Sumitomo Metal Mining Co., Ltd.

## Preparation of 2009 3-Year Business Plan Completed -- New growth strategy to be promoted based on long-range vision centering on shift in business structure --

Sumitomo Metal Mining Co., Ltd. (SMM) has completed the preparation of its 2009 3-Year Business Plan. The plan, which spans from fiscal 2010 through fiscal 2012, aims to achieve the company's long-range management vision.

Since formulating its 2003 3-Year Business Plan, SMM has successively implemented an array of measures to increase its corporate value under a basic strategy calling for the enhancement and strengthening of its two core businesses: Mineral Resources & Non-ferrous Metals, and Electronics & Advanced Materials.

Among the initiatives taken in Mineral Resources & Non-ferrous Metals, the company expanded its participation in projects in the Philippines, adding the Taganito Project to its involvement in Coral Bay Nickel; acquired operatorship in the Pogo Gold Mine; and secured nickel resources through investments into Philippine mining company. In Electronics & Advanced Materials, the company aggressively boosted sales of battery materials and expanded operations in sapphires.

Under the new 2009 3-Year Business Plan, SMM will seek the completion of its growth strategy launched in the 2003 Business Plan and will also further develop and strengthen its growth strategy for ongoing implementation in subsequent business plans. It will also pursue a business strategy targeting further enhancement of its corporate value.

SMM's business environment is currently in the midst of major changes: increased demand for non-ferrous metals in the BRICs, notably China, fueled by robust economic

growth; intensifying competition to secure resources; and increased importance of environmental and energy businesses on global scale. In response to these changes, the company will now shift, in line with its long-range management vision, from the foregoing two core businesses to three: Mineral Resources, Smelting & Refining and Materials. Leveraging the company's strengths – its technological and research capabilities, globalized operations, and sound financial structure – management resources will be concentrated into these new core business areas and investments will be vigorously undertaken.

Specifically, in the area of **Mineral Resources** expanded interest will be acquired in overseas copper and gold mines. In **Smelting & Refining**, the company will seek to become a major force in the non-ferrous metals industry by securing a nickel refining capacity of 100,000t/yr, with a further boost to 150,000t/yr also envisioned. In **Materials**, full application will be made of SMM's supply chain in all three of its core businesses and expansive technological abilities, sales strength; and with a focus on environmental and energy-related operations, the company will proactively pursue the development of and business expansion in rechargeable batteries for use in automobiles and consumer products, recycling, and materials for use photovoltaic batteries.

#### **Outline of Core Business Strategies**

#### 1. Mineral Resources

As the company's long-range management vision, SMM will participate in the exploration and development of mineral resources toward achieving the following targets by 2020: 300,000t/yr of copper and 30t/yr of gold produced as SMM's interest share. The company will also aim to put the Solomon Project in operation within the same time frame. Through these initiatives, the company will pursue increased supplies of its own mineral resources for subsequent refining and seek expanded earnings from its mining business. Under the 2009 3-Year Business Plan, stepped-up efforts will be made to secure exploration and development projects as means toward achieving the company's long-range vision.

#### 2. Smelting & Refining

Expansion and strengthening will be pursued of the company's nickel operations. Supplies of mixed sulfide (nickel/cobalt) from the HPAL (high-pressure acid leach) project at Taganito, set to go onstream in 2013, coupled with an increase in electrolytic nickel production capacity to 65kt/yr, will enable achievement of a 100kt/yr nickel production system. Under the long-range management vision, plans call for a further increase to 150kt/yr through resource supplies from the Solomon Project and the Philippines. As a first step toward that goal, under the 2009 3-Year Business Plan a 100kt/yr system will be completed. In the area of copper refining, measures will be implemented toward achieving the foremost goal: to strengthen cost competitiveness as necessitated by the increasingly severe operating environment resulting from factors including higher energy costs and deterioration in conditions for acquiring mineral interests due to restricted market opportunities.

#### 3. Materials

In the environment and energy areas, where robust expansion is projected going forward, SMM will expand operations in positive electrode materials for rechargeable batteries and sapphire substrates for LEDs, with the target set on the HEV (Hybrid Electric Vehicle), EV (Electric Vehicle) and LED markets. R&D will also be carried out with an emphasis on new products in the environment and energy fields.

Going forward, SMM will steadily carry out these new growth strategies in its quest to further increase its corporate value.

For details of the new 2009 3-Year Business Plan, please refer to the presentation materials.

#### Reference

SMM's profit structure is impacted by fluctuations in non-ferrous metal prices. In preparing the 2009 3-Year Business Plan, the company has made the non-ferrous metal price and exchange rate assumptions for fiscal 2012 given in the following table. Profit/loss estimates have been made factoring in the strategy merits expected under those conditions. For fiscal 2012 the company looks for consolidated recurring income of

#### ¥110 billion.

#### Terms & Estimates

(¥100mn)

Item		2012 (3-Yr	2009 estimate	Change
		Business Plan)		
Operating	Mineral	300	300	0
income	Resources			
	Smelting &	370	255	+115
	Refining			
	Materials	150	10	+140
	Others	30	-2	+32
	Inter-segment	0	-13	+13
	Eliminations			
Consolidated		850	550	+300
operating				
income				
Recurring		1,100	750	+350
profit				
Income before		1,100	700	+400
taxes				
Net income		700	460	+240
Equity method		300	265	+35
profit				
Average total		11,200	9,100	+2,100
assets				
ROA		6%	5%	+1%
ROE		10%	8%	+2%

Copper (\$/t)	6,000	6,043	-43
Nickel (\$/lb)	8.0	7.3	+0.7
Gold (\$/toz)	1,000	1,021	-21
Zinc (\$/t)	2,000	1,937	+63
Exchange (¥/\$)	90.0	91.9	-1.9

#### **Equity Investment Plans**

Equity investments are planned in the amount of approximately \$190 billion, with a focus on expanding and strengthening nickel operations through the Taganito Project, etc. The above figure does not include investments to acquire overseas interests, which is a major company strategy. Related investments will be added on as developments in that direction occur.

	Amount (¥100mn)	Remarks
Mineral Resources	60	Excluding overseas
		interests
Smelting & Refining	1,500	Nickel-related: 1,400
Materials	210	
Others	130	
Total	1,900	

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### 2009 3-Year Business Plan

# New Long-term Vision-oriented Growth Strategy Based on Realigned Business Structure

February 2010



Nobumasa Kemori

President and Representative Director

#### **Contents**

- I. Long-term Vision (LTV) & 09 3-Yr Business Plan
- **II. An Altered Business Environment**
- **III. Core Business Growth Strategy**
- IV. Financial Strategy & Platform Reinforcement
- **V. Supplementary Materials**

