



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

Indonesia's Critical Minerals Value Added Policies: Creating Sustainable and Resilient Supply Chain

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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	
Limonite				
0.8 to 1.5	0.1 to 0.2	40 to 50	0.5 to 5	
Saprolite				
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.^[8] 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

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

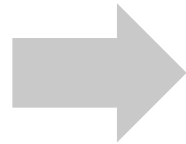


Commodity Based High Value-Added Industrialization Towards a More Complex Economic Structure: Downstream Policy

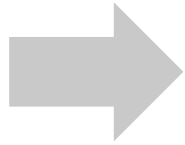
Downstream Policy Moving Forward:

- 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

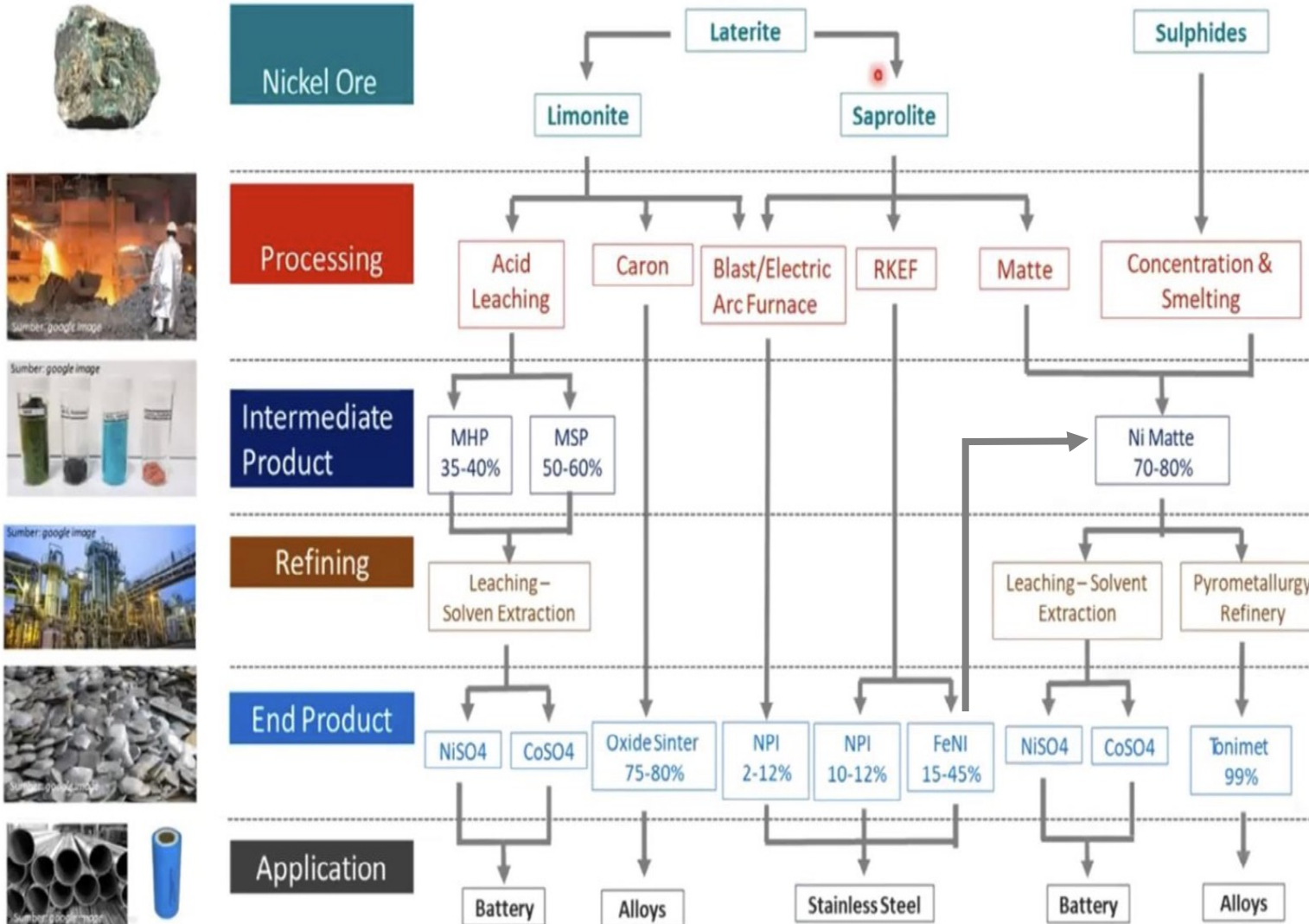
Understanding The Value-Added Process and Identifying Key Players



