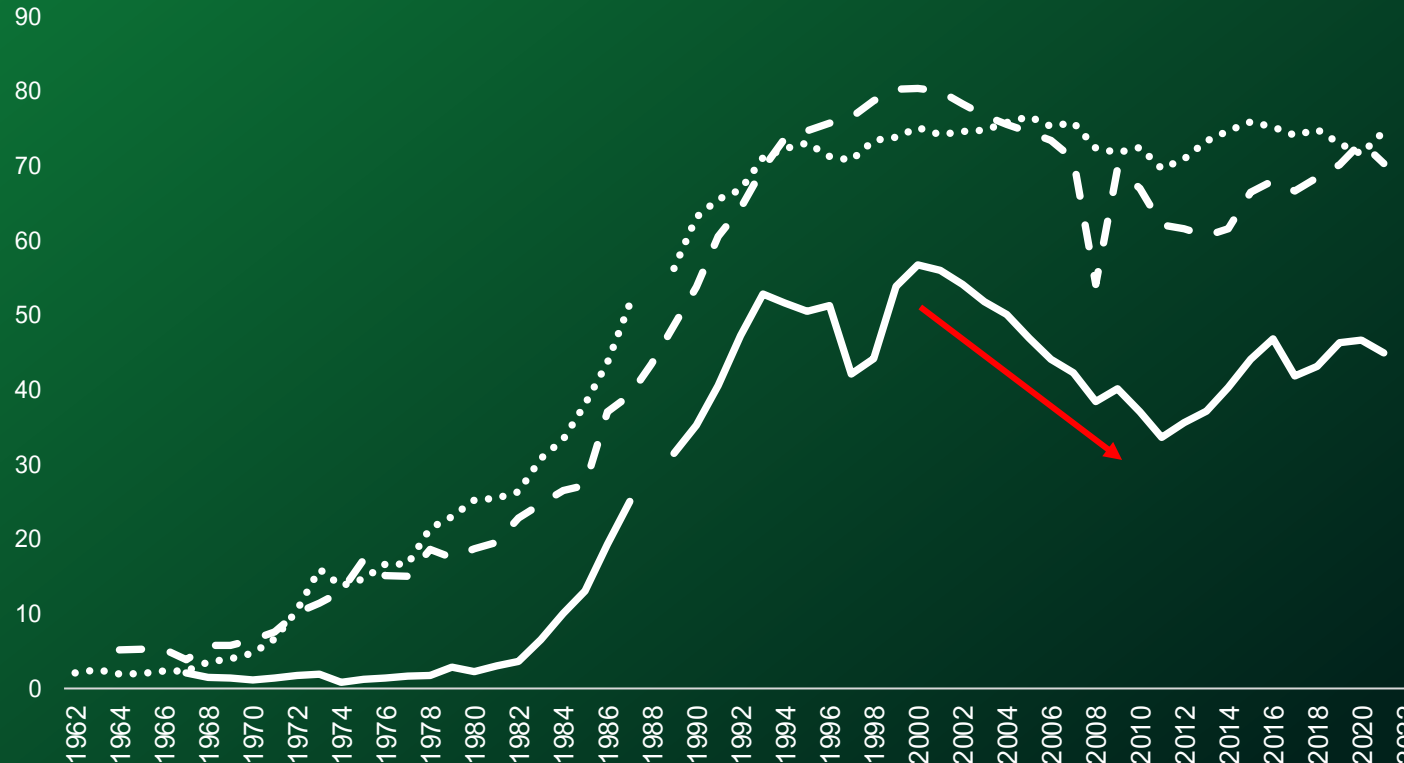


# For Years, Indonesia Has Depended on Commodity Exports in the Form of Raw Materials

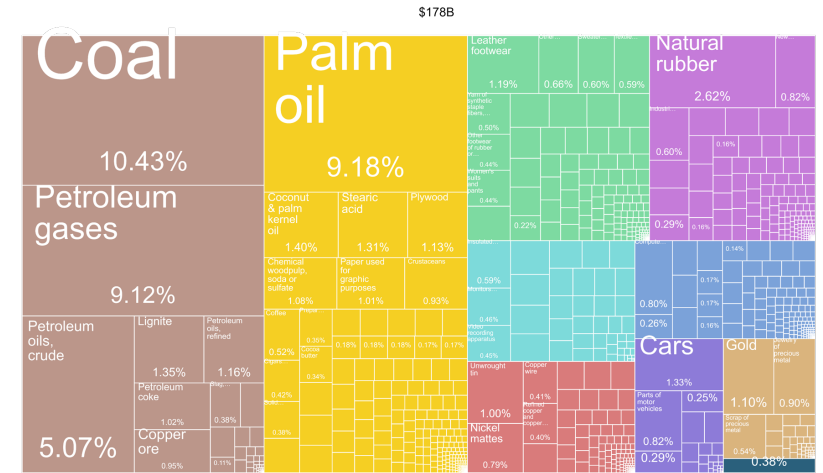
The share of manufacturing exports has continued to decline since the 2000s and is dominated by raw commodities, while Malaysia has been dominated by manufacture product.

## Export of Manufacture (% Total of Goods Export)

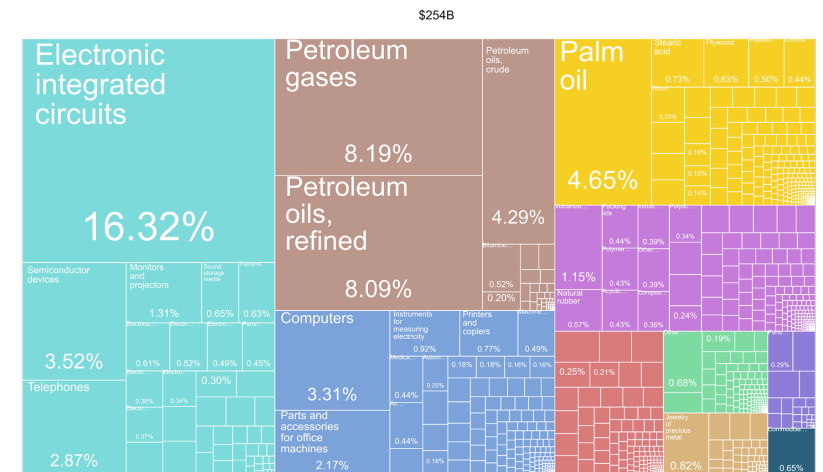
— Indonesia    - - - Malaysia    ..... Thailand



## Indonesia's Export Structure - 2014



## Malaysia's Export Structure - 2014



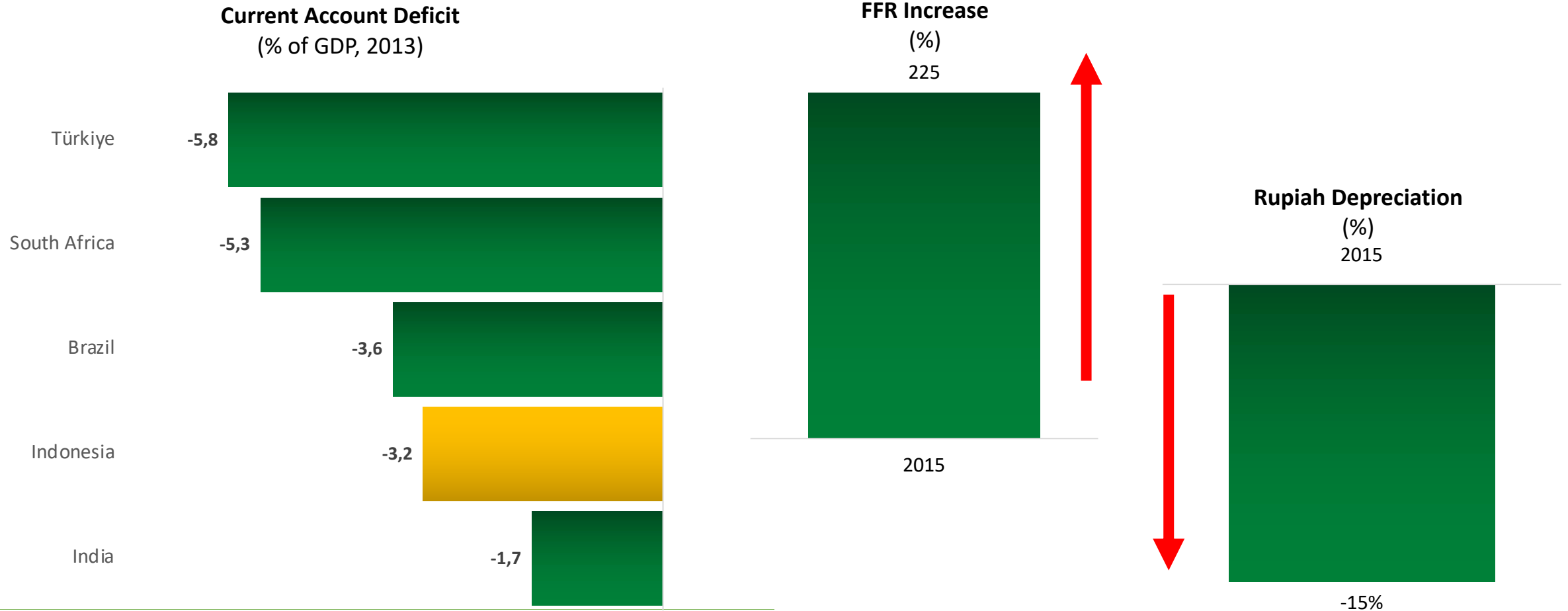




# Dependence on Raw Material Exports Causes Indonesia to Experience a High Current Account Deficit When Commodity Prices Fall

Indonesia Categorized as a Fragile Five Country Due to High Current Account Deficit

Higher FFR Leads to Higher Rupiah Depreciation.



# The Government Strives for Economic Transformation, Through Natural Resources Downstreaming Policy to Encourage the Development of High Value-Added Industry Value Chain

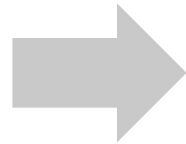


## Commodity Based High Value-Added Industrialization Towards a More Complex Economic Structure: Downstream Policy

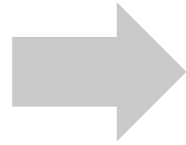
### Downstream Policy Moving Forward:

- Building a high value-added industrial base to support the increasingly rapid digitalization of the economy and the green economy trend.
- Allocate low emission (green) energy sources for high added value industries
- Forming a quality talent pool through a screening program for undergraduate graduates majoring in engineering and science to be directed to work in world-class companies in the field of technology

**Past:**  
**Nickel Ore Export**  
**(1.8% Nickel, 98% Dirt & Water)**



**Present:**  
**NPI, Steel, and Battery**  
**Materials (10%-38% Nickel)**

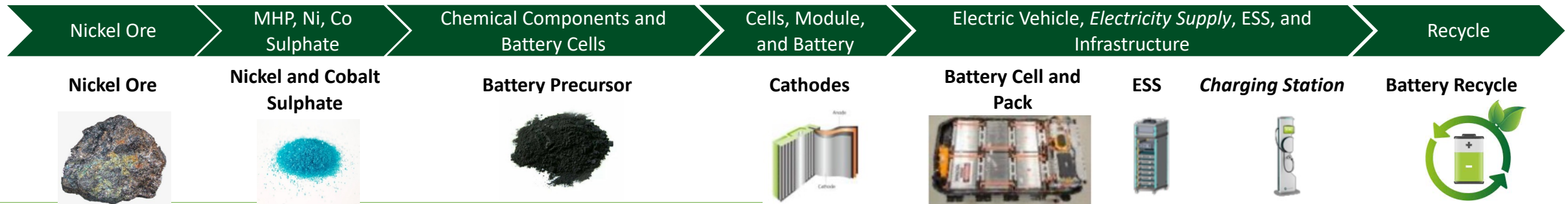
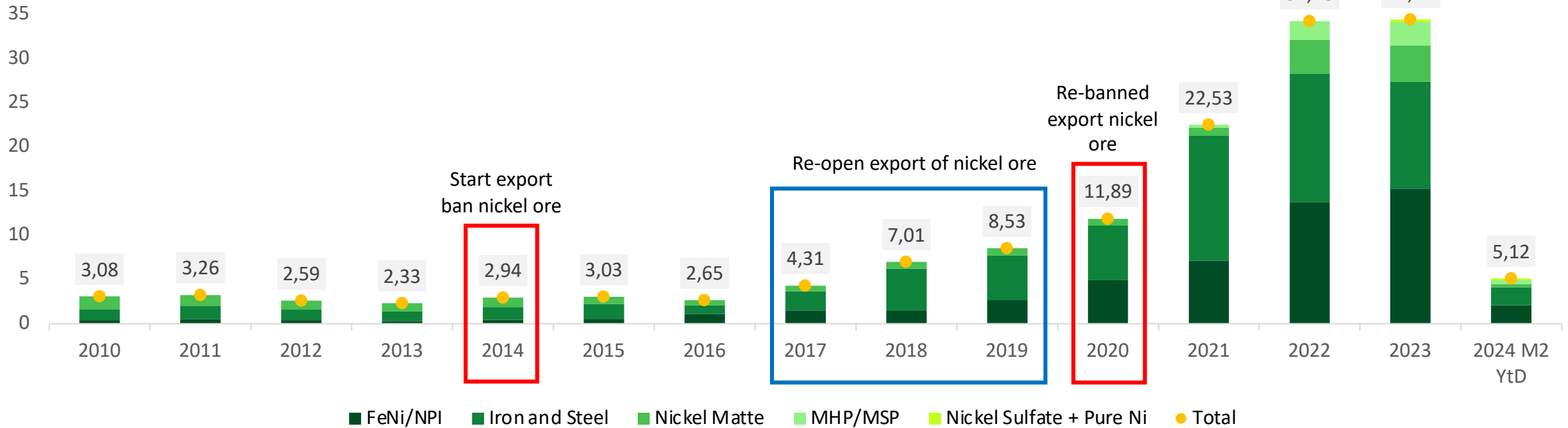