# I. Long-term Vision (LTV) & 09 3-Yr Business Plan

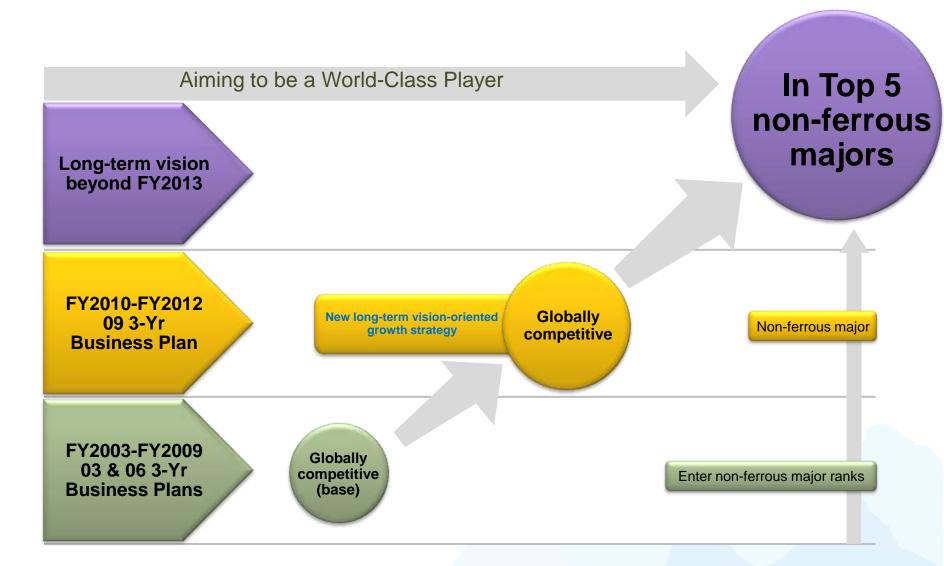


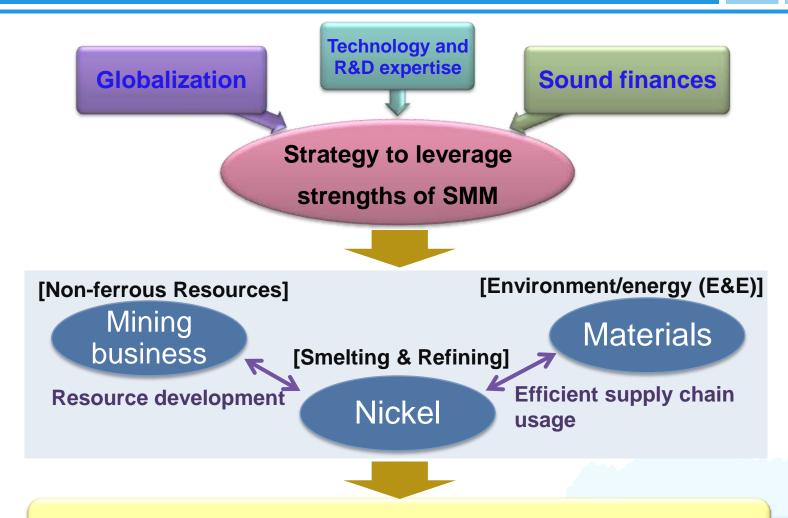
Hishikari mining engineers

## 1) 09 3-Yr Business Plan positioning



LTV & 09 3-Yr Business Plan





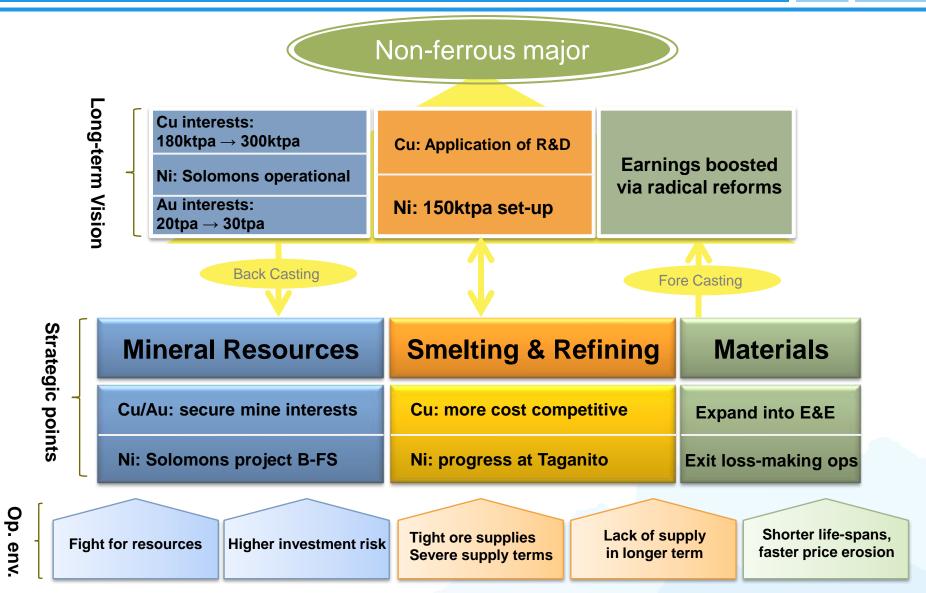
Realigned business structure

Core business resource channeling/aggressive capex

## 3) 09 3-Yr Business Plan outline

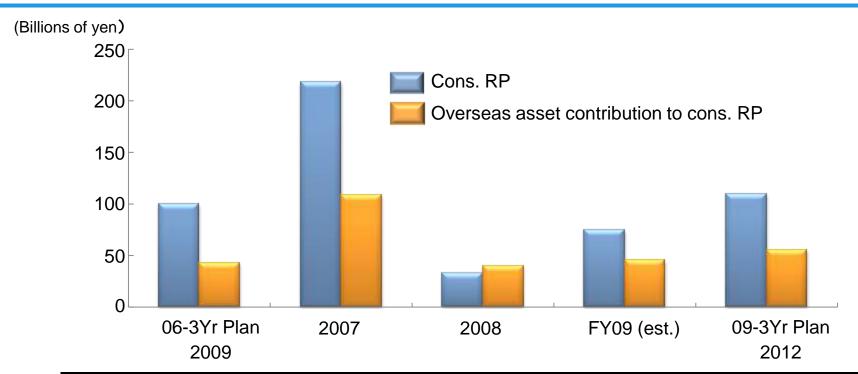


LTV & 09 3-Yr Business Plan



## 4) Recurring profit (RP)

- Greater overseas asset contribution -



(Billions of yen)	06 3-Yr Plan FY2009	2007	2008	FY09 (est.)	09 3-Yr Plan FY2012
Cons. RP	100.0	217.9	32.6	75.0	110.0
Overseas asset contribution to cons. RP	42.6	108.2	40.2	45.2	55.0
Cu price (\$/T)	4,000	7,584	5,864	6,043	6,000
Ni price (\$/lb)	7.0	15.5	7.5	7.3	8.0
Au price (\$/Toz)	550	766	867	1,021	1,000
Forex (¥/\$)	110.0	114.3	100.5	91.9	90.0
		-	SUMITOM	O METAL MII	NING CO., LTI

## 5) Capex

#### Focus resources/aggressive capex –

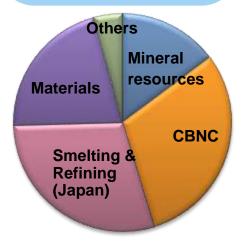
#### Capex excl. o/seas interests

03 3-Yr Business Plan total ¥137.0bn



[Overseas interests (¥bn)]
Cerro Verde 23.4
Goro 17.3
Ojos 2.1
Subtotal 42.8
Grand total 179.8

06 3-Yr Business Plan total **¥132.2bn** 



[Overseas interests (¥bn)]
Pogo 20.3
Goro 22.1
NAC 5.8
Subtotal 48.2
Grand total 180.4

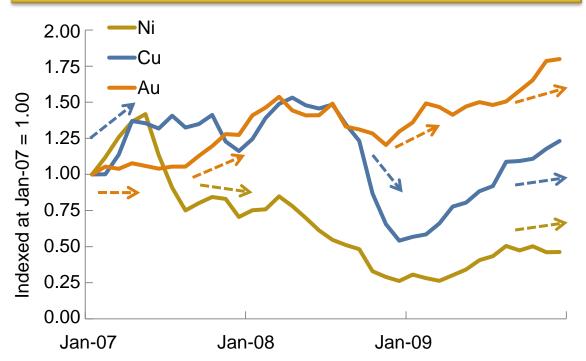
09 3-Yr Business Plan total **¥190bn** 



+O/seas interests acq.

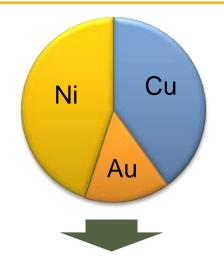
Earnings stabilization –

## Price trends for main SMM metals (Cu/Ni/Au)

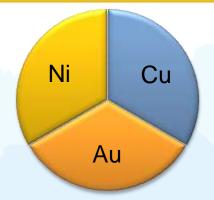


Varied Cu/Ni/Au price trends (economic factors)

Value of ore reserves (2009)



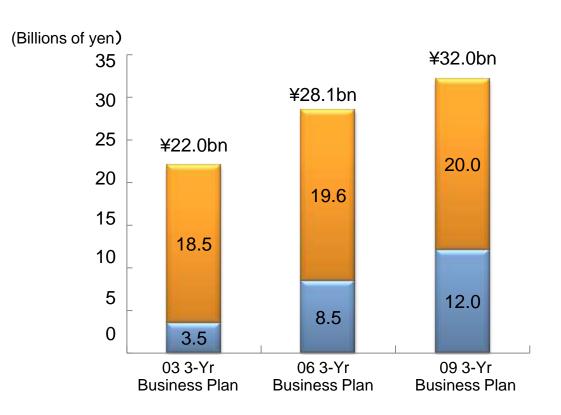
(Long-term Vision)



### 7) Exploration/R&D costs

- Proactive stance -

LTV & 09 3-Yr Business Plan



#### **Research and Development expenses**

Faster/more reliable results

- Promote materials R&D in E&E domain
- Develop battery recycling process
- Build diverse Ni/Co product range

**Exploration costs** 

Promote exploration in line with LTV

Accelerate; budget more if promising

## 8) Overseas mine development

LTV & 09 3-Yr Business Plan





Cu: Discover at least 1 ore deposit of 1,000kt+ reserves

Au: Discover ore body with min. 30t of reserves

Ni: Advance Solomons to B-FS stage within 09 3-Yr Business Plan period

Target region expansion: Upgrade o/seas bases in Brazil/Argentina

#### (1) E&E-related materials development

#### **Until FY2012**

[Battery anodes] [Pastes/substitution of sintered magnets]

[High-performance coated substrates]

#### Until FY2015

[Solar cell materials] [LED materials] [High-capacity battery materials]

#### (2) Inter-divisional core research

**Battery recycling project** 

New ore dressing technology research

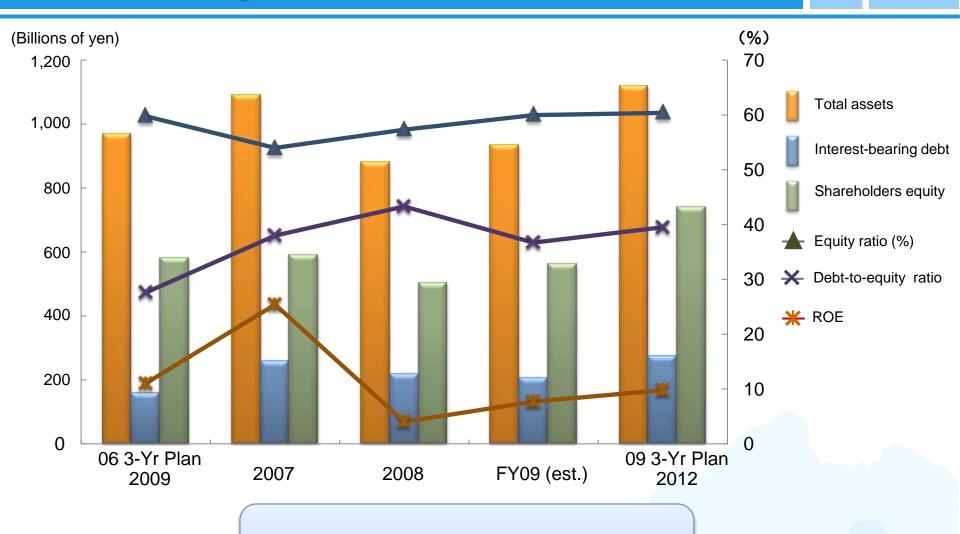
#### (3) R&D targeting elevation to Ni major status

Development of new Ni/Co products (powders, briquettes)
Maximizing utilization of low-grade Ni oxide ores