Leading Companies Invested in Indonesia



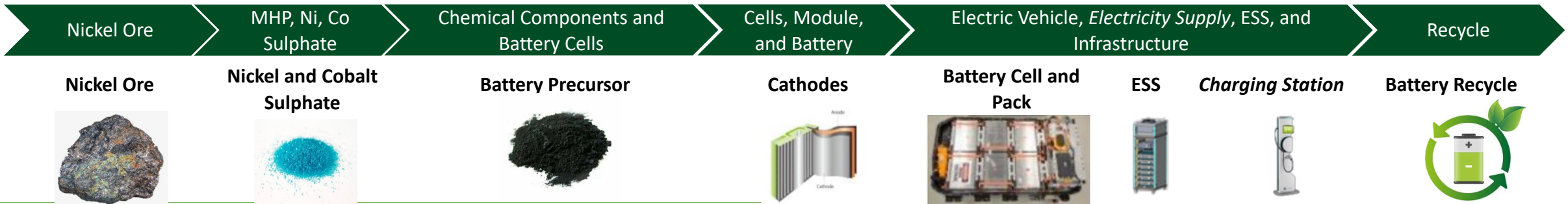
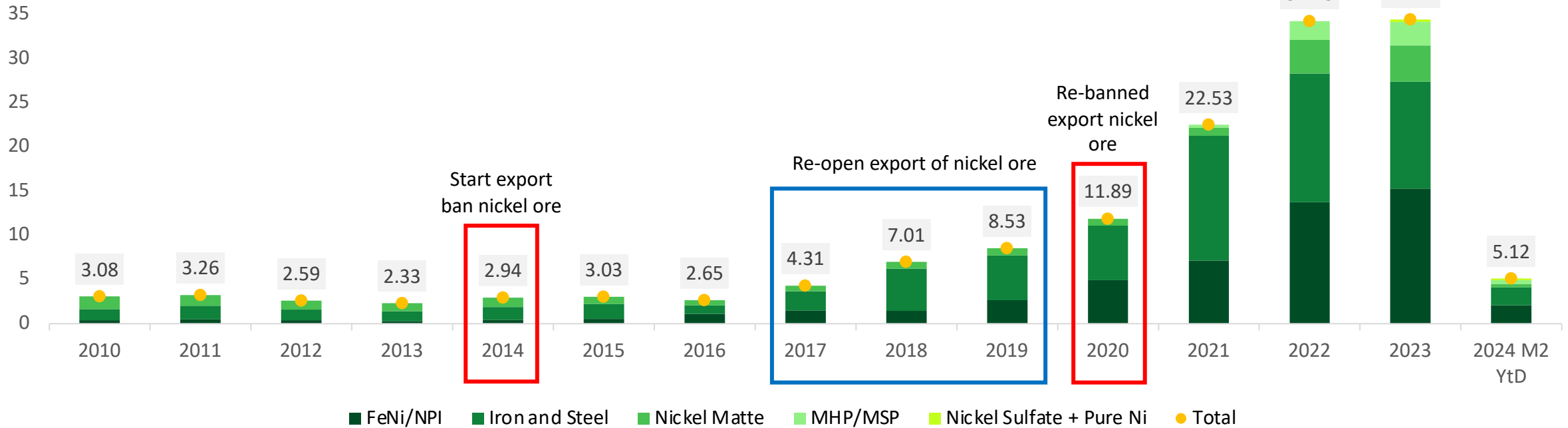
華新麗華股份有限公司





Downstreaming Policy Encourages Diversification of Exports of Indonesian Nickel Derivative Products

Export of Nickel Downstream Products
(Million USD)





