## 3<sup>rd</sup> Quarter FY2008

# **Progress of Business Strategy**

SUMITOMO METAL MINING Co., Ltd.

Feb 2009

## Contents

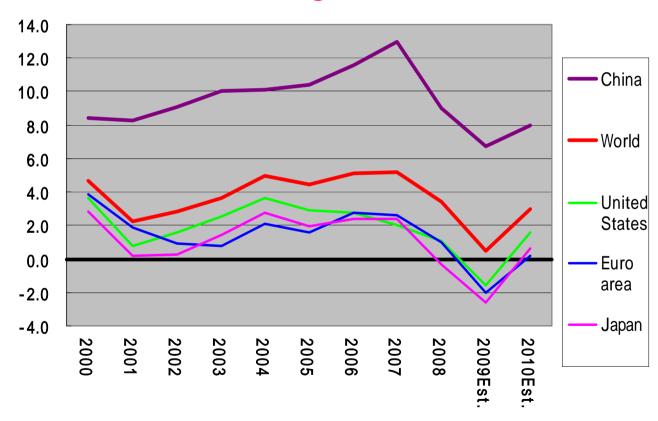
- . Drastic Changes of Business Environment
- . Securing Earnings
- Progress of 06 3-Yr Plan& Strengthening of Operating Base
- . Financial Highlights

# . Drastic Changes of Business Environment



# 1) OECD countries face the first minus economic growth in 2009 after World War

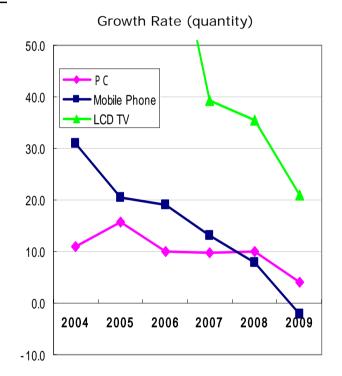
# Production cut and cost reduction are urgent task



# 2) Actual economy still getting worseUnprecedented economic crisis

## Forecast for 2009 market

(Product)	Market forecasted in Dec'08 (09 vs 08)
PC	Quantity: 105% Amount: 5% or less
Mobile Phone	Quantity: 90% Depression of High- end product
LCD TV	Quantity: 115% Amount: Unit Price down
Cars	Operating ratio : Ave. 70% or less

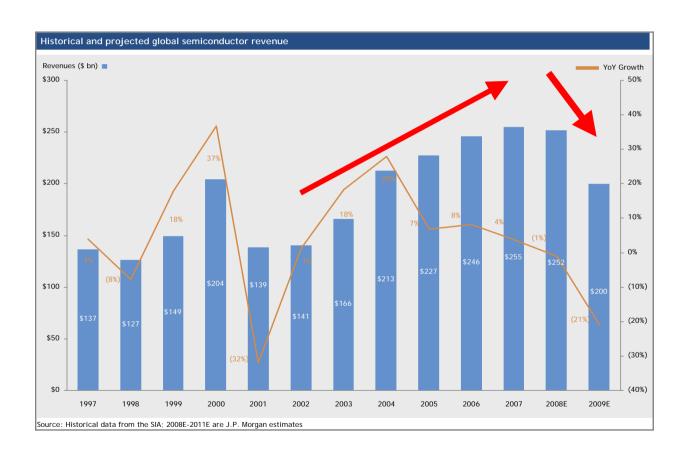


Data: S M M Data: S M M

## Present forecast getting much more worse.

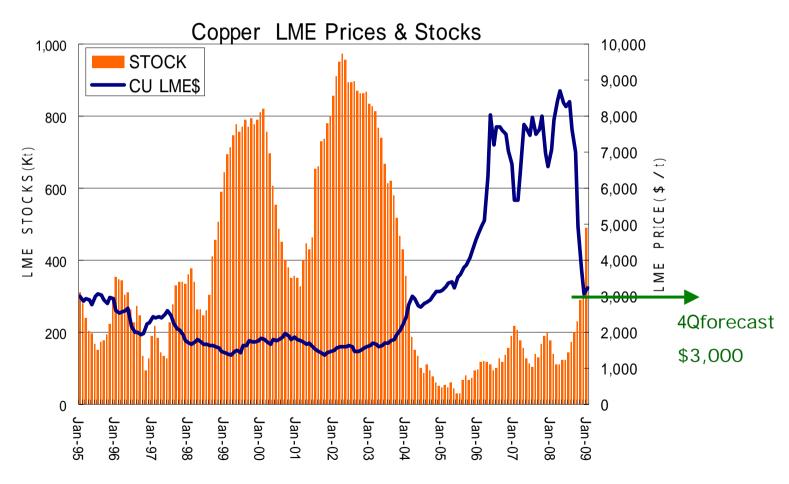
## 3) Actual economy still getting worse