### 10) Financial indicators

- Maintaining solid finances -

LTV & 09 3-Yr Business Plan



Funding for o/seas interests

## II. An Altered Business Environment

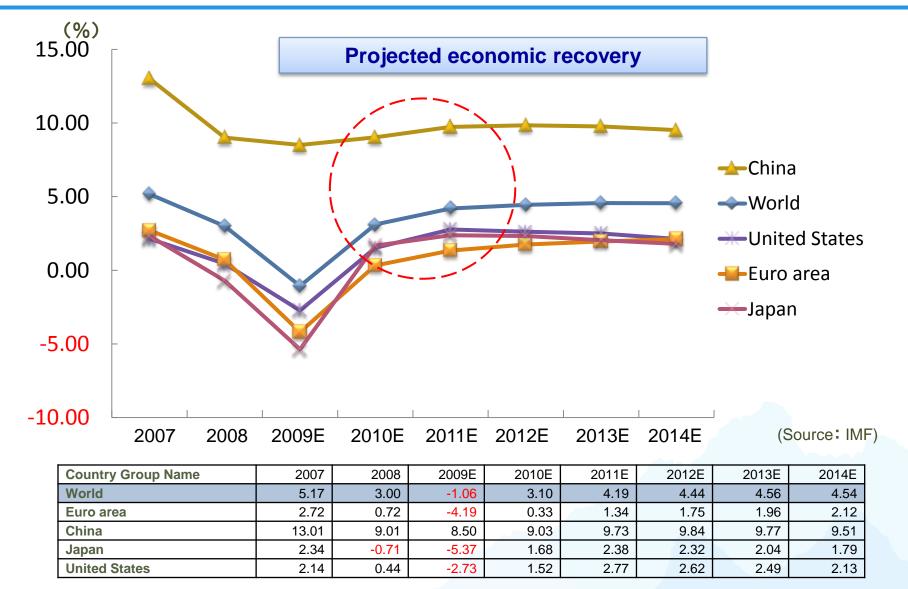


**Coral Bay Nickel** 

## 1) Global GDP growth comparison





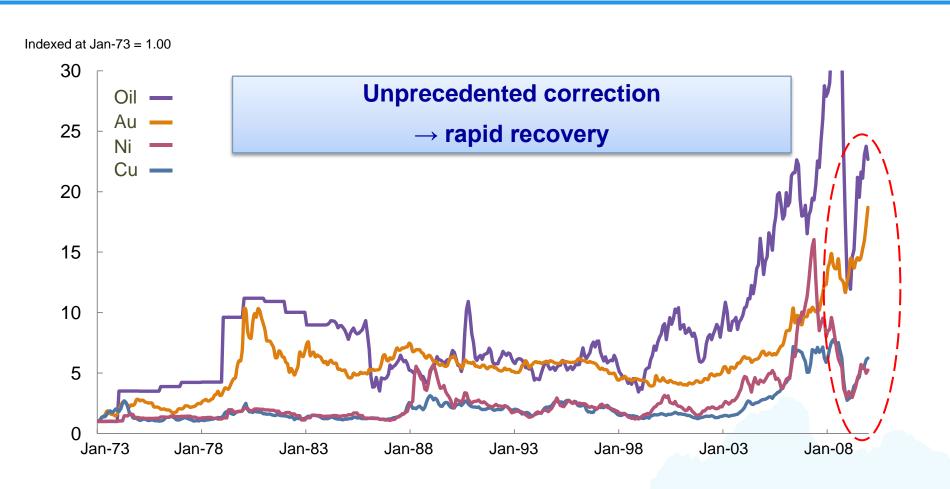


## 2) Prices of metals and crude oil



Business Environment

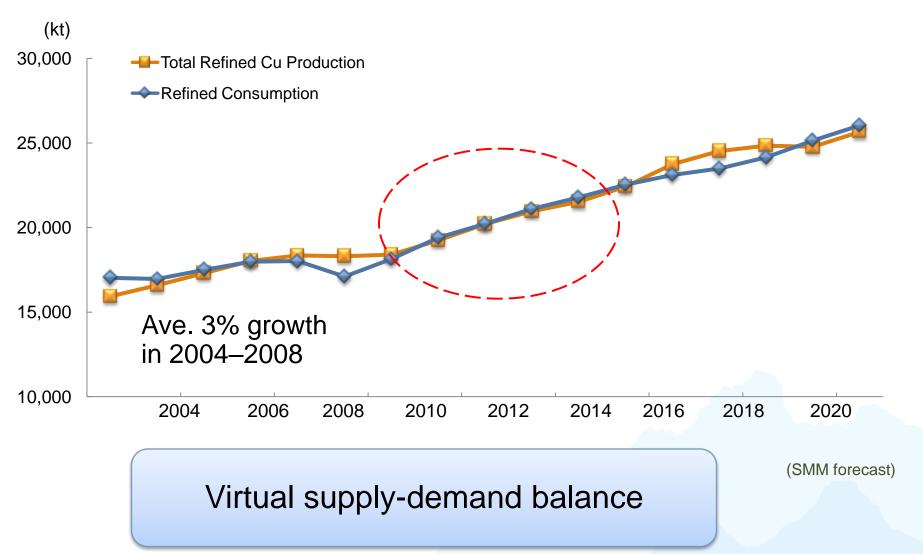
**An Altered** 



(Source: SMM)

## 3) Long-term forecast (electrolytic Cu)



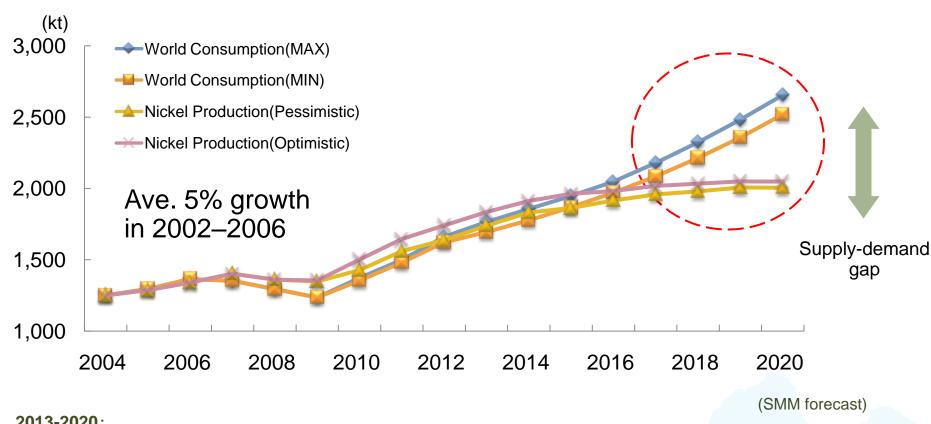


## 4) Long-term forecast (Ni)



**Business Environment** 

**An Altered** 



2013-2020:

Consumption (MAX): China 12%, Other 3% **Consumption (MIN):** China 7.5%, Other 0.5%

Future rise in supply uncertainty

## III. Core Business Growth Strategy

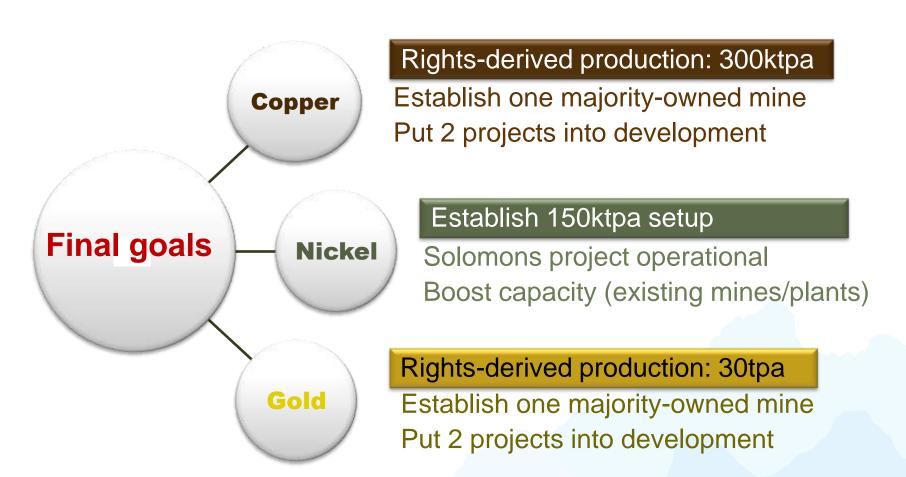


Pogo mine

## 1) Mineral resources business[1] Long-term vision goals

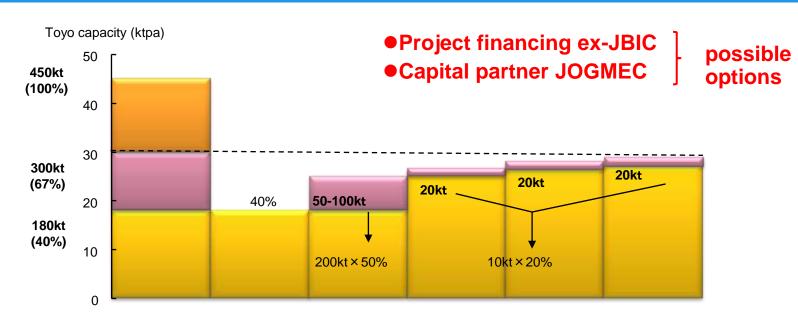


#### LTV-oriented long-term strategy starts with 09 3-Yr Business Plan





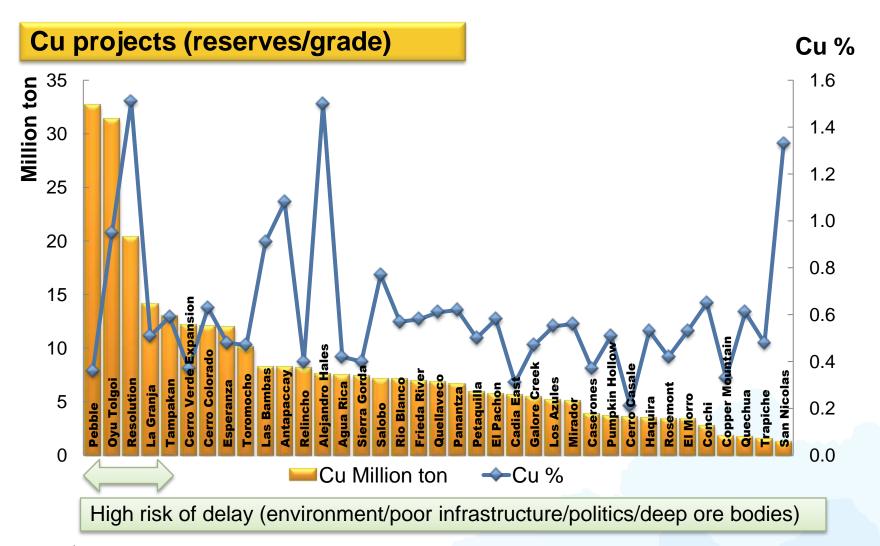




1) Develop in-house	2) External project partnering	3) Boost existing output
From exploration	(a) JV partner retains interest	Cooperation with JV
to development	(b) Junior partner	partner essential
Majority interest:	Minority interest (20-49%):	Equity-stake interest:
Keep know-how	Keep know-how	Keep know-how
Low price	Medium/high price	Low price
High risk	Medium/high risk	Low risk
Long-term	Short/medium-term	Short-term



[2] Cu: Overseas mine development Raising proprietary ore ratio to 67%

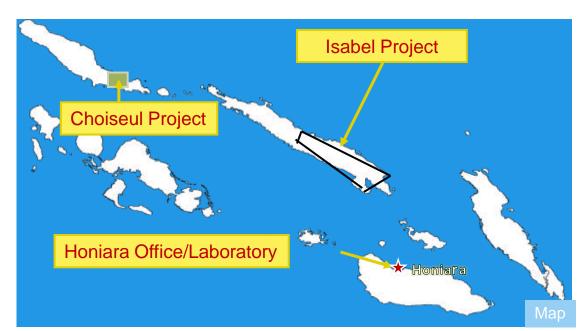


(Source: Metals Economics Group)

[3] Ni: Solomons development



Core Business
Growth
Strategy



#### Solomon Islands

- ◆Area: ~30,000km² (2x Iwate Prefecture)
- ◆Population: ~470,000 Six main islands in 1,000+ archipelago