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



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



5-star hotel





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

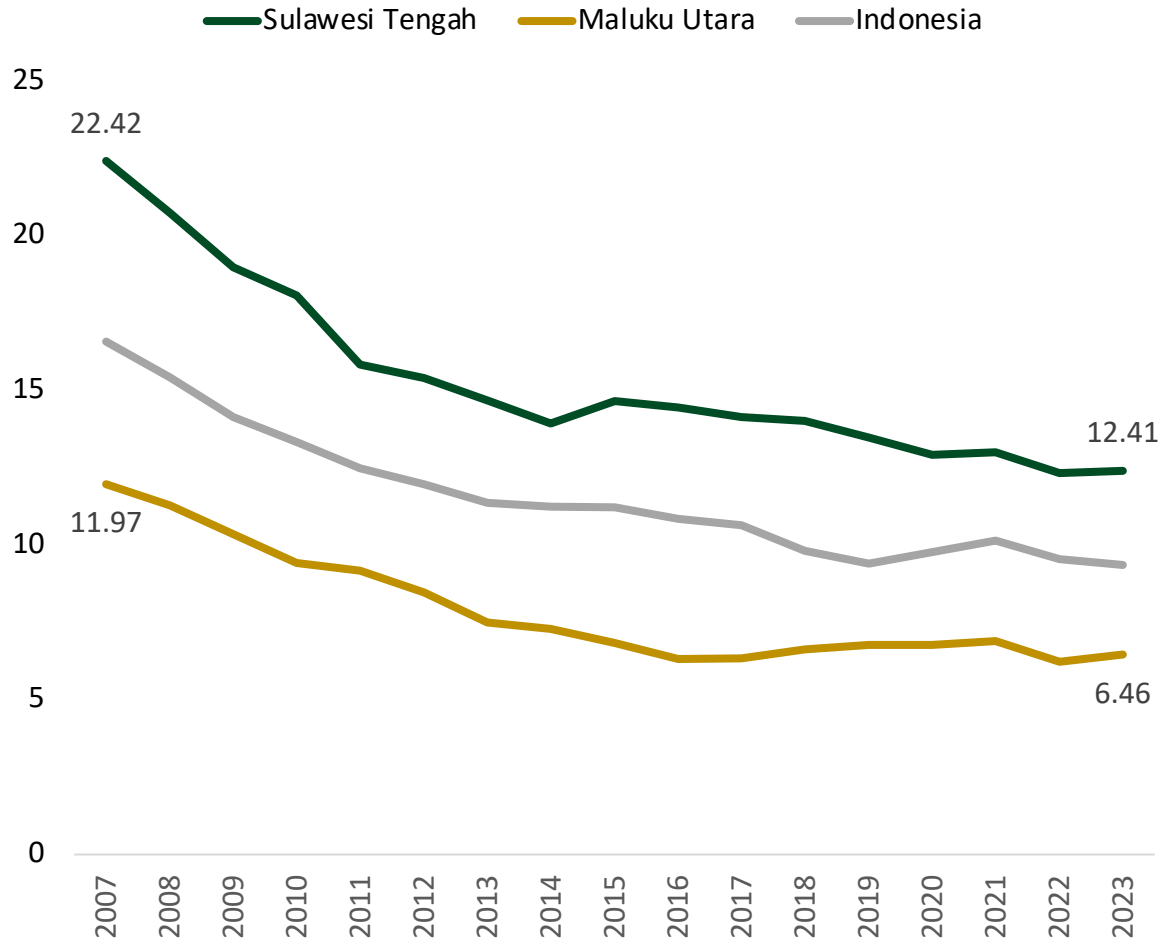


Land and Spatial Planning

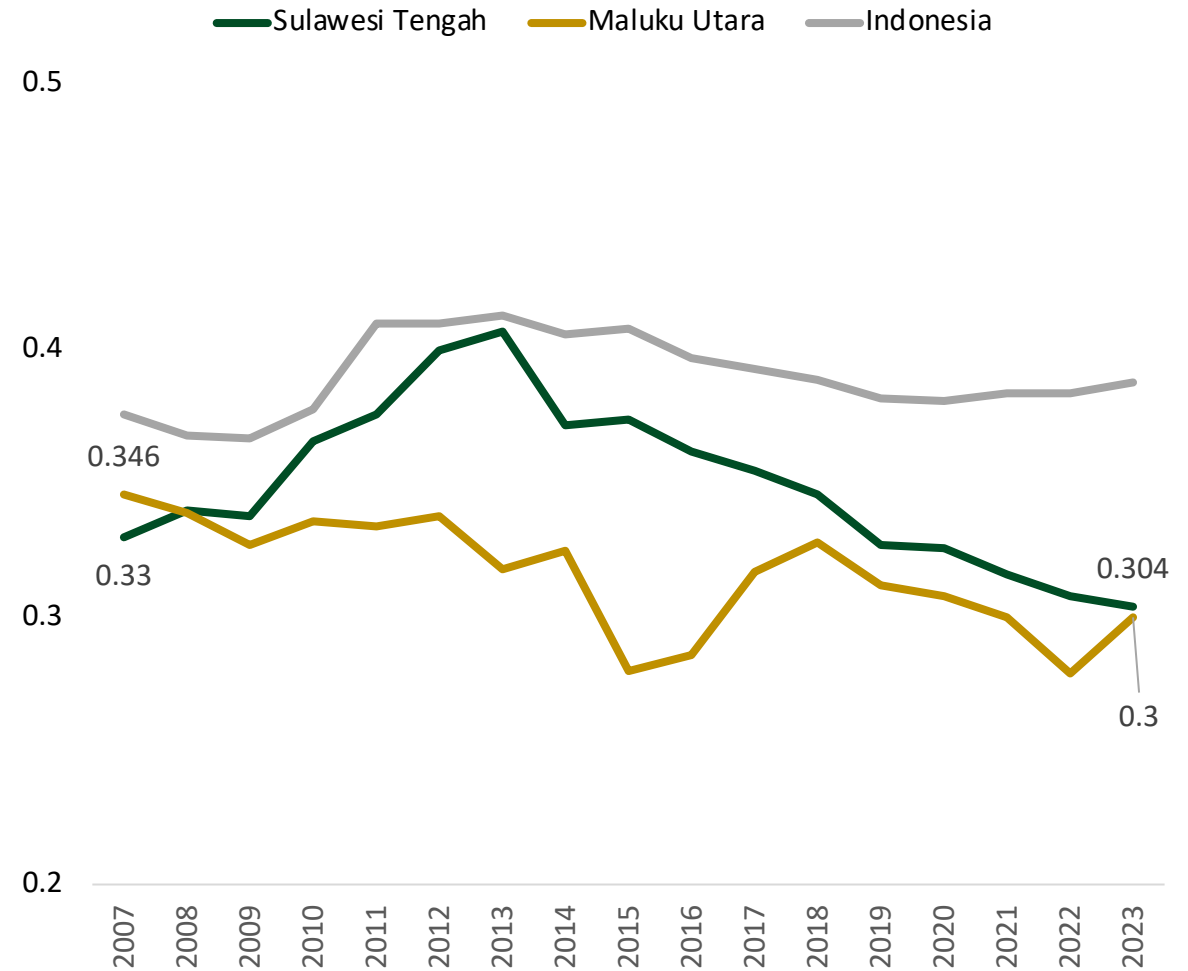
The Poor Population in Downstream Areas is in a Declining Trend Accompanied by Relatively Low Inequality



Percentage of Poor Population (%)

