

**INTEGRATED FERRO NICKEL MINING AND SMELTER  
LAPAO PAO, WOLO, KOLAKA, SOUTH EAST SULAWESI  
PT CERIA NUGRAHA INDOTAMA**



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# **INTEGRATED FERRO NICKEL MINING AND SMELTER LAPAO PAO, WOLO, KOLAKA, SOUTH EAST SULAWESI PT. CERIA NUGRAHA INDOTAMA**

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## **I. GENERAL DESCRIPTION**

PT Ceria Nugraha Indotama (CNI) was founded in 2009 with the main business is mining nickel ore. Nickel seed is marketed to the global section and generally on the export to China

In 2011, CNI has won the bid for the mining concession Lapao ex. INCO mining concessions (now known as Vale) with an area of 6,785 ha concession in Lapao Pao, Kolaka, South East Sulawesi. In 2013, the Indonesian government through the Directorate General of Minerals and Coal ("Mining") menerbitkan Clean and clear (CnC) Cert in the mining area through letter No. 2737 K / 30 / MEM / 2013, and in December 2013, CNI obtain export approval letter / SPE for mining products.

In 2014, the Indonesian government issued a new regulation which prohibits the export of nickel ore in the form of ROM (Run of Mine) and require nickel ore must be refined or smelting in the country before export

Furthermore, CNI plans to build a nickel smelter with plans to build Ferro Nickel Smelter near the mining area in the industrial park with a total area of 300 hectares located in Walo, close to the sea, there is a river in the north to the land is relatively flat

Industrial park will be equipped with its own port, loading and unloading facilities with conveyor systems, material storage areas, power plants, fuel storage tanks, water storage tanks and water treatment plants, settling pond and wastewater treatment, roads and drainage are well-ordered, office administration and system security industry region.

Nickel ore processing (smelter plant) to be constructed is

1. Rotary Kiln Furnace Electric: 2 line, with a capacity of 100,000 MT / year / line or a total of 200,000 MT / year with output: Ferro Nickel (10% - 15%)

2. Blast Furnace designed to produce 240,000 tons per year of base material with dephosphorization and denickelification containing 10 ~ 12% nickel

3. Construction of Independent Power Plant with the total output: 240 MW

## **1.1 Mining Sector**

CNI has 6785 hectares of mining concessions and by JORG (Joint Ore Reserves Committee) on 688 ha of land pants, there are 111 million MT at the content of 1.5% Ni content

Drilling by Inco was completed in 2008 with 400 m spacing, 124 holes, 3,296 m drilling production to uncover inferred resource and the land area of 24 ha, there is a content of 1.8 million MT at 1.7% Ni COG

Drilling by Colorado was completed in 2013 with 50 m spacing to uncover measured resource

## **1.2 Permit and License**

Since 2011 until 2014, CNI has received an official document from the government of Indonesia, namely:

- 2011 October : Obtained the Exploration License to do mining business, including general investigation, exploration, and feasibility study
- 2012 April : Obtained the Production Operation License to do mining business; including activities of construction, mining, utilization and purification, and also transportation and sales
- 2012 May: Ministry of Energy and Mineral Resources (“KESDM”) Regulation states requirement of Clear and Clear certificate in order to export mineral ore
- 2013 July: Decree KESDM on Mining Zone (“Wilayah Pertambangan/ WP”) in Sulawesi No. 2737 K/30/MEM/2013
- 2013 November : Cleared for Clean and Clear (“CnC”) certificate verified by the Directorate General of Minerals and Coal (“Minerba”) and declared to be valid and free of competing claims

- 2013 November: Granted the status of Registered Exporter (“Exportir Terdaftar/ ET”) – Mining Products
- 2013 December: Received Export Approval Letter (“Surat Persetujuan Eksport/ SPE”)

### 1.3 Location Detail

The location can be reached by a 55 minutes flight from Makassar to Pomala and a further 1 hour drive to Kolaka before driving another 1 and a half hours to the site. It can also be reached by driving from Kendari to Kolaka for about 3 hours.



### 1.4 Market Analysis

China is currently the country with the largest consumption of stainless steel in the world. In 2010, the yield of stainless steel was about 11,300 kt, accounting for 37% of the global market share. In 2011, China’s stainless steel output was up to 12.6 million tons, increasing by 11.9% on a year-on-year basis; in 2012, the total stainless steel output was 15.73 million tons. In China, the proportion of nickel metal supply rapidly increased from 25% in 2009 to nearly 50% in 2010, and the proportion of market share is continuously increasing. Nickel pig iron smelting in China mainly relies on laterite nickel ore imported from Indonesia and

Philippines as raw material. Over 50% of nickel ore imported by China is from Indonesia.

As relevant statistics indicates, in 2013, Indonesia exported 50 million wet metric tons of nickel ore, that is nearly 58,000 tons of pure nickel (on the basis of average nickel grade of 1.8% and humidity of 35%), among which 45 million tons were exported to China and the remaining were exported to Japan, Ukraine and Greece.

Since January 12, 2014, Indonesia has forbidden to export raw ferro-nickel ore, which results in 50% of shortage of laterite nickel ore in China, being a fatal attack to ferro-nickel plants in China. Therefore, establishing plants in Indonesia is a wise decision.

In Indonesia, the integrated operation, from the development of ore to the production of Ferro Nickel and nickel pig iron, is expected to greatly reduce the production cost.

Laterite nickel ore required by the Project comes from the owned mine in the construction site of the enterprise. Insufficient section will be out sourced. The Project has an obvious cost competitive advantage and profitability higher than the industry average. The Project has mature production process, runs low investment risk, and requires low cost and brings great economic benefit and high ROI.