**Future:**  
**Lithium Battery & EV**



# Downstreaming Policy Encourages Diversification of Exports of Indonesian Nickel Derivative Products

Export of Nickel Downstream Products  
(Million USD)

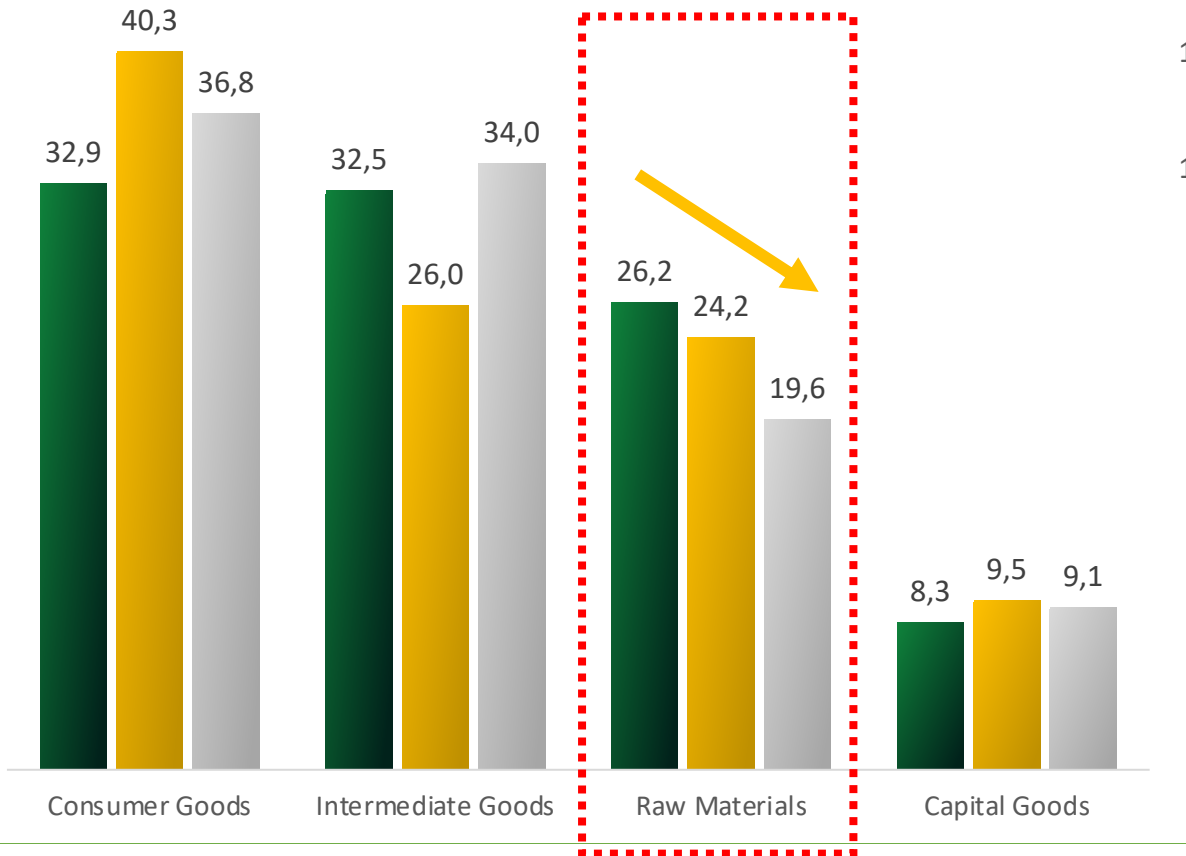


# Downstream Policy has Successfully Reduced Indonesia's Dependency on Exports of Raw Materials – Export Shares of Nickel Derivative Products Continue to Increase

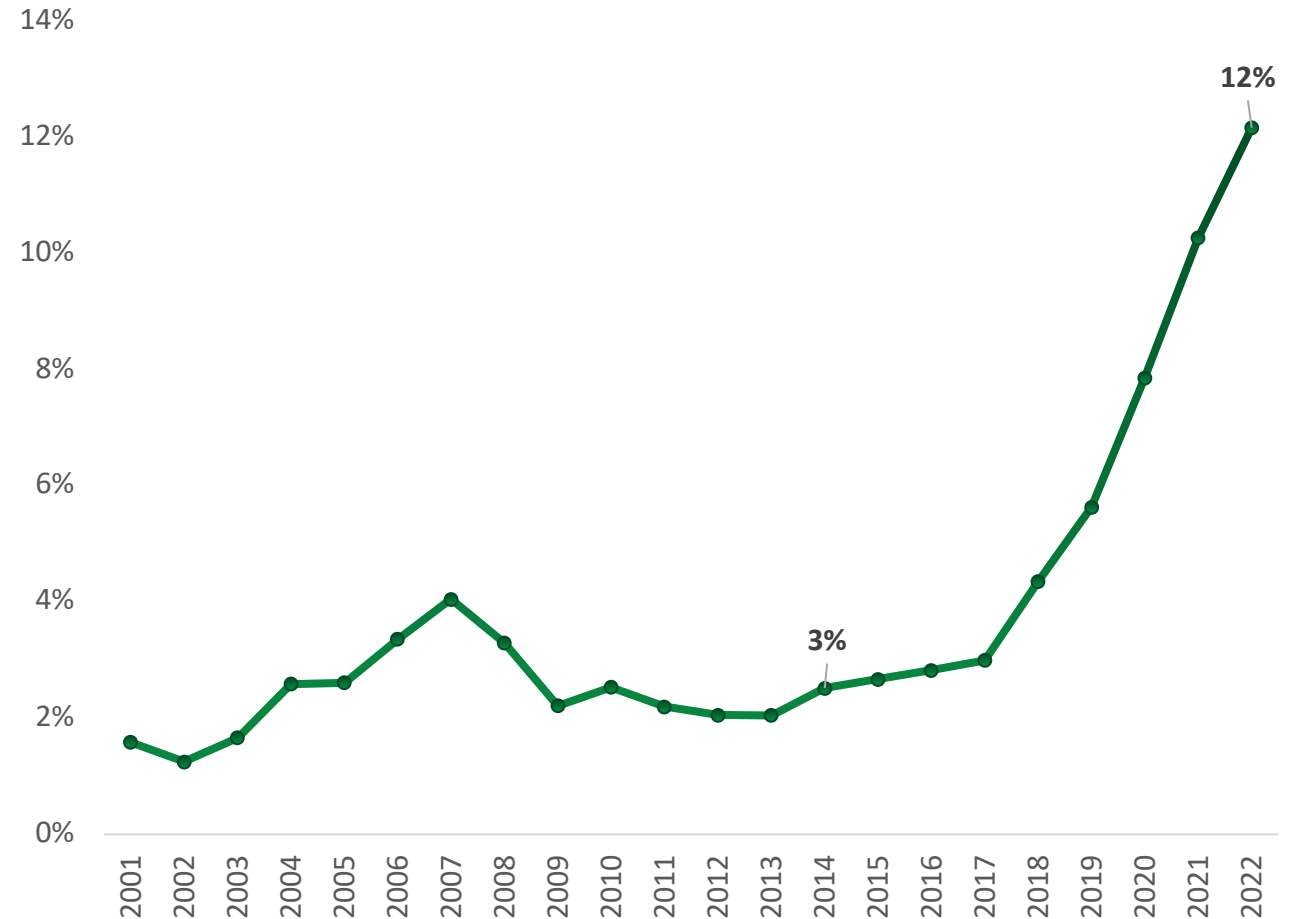


Export Share by Type of Goods

2011 2015 2020



Export Share of Indonesian Nickel Products  
(Percent of Total)

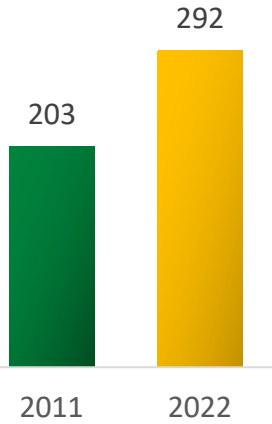




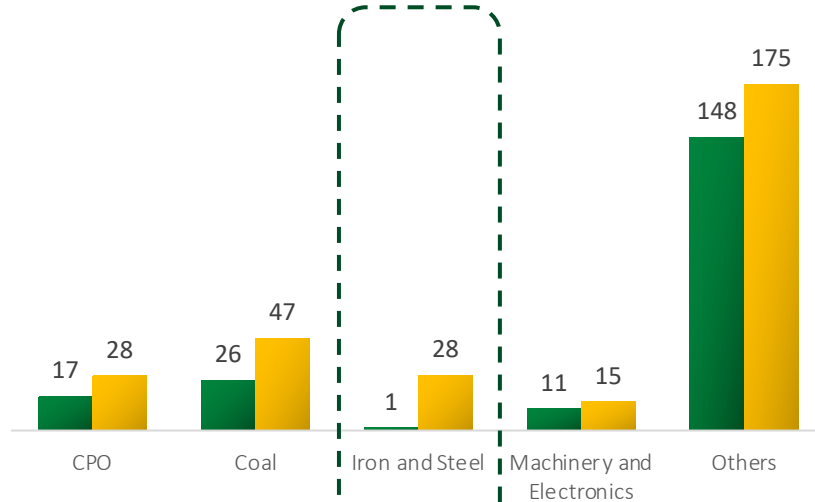


# Nickel Downstream Policy Has Improved Indonesia's Current Account Performance

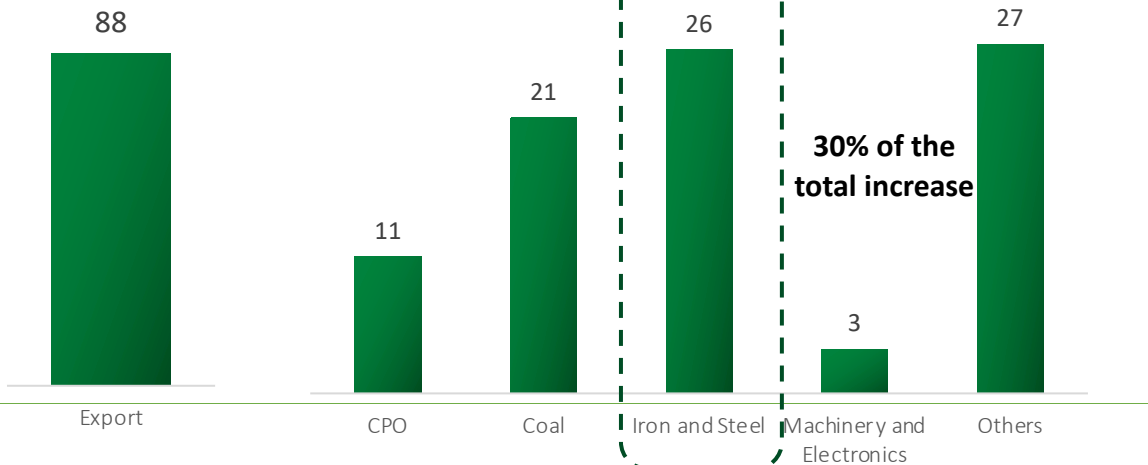
**Highest Export**  
(Billion USD)