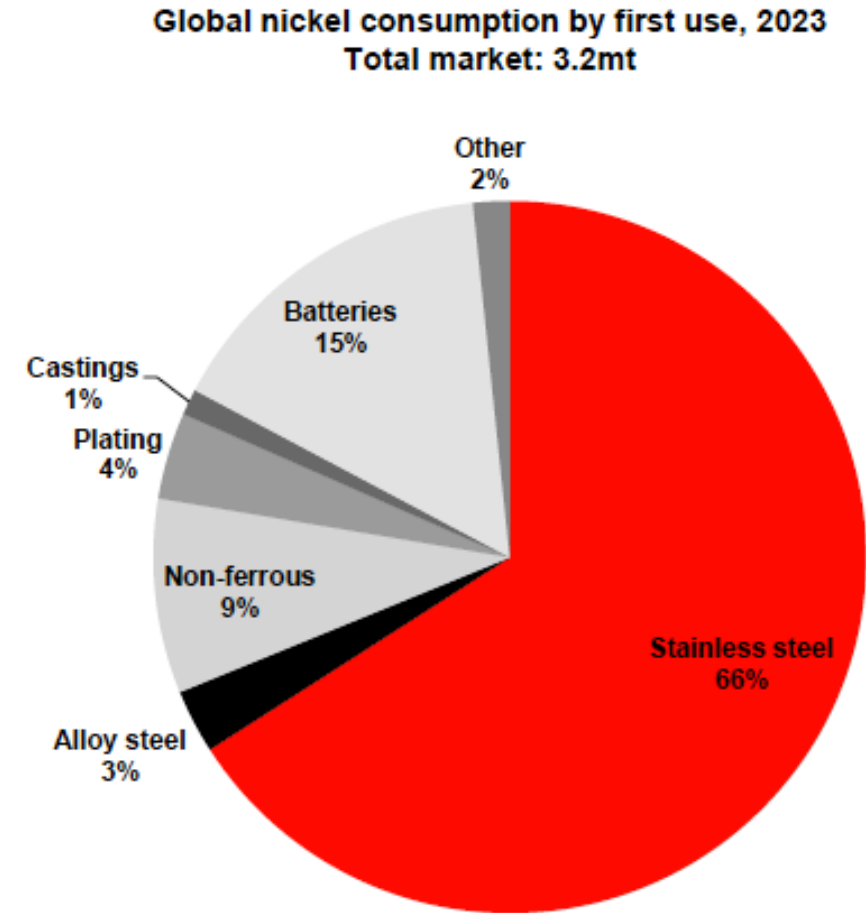
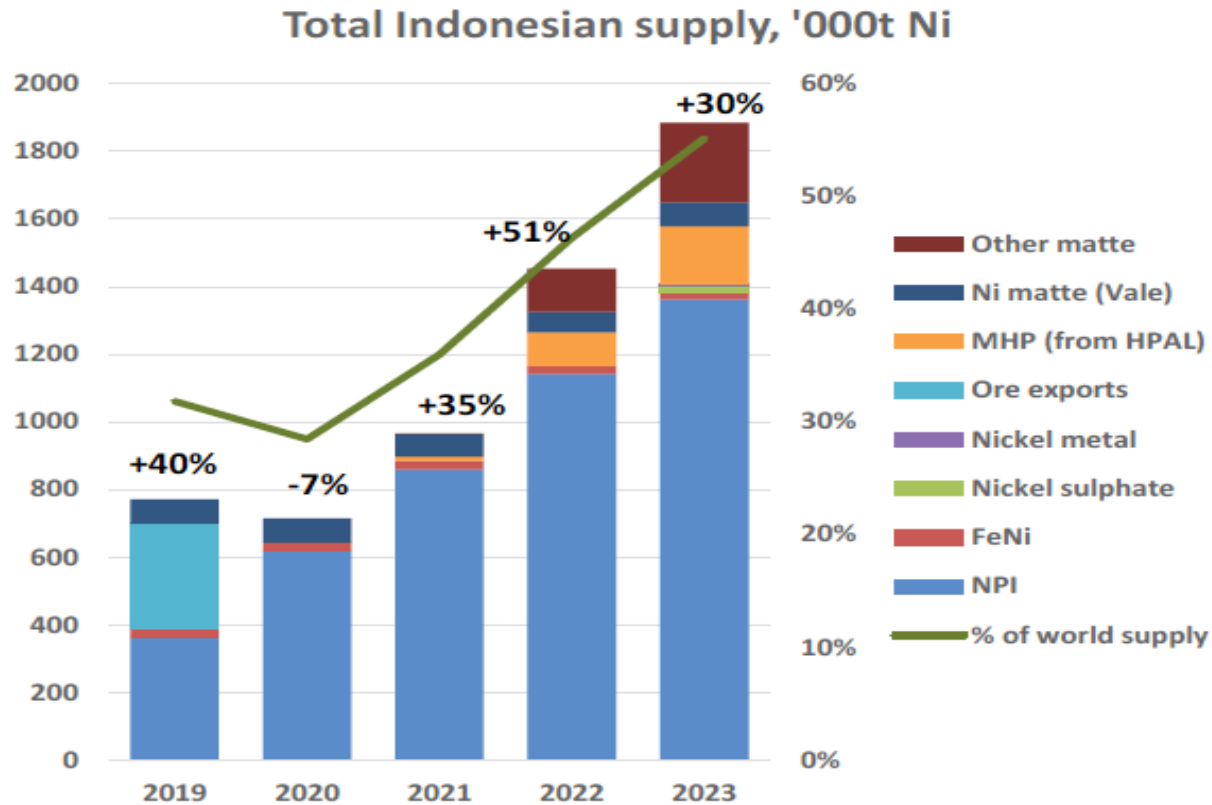