## **1.5 Nickel consumption around the world**

Nickel consumption may be summarized as: stainless steel (60%), non-ferrous alloy (14%), alloy steel (9%), nickeling (6%), casting (3%), others (8%). From the consumption structure, the main consumption market of nickel in the world is metallurgy industry, accounting for over 80% of the aggregate consumption. For one, the consumption of stainless steel accounts for over 60% of the aggregate consumption of nickel. See Figure 2-1. Therefore, the correlation is very close between demand for nickel consumption and output of stainless steel. According to the statistics published by International Iron and Steel Institute, the global output of stainless steel in 2007 increased by 5.1% compared with 2006, reaching up to 29,800,000t. Until 2012, the global output of

stainless steel will keep increasing at an annual rate of 6%. According to the organization, the output increase is mainly from China, where the output of stainless steel is far higher than that of other countries. It is predicted by International Iron and Steel Institute that the output of stainless steel in Asia will increase by 11.8%, reaching up to 16,850,000t; the output in central Europe and East Europe will increase by 400,000t; while those in west Europe, Africa and America will decrease slightly. The global output of stainless steel in 2006 was 28,400,000t, increasing by 16.7% than that in 2005. China, at present, is the country consuming the most stainless steel in the world: its proportion of consumption of stainless steel in 2008 is the total sum of that of America and Japan which are the countries of largest consumption in last two years.

**Figure 1-5-1 Schematic of structure of nickel consumption in the world**



Compared with electrolytic nickel used for stainless steel production, ferro-nickel is used for stainless steel production. Because it contains iron, and it's always of pellet-shape or piece-shape, it improves production efficiency of AOD converter, which makes it popular among stainless steel production enterprises.

Since 2005, China has replaced Japan as the country of the largest nickel consumption in the world. Other main countries of large nickel consumption are Japan, America, Germany, China

Taiwan and Korea. In the following years, the consumption of nickel keeps increased steadily until the breakout of global financial crisis in 2008. Influenced by the global financial crisis, the global economic situation is generally depressing, and weak demand of stainless steel results in obvious decline of nickel consumption. In 2008, global consumption of nickel is 1,297,000t, 124,000t less than that of 1,421,000t in 2007, decreased by 8.8% on a year-on-year basis. In 2009, global consumption of nickel increased slightly compared with that of the last year, reaching up to 1,306,000t, increased by 0.7% on year-on-year basis. From the consumption change of other countries or districts, the nickel consumption in China sharply increased while consumption of nickel in most countries which consumed nickel a lot traditionally decreased slightly.

See Table 1 - 6 for statistics of consumption of refined nickel in major countries of the world.

**Table 1-5-2 Consumption of nickel in major countries of the world**

Unit: kt

S/N	Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1	Japan	199	170	188	195	171	188	196	185	148	177	186
2	America	129	121	117	128	128	136	162	121	92	118.8	138.5
3	Germany	103	118	95	95	116	106	110	90	62	100.3	89.5
4	China Taiwan	92	104	103	91	84	107	76	69	64	72.7	47.2
5	China	85	84	133	144	201	225	328	305	541	561.5	595
6	Italy	63	72	71	62	60	60	64	68	44	62.3	51.4
7	Korea	59	96	113	123	118	101	71	76	93	101.2	94
8	Spain	48	50	48	48	48	60	42	41	24	29.1	29.8
9	Total in the world	1138	1186	1247	1247	1297	1377	1421	1297	1306	1511.5	1562

From the situation of global supply and demand, nickel consumption is 1,306,000t in 2009, increasing by 168,100t from 2001 to 2009, with an average annual growth rate of 1.8%. The global nickel output is 1,327,000t in 2009, increasing by 169,600t from 2001 to 2009, with an average annual growth rate of 1.8%. It's obvious that the global nickel consumption maintains simultaneous growth with production. From the situation of domestic supply and demand, domestic nickel consumption is 541,000t in 2009, increasing by 456,000t than that in 2001, with an average annual growth rate of 29.1%, higher than that of 26.4% of nickel production. Demand gap for domestic nickel is increasing year by year. Over the years, with rapid development of Chinese economy, the over-speed increase demand for stainless steel is the major reason for everlasting nickel consumption increase.

Based on the analysis of related organization, China's stainless steel output was 14,240,000t in 2011, accounting for 42% of global output, higher than that of 36% in 2010. The total output of stainless steel from China and India is up to 16,520,000t, almost the half of the global output. Share Structure of global Stainless steel output in 2012: China 43%, European Union 21%, Japan 10%, Korea and China Taiwan 10%. India 7%. In future years, China's stainless steel output will not keep rapid increasing speed for nearly a decade. Therefore, from the perspective of supply and demand, the odds are low that short supply will appear in the market in future years.

## 1.6 Nickel consumption in China

See Figure 2-2 for China's proportion of nickel consumption in the world from 2002 to 2013.

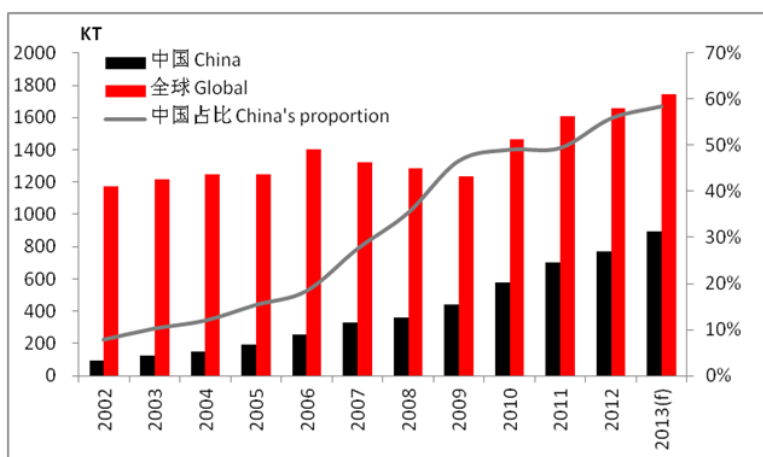


Figure 1-6 China's proportion of nickel consumption in the world from 2002 to 2013



Data source: Advanced Technology & Materials Co., Ltd and INSG.