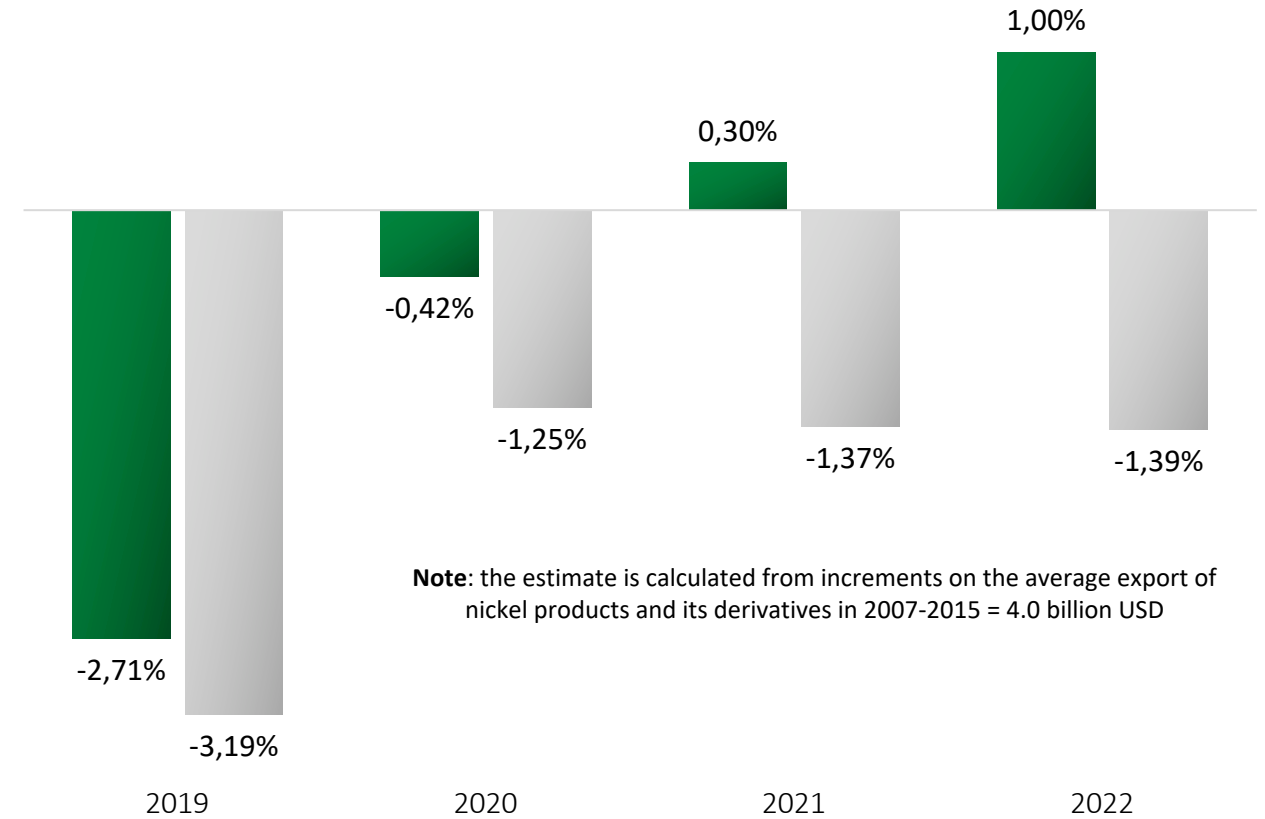
**Previous vs Current Peak Exports**  
(Billion USD)



**Increase/Decrease**  
(Billion USD)



**Trade Balance Surplus/Deficit to GDP**  
(%)



**Note:** the estimate is calculated from increments on the average export of nickel products and its derivatives in 2007-2015 = 4.0 billion USD

■ BAU ■ Estimation without Impact of Export Downstreaming Policy for Nickel Products and its Derivatives

# Amidst Various Global Risks and Challenges, Indonesia's Macroeconomic Indicators Are One of The Best Among G20 Countries Helped by Our Downstream Policies



## Strong economic growth

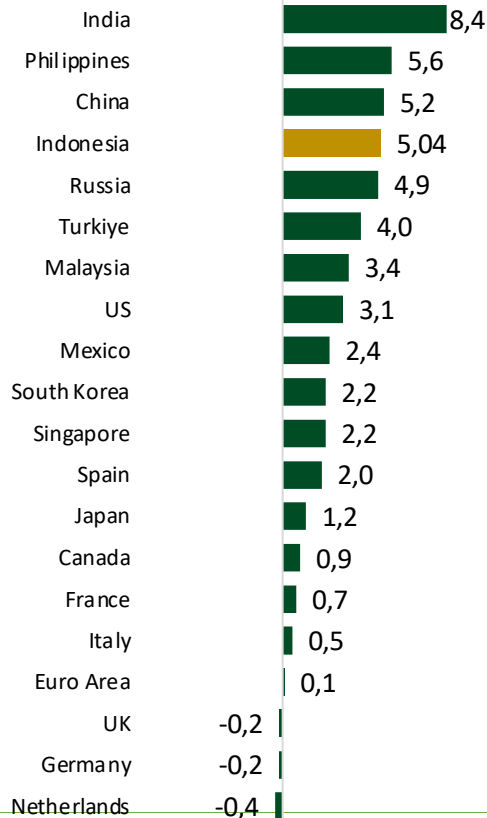
## Low inflation rate

## Low government debt

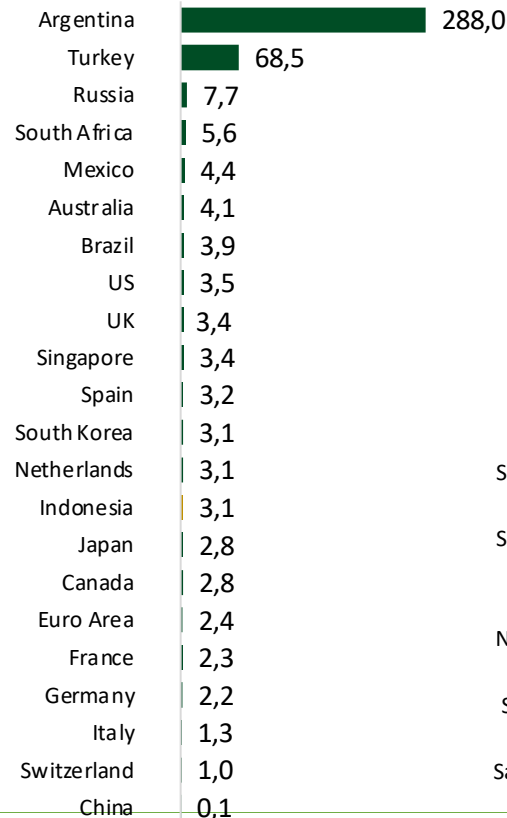
## Stable portfolio performance

## The decline of exchange rate is relatively moderate

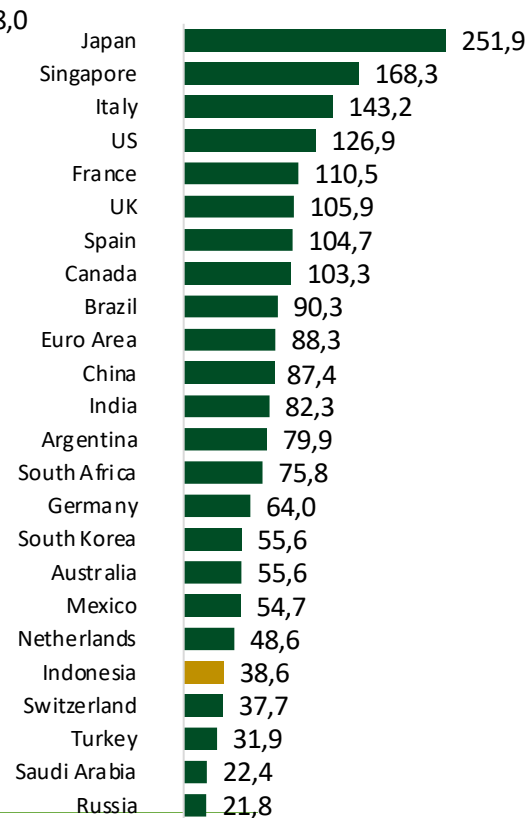
GDP Growth % 4Q23 – G20 Countries



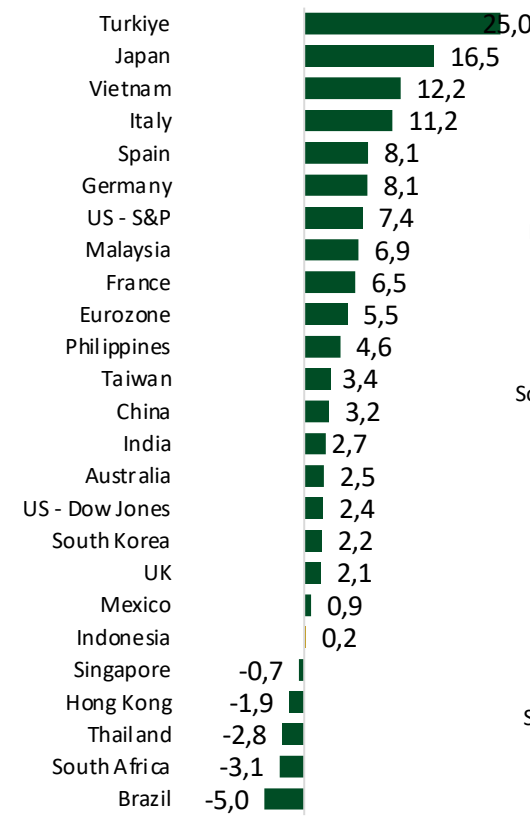
Inflation % - G20 Countries



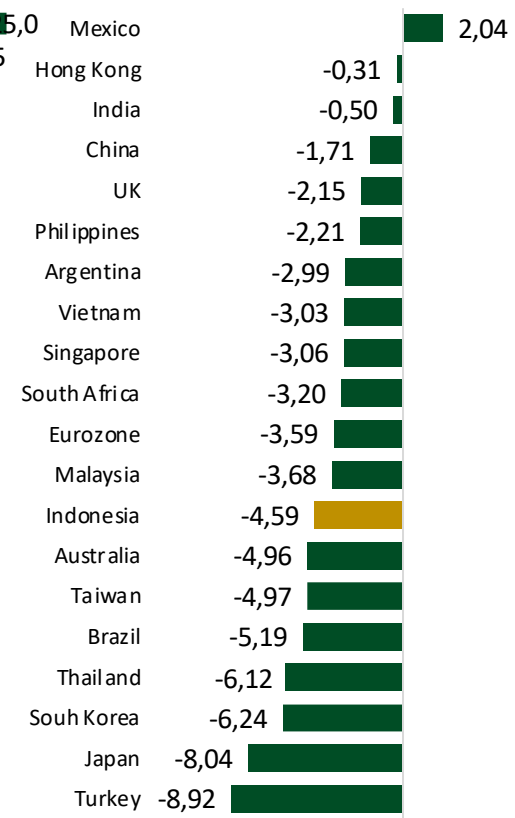
Government Debt Ratio to GDP % – G20 Countries



YTD Stock Performance - G20 Countries



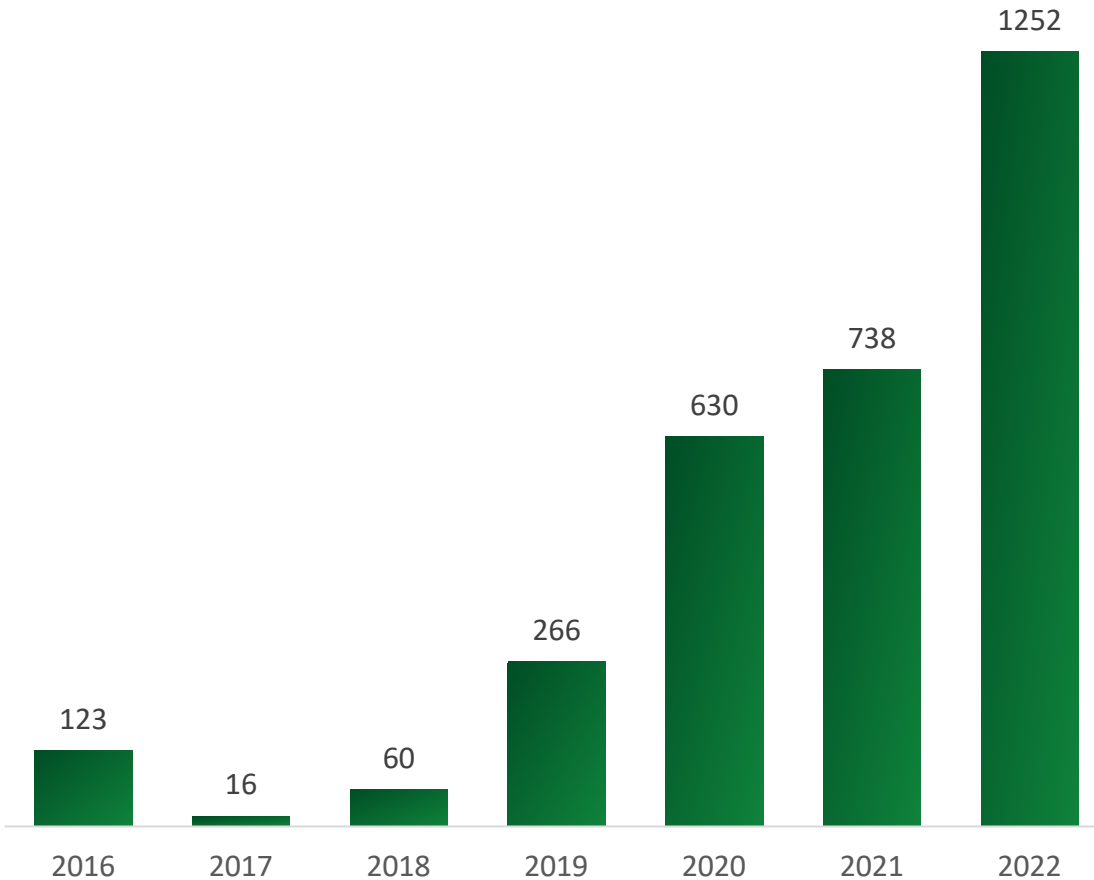
YTD Exchange Rate Against USD – G20 Countries