Gini Ratio



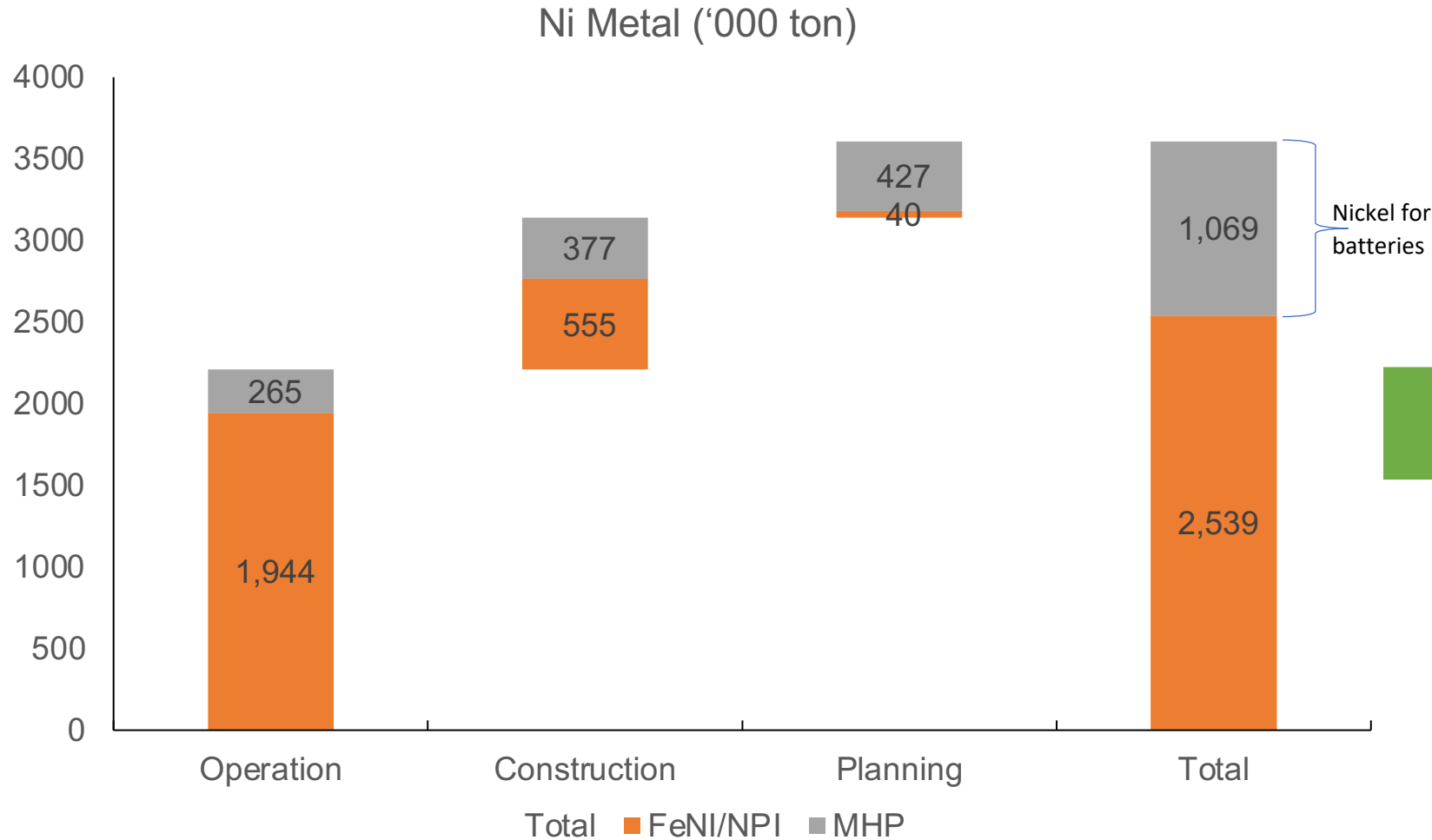


Indonesia Supply 55% of Global Nickel Demand in 2023



Source: Macquarie Research

Indonesia Cobalt Production Capacity Expansion Will Continue Inline With Expansion in HPAL (MHP) Capacity



Estimated Cobalt Production Capacity Expansion by 2030:

- Current Operation:** 23-26k ton
- Construction:** 34-38k ton
- Planning:** 40-43k ton