The proportion of China's nickel consumption in world consumption increased. In 2013, China's apparent nickel consumption was 885,000 tons, increasing by 13% annually, occupying 57% in total world nickel consumption.

During the decade from 2002 to 2013, primary nickel output of China increased from 103kt in 2005 to 695kt in 2013, with an average annual compound growth rate of 23%, primarily thanks to increase of output of nickel pig iron (nickel content in ferro-nickel). In 2013, the output of nickel pig iron was 480,000t, occupying 69% of nickel pig iron gross in China, and its proportion in total global output keeps increasing, up to 38%. China's output of nickel pig iron increases rapidly, primarily thanks to rapid growth of ferro-nickel output. According to statistics, in 2013, China's ferro-nickel output was up to 9 million tons. China has become the core area producing nickel in the world. However, China's nickel pig iron totally relies on imported laterite nickel ore and most of its raw materials comes from laterite nickel ore which has become an important component of raw material for current nickel output in China and the main material in the future for newly increased nickel output. According to statistical analysis, 80% of China's high-grade laterite nickel ore are imported from Indonesia. With ore prohibition policy implemented in Indonesia, it's predicted that China's ferro-nickel output will decrease remarkably.

Since 2010, nickel consumption and output in the world has been increasing. China's proportion of nickel consumption in the world keeps increasing. In 2013, China's apparent nickel consumption was 903,000 tons, increasing by 14% on a year-on-year basis, occupying 58% in world consumption. China's nickel consumption progressively increases by 23% in average annually, primarily coming from stainless steel. Synchronously, China's stainless steel output increased from 2.20 million tons in 2002 to 19.62 million tons in 2013, increasing progressively by 58% in average annually. Over 80% of nickel consumption in the world comes from stainless steel field, while China's nickel metal consumption in stainless steel field is up to 85%. As indicated by the statistics from AT&M, in 2013, China's crude stainless steel output was 19.62 million tons, increasing 19% on a year-on-year basis, occupying 53% in the world.

To sum up, as demand for ferro-nickel consumption by stainless

steel is increasing and decrease of domestic high ferro-nickel output due to ore prohibition in Indonesia, in the future, domestic demand for ferro-nickel will become higher and price of ferro-nickel will rise again progressively. For the Project, a plant will be established in Indonesia which guarantees sufficient raw material, i.e. laterite nickel ore. Products have great cost advantage. Project construction is in line with the law of development of market economy.

## **1.7 Nickel price**

In 2011, the peak price of nickel at LME was 29,425 USD, bottom price of nickel at LME 16,550 USD and the price difference reaches up to approximately 13,000 USD. In 2012, nickel price was the poorest among the six types of metals at LME. The nickel price at LME in the last three-month period by the end of 2012 was 17,060 USD per ton which was 9% less than the price recorded at the end of 2011. In that year, the maximum three-month period nickel price at LME was 22,150 USD per ton, the minimum 15,235 USD per ton and the average 17,590 USD per ton, which showed a 23% fall compared with the previous year. Under the negative effect of nickel pig iron that substitute's nickel, the domestic nickel price also kept falling as nickel price at LME did. At the beginning of the year, the difference between domestic nickel price and foreign nickel price reached 10,000 Yuan per ton. Later, as nickel price at LME fell, this difference diminished. Throughout 2012, however, the domestic nickel price was still lower than that at LME.

On October 18, 2013, HSBC predicted that nickel price in 2013 would fall down to 15,040 USD per ton which would decrease by 6% on a year-on-year basis. However, HSBC also predicted that nickel price in 2014 would be 17,090 USD per ton. As a result of the strike at nickel mine field in Canada and nickel ore export ban of Indonesia, nickel price will gradually rise from January 1, 2014. Therefore, nickel price is not quite likely to fall in a short term in the future, instead, it is likely to continue rising. Citigroup stated in a report on October 21, 2013 that the nickel price at LME in the first quarter of 2014 would be much higher than 17,000 USD per ton. An analyst says that the market price has not been affected by the nickel ore export ban of Indonesia so far.

The foreign media reports that Macquarie Commodities Research has recently issued a report that indicates nickel ore import price in China will rise by over 50% as the nickel ore export ban of

Indonesia takes effect on January 12, 2014. Macquarie says that some of nickel ore supply in China is controlled by trading companies which are quietly likely to raise nickel ore price. For now, the nickel ore import price in China is 45–50 USD per ton (CFR). It is still possible that nickel ore price will rise by over 50%. The RKEF ferro-nickel production threshold will rise from 12,000 USD per ton to 15,000 USD per ton.

Macquarie says that the Chinese purchasers have stockpiled a large quantity of nickel ore before the nickel ore export ban of Indonesia takes effect. At present, there is up to 32 million tons of nickel ore (equivalent to approximately 350,000 tons of pure nickel) in stock in China which is equivalent to the annual nickel ore consumption quantity of Indonesia. Macquarie also anticipates that the surplus supply in the global nickel market in 2014 will reduce to 35,000 tons while the number was 150,000 tons in last year. In 2015, the global nickel market will probably face undersupply as a result of ferro-nickel restriction, which will raise the nickel price.