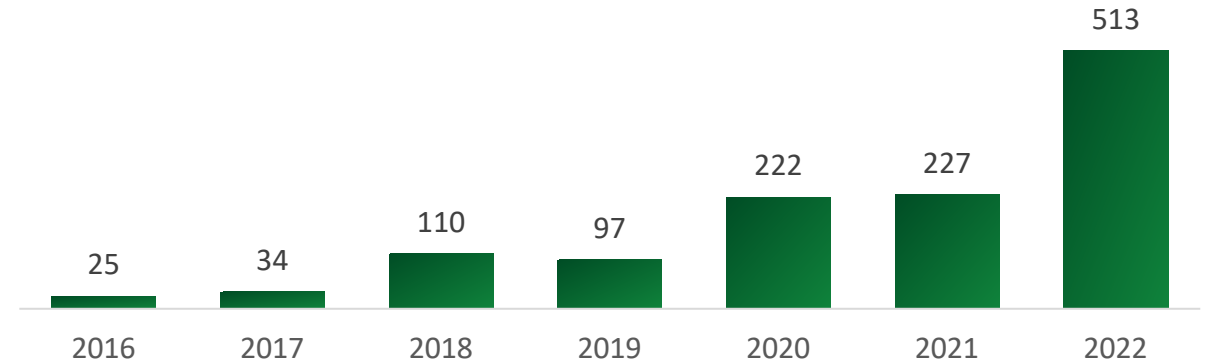


# Downstream Activities Also Contribute to Increasing Tax Revenue Along with Tax Holiday Facilities which are Slowly Decreasing

### Tax Revenue from Nickel Downstream Activity KBLI 24202 (USD Million)



### Corporate Income Tax of Nickel Downstream Activity (USD Million)



### Export Tax (USD Million)

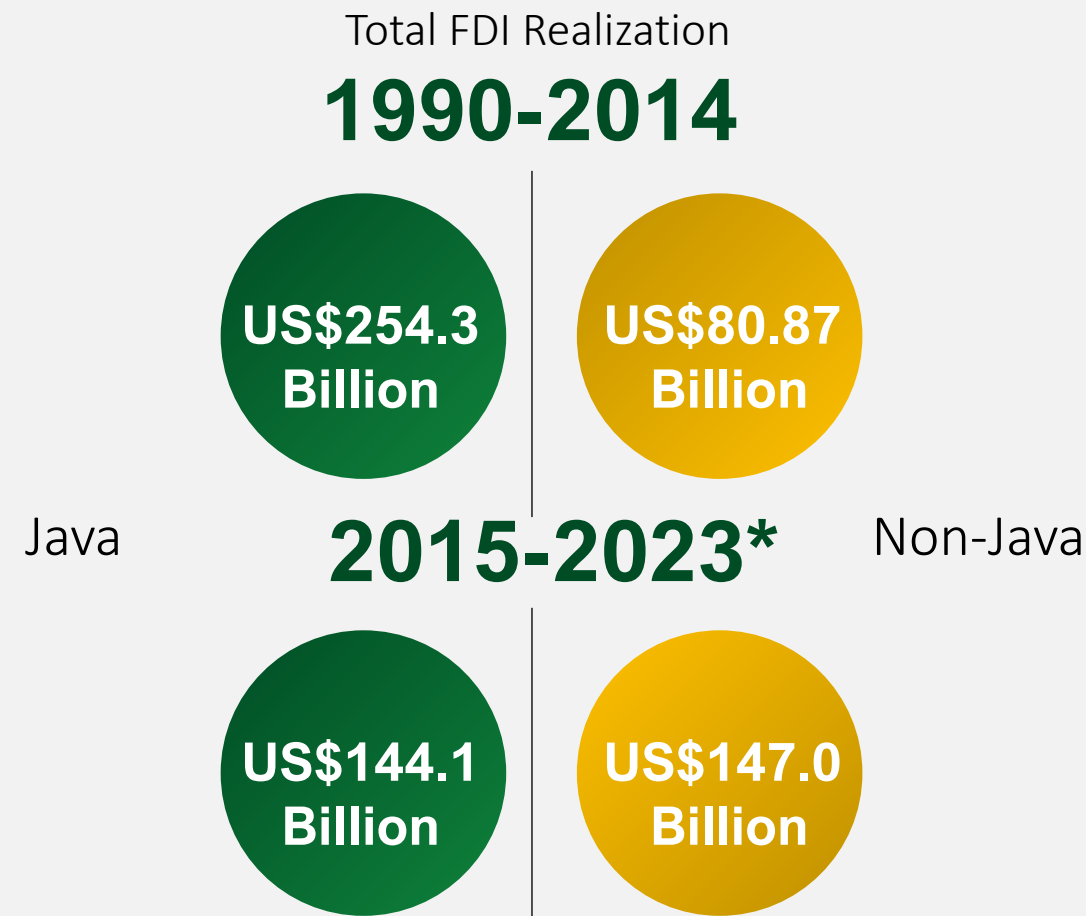
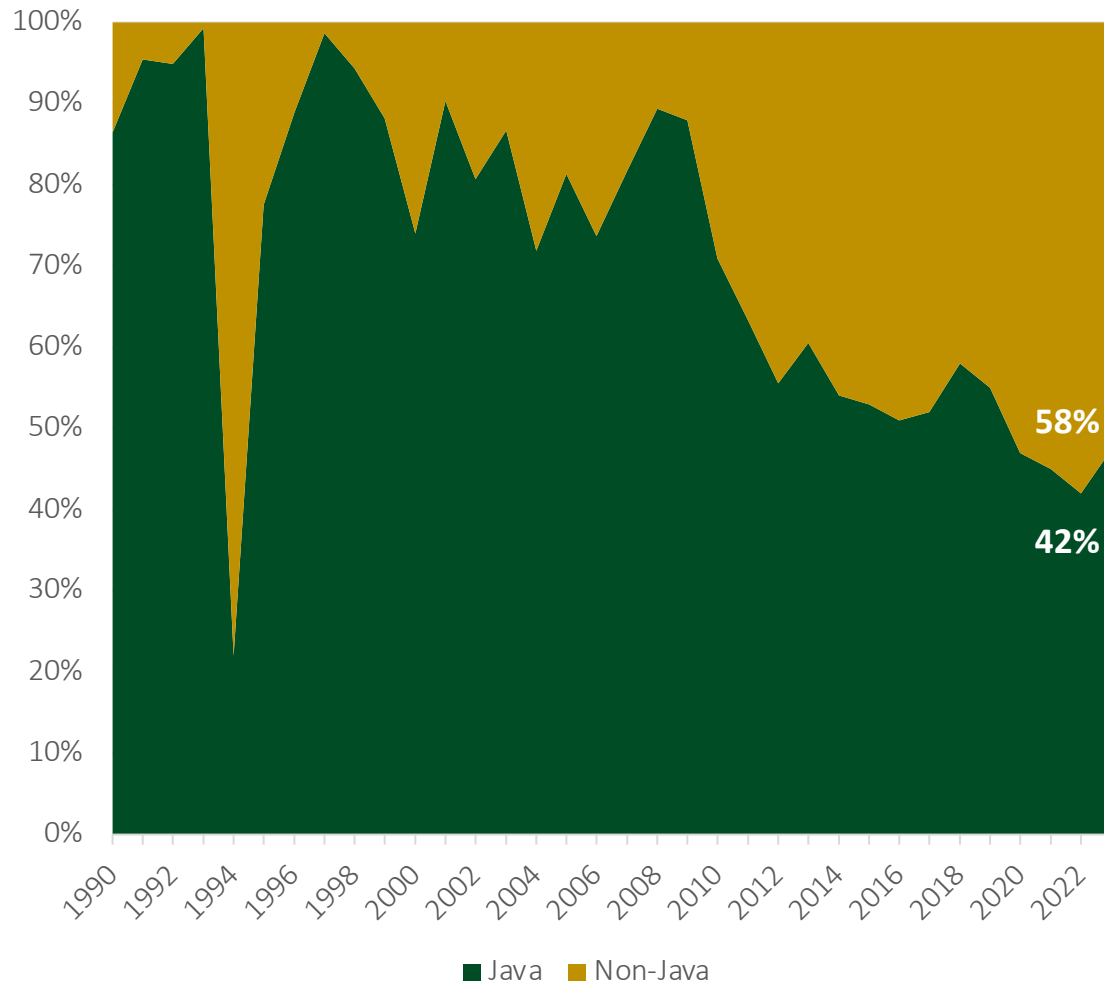


Notes:

\*: 10% of Nickel Ore Export Value in 2019 (US\$ 1.1 billion)

# From the Regional Perspectives, Downstreaming Also Encourages More Quality Investment in Eastern Indonesia

Comparison of FDI in Java and Outside Java (%)