~ Semiconductor sales will decline sharply In 2009



# 4) Copper ~ LME Significant price falls and significant stock rising rapidly

1995.Jan – 2009,Jan



Data: SMM

# 4) Copper Production cut & Suspended operations

### **Production cut**

# FY2008 copper mine production reduced in excess of 615 kt/yr

			07Annual	
Company	Mine	Country	Output	Production cut
BHP Billiton · Rio Tinto	Escondida	Chile	1,484kt	From 2009, production expected to decrease by 10-15% over 2-yr period or longer, in order to mine low-grade ore body.  Production volume down 36% YoY in 2008-4Q.
Codelco Norte Chil		Chile	879kt	Production volume down 10% in tandem with stripping to enable mining of high-grade ore body at Chuquicamata Mine.
Luksic group	Michilla	Chile	45kt	Cancellation of planned expansion of Michilla Copper Mine and mine closure currently under consideration.
	Candelaria	Chile	188kt	Production reduction under way to cut costs.
	Ojos del Salad	<b>C</b> hile	<b>25</b> k t	Production reduction under way to cut costs.
	El Abra SxEw	Chile	166kt	Reduced production of sulfides to cut costs.
Freeport McMoRan Copper & Gold	Cerro Verde	Peru	274kt	Postponement of Cerro Verde Mine expansion as part of large-scale capex reduction.
	Morenci	USA	367kt	Production volume to be reduced by 20% in 2009 and 2010.
	Tyrone	USA	29kt	Production volume to be reduced by 20% in 2009 and 2010.

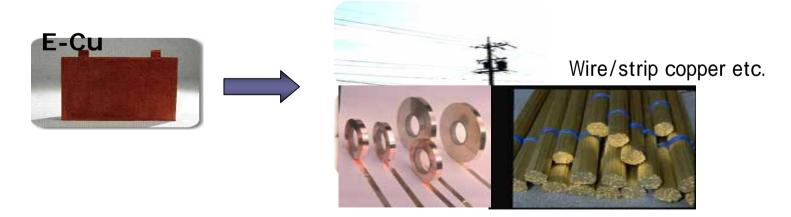
## **Suspended operations**

Frontera Copper Corp	Piedras Verde	Mexico	24kt	Resumption of production under consideration, dependent on copper prices. Mining shutdown projected to continue throughout 2009-1Q; however, even amid mining shutdown, metal production by SX-EW to continue with use of crude ore inventory.
Rio Tinto	Northparkes	Australia		Extension of Northparkes Mine life abandoned in response to fall in copper prices since June 2008 and global economic recession. (Rio Tinto had been planning to construct an underground mine commencing in 2016.)

## 4) Copper Supply & Demand, Price Forecasts

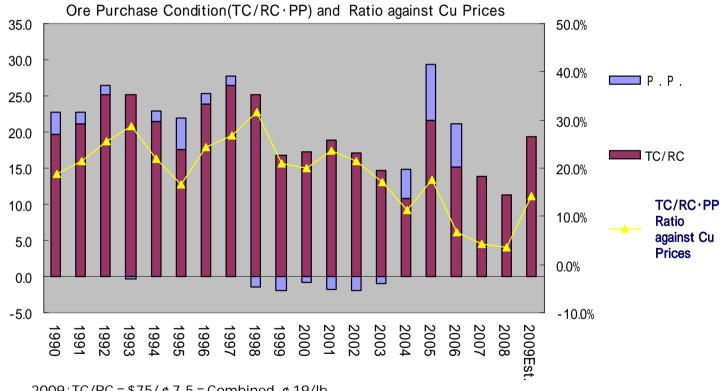
## Production cut but also demand slows tremendously?