After the correction below 14,000 USD per ton for almost two weeks, nickel price at LME kept rising due to the nickel ore export ban of Indonesia. On January 14, nickel price at LME closed at 14,348 USD per ton.

Every year, the main producers, investment banks and consultants in the world will estimate the nickel price in the next one or two years. However, because the price of nickel is influenced by supply and demand relationship, exchange rate, opportunistic fund and other factors, it is of great difficulty to estimate the nickel price precisely. According to the prediction data of various organizations in history, when nickel price is of little fluctuation, it is predictable to most of these organizations; but if nickel price fluctuates in great range, it is unpredictable to almost every organization. Nonetheless, these organizations still attempt to anticipate nickel price by any means possible.

Based on the rule of economic development and history data, nickel price will not maintain a high level or low level for a long time. Instead, it fluctuates periodically. The nickel price to be used for evaluation of an investment project shall theoretically be an anticipated long-term average price which may be somewhat different from the current price. This difference is particularly significant if nickel price is at the peak or bottom of the fluctuation period.

## II. PROJECT OVERVIEW

The CNI development project divided three areas of development, namely:

- Ferro Nickel Mining seed on 688 ha of land concessions in Wolo Lapao pao with Improved production capacity, infrastructure and support facilities
- Development of Industrial area of 300 acres, ports and other support facility
- Development of Smelter and Power Plant in the Industrial area location

### 2.1 Mining Development

- Location: Wolo, Lapao pao, Kolaka, South East Sulawesi
- Concession Area: 6785 hectares
- Deposited: 111 Million MT at 1.5% Ni content (based on JORG certificate)

#### 2.1.1 Development Planning

- Increased mining production capacity ROM
- Procurement of heavy equipment's and trucks with a large capacity
- Development of infrastructure (roads and drainage)
- Procurement crushing plant and washing plant
- Construction tailing plant and settling pond
- Construction water reservoir
- Construction of support facilities such as the administration of the Office. Housing, workshop and warehouse, etc.

#### 2.1.2 Investment cost

- Total Investment required: 120,000.000 USD, consists of the procurement of heavy equipment and supporting facilities

## 2.2 Industrial Park development

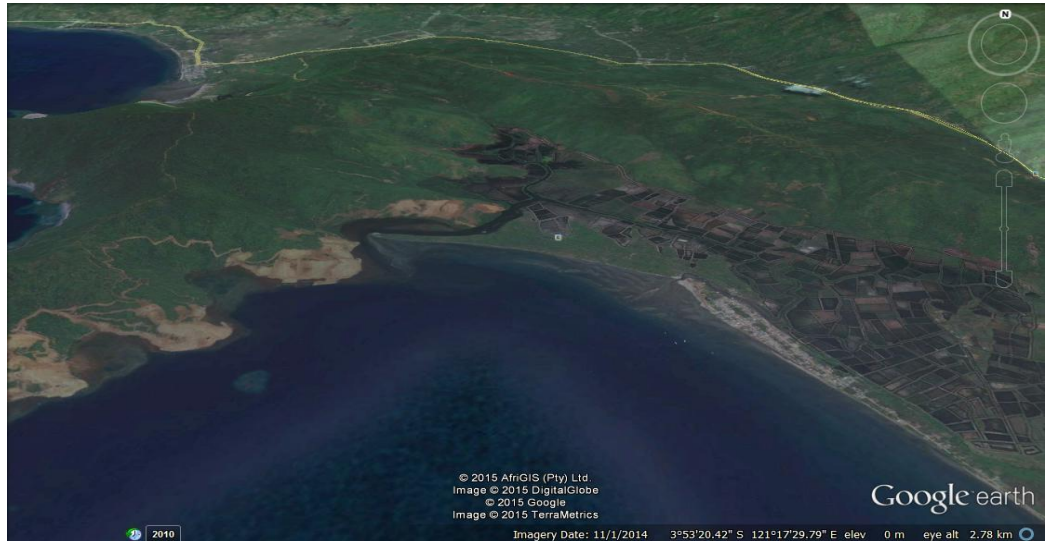
- Location : Walo, Lapao pao, closed to the sea
- Land area : 300 hectares

### 2.2.1 Development Planning

- Construction Facilities : Jetty and Conveyor (2 line, loading and unloading), Road & Drainage, Lighting, Gate and Security Post, Fuel Storage Tank (2 unit, cap. 10 KL/each), Water Treatment Plant (included Reverse Osmosis plant), Water Distribution Pipe line, Effluent Treatment Plant, Settling pond, Effluent Treatment Plant, Fire Fighting Pipe Line, Ash Disposal Area, Lightening Arrester, Administration office, Training House an Land Landscape, etc.

2.2.2 Investment cost : 130.000.000 USD

### 2.2.3 Location of Industrial Park



### 2.2.4 Plant site and construction conditions

- Weather conditions : Average temperature of 26~27°C.
- Rainfall intensity : Annual maximum rainfall: 3000mm
- Annual minimum rainfall : 800mm

- Maximum daily rainfall : 122.7mm
- Relative humidity : Average minimum humidity: 75%
- Monthly average maximum humidity: 90%
- Average humidity : 85%
- Wind velocity : The maximum wind speed is 7.72m/s, and wind pressure is considered as per  $\omega_0=0.40\text{kn/m}^2$ .
- Earthquake intensity  
Basic seismic intensity of the plant area: foundation and frame of the concrete steam turbine as per intensity of 8 degrees (0.20g), other buildings and structures as per 7 degrees (0.15g).
- Electric power supply : Currently, there is no local electric power supply.
- Condition of water supply : Water for this project will be taken from nearby water sources.
- Traffic and transportation  
The plant site is close to the sea, there are highways for transportation in the north; roads within the plant are connected to external roads, forming a traffic network, so the road traffic is convenient. Equipment and materials necessary for construction of this project can be transported to the plant area by sea.