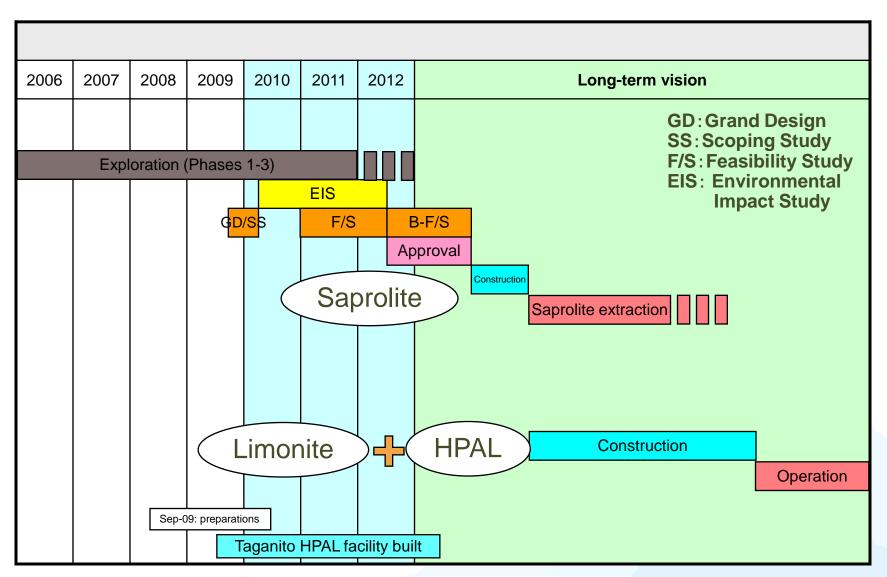






#### [3] Ni: Solomons development





[4] Au: Hishikari mine

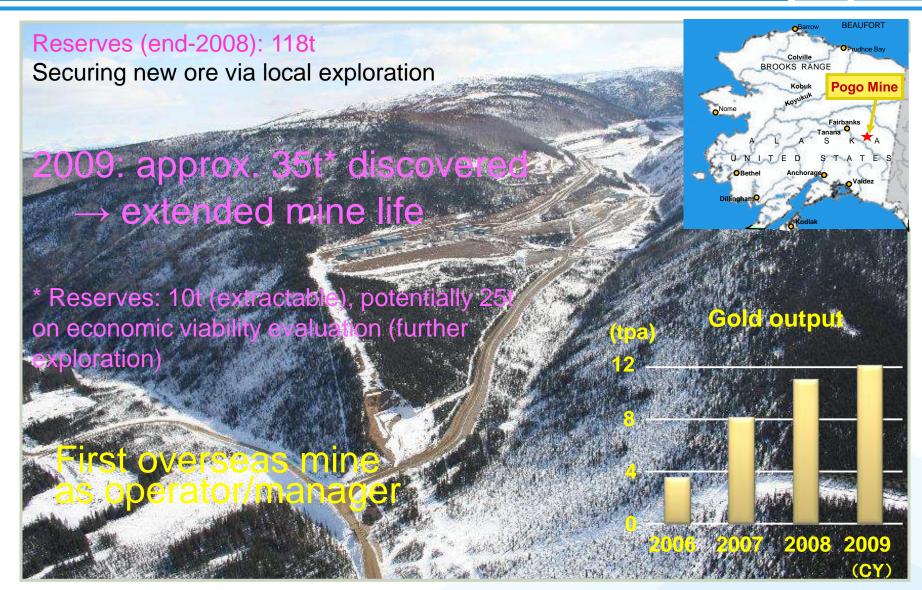


Core Business
Growth
Strategy



## 1) Mineral resources business [4] Au: Pogo mine

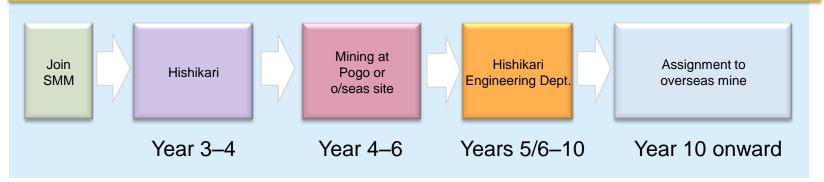


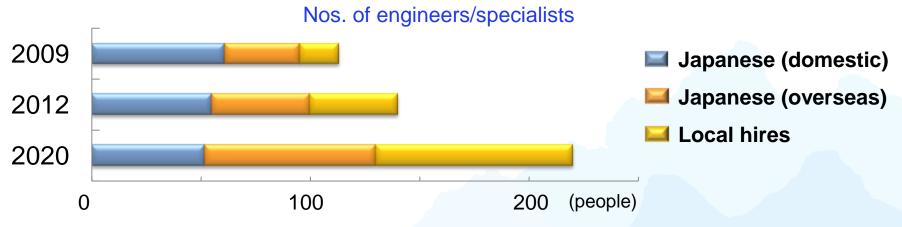


[5] HR development & globalization



- A. Utilization of SMM-operated mines (Hishikari/Pogo)
- B. Sharp growth in engineers/specialist hires (Japan/local)



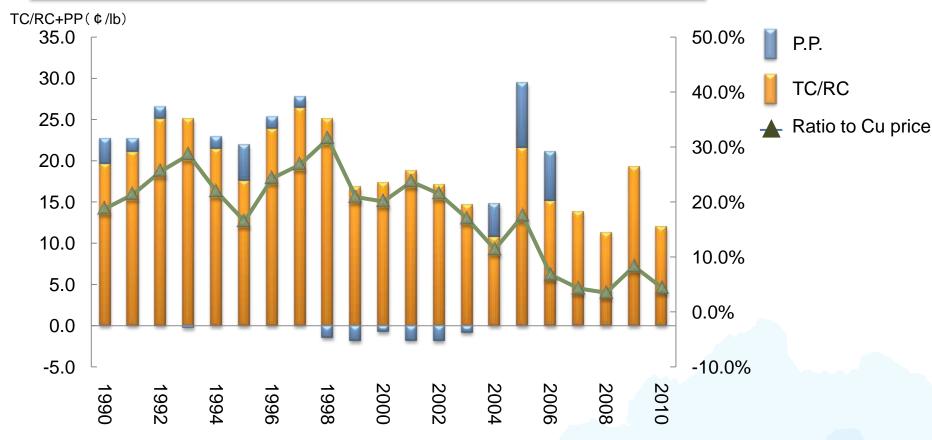


## 2) Smelting & Refining business [1] Cu (1) Issues in smelting & refining operations



Core Business
Growth
Strategy

#### Supply terms for Japanese smelters relative to Cu price



2010: TC/RCs = \$46.50/4.65¢; combined = 12¢/lb

2009: TC/RCs = \$75/7.5¢; combined = 19¢/lb

2010: assumed Cu price \$6,000/t

(Data: JOGMEC)

## 2) Smelting & Refining business [1] Cu (2) Boosting profits/cost competitiveness



Core Business
Growth
Strategy

#### 1. More cost competitive (higher productivity)

				Estimated
Rank		Furnace/s	Capa (kt)	'09 output
1	Guixi	2	770	765
2	Onsan	2	525	515
3	Hamburg East	2	425	405
4	Toyo	1	450	401
5	Saganoseki	1	470	400

**➡ Minimum cost operation** 

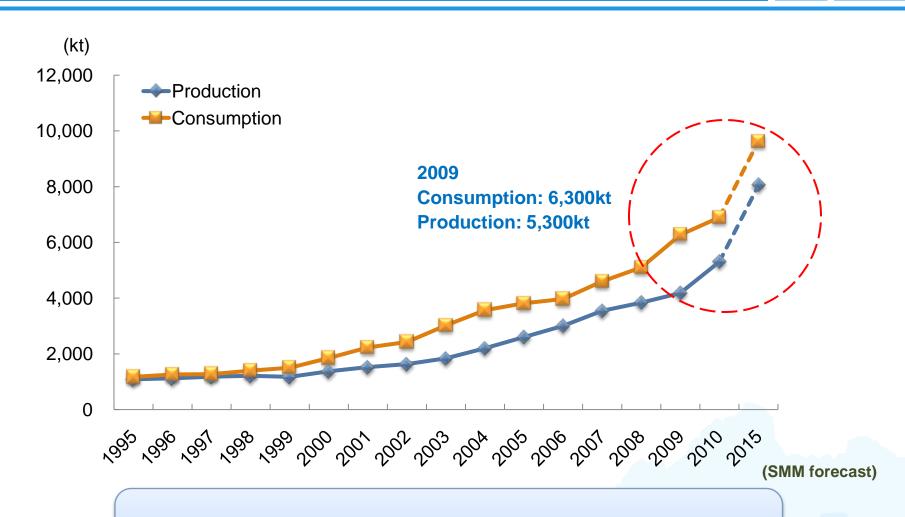
- 2. Technical development
- [1] Ore burner, cont. converter furnace
- [2] Dressing (boost concentrate grade)
- 3. Expand earnings
- [1] Raise prod. margins (cut losses)
- [2] Improve sales premium



## 2) Smelting & Refining business

[1] Cu (3) China projection (electrolytic Cu)



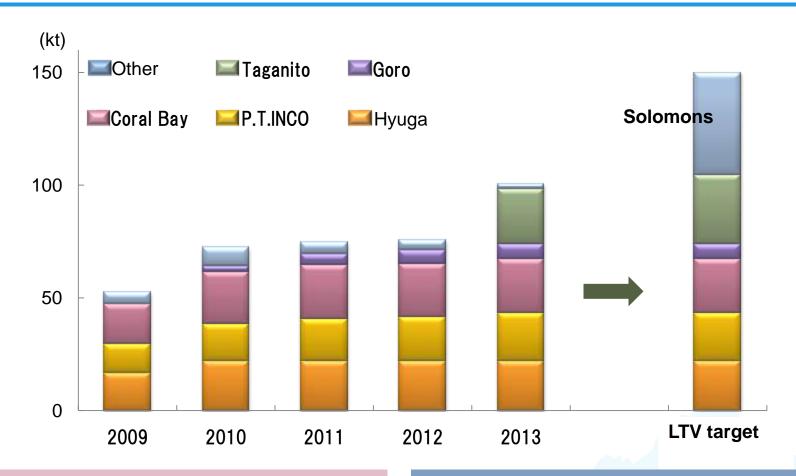


Ongoing Chinese demand growth

## 2) Smelting & Refining business [2] Ni (1) Toward a 150ktpa setup



Core Business
Growth
Strategy



- 1. 2010: CBNC capacity 22ktpa → 24ktpa
- 2. Taganito capex US\$1.3bn → 30ktpa

  Prod. start 2013
- 3. 2013: elec-Ni capacity 41ktpa → 65ktpa
- 4. 2013: P.T. Inco 200mn-lb setup: 15ktpa → 18ktpa

# 2) Smelting & Refining business

## [2] Ni (2) Join Top 5 non-ferrous majors



Core Business
Growth
Strategy



(Capacity)	End-2009	2013	Long-term vision
Electrolytic Ni	41	65	65
Ferronickel	22	22	22
Refined Ni products	6	10	10
Nickel oxide sinter (Goro)	0	7	7
New Ni products	-	-	50
Total	69	Over 100	Over 150

# 2) Smelting & Refining business [2] Ni (3) New Ni projects



Core Business Growth Strategy



### **Mainly HPAL-based projects**

(kt)

Project	Coral Bay	Taganito	Goro	Gladstone	La Sampala	Ramu	Vermelho	Ambatovy	Weda Bey	Total
Company	SMM	SMM	Vale	Gladstone	Rio Tinto	Highland Pacific	Vale	Sherritt	Eramet	
Country	Philippines	Philippines	New Caledonia	Australia	Indonesia	P.New Guinea	Brazil	Madagascar	Indonesia	
Сара	22	30	60	64	46	33	46	60	60	421
Timing	2009	2012	2010	tbd	tbd	2010	Suspended	2010	2014	
Process	cess							AS		

# 2) Smelting & Refining business [2] Ni (4) Leveraging SMM strengths



Core Business
Growth
Strategy

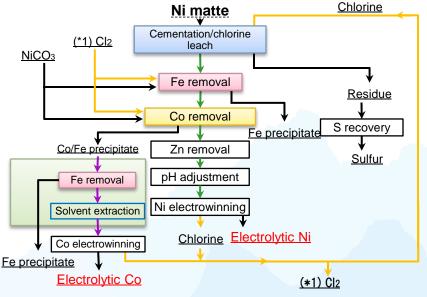
# **Technical superiority**

"HPAL+MCLE" process enables the production of high-grade elec. Ni-Co from low-grade Ni oxide ores

### **High Pressure Acid Leach**

# Ore slurry H2SO4/steam Heater Autoclave Autoclave op. conditions Temp.: 230–250°C Pressure: 3–5MPa (Recovered) steam Flash vessel CCD (Counter Current Decantation)

### **Matte Chlorine Leach Electrowinning**



# 2) Smelting & Refining business [2] Ni (5) Taganito



- ♦Investment US\$1.3bn
- **♦**SMM to retain majority interest NAC investment expected
- **♦**Proj. operating life: 30 yrs
- **♦**Schedule

Sep. 2009: Project announced

Mar. 2010: Construction start

2013: Plant completion Pilot operations Commercial prod.