	SMM		Maco	uarie	ICSG		
(kt)	2008	2009	2008	2009	2007	2008	2009
Output	18,500	18,100	18,502	18,166	18,016	18,359	19,153
Consumption	18,000	17,900	18,418	17,750	17,722	18,250	18,876
Balance	500	200	84	416	294	109	277
FY(\$/t)	5,757	-	-	-	7,584	-	-
CY(\$/t)	6,956	-	7,030	3,417	7,119	-	-
Estimated Timing			Result	2009.1	Result	200	8.10



# 4) Copper ~ TC/RC of Copper smelting improves profitability in 2009



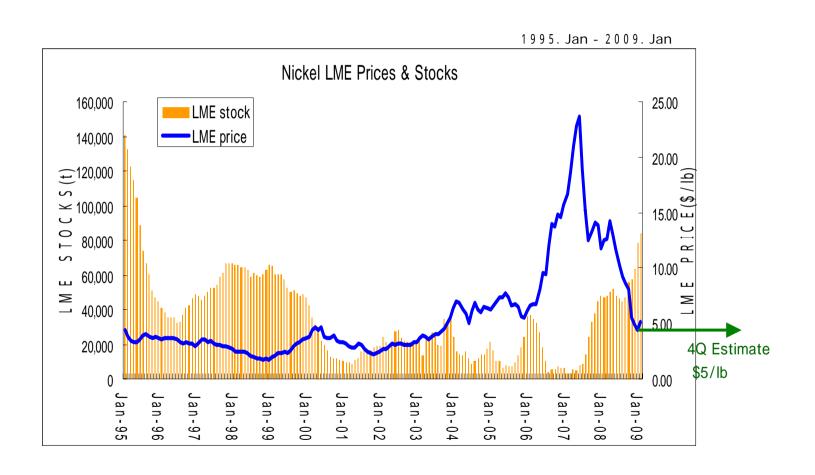


2009:TC/RC = \$75/\$¢ 7.5 = Combined ¢ 19/lb 2008:TC/RC = \$45/\$¢ 4.5 = Combined ¢ 11/lb

\$3000(08/4Q SMM's Estimation) shall be used as 09 Cu Price for calculation of Ratio.

(Data: JOGMEC)

# 5) Nickel ~ LME Significant price falls and significant stock rising rapidly as well



# 5) Nickel ~ Production Losses and Suspended Nickel Mines

### Nickel Production Losses in 2008

Location	Producer	Loss(MT)
Springs	Impala Platinum	2,000
Murrin Murrin	Minara Resources	4,000
Kalgoorlie	BHP Billiton	28,000
FT Saskatchewan	Sherritt	600
Rustenburg	Anglo Platinum	6,000
Norilsk & Severo	Norilsk Nickel	10,500
Jinchuan	Jinchuan Group	20,000
Harjavalta	Norlisk Nickel	5,000
Cerro Matoso	BHP Billiton	6,000
Loma de Niquel	Anglo American	2,000
Falcondo	Xstrata	10,400
Doniambo	Eramet	7,500
Pamco	Pacific Metals	9,000
Rezh	Yuzhuralinickel	2,000
FeNi3	PT Antam	3,000
PT Inco	Vale Inco	3,500
Ufaley	Ufaley Nickel	2,400
Nicaro	Cubaniquel	1,000
Punta Gorda	Cubaniquel	2,000
Various Chinese NPI	Prod.'s	30,000
Dalian Nickel	Vale Inco	5,000
<u>Grand</u>	Total	159,900

## **Suspended Nickel Mines**

Mine	Owner	Production(MT)		
		2008	2009	
Lockerby	First Nickel	-	2,000	
Shakespeare	Ursa Major Minerals	-	4,000	
Lac des IlesLevack	North American Palladium	1,000	2,000	
Levack	FNX	2,000	3,000	
Cawse	Norlisk	4,000	4,000	
Hitura	Belvedere	2,000	2,000	
Belong Nickel	Toledo Mining	5,000	5,000	
Bindura	Bindura	4,000	4,000	
Grand Total		18,000	26,000	

		Estimated Capacity
Ravensthorpe	BHP Billiton	50,000

Data: SMM

Ni Production cut

160 kt ( 12%) in 2008

300 kt ( 22%) in 2009

## 5) Nickel ~ Supply & Demand, Price Forecasts

## New projects offset many production cuts?

	SMM			Maco	uarie	INSG	
(Kt)	2007	2008	2009	2008	2009	2008	2009
Output	1,327	1,271	1,336	1,364	1,331	1,410	1,550
Consumption	1,283	1,235	1,299	1,313	1,323	1,380	1,440
Balance	44	36	37	51	8	30	110
FY(\$/lb)	15.47	7.54	-	ı	ı	1	1
CY(\$/lb)	-	-	-	9.58	5.00	1	1
Forecasted Timing	Result	200	9.1	Result	2009.1	200	8.10
Ni Pig iron (Excluded)	85	65	60			-	-
Stainless steel	28,240	26,303	26,630	26,379	26,700	-	-



Special/Stainless steel, electronic materials etc.