## 2.3 Construction Ferro Nickel Smelter

- Location : In site the Industrial Park
- Land required : 100 hectares

### 2.3.1 Development Planning

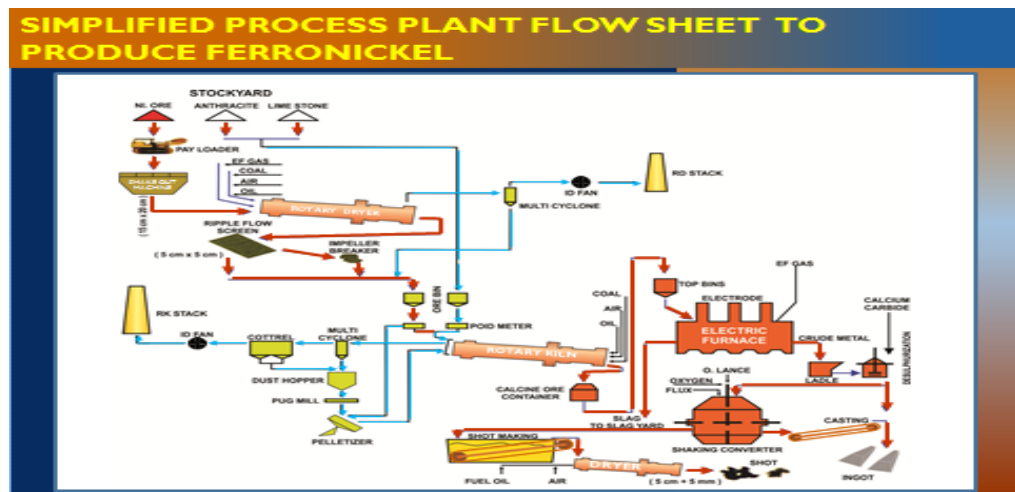
Metallurgy is the technology of processing and engineering of metals. The production of metals involves the processing of ores to extract the metal it contains or the mixture of metals, sometimes with other elements to produce alloys. Metallurgy could be divided into two main categories which are Pyro metallurgy and Hydrometallurgy.

Pyro metallurgy derives from the word “Pyro” which means “fire” or “heat”. It consists of heat treatment of

mineral ores or concentrates to bring about physical and chemical transformations to enable the recovery of valuable metals. The heat is normally produced from electricity or the burning of fossil fuels. Among the Pyro metallurgy technologies currently available are: Rotary Kiln Electric Furnace and Blast Furnace

### 2.3.2 Rotary Kiln Electric Furnace (2 Furnace/ 4 lines)

- Production Capacity : For 2 lines, production is 2.000.000 WMT a year with input ROM (Run of Mine) low grade Ni 1, 6%. Output from furnace 200.000 MT per year producing Ferro-Nickel ingot (bars) with Ni content 10% - 15%
- Investment Estimate : 350,000,000 USD
- Construction Period : 36 Months

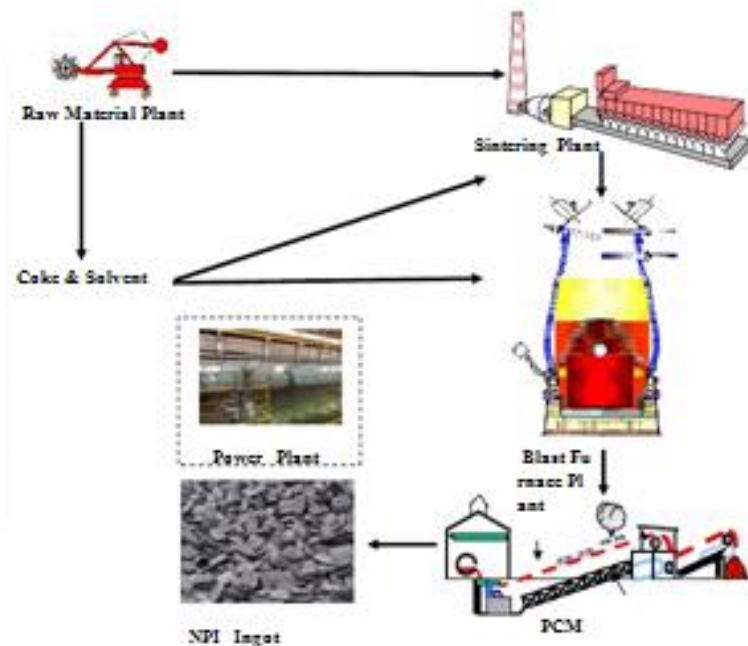


### 2.3.3 Blast Furnace

- Production Capacity : 240,000 tons NPI of base material with dephosphorization and denickefication containing 10~12% nickel. With 10x160m3 lime vertical kiln, 10x48m2 circular sintering machine, 20x50m3 blast furnace, 4x10t AOD Converter , supporting power supply and distribution system, water supply and drainage system, environmental protection facilities and fire safety facilities.
- Investment Estimate : 275,000,000 USD,  
Construction Period : 24 Months