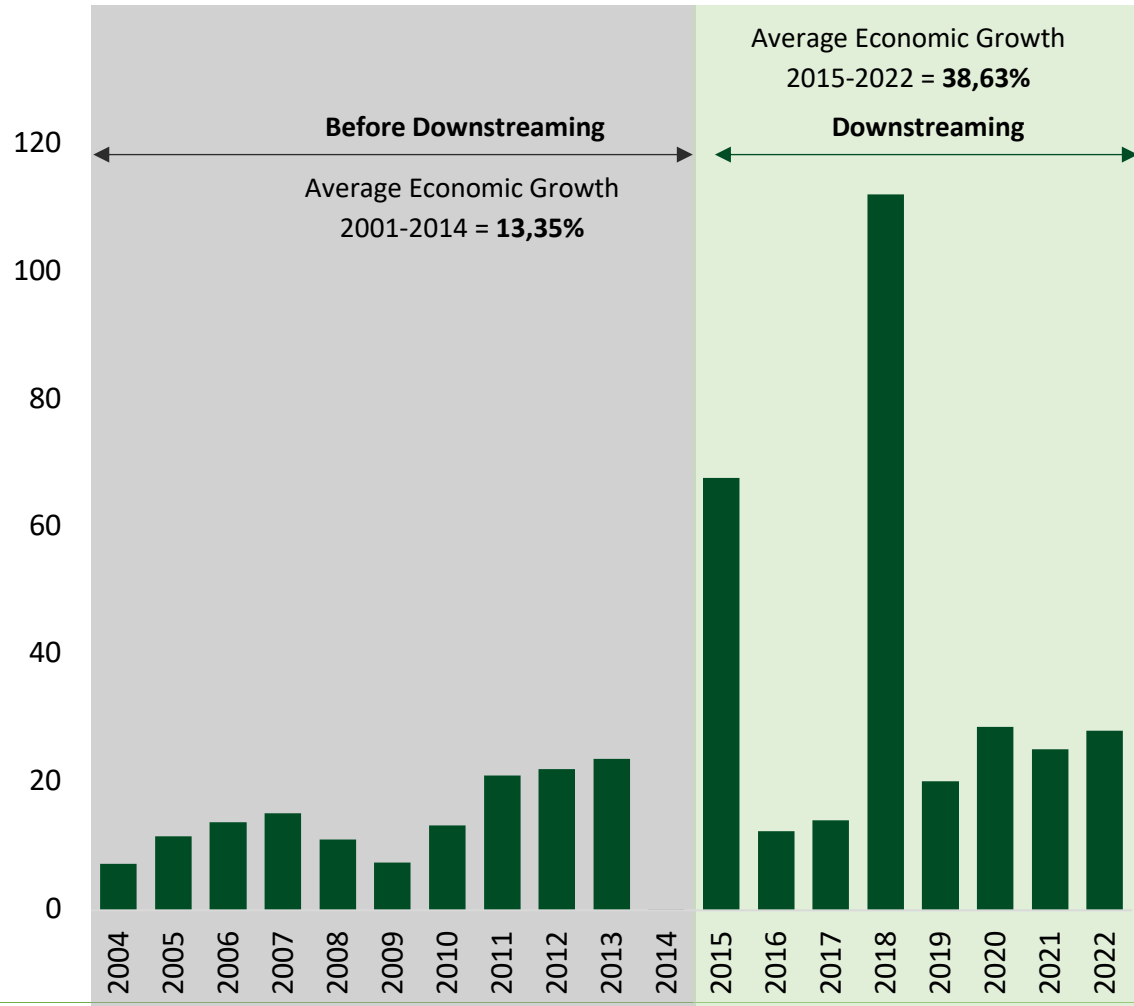




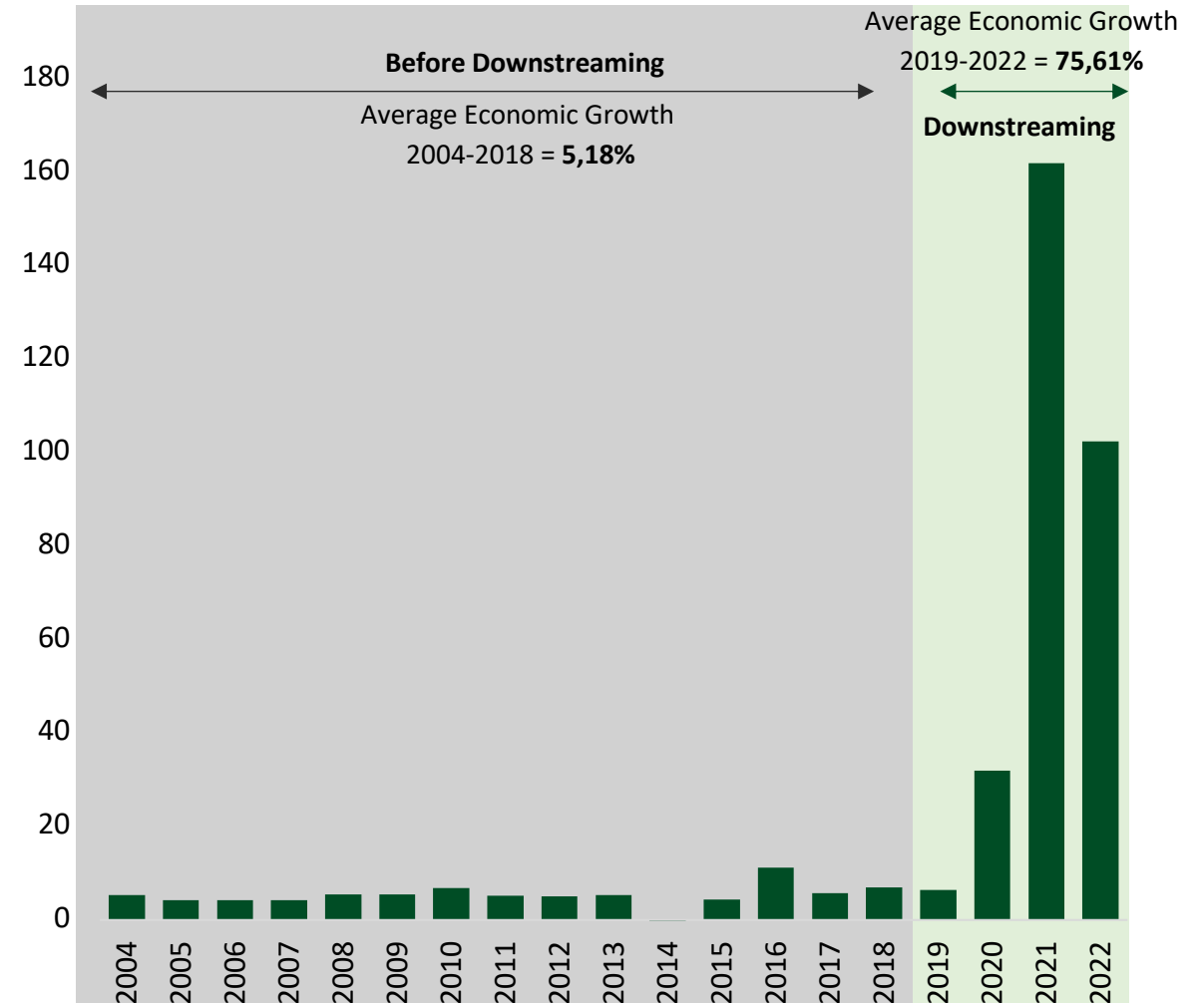


# Regional Economy Able to Grow Higher After Implementation of Downstream Policy

### Morowali Economic Growth (percent)



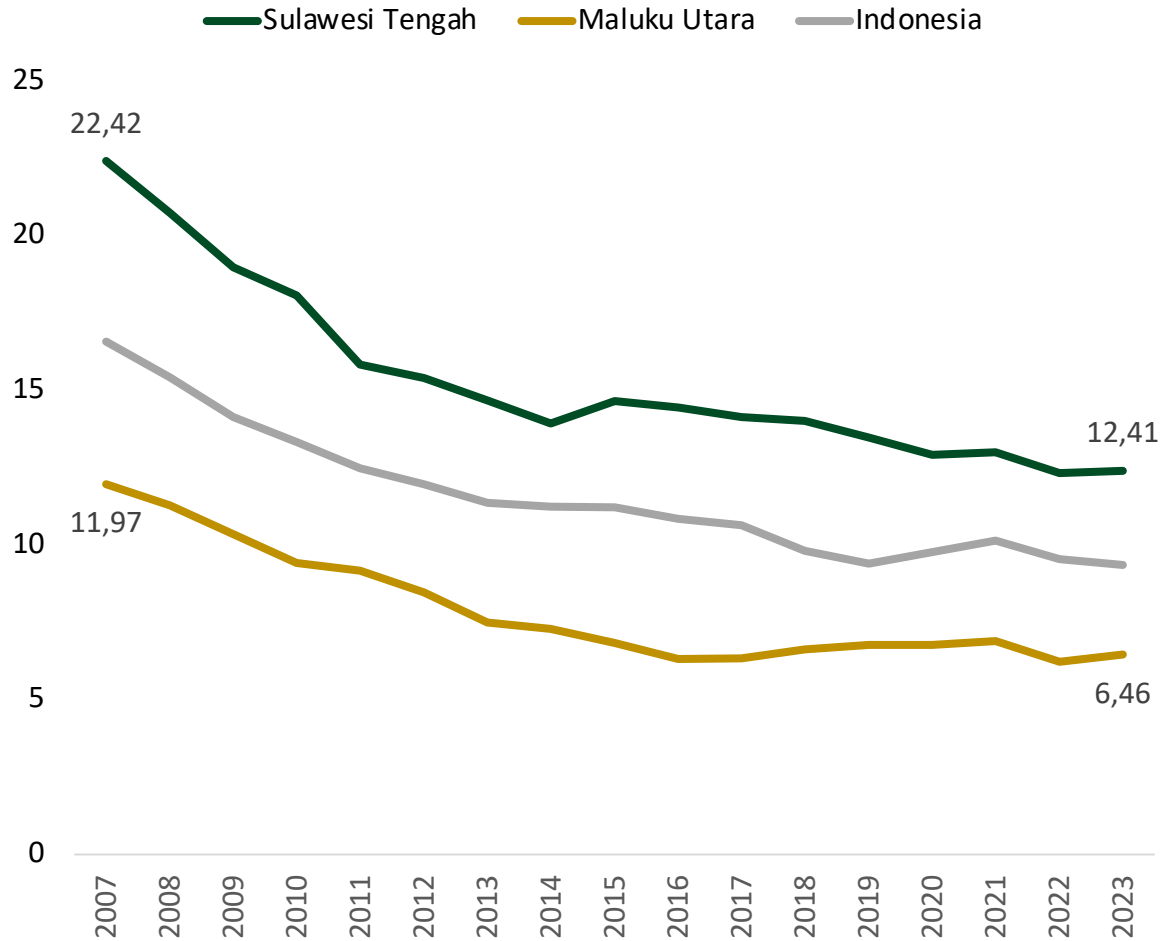
### Central Halmahera Economic Growth (percent)



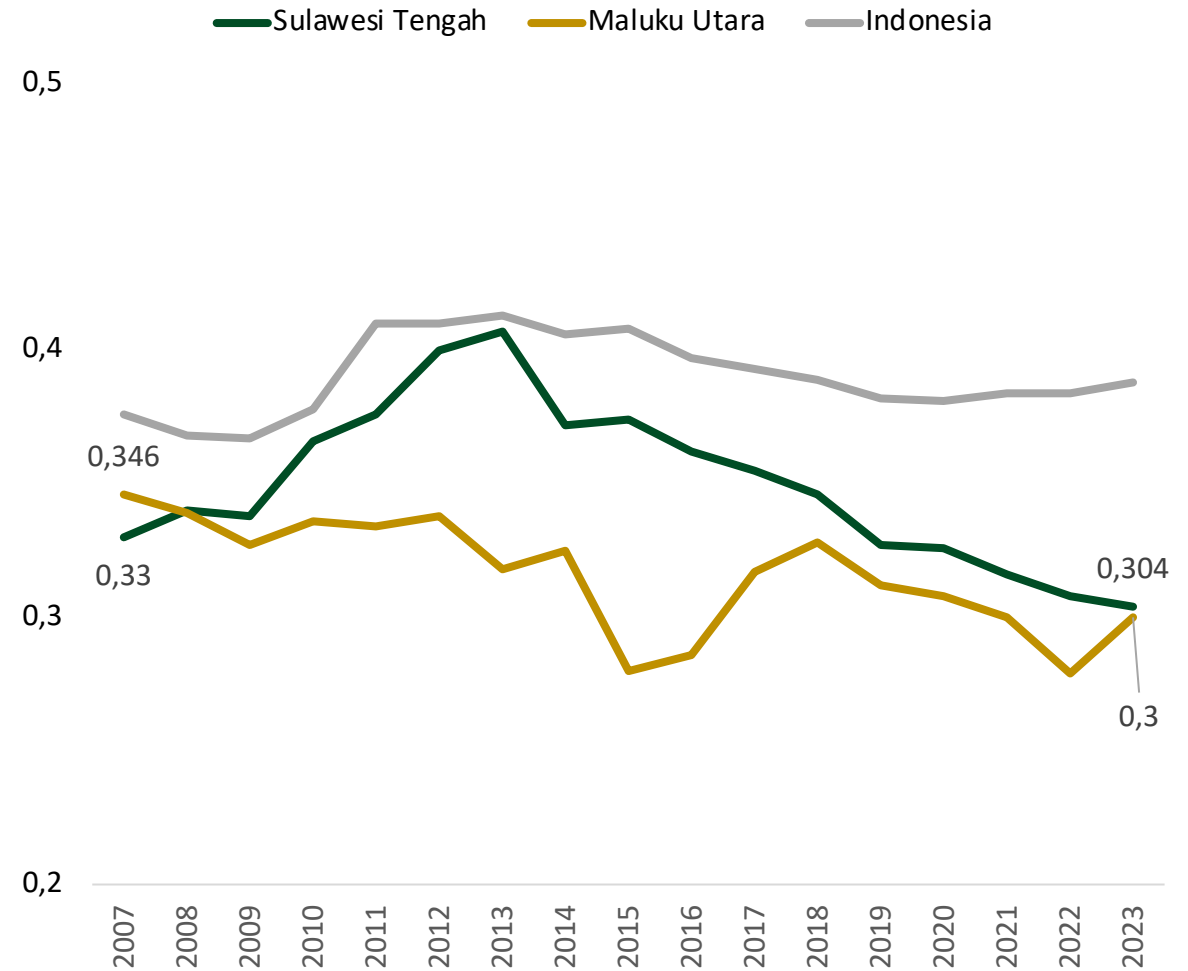
# The Poor Population in Downstream Areas is in a Declining Trend Accompanied by Relatively Low Inequality



Percentage of Poor Population (%)



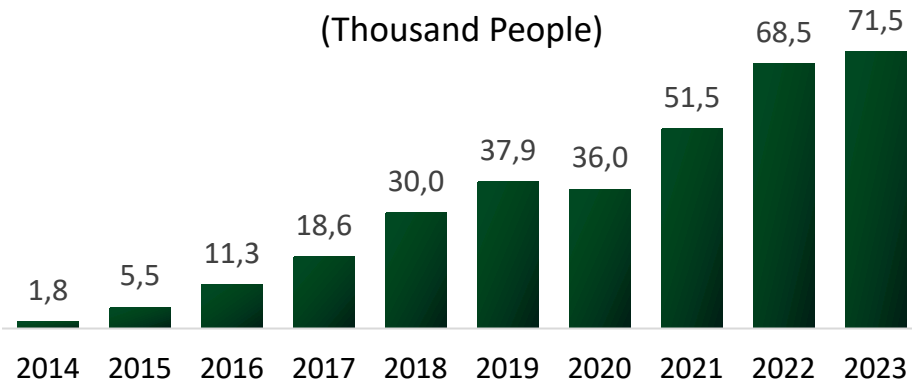
Gini Ratio



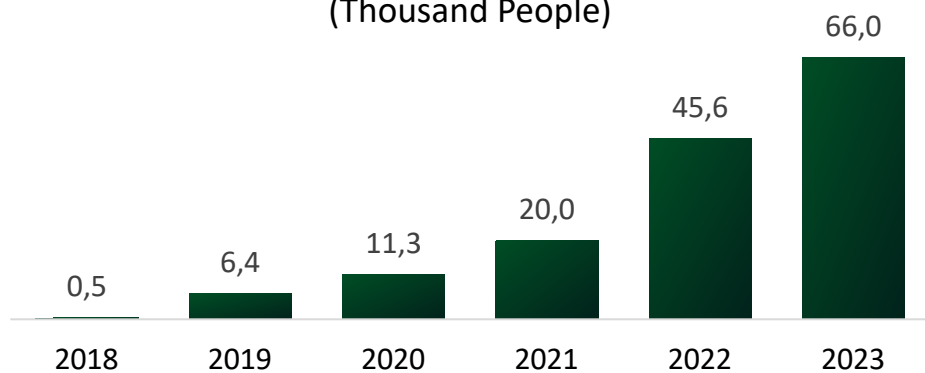
# High Job Demand Also Drives the Improvement of Access and Quality of Education through the Opening of Polytechnics and New Majors in Downstream Areas



**Number of Local Workers in PT IMIP**  
(Thousand People)



**Number of Local Workers in PT IWIP**  
(Thousand People)



## Institution



**Akademi Teknik Soroako**

ATS opened a new major in 2023, namely Bachelors of Applied Welding and Fabrication Engineering Technology (*S1 Terapan Teknologi Rekayasa Pengelasan dan Fabrikasi*). The total number of ATS alumni to date is 1517 people with a percentage of alumni who have worked at 91%.