Annual output of mixed Ni-Co sulfides (HPAL method)

Ni 30kt/Co 2.6kt



# 2) Smelting & Refining business [2] Ni (6) Coral Bay Nickel (CBNC)



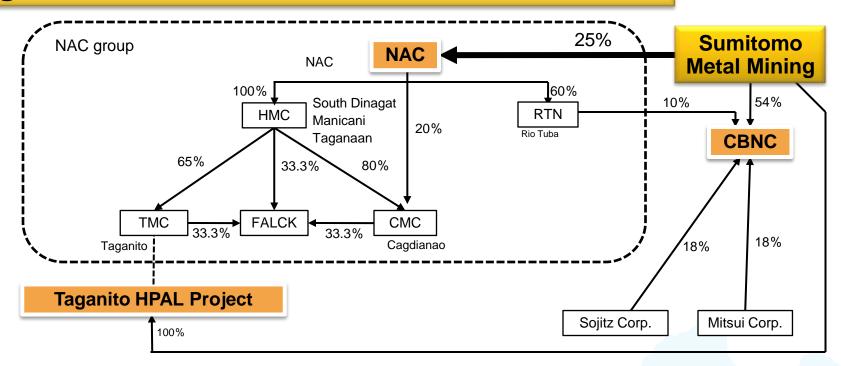


# 2) Smelting & Refining business [2] Ni (7) Philippines: Nickel Asia (NAC) stake



Core Business
Growth
Strategy

### Figure concerned of NAC and its subsidiaries



**HMC: Hinatuan Mining Corporation** 

RTN: Rio Tuba Nickel Mining Corporation

TMC: Taganito Mining Corporation FALCK: Exploration company

CMC: Cagdianao Mining Corporation CBNC: Coral Bay Nickel Corporation

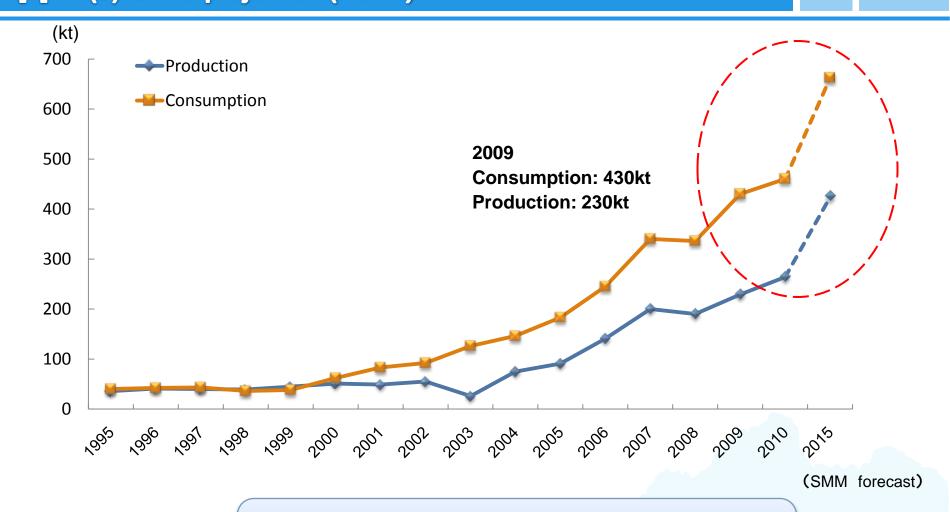
- Closer ties for Taganito project
- Expand to Cu/Au mining



## 2) Smelting & Refining Business [2] Ni (8) China projection (nickel)



Growth Strategy



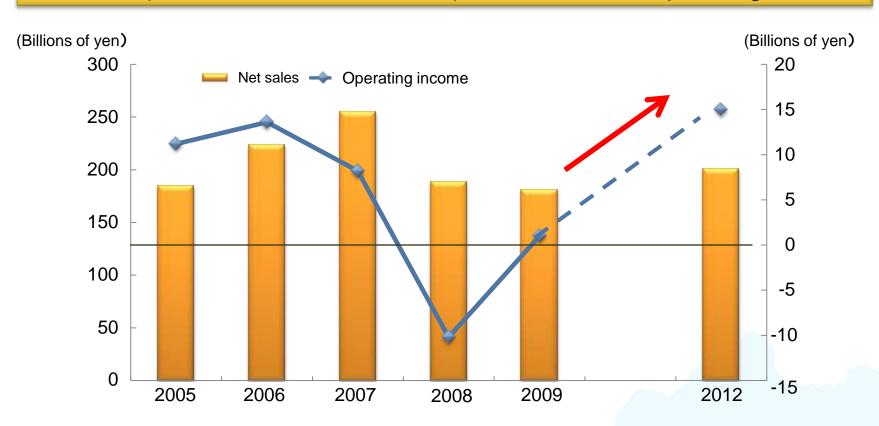
More Chinese buying





Core Business
Growth
Strategy

### Materials (Electronics/adv. Materials) business sales/operating income



Advanced materials – E&E domain(1) Batteries: supply chain benefits



Core Business
Growth
Strategy

# **Growing battery market**

Opportunity for Ni/Co producers to leverage resource base and related technical expertise

# Recycling

Good resource use lower impact

# Raw material

Stable Ni/Co supply



# Prod./dev. Technologies

Realizing high secondary battery quality/safety





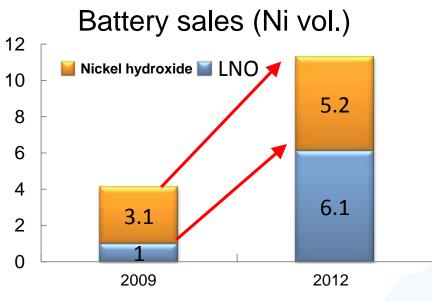




• Anode material for Ni-MH car batteries: <u>nickel hydroxide</u>

# Over 50% of global sales Supplying Toyota

Anode material for Li-ion consumer batteries: <u>lithium nickel oxide (LNO)</u>
 Top share in high-performance batteries <u>Supplying Panasonic</u>



Nickel hydroxide
Lithium nickel oxide
Major growth
forecast for both

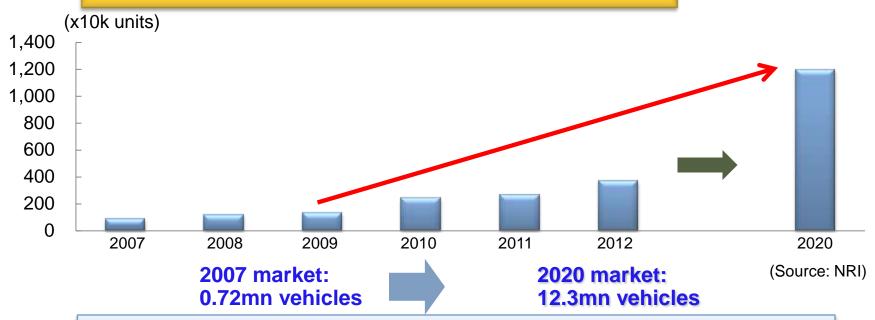
(Indexed at 2009 LNO sales Ni-equivalent = 1)





Core Business
Growth
Strategy

## Hybrid electric vehicle (HEV) demand



# SMM aims to keep dominant share of anode materials supplied to Toyota for HEV batteries

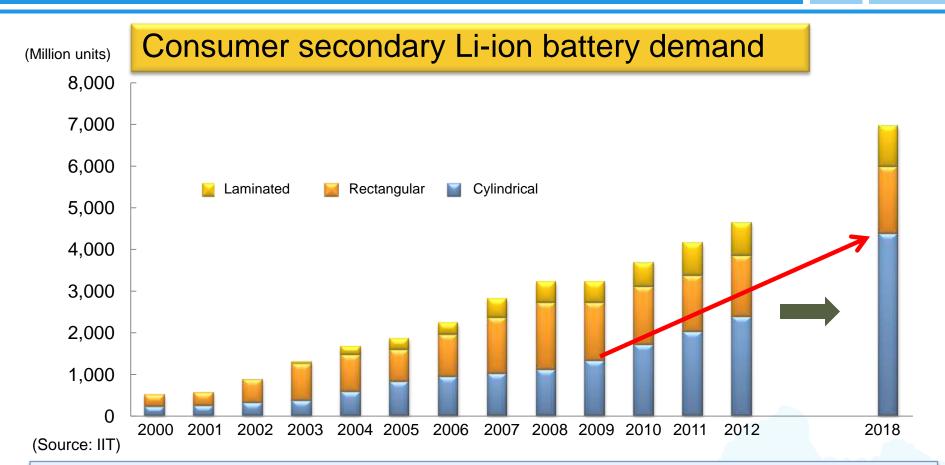
Now: Nickel hydroxide

(Toyota HEV prod. capacity: 0.8mn (2009) → 1.1mn (2010))

**Future: range of anode materials** 







Major growth in (cylindrical) high-performance notebook PC batteries/E&E applications

→ Growing use of LNO as anode material

(Laminated) Multiple applications for batteries in thin sheet form (Rectangular) Mobile phone segment peak from 2010



Growth

Strategy

Advanced materials – E&E domain (1) Batteries: consumer applications

Consumer Li-ion battery anode materials ([1]-[3])

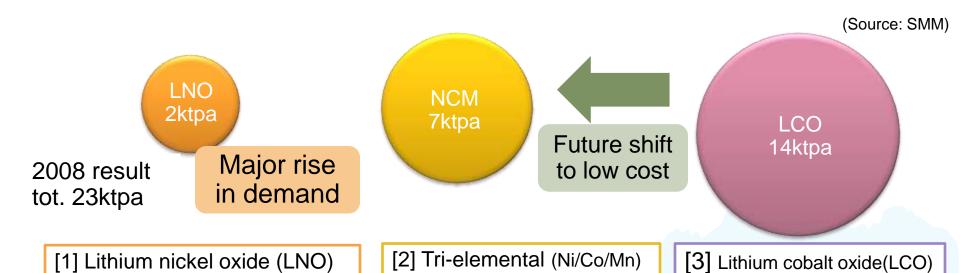
### -Strategy

(Ni 50%, Co 10%)