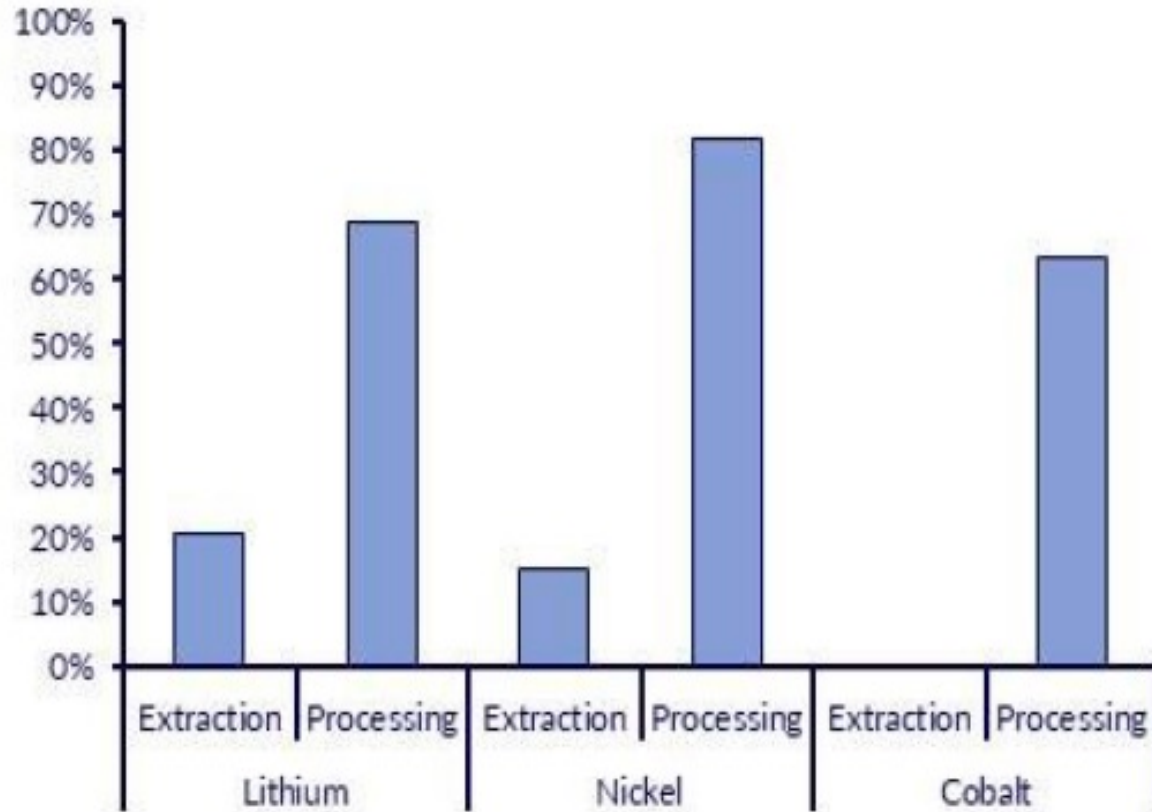
Total Est Capacity 97-107k ton

Source: CMMAI and Macquarie

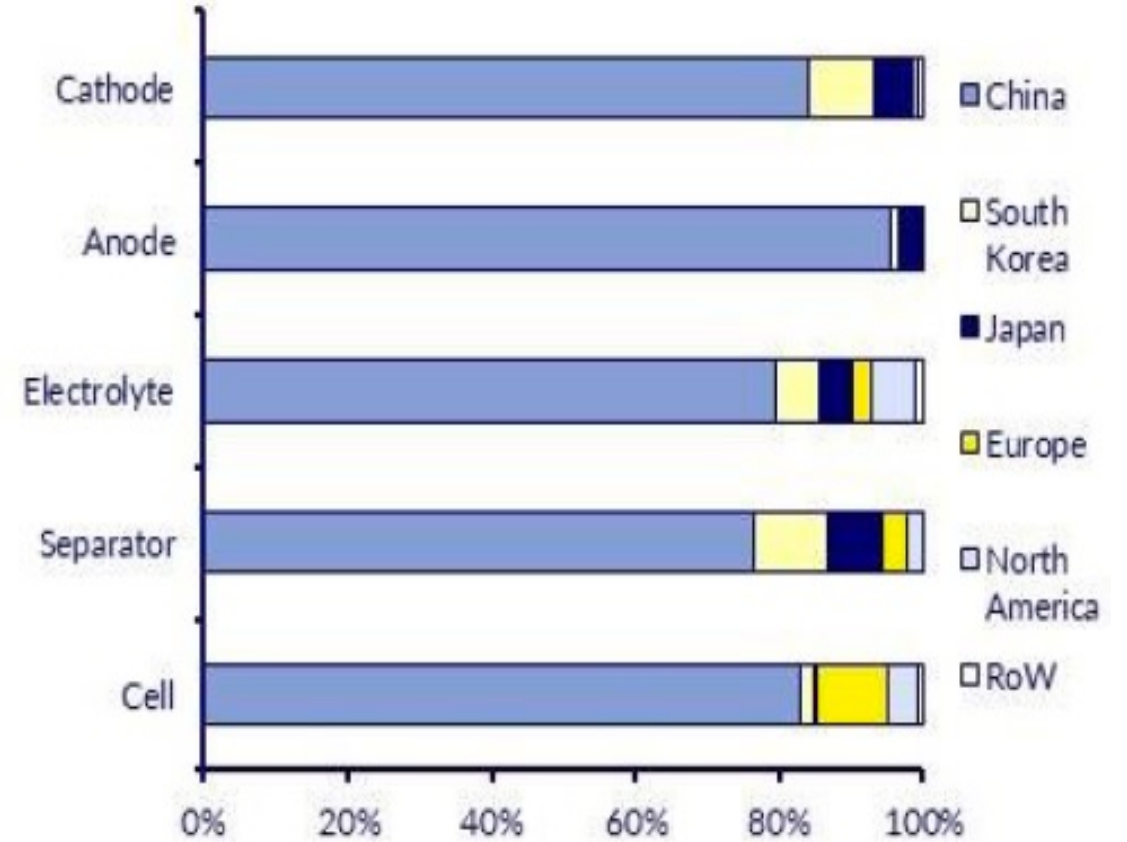
China Dominate Battery Materials Processing Technology Due to Significant Investment on R&D



China Share's on Extraction and Processing of Key Battery Metals



Regional Breakdown of Battery Cell and Component Capacity



Source: CLSA and BloombergNEF



Chinese Batteries Companies Currently Control Majority of The Market

EV Battery Global Market Share 2023

No	Company	Country Domicile	2023 (Gwh)	M/S 2023	2022 (Gwh)	M/S 2022	Growth
1	CATL	China	259.7	36.8%	184.4	82.7%	40.8%
2	BYD	China	111.4	15.8%	70.5	31.6%	58.0%
3	LGES	S. Korea	95.8	13.6%	71.6	32.1%	33.8%
4	Panasonic	Japan	44.9	6.4%	35.6	16.0%	26.1%
5	SK On	S. Korea	34.4	4.9%	30.1	13.5%	14.3%
6	CALB	China	33.4	4.7%	18.5	8.3%	80.5%
7	Samsung SDI	S. Korea	32.6	4.6%	23.9	10.7%	36.4%
8	Guoxuan	China	17.1	2.4%	13.9	6.2%	23.0%
9	EVE	China	16.2	2.3%	7.0	3.1%	131.4%
10	Sunwoda	China	10.5	1.5%	9.1	4.1%	15.4%
11	Others	N/A	49.4	7.0%	44.4	19.9%	11.3%
Total			705.4	100.0%	509.0	228.3%	38.6%

Country Domicile	2023	M/S 2023	2022	M/S 2022
China	448.3	63.6%	303.4	59.6%
S. Korea	162.8	23.1%	125.6	24.7%
Japan	44.9	6.4%	35.6	7.0%
Others	49.4	7.0%	44.4	8.7%
Total	705.4	100.0%	509.0	100.0%

EV Battery Global Excl China Market Share 2023

No	Company	Country Domicile	2023 (Gwh)	M/S 2023	2022 (Gwh)	M/S 2022	Growth
1	LGES	S.Korea	88.6	27.7%	66.7	29.9%	32.8%
2	CATL	China	87.8	27.5%	50.9	22.8%	72.5%
3	Panasonic	Japan	44.6	14.0%	35.2	15.8%	26.7%
4	SK On	S.Korea	34.1	10.7%	29.8	13.4%	14.4%
5	Samsung SDI	S.Korea	32.4	10.1%	23.6	10.6%	37.3%
6	BYD	China	6.8	2.1%	1.4	0.6%	385.7%
7	Farasis	China	5.2	1.6%	2.0	0.9%	160.0%
8	PPES	Japan	4.7	1.5%	1.8	0.8%	161.1%
9	AESC	Japan	3.6	1.1%	4.2	1.9%	-14.3%
10	EVE	China	2.8	0.9%	2.0	0.9%	40.0%
11	Others	N/A	8.7	2.7%	5.4	2.4%	61.1%
Total			319.3	100.0%	223.0	100.0%	43.2%

Country Domicile	2023 (Gwh)	M/S 2023	2022 (Gwh)	M/S 2022
China	102.6	32.1%	56.3	25.2%
S. Korea	155.1	48.6%	120.1	53.9%
Japan	52.9	16.6%	41.2	18.5%
Others	8.7	2.7%	5.4	2.4%
Total	319.3	100.0%	223.0	100.0%