**POLITEKNIK INDUSTRI LOGAM MOROWALI**

Established on August 31, 2016, PILM has 3 study programs and annually accepts 96 students, with 32 students for each study program:

- D-III Electrical and Installation Engineering
- D-III Mechanical Maintenance Engineering
- D-III Mineral Chemical Engineering



**Politeknik Tridaya Virtu Morosi**

Started the first teaching and learning activities in 2021 and accepts 108 students each year, with a composition of 36 students for each study program:

- D-III Metallurgical Technology Metal Industry
- D-III Civil Technology
- D-III Metal Industry Electrical Technology

## Industry Partners

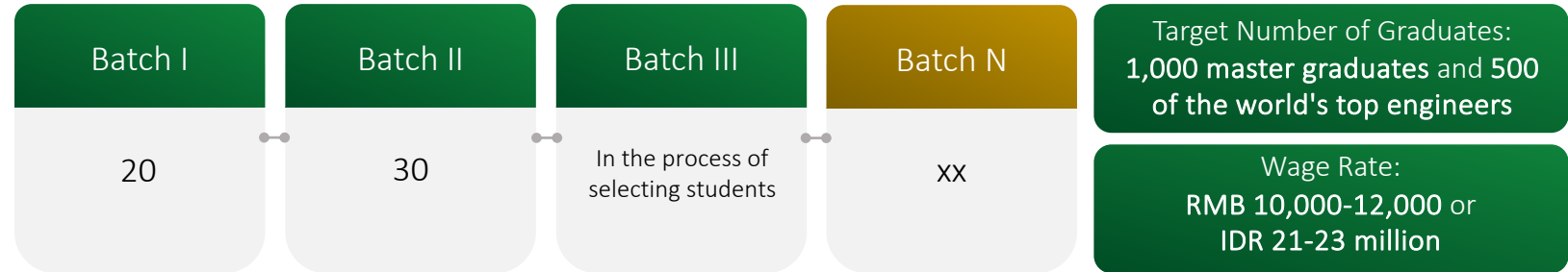


# Not Only Increasing Economic Value, Technology Transfer and Human Resource Development Are Important Parts of Downstreaming

**Parties Involved**

<p>Private Sector</p> <p><b>Green for a better World</b> <b>QIVB 青美邦</b> <b>青山绿水 美丽世界</b></p> <p>QMB</p>	<p>Academia</p> <p>CSU + ITB</p>
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## Number of Graduates from the Cooperation Program



## World-class Joint Testing Center for Hydrometallurgy and New Energy Materials





# Outline Agenda



Introduction to Indonesia's Nickel Industry

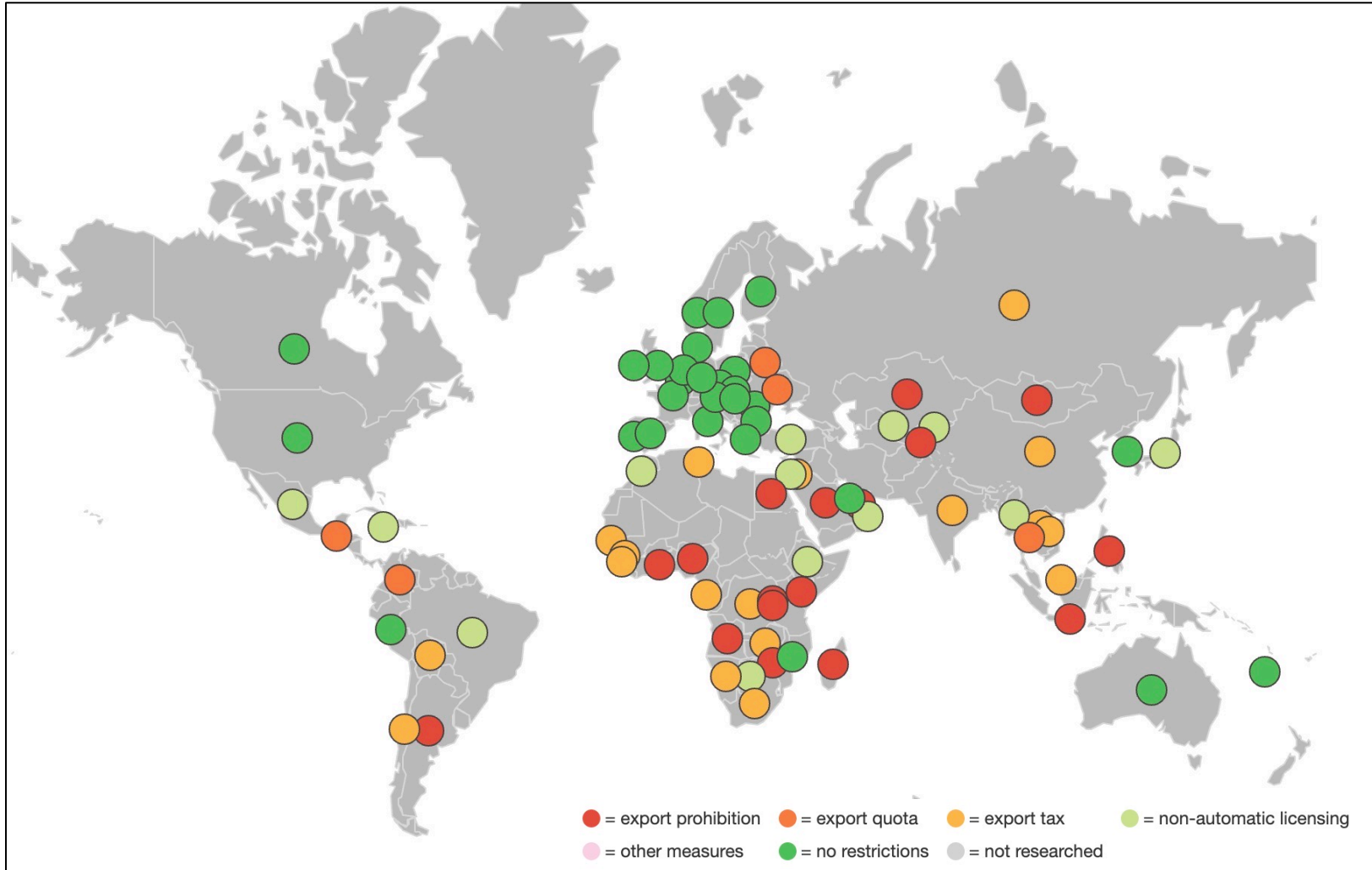
Indonesia Downstream Strategy to Increase Value Added of Critical Minerals

Creating Sustainable EV Battery Ecosystem in Indonesia

# Many Developing Countries Implement Export Prohibition Policies for Mineral Commodities Including Indonesia on Its Nickel Ore Product



Trade Restriction for Mineral Commodities, 2021



Source: OECD

## List of Export Prohibition Policy



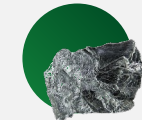
### Metal Waste and Scrap

Argentina, Ghana, Nigeria, Egypt, Madagascar, Rwanda, Burundi, Kenya, UEA, Mongolia, etc



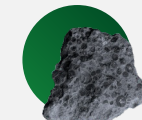
### Diamonds

Angola



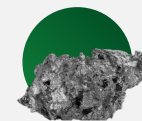
### Chromium

Zimbabwe



### Bauxite

Tajikistan



### Copper

Mongolia



### Gold


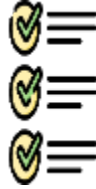

Philippines



# The Government Focuses On Regulations And Procedures For Ease of Doing Business

Improvement of regulations in the context of structural reforms to the Job Creation Law and its derivative regulations can provide legal certainty to business actors.

## Streamlining Administrative Procedures and a Positive Investment Climate

<i>Ease of Doing Business Policy</i>	<i>Latest update</i>	<i>Impact on ease of doing business</i>
 Law No. 11 of 2020 About Job Creation	→ PERPPU 2 of 2022 concerning Job Creation has been issued	→ Providing legal certainty to business actors
 Government Regulation No 5 of 2021	→ Revision of the Legal Draft and Appendix I/II	→ Improving risk-based licensing procedures (NSPK) and harmonization with other PPs
 OSS RBA System	→ Assistance in conformity evaluation between Regulation and System	→ Better and smoother Business Licensing Services



# Indonesia Offers Incentives Package Comparable to Other Countries

## Fiscal Incentives

### Corporate Tax

- Up to 100% Tax Holiday up to 20 years
- Tax Allowance for exposure on non-main business activity

### VAT

- VAT exemption for imported capital goods
- VAT exemption for domestic procurement on special economic zones

### Duties

- Import duty exemption (for capital goods or materials)
- 0% import duty for 40% domestic component product