PC batteries/E&E applications

High-performance/light/long life

- 1) Higher LNO sales from rising output of Panasonic PC batteries/E&E items
- 2) Execute shift from Co-type to tri-elemental



(Ni 20%, Co 20%)

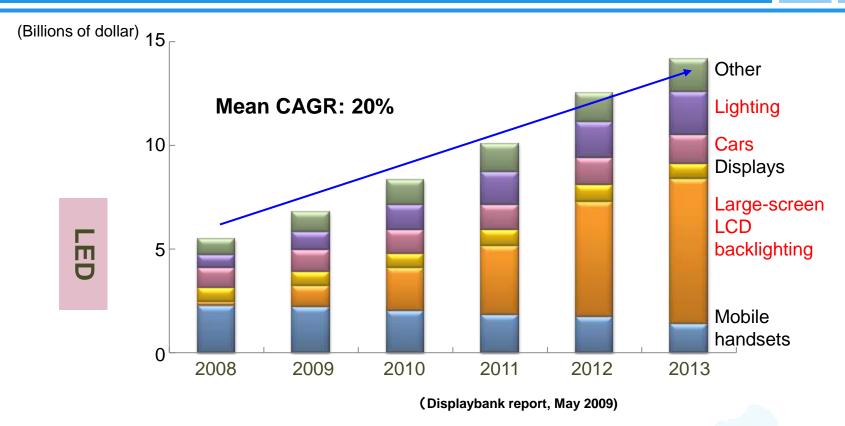
General items

General items

(Ni –%, Co 60%)







### Sapphire substrates:

Targeting top share of large substrate market based on integrated large crystal fabrication/finishing processes





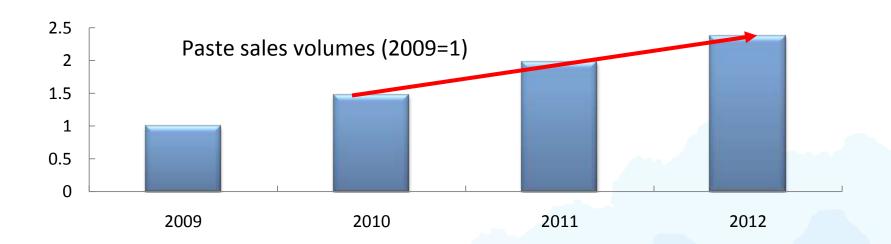
Growth Strategy

**Core Business** 

Reinforce business base: MLCC thick-film materials

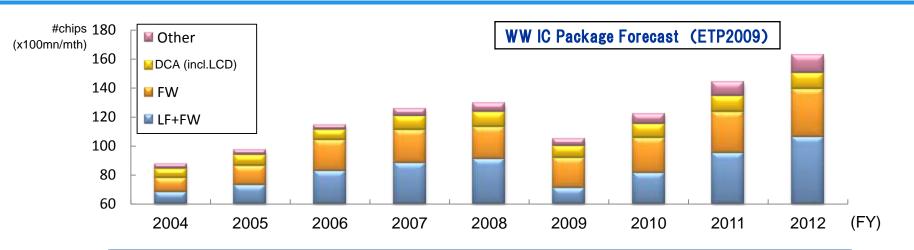
(1) Supply chain leveraging from Ni raw materials to pastes(2) Tap China demand through Shanghai SEP\*

\* Shanghai Sumiko Electronic Paste Co., Ltd.



### Semiconductor materials (1) Reinforce business base





- ◆Build platform to be profitable under any conditions
- ◆Cost reductions across product range (targeted campaign)

## Fine wire

Higher share from

(1) better Au wire quality (2) Cu wire entry

### Lead frames

Supply new lead frames for growth sectors

### Copper-clad polyimide film

Film insolubility:

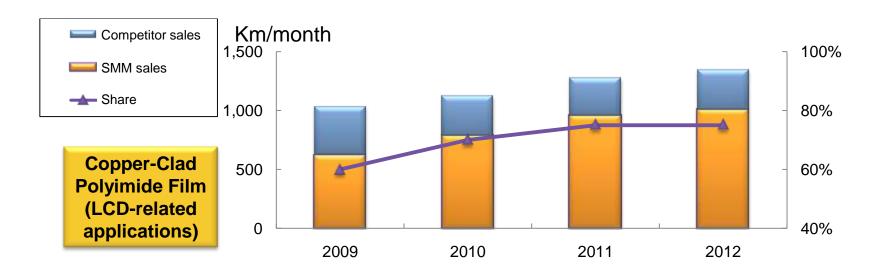
(1) world-class quality (2) higher share

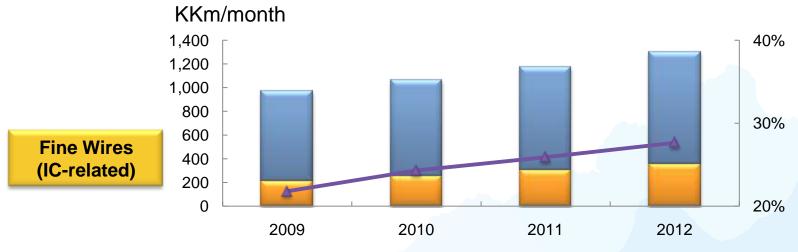
### COF

Target global leadership within fine-line sector

### Semiconductor materials (2) Excel to build share in growing market







### Semiconductor materials (3) Strategic resource focus



Core Business
Growth
Strategy

- "Target growth sectors offering operational synergies"
  "Strategy:"
  - Rebuild manufacturing capabilities (technology/facilities)
  - Faster improvement in quality/cost competitiveness
  - More highly skilled engineers
- "Enter new, high-potential product sectors in peripheral areas"
- Restructure/exit businesses lacking growth potential >
- (1) Ajimu Electronics (IC package plating): to cease Dec-10 (announced Sep-09)
- (2) Shinko (CSP business): operations ceased Sep-09
- (3) Sumiko Tec: consolidation of production/distribution Shutdowns of Gotemba factory (Sep-09), Mie w/house (Oct-09)

# IV. Financial Strategy & Platform Reinforcement



**Exploration in the Solomons** 

# 1) Financial strategy



- 1 Maintaining sound finances
  - Minimum equity ratio of 50%
  - Low debt-equity ratio
  - Invest to generate new growth
  - Fund o/seas rights acquisitions and other projects (Utilize internal cash flow, project finance)
- 2 Shareholder returns (dividend policy)
  - Performance-linked shareholder returns
  - Maintain consolidated dividend payout ratio of 20%+

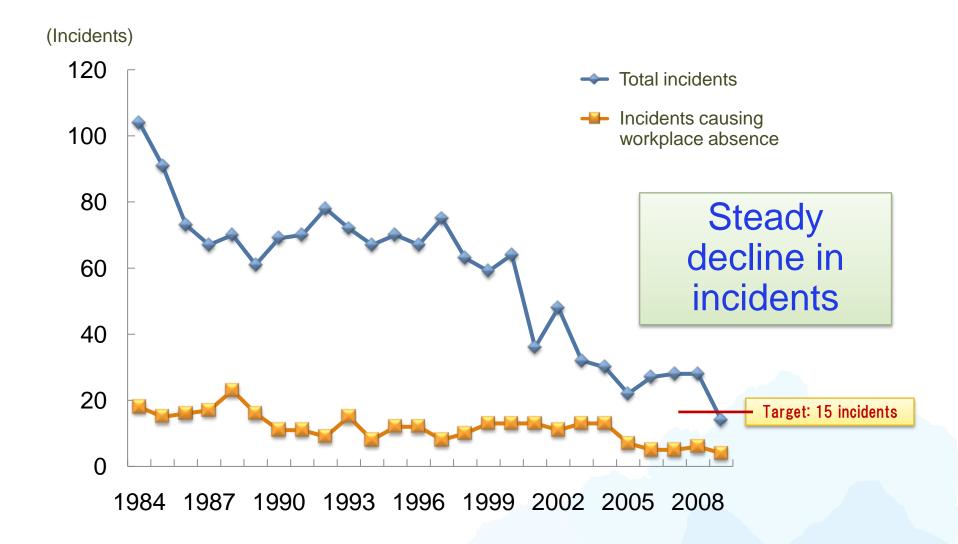


Financial
Strategy &
Platform

- (1) Ongoing development of support systems
  - Entrench safety culture;
     upgrade risk management/compliance approach
  - 2. Environmental/social CSR activities for sustainable co-existence
- (2) HR development/training/usage
  - 1. Develop managerial corps (core operations)
  - 2. Make operations more international
  - 3. Establish/use HR development bases (Besshi/Kanto)
- (3) Corporate governance, takeover defenses renewal
  - 1. Pursue greater management transparency/efficiency
    Build trust with shareholders and other stakeholders
  - 2. Defend shareholder interests from opportunistic acquisition

# 2) Further reinforce business base [1] Entrench safety culture





# 2) Further reinforce business base [2] Each stakeholder category's ideal company

**Employees** 

Creditors



Financial
Strategy &
Platform

A company with all-round competitiveness, boasting advantage over competitors on technology, quality, delivery and price

A company that provides a healthy work environment where individual roles within the organization are clearly defined and employees have pride in their work

A trustworthy company with strong earning power and sound finances

A company that engages in an appropriate level of communication, main taining an acute awareness of its corporate responsibility Customers

An attractive investment as a company aiming to raise corporate value through efficient business management and sound governance while delivering a dividend commensurate with performance and disclosing information as appropriate

A company seeking to co-oxist with the local

Local

Communities

**Business** 

Partners

A company seeking to co-exist with the local community and contribute to regional growth

A company demonstrating enormous technological capability and integrity while placing value on trust and with which mutual prosperity can be gained

A company that maintains total legal compliance and contributes to the growth of nations and communities in which it operates

Socially responsible program delegated to line management

Government

SMM

Citizen

Groups

[3] Solid CSR activities (environmental/social)



Financial
Strategy &
Platform

# Outline of environmental preservation activities for realizing the CSR Vision for 2020

### **Key Area**

# **Environmental Preservation Reducing CO2 emissions (energy savings); Biodiversity**

# Vision for 2020

"A company that meets international antiglobal warming standards by using advanced technologies"

- Zero waste emissions
- 50% of new products with low environmental impact (e.g. fuel cells, solar cells)



- Reduce the unit energy consumption by 1% in each year to FY2012
- Zero landfill waste
   (FY2006: 145kt ⇒ FY2020: 18kt)
- Provide low cost materials which contribute to reducing environmental impact in products through the use of superior technology
- Suitable biodiversity preservation initiatives
- Materials stewardship initiatives