Source: SNE Research



Each Li-Battery Manufacturer Has Developed Its Supply Chain

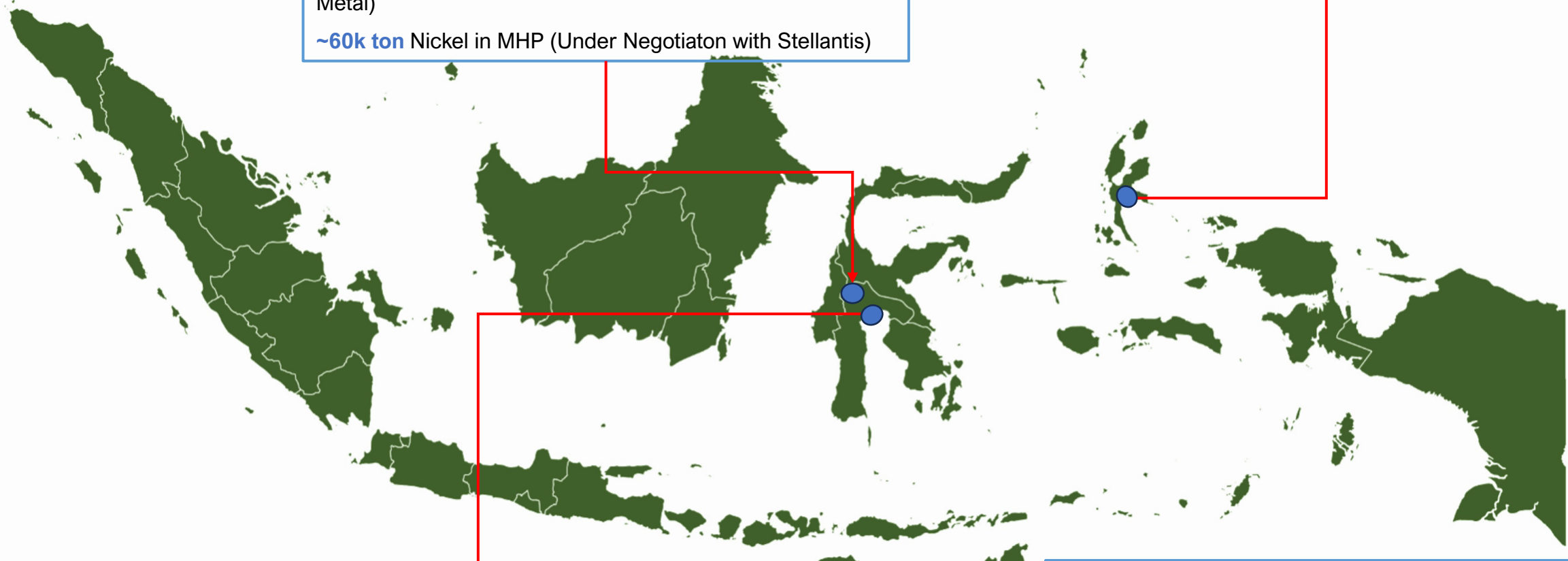
	CHINESE			KOREAN		JAPAN	
	CATL	BYD	CALB	LG ES	SDI	SK On Panasonic	
Cathode	688005 CH - Ningbo Ronbay New Energy BASF DE - BASF 300769 CH - Shenzhen Dynanonic	688005 CH - Ningbo Ronbay New Energy 600549 CH - Xiamen Tungsten 300769 CH - Shenzhen Dynanonic	600549 CH - Xiamen Tungsten 002074 CH - Gotion 300340 - Jiangmen Kanhoo	051910 KS - LG Chem 066970 KS - L&F 003670 KS - POSCO FM UMI BB - Umicore	247540 KS - Ecopro BM 003670 KS - POSCO FM UMI BB - Umicore	247540 KS - Ecopro BM 066970 KS - L&F 300073 CH - Beijing Easpring	5713 JP - Sumitomo Metal Mining
Anode	835185 CH - BTR New Material Unlisted - Guangdong Kaijin New Energy 600844 CH - Ningbo Shanshan NVX AU - Novonix 603659 CH - Shanghai Pu Tailai 300035 CH Hunan Zhongke Electric	835185 CH - BTR New Material 600844 CH - Ningbo Shanshan 603659 CH - Shanghai Pu Tailai 300035 CH Hunan Zhongke Electric	835185 CH - BTR New Material Unlisted - Guangdong Kaijin New Energy	835185 CH - BTR New Material 600844 CH - Ningbo Shanshan 603659 CH - Shanghai Pu Tailai 003670 KS - POSCO FM	835185 CH - BTR New Material 600844 CH - Ningbo Shanshan 603659 CH - Shanghai Pu Tailai	835185 CH - BTR New Material 600844 CH - Ningbo Shanshan	4188 JP - Mitsubishi Chemical 4004 JP - Showa Denko
Electrolyte	600844 CH - Ningbo Shanshan 002709 CH - Tinci Materials 002091 CH - Jiangsu Guotai 348370 KS - Enchem	600844 CH - Ningbo Shanshan 300037 CH - Shenzhen Capchem	300037 CH - Shenzhen Capchem 002709 CH - Tinci Materials	348370 KS - Enchem 002709 CH - Tinci Materials	357780 KS - Soulbrain 025900 KS - Dongwha	357780 KS - Soulbrain 025900 KS - Dongwha	4188 JP - Mitsubishi Chemical 4208 JP - Ube Corporation
Copper foil	301217 CH - Tongguan Copper Foil 603876 CH - Dingsheng New Materials 301150 CH - Hubei Zhongyi 688388 CH - Jiayuan Technology 600110 CH - Nuode New Materials	301217 CH - Tongguan Copper Foil 603876 CH - Dingsheng New Materials 601677 CH - Henan Mingtai 600110 CH - Nuode New Materials	600110 CH - Nuode New Materials	600110 CH - Nuode New Materials 011790 KS - SKC 020150 KS - Lotte Energy Materials	020150 KS - Lotte Energy Materials	011790 KS - SKC	5759 JP - Nippon Denkai 5801 JP - Furukawa Electric
Seperator	002812 CH - Yunan Energy 603659 CH - Shanghai Pu Tailai 300568 CH - Shenzhen Senior Tech	002812 CH - Yunan Energy 603659 CH - Shanghai Pu Tailai 300568 CH - Shenzhen Senior Tech	603659 CH - Shanghai Pu Tailai 002108 CH - Cangzhou Mingzhu	002812 CH - Yunan Energy 300568 CH - Shenzhen Senior Tech 3402 JP - Toray Industries	393890 KS - WCP 3407 JP - Asahi Kasei	361610 KS - SKIET	002812 CH - Yunan Energy 3407 JP - Asahi Kasei