## Technical Process & Material Balance

### ■ Technical Process



### 2.4 Construction of Power Plant

The Electric power for Industrial Park by own power plant to supply Electric power to RKEF Plant, Blast Furnace Plant and for others facilities, such as Port, Material Handling Facility (Conveyor system), water treatment plant (RO Plant), Effluent Treatment Plant, lighting for Road and any facilities surrounding the industrial park

The Electric Power plant requirement of all plant in Industrial Park as follows:

- Rotary Kiln Electric Furnace is 4 X 40 MW = 160 MW
- Blast Furnace is 2 x 15 MW (coal steam power plant)
- Power supply for other facilities estimated: 2 x 25 MW
- Total power required: 240 MW (Coal Steam Power Plant)
- Excess power will be sold to Government Electric Enterprise (PLN)
- Investment Estimate : 360,000,000 USD
- Construction Period : 28 Months



### III. SUMMARY PROJECT COST

1. Mining investment	:	120.000.000 USD
2. Industrial Park	:	<u>130,000,000 USD</u>
SUBTOTAL 1 +2	:	250.000.000 USD
3. Smelter		
3.1. RKEF	:	350,000,000 USD
3.2. Blast Furnace	:	275,000,000 USD
4. Power Plant	:	<u>360,000,000 USD</u>
SUBTOTAL 3 + 4	:	985,000,000 USD
TOTAL	:	1,235,000,000 USD

### IV VIEW OF PROJECT

#### 4.1 Project Modeling (Preliminary Design)



#### 4.2. EXISTING INFRASTRUCTURE IN LAPAO PAO, KOLAKA SOUTH EAST SULAWESI



Jetty of villagers in Lapel Paso



SEA PORT PLAN AREA



## CONSTRUCTION ACCES ROAD

### 4.3 ADDITIONAL INFORMATION

- As of 2013, Indonesia contributes to 18% of global production of nickel ore, which are considered as high purity and is sought after for use in the production of stainless steel and other corrosive-resistant alloys.
- Nickel ore accounted for USD 1.5 billion, or 5.0%, of Indonesia's total mining exports in 2012.
- Global supply of nickel has taken a huge shock in the start of 2014 because of the ban of nickel ore exports in Indonesia, particularly for China, who is the World's largest importer of nickel ore, 60% of which comes from Indonesia. Global supply is further affected with the recent plan for nickel ore exports ban in Philippines, who overtook Indonesia as the World's largest exporter this year.
- This supply-demand deficit has been and will continue to support a relatively high nickel price over the next several years.

- Indonesia is believed to still remain as an important supplier of nickel ore to China over the medium term. China will remain reliant on nickel ores to feed its vast and expanding nickel pig iron (“NPI”) sector.
- Since the ban, nickel import dependent economies, such as China, and commodity investors have begun to enter Indonesia to seek partnerships with local players to develop nickel smelting facilities such as Rotary Kiln Electric Furnace (“RKEF”), and blast furnace in the country
- **Indonesia’s nickel ore exports ban will leave almost 20% deficit in the global supply, and an increasing trend in nickel prices**

#### 4.4. Mining Company in Indonesia

Leading Nickel Players in Indonesia Key Players	<i>PT Vale Indonesia Tbk</i>	<i>PT Aneka Tambang Tbk</i>
Country of origin Selected product segments	Brazil (Vale S.A.) Nickel	Indonesia Nickel, Bauxite, Coal, Gold, Silver, Refining Services
Revenue (FY13)	•IDR 10.8 Trillion	•IDR 11.3 Trillion (Group) •IDR 4.1 Trillion (Nickel)
Nickel concession (FY13)	•190,510 ha •Sulawesi Tengah, Sulawesi Selatan, Sulawesi Tenggara •Estimated reserves: 127.5 million MT	•187,980 ha •Southeast Sulawesi, North Maluku •Estimated reserves: 661.7 million MT
Production capability (FY13)	•Nickel matte: 75,802 MT	•Nickel ore: 11.5 million MT •Ferronickel (“FeNi”): 18,249 MT

## CALCULATION PROJECT COST

NO	DESCRIPTION	UNIT	Q.TY	UNIT PRICE	AMOUNT (USD)
<b>I</b>	<b>MINING INVESTMENT</b>				
1	Preliminary	Ls	1	5,000,000	5,000,000
2	Main Hauling Road from Mining area to Plant	Km	45	750,000	33,750,000
3	Crushing Plant	Unit	3	650,000	1,950,000
4	Washing Plant	Unit	3	450,000	1,350,000
5	Tailing Pond, 50000 sq.m	Lot	3	1,500,000	4,500,000
6	Settling Pond, 50000 sq.m	Lot	3	1,500,000	4,500,000
7	Water Reservoir + Pump Hous neli+ Piping	Lot	2	1,000,000	2,000,000
8	Mining Administration & Engineering Office 9500 sq.m)	Lot	1	182,000	182,000
9	Housing type 80 sqm/each	Unit	50	50,000	2,500,000
10	Dormitory 40 rooms/each	Unit	5	240,000	1,200,000
11	Workshop, 40000 mm x 50000 mm	Unit	1	498,000	498,000
12	Warehouse, 23000 mm x 60000mm	Unit	2	375,000	750,000
13	Laboratory	Unit	1	40,000	40,000
14	Weight Bridge, Cap. 50 Ton	Unit	4	90,000	360,000
15	Generator 500 KVA (for Crusher & Washing Plant)	Unit	6	200,000	1,200,000
16	Generator 250 KVA (for others facilities incl. synchronize	Unit	6	150,000	900,000
17	Fuel Tank, cap. 500.000 L	Unit	2	500,000	1,000,000
18	Water Tank cap. 3000 M3	Unit	2	1,800,000	3,600,000
19	Road Lighting, Cable and Electric Pole	Ls	1	500,000	500,000
20	Security Check Point	unit	8	10,000	80,000
21	Light Vehicle LV	Unit	40	50,000	2,000,000
22	Bus	Unit	6	80,000	480,000
23	<b>HEAVY EQUIPMENT</b>				
	Bulldozer D375	Unit	6	970,000	5,820,000