## 6) Cost of Major Nickel producer / Copper Mines

## Producers face both cost increasing and price down

#### P.T.INCO Unit cash cost

	2002	2003	2004	2005	2006	2007	08-1H
\$/lb	1.38	1.60	1.83	229	3.13	3.47	4.24

#### P.T.INCO Unit cash cost

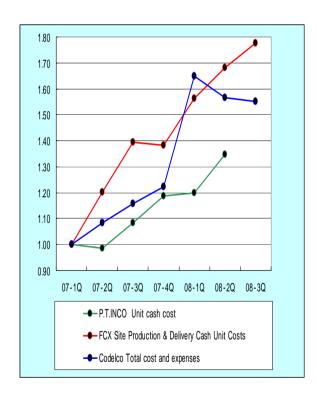
	07-1Q	07-2Q	07-3Q	07-4Q	08-1Q	08-2Q	08-3Q
\$/lb	3.35	3.30	3.63	3.98	4.02	4.51	
	1.00	0.99	1.08	1.19	1.20	1.35	•

### FCX Site Production & Delivery Cash Unit Costs

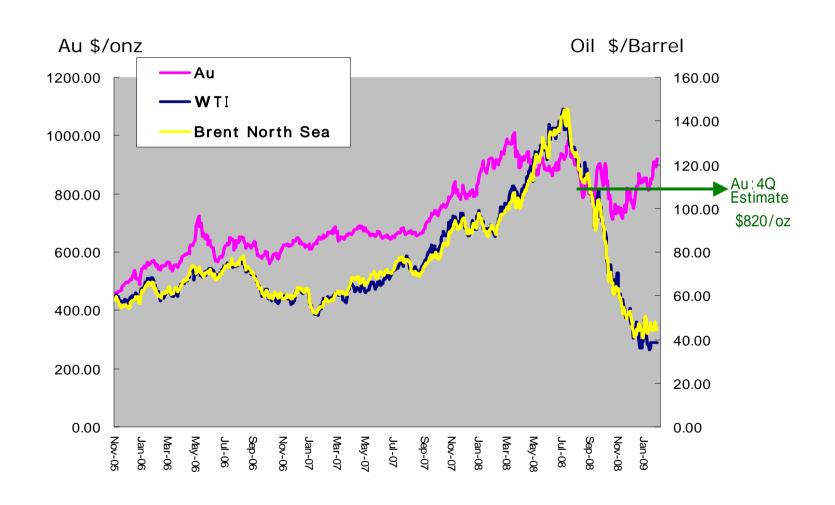
	07-1Q	07-2Q	07-3Q	07-4Q	08-1Q	08-2Q	08-3Q
\$/lb	0.94	1.13	1.31	1.30	1.47	1.58	1.67
	1.00	1.20	1.39	1.38	1.56	1.68	1.78

### Codelco Total cost and expenses

	07-1Q	07-2Q	07-3Q	07-4Q	08-1Q	08-2Q	08-3Q
\$/lb	1.164	1.261	1.346	1.423	1.919	1.822	1.807
	1.00	1.08	1.16	1.22	1.65	1.57	1.55