Potential Joint Investment for 250-310k Ton Nickel Supply with US and European Companies

PT Vale Indonesia – Sorowako Area
~70k ton Nickel in Matte (existing ops supplied to Sumitomo Metal)
~60k ton Nickel in MHP (Under Negotiaton with Stellantis)

Eramet and BASF– Weda Bay Area
~72k ton Nickel in MHP (Joint Feasibility Study)



PT Vale Indonesia – Tanamalia Area
~60-120k ton Nickel in MHP (MOU with VW and PowerCo)

PT Vale Indonesia – Pomalaa Area
~120k ton Nickel in MHP (JV with Ford and Huayou)



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



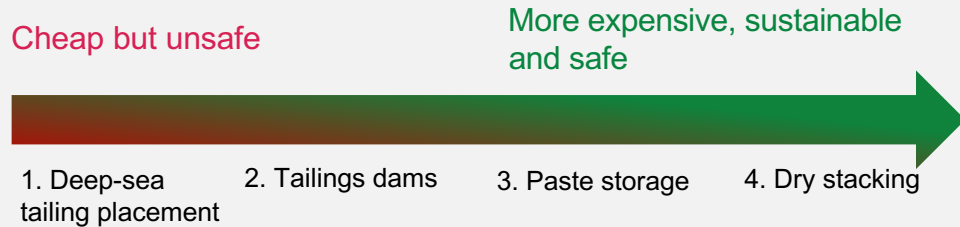
Mentarang Hydropower Project will power the North Kalimantan Industrial Estate in the upcoming years.

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



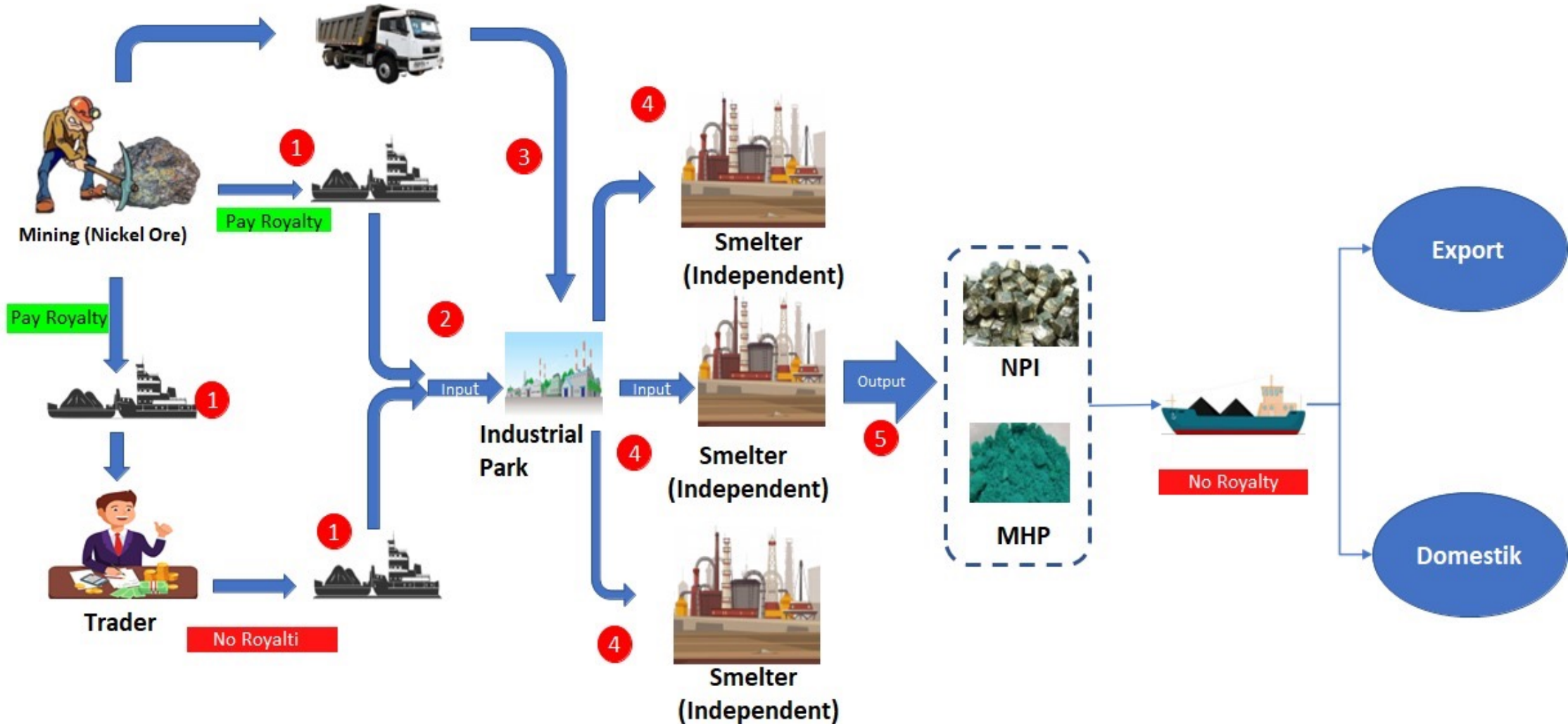
ChengTok Lithium Project in Indonesia will build a photovoltaic power generation system to create the world's first zero-carbon intelligent factory of Chengtun Group.

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



Thank You