### Local Gov. Tax

- 50% - 100% local government tax reduction

## Non-Fiscal Incentives



Ease of Permits Application



Special Regulation for Employment



Land and Spatial Planning

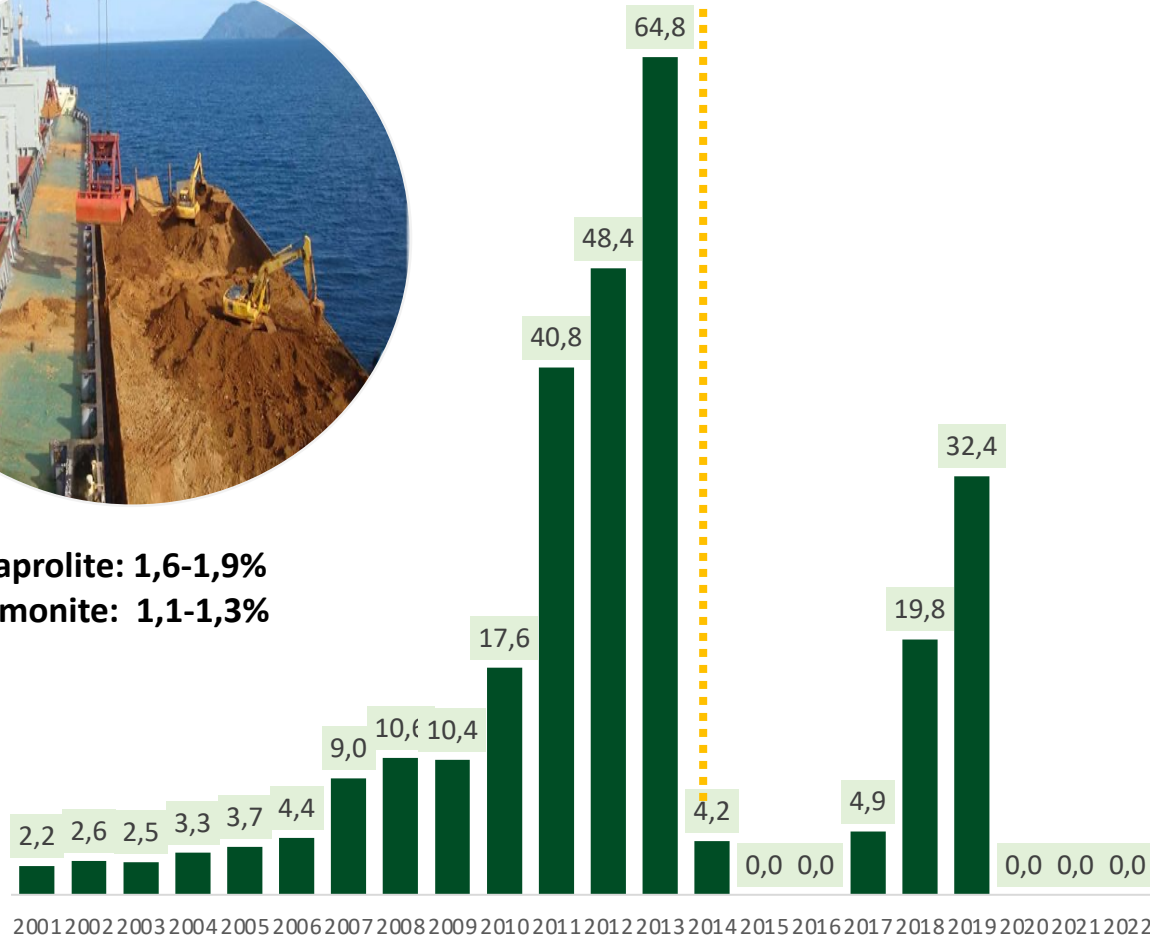


# Before the Nickel Export Ban Was Implemented, Indonesia Exported Large Amounts of Nickel Ore, Dominated by China

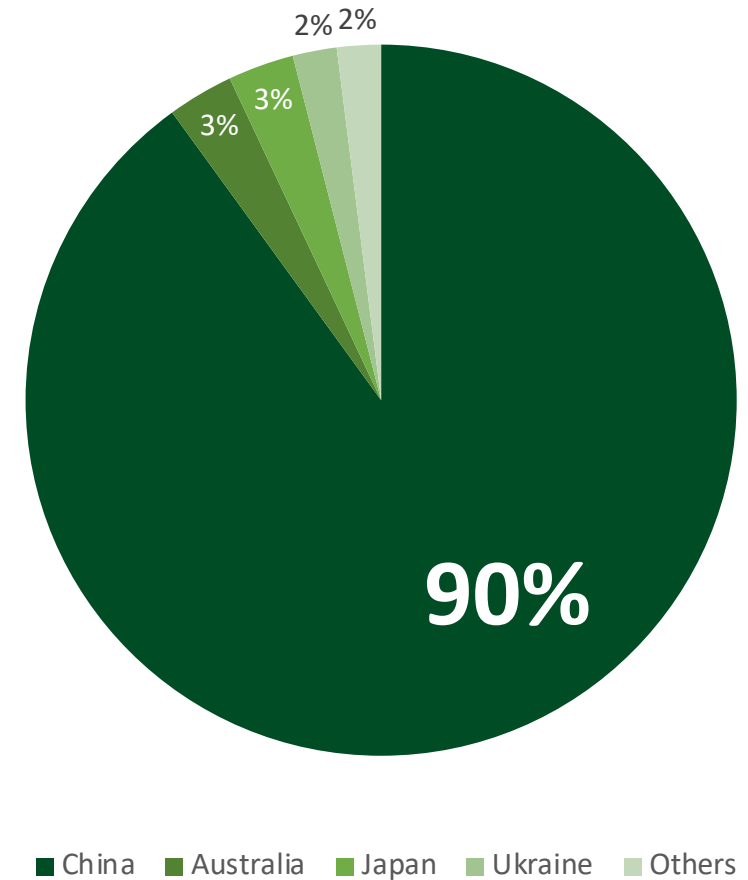
Nickel Ore Export Volume (Million Tons)



Saprolite: 1,6-1,9%  
Limonite: 1,1-1,3%



Composition of Nickel Ore Exports Based on Destination Country (2013 - Percent of Total)



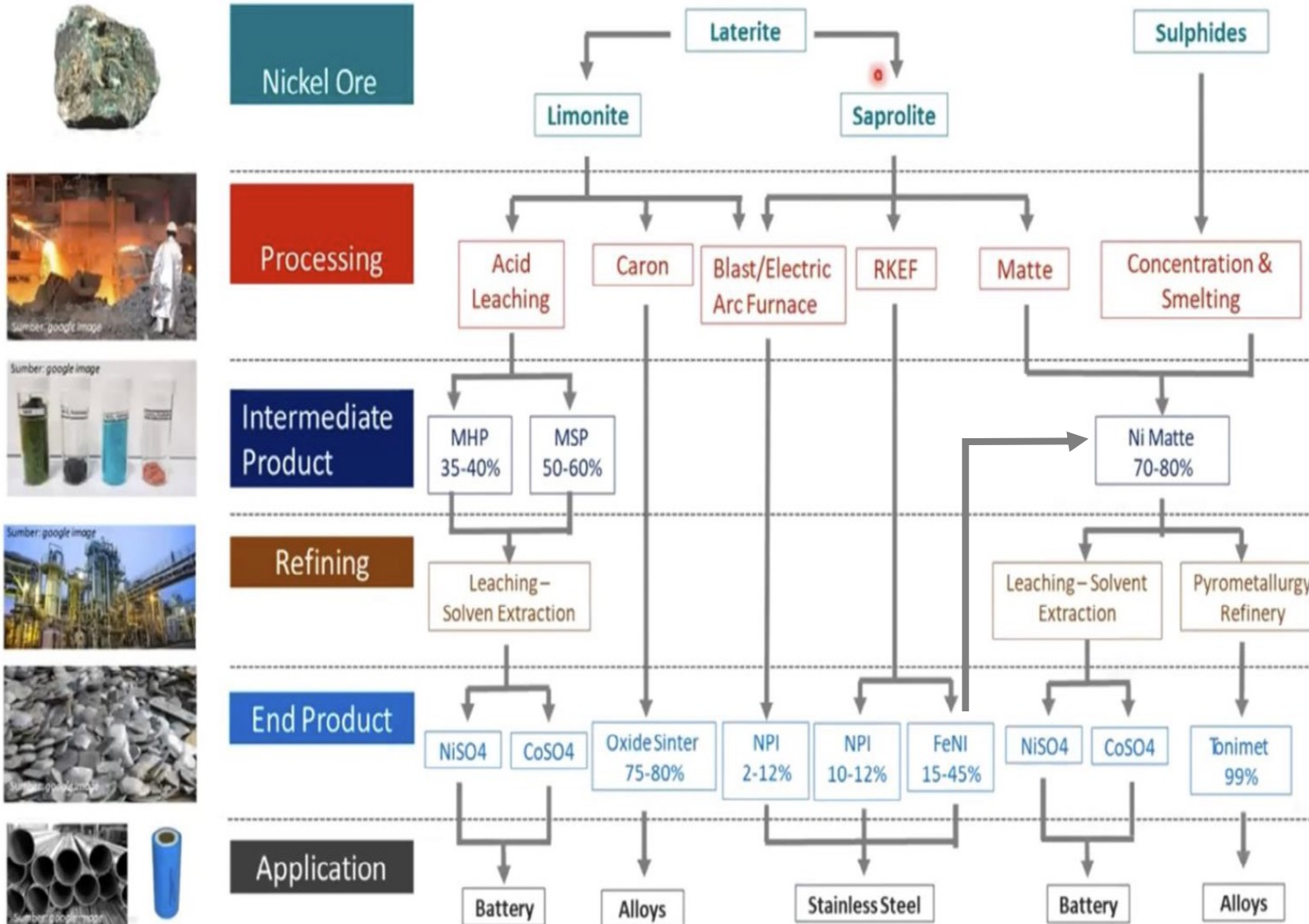
# Understanding The Value-Added Process and Identifying Key Players



## Leading Companies Invested in Indonesia



華新麗華股份有限公司







# Developing Integrated Industrial Park: IMIP (Indonesia Morowali Industrial Park)



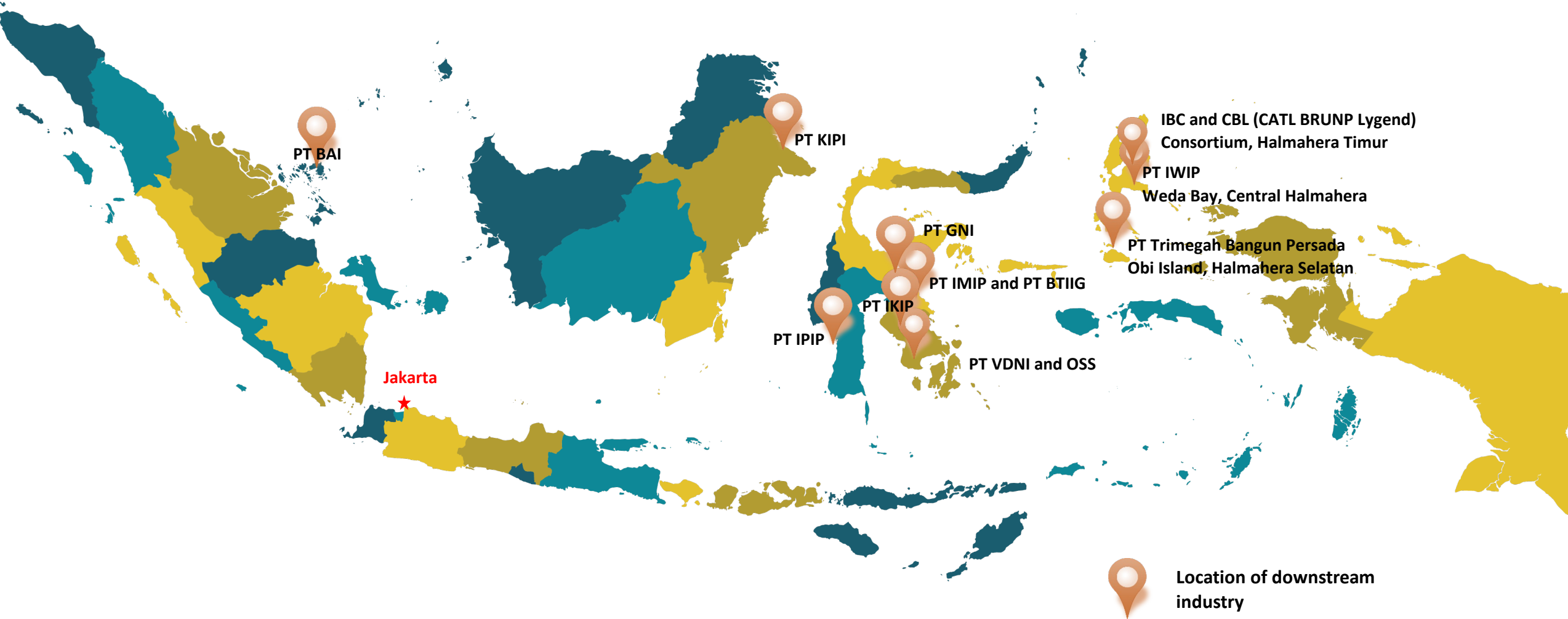
Port: 30kt berth, 50kt berth and 100kt berth



5-star hotel



# The Integrated Industrial Estates Are Built Close to The Source of Critical Minerals Mine



# Outline Agenda



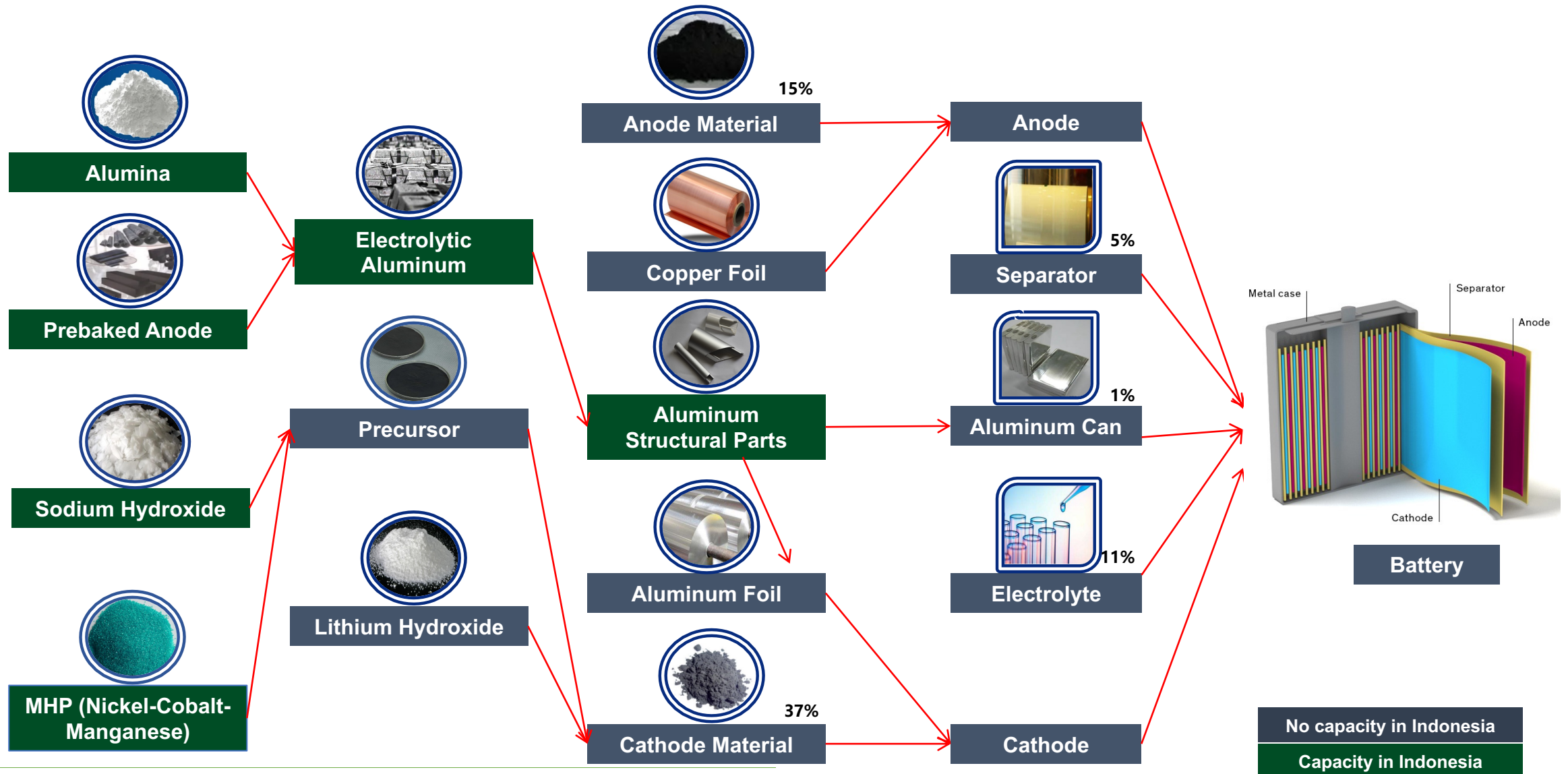
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# The Lithium Battery Supply Chain Ecosystem Is Quite Complex and Involves Many Minerals Other Than Nickel