Peru: surveying with cooperation of local groups



Ancient Roman heritage exhibition sponsor

# 2) Further reinforce business base [4] HR development



Financial
Strategy &
Platform

Niihama training facility set up to cultivate the next generation

▼ HR development center (Oji)

Hazard awareness/facility engineering





▲ HR development center (Hoshigoe)

Besshi Sumitomo Club converted to training facility





Financial
Strategy &
Platform

## Operating environment

- Resource oligopoly by super majors
- Fiercer competition amid government moves to secure resources (notably by China)
- SMM's unique qualities(world-class technologies such as HPAL, plus o/seas asset portfolio)

### Relevant external changes

- Related guidelines published by METI and Tokyo Stock Exchange
- Stricter policies on exercising voting rights
   by institutional investors worldwide (defenses design/governance setup)

Takeover defenses still essential (renewal at June 2010 s/holder AGM)

Revise content to reflect investor opinion





Financial
Strategy &
Platform

### (1) 2005–7: large M&A deals Super majors emerge

(Cu) • Mar-07: FreeportMcMoran buys Phelps Dodge (US\$25.9bn)

(Ni) Jul-06: Xstrata acquires Falconbridge (US\$16.2bn)

Oct-06: Vale acquires Inco (US\$17.9bn)

(Au) • Nov-05: Barrick Gold buys Placer Dome (US\$9.2bn)



### (2) 2007-9: **M&A deals ex-China**

Vast foreign exchange reserves (\$2.4trn end-09)

### Sep-07: China Investment Corp (CIC) created

(investment funds US\$200bn)

Government-led drive to invest in blue-chip assets

1. 2007: Blackstone Group (US\$3bn)

Morgan Stanley (US\$5bn)

2. Jul-09: Teck Resources (Canada, US\$1.5bn), 17.2% stake

### Jul-09: "going global" strategy clarified

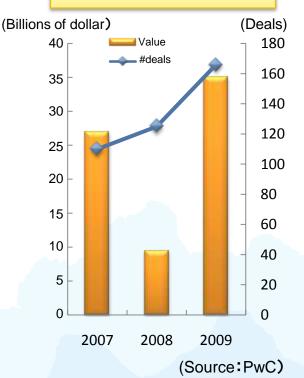
Go abroad to gain (1) resources (2) techs (3) markets

More aggressive foreign investment

2008: Chinalco acquires interest in Rio Tinto

(9% stake, valued at US\$14.1bn)

### Chinese firm o/seas M&A







### China: voracious policy drive for resources

Proj. long-term recovery in resource demand/prices after '08 global recession Promotion of active investment to secure offshore energy and resources (Resource M&A funded by US\$2trn+ in foreign currency reserves)

- ♦ O/seas drive to secure assets/techs/markets
- ♦ Targeting high-risk regions such as Africa
- Investments in resource majors and JV projects



## SMM resource strategy: exploit technology

- Exploit mine development/project evaluation/refining technologies
- Target resource regions in Asia-Pacific Rim and South America
- Develop diverse strategy, incl. independent exploration/JVs





Strategy & Platform

**Financial** 

### Key points of revision

(1) Need to canvass shareholder opinion

No process to gauge shareholder views

- → Create mechanism for convening shareholder AGM to consider "Independence Committee" (IC) recommendation and Board resolution
- (2) Limits on periods to supply/evaluate data

No limit on data provision period → max. 60 days

Evaluation period: Board max. 60 days + IC max. 60 days + unlimited extension

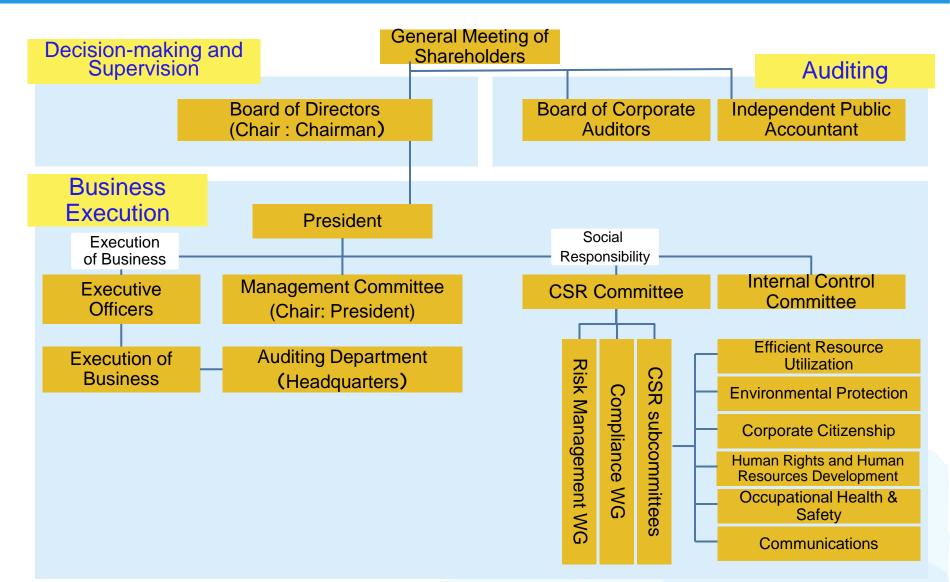
- → max. 120 days incl. extension
- (3) Mitigation of damage from aborted takeover attempts

No process for related damage mitigation

→ Ability to exercise subscription warrants if bidder's shareholding below certain level (on exit)

### Corporate governance framework





# V. Supplementary Materials



**Exploration in Chile** 

# 1) 09 3-Yr Business Plan [2012 cons. RP: ¥110bn]



Supplementary Materials

(Billions of yen)

		09 3-Yr Plan 2012	FY2009(est.)	Change
ဝွ	Mineral Resources	30.0	30.0	0
erat	Smelting & Refining	37.0	25.5	11.5
ing	Materials	15.0	1.0	14.0
Operating income	Others	3.0	▲ 0.2	3.2
me	Elimination or corporate	0	<b>▲</b> 1.3	1.3
	Total	85.0	55.0	30.0
R	ecurring Profit	110.0	75.0	35.0
Pı	rofit before tax	110.0	70.0	40.0
	Net Income	70.0	46.0	24.0
(Equ	uity Method Profit)	30.0	26.5	3.5
Av	g. Total Assets	1,120.0	910.0	210.0
	ROA	6%	5%	1%
	ROE	10%	8%	2%

ROA: Net Income Total Assets

ROE: Net Income
S/holder
equity

Copper (\$/T)	6,000	6,043	<b>4</b> 3
Nickel (\$/lb)	8.0	7.3	0.7
Gold (\$/Toz)	1,000	1,021	<b>▲</b> 21
Zinc (\$/T)	2,000	1,937	63
Forex (¥/\$)	90.0	91.9	<b>▲</b> 1.9

# 2) Balance sheet & cash flow projection



### **Consolidated Balance Sheets**

### **Consolidated Cash Flow (3 years)**

(Billions of yen)

(Billions of yen)

	FY 2012 end	FY 2009 end	Change
Current Assets	510.0	400.0	110.0
Fixed Assets	640.0	540.0	100.0
Total Assets	1,150.0	940.0	210.0
Interest-bearing Debt	270.0	210.0	60.0
Other Liabilities	140.0	130.0	10.0
Total Liabilities	410.0	340.0	70.0
Total Net Assets	740.0	600.0	140.0
Total Liabilities & Net Assets	1,150.0	940.0	210.0
Equity Ratio	60%	60%	0%
D/E Ratio	40%	37%	3%
Avg. Total Assets	1,120.0	910.0	210.0

Profit before tax	280.0
Depreciation	110.0
Change in Working Capital	-30.0
Equity Method Profit/Loss	-80.0
Equity Method Dividends	60.0
Minority interests	10.0
Minor s/holder divid.	-10.0
Taxes	-110.0
Operating Cash Flow	230.0
Investments	-190.0
Profit Appropriation	-30.0
Net Cash Flow	10.0

# 3) Consolidated results and prices



Supplementary Materials

### (Billions of yen)

	2004	2005	2006	2007	2008	FY09 Estimates	06 3-Yr Plan ('09)	09 3-Yr Plan ('12)
Net Sales	484.6	625.6	966.8	1132.4	793.8		680.0	780.0
Operating Income	47.9	82.8	162.6	155.4	10.5	55.0	76.0	85.0
Recurring Profit	54.5	99.7	205.3	217.9	32.6	75.0	100.0	110.0
Equity Method profit	13.5	21.9	46.7	74.0	31.5	26.5	31.0	30.0
Net Income	37.0	62.8	126.1	137.8	22.0	46.0	64.0	70.0
ROA(%)	6.8	9.3	14.8	13.6	2.2	5	7	6
ROE(%)	13.8	19.1	29.0	25.4	4.0	8	11	10
Dividend Per Share(¥)	8.0	14.0	27.0	30.0	13.0	17.0	N/A	N/A
Copper (\$/T)	3,000	4,097	6,970	7,584	5,864	6,043	4,000	6,000
Nickel (\$/lb)	6.3	6.6	14	15.5	7.5	7.3	7.0	8.0
Gold (\$/Toz)	414	477	629	766	867	1021	550	1,000
Zinc (\$/T)	1,110	1,614	3,579	2,986	1,560	1,937	2,250	2,000
Forex (¥/\$)	107.5	113.3	117.0	114.4	100.7	91.9	110.0	90.0

# 4) Operating income by segment



(Billions of yen)

							`	
	2004	2005	2006	2007	2008	FY09 Estimates	<b>06 3-Yr</b> Plan ('09)	<b>09 3-Yr</b> Plan ('12)
Mineral Resources	10.0	17.1	33.5	38.1	17.7	30.0	15.5	30.0
Smelting & Refining	27.7	49.7	109.6	108.8	2.4	25.5	37.0	37.0
Materials	7.3	11.2	13.6	8.2	-10.2	1.0	20.0	15.0
Others	3.6	6.4	6.2	3.7	0.6	-0.2	3.5	3.0
Inter-Segment Eliminations	-0.7	-1.6	-0.3	-3.4	0	-1.3	0	0
Total	47.9	82.8	162.6	155.4	10.5	55.0	76.0	85.0

# 5) Sensitivity analysis



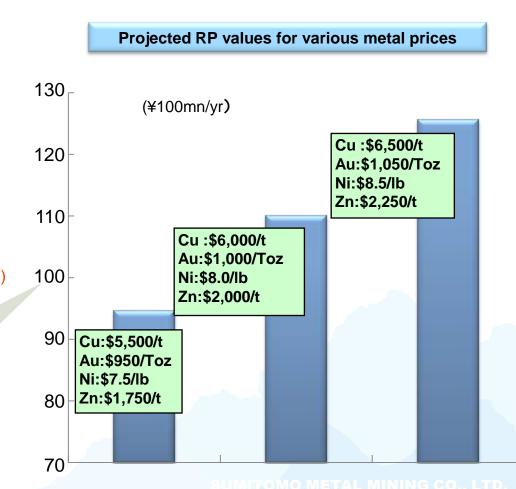
Supplementary Materials

# Impact on RP of metals prices and FX rate

	Cons. RP impact
Cu price sensitivity -±\$100/t	¥1.0bn
Au price sensitivity -±\$10/Toz	¥0.5bn
Ni price -sensitivity ±10¢/lb	¥1.1bn
Zn price sensitivity -±\$100/t	¥0.6bn
Forex sensitivity ±¥1/\$	¥0.8bn