NO	DESCRIPTION	UNIT	Q.TY	UNIT PRICE	AMOUNT (USD)
	Bulldozer D155	Unit	6	400,000	2,400,000
	BuldozerD85	Unit	6	240,000	1,440,000
	Excavator PC 600	Unit	6	450,000	2,700,000
	Excavator PC 400	Unit	6	350,000	2,100,000
	Excavator PC 300	Unit	2	250,000	500,000
	Excavator PC 200	Unit	6	120,000	720,000
	Motor Grader WA.500	Unit	3	120,000	360,000
	Compactor Roller	Unit	3	120,000	360,000
	Water Spray Truck	Unit	2	90,000	180,000
	Truck articulated	Unit	6	1,200,000	7,200,000
	Dump Truck	Unit	210	90,000	18,900,000
	Trailer	Unit	2	90,000	180,000
	Mining Lamp	Unit	10	15,000	150,000
	Froklif	Unit	5	50,000	250,000
	Mobil Crane 25 Ton	Unit	3	250,000	750,000
	Mobil Crane cap. 45 Ton	Unit	3	350,000	1,050,000
	Mobil Crane cap. 150 Ton	Unit	2	800,000	1,600,000
	24 Contingency	Ls	1	5,000,000	5,000,000
<b>SUB TOTAL I</b>					120,000,000
<b>II</b>	<b>INDUSTRIAL PARK</b>				
<b>1</b>	<b>Preliminary</b>	Ls	1	1,500,000	1,500,000
2	Land Leveling (cut and fill)	Ha	300	100,000	30,000,000
3	Road and Drainage (Road Pavement standar)	Km	15	1,100,000	16,500,000
4	Jetty / Port, L. 600 m, wide : 3,5 m & shoreline protection	m	600	44,000	26,400,000
5	Material Handling Facilities (Conveyor, cap. 3000 tph, B/W :1500mm)	m	1,800	12,000	21,600,000
6	Bulk Material Storage Area, gutter, lighting & lightening arrester	Ha	20	150,000	3,000,000
7	Warehouse (3 unit, size : 23 x 80 m)	Unit	2	645,000	1,290,000

NO	DESCRIPTION	UNIT	Q.TY	UNIT PRICE	AMOUNT (USD)
8	Fuel Storage Tank, cap. 500.000L	Unit	3	1,800,000	5,400,000
9	Water Treatment Plant, cap. 100.000 l/day	Lot	1	3,500,000	3,500,000
10	Settling Pond, A : 50,000 sqm	Lot	3	500,000	1,500,000
11	Waste Water Treatment Plant, cap. 5000 m3/day	Lot	2	2,500,000	5,000,000
12	Administration Office	Ls	2	1,000,000	2,000,000
13	Housing, 80 sq.m/each	Unit	50	35,200	1,760,000
14	Dormitory (40 rooms/each)	Unit	4	400,000	1,600,000
15	Canteen, 150 sq. / each	Unit	3	50,000	150,000
16	Mosque	Unit	1	200,000	200,000
17	Church	Unit	1	150,000	150,000
18	Club House, Guest House, sport & Clinic	Unit	1	1,100,000	1,100,000
19	Fire Station Building and Truck	Ls	1	800,000	800,000
20	Pipe Hydran & pump	Ls	1	800,000	800,000
21	Sewage System	Lot	1	500,000	500,000
22	landscaping	lot	1	250,000	250,000
23	Contingencies (for water distribution , Lighting, cable, etc.)	Ls	1	5,000,000	5,000,000
	<b>SUB TOTAL II</b>				130,000,000
<b>III</b>	<b>FERRO-NICKEL SMELTER PLANT</b>				
1	RKEF (Rotary Kiln Electric Furnace) 2 Line, Cap.200.000MT/Y	Lot	1	350,000,000	350,000,000
2	Blast Furnace, Cap. 240.000 MT/Y	Lot	1	275,000,000	275,000,000
3	Power Plant :				
	- Phase I : 2 x 40 MW	Lot	1	360,000,000	360,000,000
	- Phase I : 2 x 80 MW	Lot	1		
	<b>SUB TOTAL III</b>				985,000,000
<b>TOTAL</b>					1,235,000,000