# Indonesia Is Currently Developing A Domestic Lithium Battery Industry Ecosystem

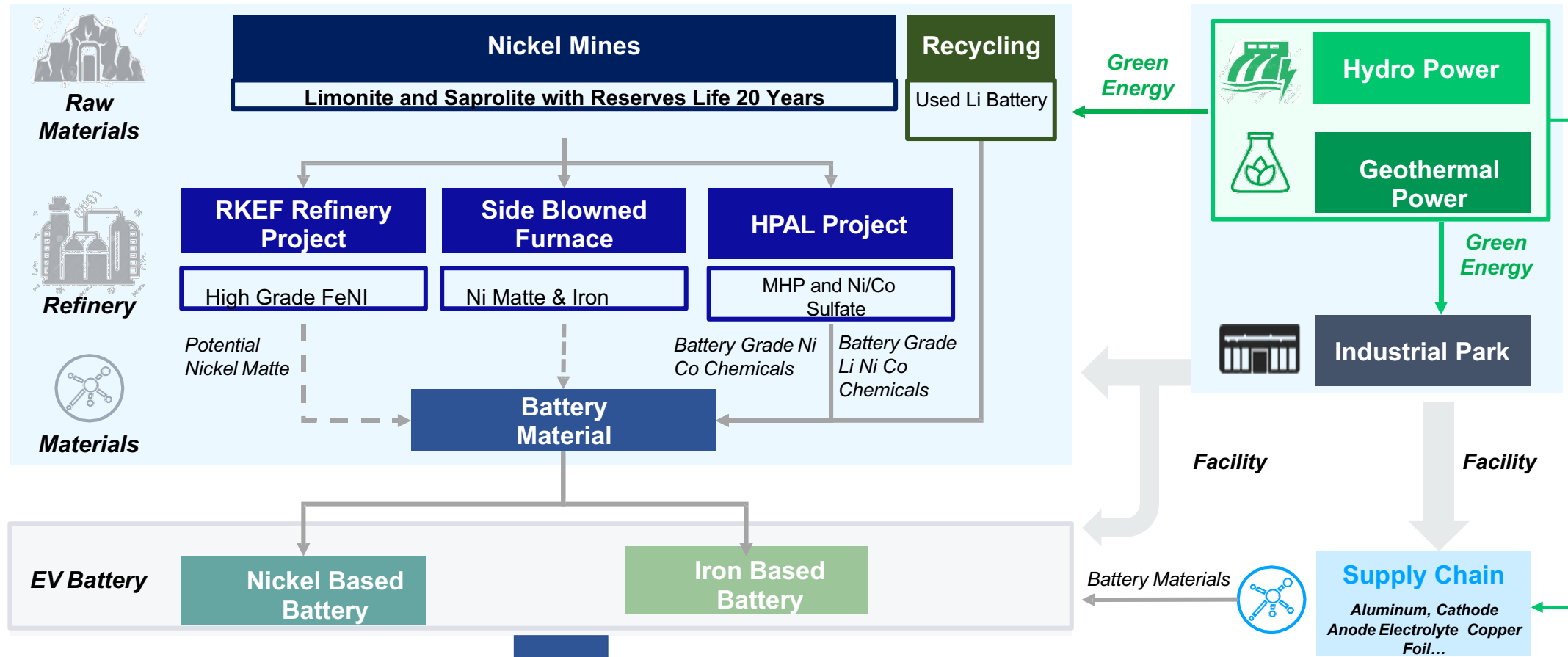
Upstream				Midstream				High-Tech Downstream			
Location Closer to CM Resources				Location Neutral				Location Closer to EV Market			
Mining		Metallurgy		Refinery		Precursor		Cathode		Battery	
Resource		Materials		Materials		Materials		Materials		Materials	
Nickel	✓	Nickel Ore	✓	MHP	✓	Sodium Hydroxide	✗	Lithium Hydroxide	uc	Lithium Hydroxide	uc
Cobalt	✓	Limestone	✓	NPI/FeNi	✓	Ammonia	✓	Other Material	✗	Anode Materials	uc
Manganese	✓	<b>Power &amp; Fuel</b>		Sulfuric Acid	✓	<b>Power &amp; Fuel</b>		<b>Power &amp; Fuel</b>		Separator	✗
Lithium	✗	Green Electricity	✓	Sodium Carbonate	✗	Green Electricity	✓	Green Electricity	✓	Electrolyte	✗
Copper	✓	Natural Gas	✓	Hydrochloric Acid	✗	Thermal Coal	✓	Thermal Coal	✓	Copper Foil	uc
Aluminum	✓	Thermal Coal	✓	Extraction Agent	✗	<b>Power &amp; Fuel</b>				Alum. Foil	✗
				<b>Power &amp; Fuel</b>		Green Electricity	✓				
				Thermal Coal	✓						

✓ available in Indonesia  
 ✗ not available in Indonesia  
 uc under construction

Source: CMAI Study



# The Main Goal of Nickel Downstreaming is to Create a Competitive Ecosystem in the Lithium Battery and Electric Vehicle Value Chain



Electric Car Factory in Indonesia



**Incentive Policy for Investment and Encouraging Domestic EV Demand:**

- Investment facilities (fiscal and non-fiscal)
- Stimulus to encourage the use of EVs in the country





# The Indonesian Government Ensure that Ongoing Downstreaming Upholds Environmental, Social and Governance (ESG) Aspects

1. Regulations and Standardization on Sustainability Applicable in Indonesia



**Financial Services Authority (Otoritas Jasa Keuangan)**  
Sustainable Financial Report



**EITI - Transparency Data for Extractive Industry**



**Ministry of Energy and Mineral Resources**  
Good Mining Practices Regulation



**IRMA Standards**  
IRMA standards can complement existing regulations in Indonesia so that they can be collaborated with global principles

2. Clean Energy that Will Support Indonesia's Next Project Under Development



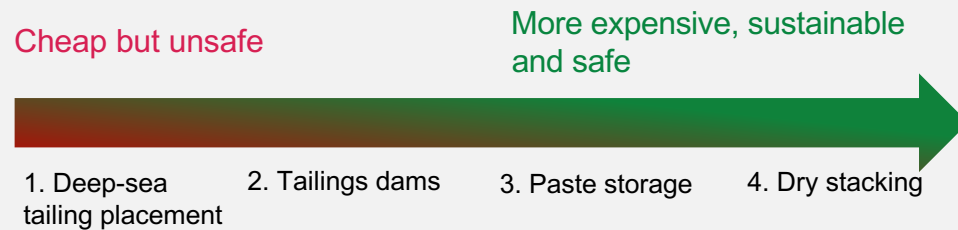
**Mentarang Hydropower Project** will power the North Kalimantan Industrial Estate in the upcoming years.

KIPI will serve as location for battery supply chain development other than the already existed one in Morowali and Weda Bay.



**ChengTok Lithium Project in Indonesia will build a photovoltaic power generation system** to create the world's first zero-carbon intelligent factory of Chengtun Group.

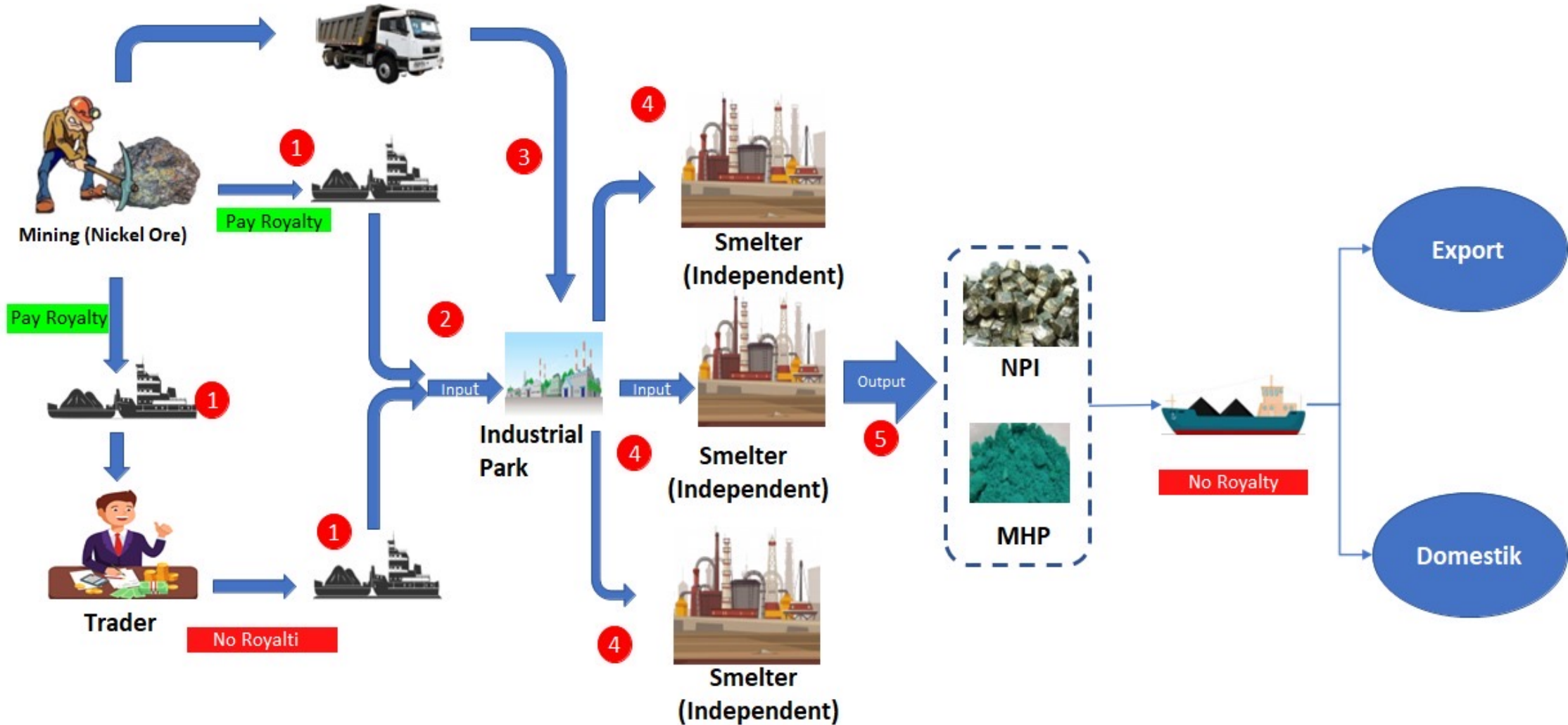
3. Disposal of Industrial Waste Will Be Done as Safely as Possible (Example: Battery Industry)



The Government of Indonesia **does not - and will not - authorize deep-sea tailings placement.** All HPAL processing facilities in Indonesia utilize tailings dams, dry stacking or a combination of both.



# Implementing Traceability and Transparency System for Nickel Production in Indonesia for Monitoring and Evaluation for ESG Implementation





## Conclusion and Recommendation

1. Understanding value-added chain and the economic feasibility is important for policy makers of critical mineral's producing countries before they decide which industrial policies to implement to increase value added. Each critical minerals has unique supply chain and its value added on the different stage. Simply implementing export restriction on the raw critical minerals may not be beneficial for the producing countries if they can not attract investment on the processing and refining of the critical minerals.
2. As for Indonesia, our successful policies on nickel industrial strategy not only come from our export ban on the nickel ore, but also combination of different fiscal and non fiscal incentives to attract investment on the refining and processing of nickel. An integrated industrial estate development close to critical mineral mine's location can be considered to ensure competitive industrial landscape through lowering logistic cost.
3. Government of Indonesia also working together with leading companies from China, Japan, South Korea and United States to ensure that their downstream industries (i.e: stainless steel, EV battery components such as cathode, battery cells and packs) receive sufficient processed nickel supply from Indonesia.

**Thank You**