(Forex sensitivity only shows impact on metal refining margin)

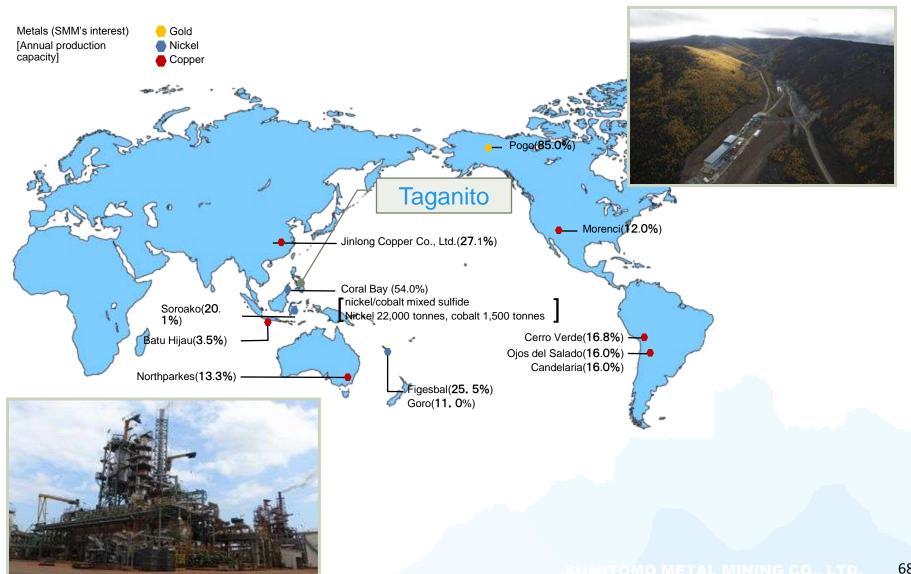
Cu price -±\$500/t
Au price -±\$50/Toz
Ni price ±50¢/lb
Zn price -±\$250/t
RP gain for specified
fluctuation in given
metal price



# 6) SMM's overseas mines



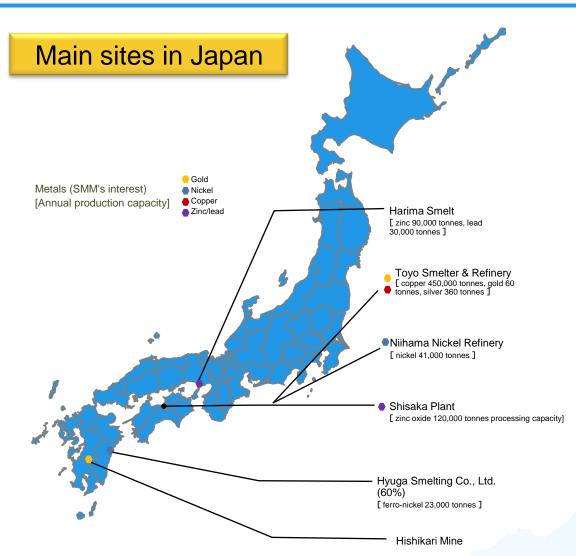
**Supplementary Materials** 



# 7) Domestic facilities



Supplementary Materials





Toyo Smelter & Refinery (Ehime)



Hyuga Smelting Co., Ltd. (Miyazaki)

# 8) NAC-owned nickel mines





# Glossary



Supplementary Materials

### Mineral resources and metals 1)Metal trading

### London Metal Exchange (LME)

The LME specializes in trading of non-ferrous metals such as copper, nickel, aluminum, lead and zinc. The LME trading prices for metals are used as the international pricing benchmarks for sales of refined metal and purchases of refining ores.

### TC/RC

Treatment Charge (TC) and Refining Charge (RC) are commonly used in the terms of purchase for copper concentrate or nickel ore for refining. They are amounts designed to cover refining costs. For example, copper concentrate contracts may define a purchase price based on the LME price at a certain date, minus the TC or RC being used at the time.

### London fixing

Gold is not traded on the LME. Its price is determined for each transaction between market participants. The financial institutions in the London Bullion Market Association (LBMA) agree a standard price for gold based on these transactions and publish it on the morning and afternoon of each trading day. This "London fixing" price is the benchmark for trading in gold.

### Pound (lb)

Part of the imperial system of measures, the pound is the standard unit of weight used in measuring and pricing base metals such as copper and nickel, and in TC/RC calculations. One pound is equal to 453.59 grams; an imperial ton equals 2,204.62lb.

### Troy ounce (toz)

The troy ounce is the standard unit of weight for precious metals such as gold and silver. It equals approximately 31.1 grams. It is named after Troyes, a city in the Champagne region of central France that was the site of a major market in Europe in medieval times. Originally used as a unit of exchange for valuing goods in terms of gold or silver weights, the troy ounce is still used today in gold trading.

### 2) Metal refining

### Smelting and refining

Refining processes extract valuable metals from ores or other raw materials. They fall into two basic types: hydrometallurgical (wet) and pyrometallurgical (dry). At SMM's Toyo facilities in Ehime Prefecture, the copper concentrate pre-processing undertaken at Saijo uses pyrometallurgical processes and the nickel refining at the Niihama site uses hydrometallurgical processes entirely. The term 'smelting' is used for the extraction of metal from ores using melting and heating (pyrometallurgy). The term 'refining' refers to any process that increases the grade or purity of a metal.

### Pyrometallurgical refining

The precursor ore is melted at high temperature in a furnace, and refining techniques are applied to separate the metal in a molten state. Although large amounts of ore can be processed at one time, the equipment needs periodic maintenance for heat proofing.

### Hydrometallurgical refining

The ore and impurities are dissolved in a solution, and chemical reactions are used to separate out the metal. This approach allows continuous and stable refining, but incurs additional costs due to the refining chemicals consumed.

### 3) Metal ores

### Sulfide ores

These ores contain copper, nickel or other metals chemically bonded to sulfur. Since the application of heat breaks these bonds, releasing the sulfur, such ores are generally refined using pyrometallurgical techniques.

### Oxide ores

These ores contain metals in oxidized forms. Unlike sulfide ores, oxides need much more energy to achieve melting. For this reason, the hydrometallurgical approach is generally used to refine these ores.

### Copper concentrates

Used as raw materials in copper smelting, copper concentrates have a copper content of about 30% by weight. The remainder consists mostly of sulfur and iron. Copper concentrates are made mostly from sulfide ores. Ores extracted from overseas mines have a typical grade of about 1%. The ores are then "dressed" at the mine to increase the purity and produce concentrate. Most of the copper ores imported by SMM for smelting in Japan are concentrates.

### Nickel oxide ores

Whilst the higher-grade sulfide ores are used predominantly in nickel refining, nickel oxide ores are more prevalent than nickel sulfides. The sulfide-oxide ratio in current nickel reserves is believed to be about 3:7. High refining costs and technical issues have limited use of oxide ores in nickel refining to date, but SMM has succeeded in refining nickel from low-grade oxide ores based on HPAL technology.

### Mixed sulfide (MS) ores

CBNC produces a mixed nickel-cobalt sulfide intermediate containing about 55–56% nickel by weight. This is used as a raw material in electrolytic nickel production.

### Matte

A matte is another term for metal sulfides. For raw material, electrolytic nickel production at SMM also uses a nickel matte (of about 77–78% purity) sourced from PT Inco.

### Proprietary ore ratio

This ratio is the proportion by volume of ore procured from overseas mining interests relative to the overall volume of smelting ores used as raw materials. Typically, off-take rights are proportional to the equity interest in a mine. In the case of Cerro Verde, SMM has secured 50% off-take rights for the first ten years of production from 2006, based on a 21% equity interest.

# Glossary



### 4) Nickel production process

### Coral Bay Nickel Corporation (CBNC)

Based in the Philippines, this SMM subsidiary produces mixed nickel-cobalt sulfides using HPAL technology and exports the raw materials to the SMM Group's nickel refining facilities in Niihama. Ehime Prefecture.

### High Pressure Acid Leach (HPAL)

HPAL technology enables the recovery of nickel from nickel oxide ores that traditionally were difficult to process. SMM was the first company in the world to apply it successfully on a commercial scale. The oxide ores are subjected to high temperature and pressure and reacted under stable conditions with sulfuric acid to produce a nickel-rich refining intermediate.

### Matte Chlorine Leach Electrowinning (MCLE)

MCLE is the technology used in the manufacturing process at SMM's nickel refinery. The matte and mixed sulfide ores are dissolved in chlorine at high pressure to produce high-grade nickel using electrolysis. MCLE is competitive in cost terms, but poses significant operational challenges. Other than SMM, only two companies are producing nickel based on this kind of technology.

### 5) Main applications for metals

### Copper

Copper is fabricated into wires, pipes and other forms. Besides power cables, copper is used widely in consumer applications such as wiring in vehicles or houses, and in air conditioning systems.

### Electrolytic nickel

This form of nickel, which has a purity of at least 99.99%, is used in specialty steels, electronics materials and electroplating, among other applications. SMM is the only producer of electrolytic nickel in Japan.

### Ferronickel

Ferronickel is an alloy containing nickel (about 20%) and iron. Its main use is in the manufacture of stainless steel, which is about 10% nickel by weight. Based in Hyuga, Miyazaki Prefecture, SMM Group firm Hyuga Smelting produces ferronickel.

### Gold

Gold is in demand worldwide for investment and decorative purposes. Gold is widely used in Japanese industry within the electronics sector because of its high malleability and ductility. Part of SMM's gold production goes to SMM Group companies engaged in fabricating and selling bonding wire.

### Semiconductor and advanced materials

### Copper-clad polyimide film (CCPF)

CCPF is a polyimide film that is coated using a copper base. It is used as a material for making COF substrates. SMM commands a global market share of over 70% of the CCPF supplied for use in large liquid crystal displays.

### Chip-on-film (COF) substrates

COF substrates are electronic packaging materials used to make integrated circuits for LCD drivers. They connect these circuits to the LCD panel.

### Lead frames (L/F)

Lead frames are electronic packaging materials used to form connections in semiconductor chips and printed circuit boards. They contain thin strips of a metal alloy containing mostly nickel or copper.

### Bonding wire

Composed of gold wire that is just a few micrometers thick, bonding wire is used to make electrical connections between lead frames and the electrodes on semiconductor chips.

### Secondary batteries

Secondary batteries are ones that can be recharged and used again. SMM supplies battery materials that are used in the anodes of nickel metal hydride batteries and lithium-ion rechargeable batteries, which supply power for hybrid vehicles or notebook computers, among other consumer applications.

### Note

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