# Project Colorado

## Building an Integrated Nickel Processing Facility

### Investment Opportunity

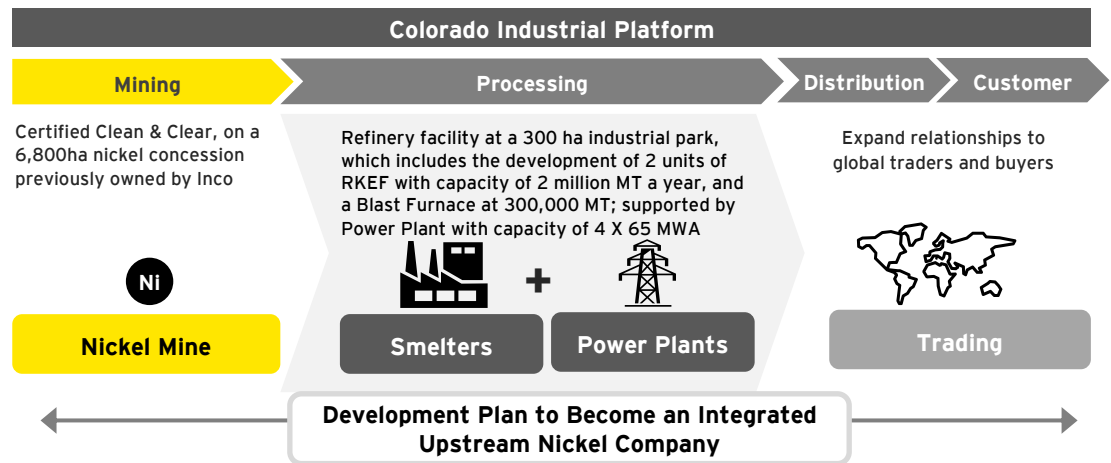
Colorado is welcoming strategic and financial investors to partner or co-invest in its mine, or jointly develop an industrial facility that includes mine, smelter and power plant.

### Quick Facts:

- ▶ Offices in Jakarta and Makassar
- ▶ Owns a large 6,800 ha nickel concession in Sulawesi
- ▶ Owner, operator, and management with focus and experience in the mining business
- ▶ Sees opportunity to develop into an integrated upstream nickel company
- ▶ Gained required licenses and permits for operations and productions
- ▶ Seeking partners and capital for mine financing and project developments

Colorado holds the exploration, production, and environmental licenses and permits to operate a large 6,800 ha nickel concession in Sulawesi. Colorado is the owner and operator through mining and trading operations. Recent regulatory changes in Indonesia have banned nickel ore exports in order to oblige miners to refine ore locally. As a result, Colorado has been required to build its own smelting facility. The pro-longed ban is expected to create a long-term nickel supply deficit, which have resulted in a large pricing differential between Indonesian and global nickel prices. This persistent large pricing differential is creating attractive opportunities to initiate large scale projects such as smelters and power plants.

Colorado's business model and plan are as follows:



## Investment Highlights & Opportunities

Colorado is well-positioned in light of recent local and global developments:

- ▶ Indonesia is one of the largest nickel ore producers in the world, contributing to 18% of the World's supply in 2013. While Asia comprises of 65% of global demand, China, one of the fastest economies in the world, imported 60% of its nickel demand from Indonesia.
- ▶ Nickel ores from Indonesia have been considered as high purity and is sought after for use in the production of stainless steel and other corrosive-resistant alloys.
- ▶ The Indonesian government has shown to provide strong support to develop the local ore processing industry with the recent export ore ban. As a local based company, Colorado has gained local community and regulatory support for the development of smelters and power plants.
- ▶ Nickel import dependent economies, such as China, and commodity investors have begun to enter Indonesia to seek partnerships with local players.
- ▶ Previously owned by Inco (now known as Vale), the 6,800 ha block is one of the few large scale nickel concessions in Sulawesi and one that is located on a jetty-ready site. A portion (25% of the total concession) has been determined to contain an inferred resource of least 111 million tons with 1.6% nickel content.

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## Development Initiatives

Colorado is ready to deploy several projects to become an integrated nickel player. It aims to achieve this through the following:

<b>Top Priority Mining Financing</b>	<ul style="list-style-type: none"> <li>▶ Colorado currently owns a 6,800 ha mining concession with 48% prospect laterite area, one of Indonesia's largest privately owned nickel reserves after giants such as Vale and Antam. The ex-Vale owned site is has been certified Clean &amp; Clear, and has the IUP for Exploration and Production Operation as of FY13.</li> <li>▶ Colorado has conducted an internal exploration of 24 ha for measured reserves. Colorado is seeking capital to further explore an additional 200 ha.</li> <li>▶ Colorado is also open to partnerships for offtake or sales agreements to help generate cash flow.</li> </ul>
<b>Smelting Facility Initiative</b>	<ul style="list-style-type: none"> <li>▶ Colorado plans to develop its smelter facility at its 300 ha industrial park within the existing concession in two stages; First with a blast furnace to produce Nickel Pig Iron ("NPI") within a 6 month construction time frame. In parallel work, 2 new lines of Rotary Kiln Electric Furnace ("RKEF") will be constructed to produce FerroNickel ("FeNi").</li> </ul>
<b>Power Plants Initiative</b>	<ul style="list-style-type: none"> <li>▶ Concession currently has a power grid that is available for usage. However, the shortage of power in the area has created an opportunity to develop power plant(s), at a planned area of 100 ha in its industrial park to supply 260 MW to its own facility and surrounding areas.</li> <li>▶ While most of the power will be used for smelting and affiliated activities, excess power can be sold to PLN.</li> </ul>
<b>Industrial Park Initiative</b>	<ul style="list-style-type: none"> <li>▶ Develop a 100 ha industrial park to support the production of diversified nickel based products for export.</li> </ul>

## Value Proposition for Potential Investors and Partners

Colorado is required to build its smelting capacity. This opens the opportunities for investors and partners to enter through 2 options, each presenting distinct advantages for potential investors and partners.

Option A: Mining Assets	Option B: Holding Company
Expand reserves and proceed to further exploration	Seeks strategic investments at holding level
<b>Investment opportunity:</b> <i>Funding to expand exploration and mining operations</i>	<b>Investment opportunity:</b> <i>Strategic investor and partner to fund across expansions</i>

## Next Steps

Interested parties are requested to express their interest to the key contacts indicated in this document. Upon signing a nondisclosure agreement, we will request you to submit an indicative term sheet. After which, you will be provided with an information packet which will contain additional information on the business and a process letter indicating the timelines and other key information in relation to the process.

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