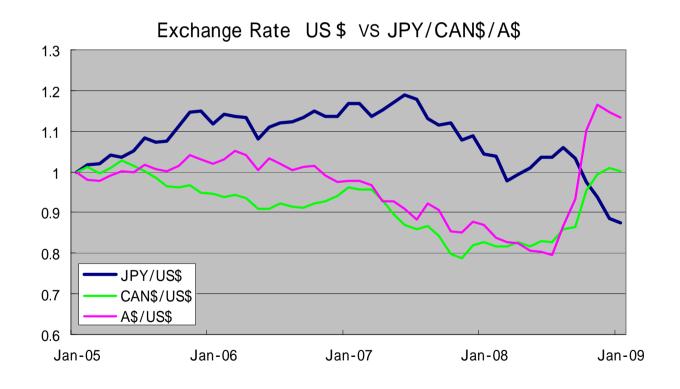


# 7) Gold price increasing · Oil price decreasing (Favorable factors)

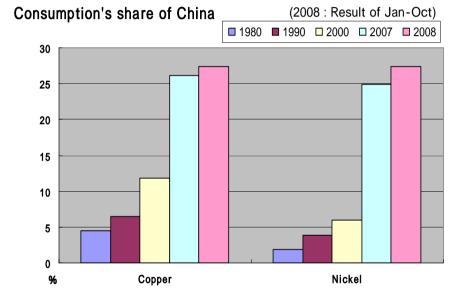


## 8) Drastic strong Yen, Weaker Canadian / Australian Dollars

### Production cost in Canada/Australia in US\$ is going down?



# 9) More attention to Chinese economy ~ Consumption share of China increasing sharply



Resource: NBS, ICSG, INSG, ILZSG, China Metals, Macquarie Research

Forecast of 2009 GDP of China by main 10 analyses

	Jan - Mar	Apr- Jun	CY09
BNP Paribas	6.3	7.6	7.7
Bank of China (Hong Kong)	7.8	8.0	8.0
CitiGroup	5.8	6.7	7.6
Credit suisse	7.1	7.6	8.0
Deutsche Bank	6.3	6.7	7.0
JPMorgan Chase	5.8	5.6	7.2
Macquarie	6.4	6.5	7.0
Merrill Lynch	6.6	7.2	8.0
Moody's Economy	6.0	6.3	7.0
Nomura Securities	7.0	7.5	8.0
Avarage	6.5	7.0	7.6

Resource: SMM

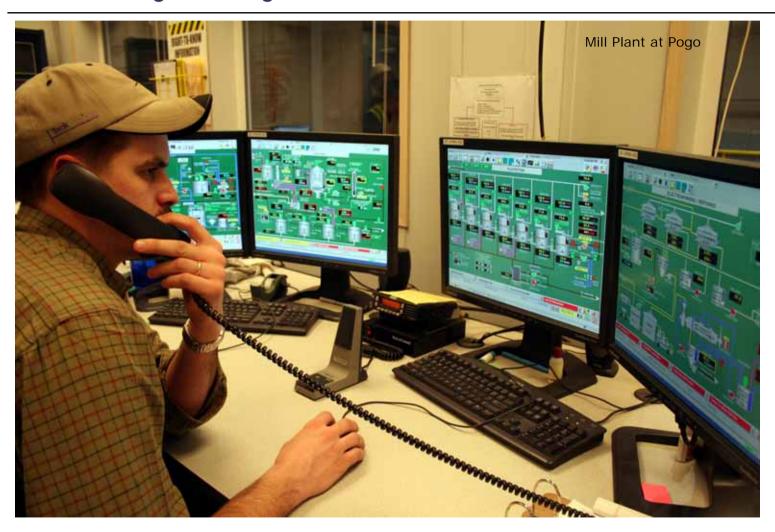
#### Remarks

13% subsidy on home electronics in agricultural areas

Subsidy on small cars (below 1600cc)

China' SRB (State Reserve Bureau) will purchase 300 kt of Copper metal but already bought 200 kt.

# II. Securing Earnings



## 1)2008-2H Earnings Improvement Measures

### 1. Production Adjustments

Production in line with sales performance; inventories maintained at appropriate levels.

Planning to operate at minimized cost (reductions in running and maintenance costs, increased reliance on less costly nighttime power).

Metals: Production reductions in 08-2H

Changes	in	08-2H production volume		Reduction	
production plans After ch		After change	Initial plan	Volume	%
E-Cu	<b>k</b> t	201	215	14	7%
E-Ni	<b>k</b> t	15	18.1	3	17%
Fe-Ni	<b>k</b> t	8.3	10.9	3	24%
Au	t	20	22	2	9%

## 1)2008-2H Earnings Improvement Measures

#### Electronics & Advanced Materials:

Operations responding to significant drop in orders from 3Q Radical measures under consideration (some already implemented) in light of 09 sluggishness: employment adjustments, review of production bases (closure of Indonesia factory), etc.

### 2. Emergency Reduction in Expenditures: ¥3.0bn

- Controllable costs: Reductions in equipment & supply costs, maintenance & repair costs, operating costs, etc.
- Reductions in capital investment and depreciation

## 2) FY2009 Basic Policy

## 1. Securing Earnings "Return to basics applying creativity"

- (1) Business operations at minimized cost: Establishment of FY09 production plans by March/End Pursuit of reduced running and finishing costs, focus on elevating operation efficiency
- (2) Maximum reductions in investment and exploration costs: renewed consideration founded on zero-based budgeting, except for strategic projects; implementation timed for maximum possible reductions
- (3) Radical improvements vis-à-vis unprofitable operations and products (promotion of focused concentration and selectivity)
- (4) Development of new products and processes focused on the environment and cost/quality improvements

### Total cost reductions exceeding ¥10bn

## 2) FY2009 Basic Policy

## 2. Reconfiguration of Growth Strategy:

"Changes are easier to carry out in times of crisis than during normal times"

Mineral Resources & Metals

: Increase earnings and corporate value while expanding business scale

**Electronics & Advanced Materials** 

: Semiconductor industry is in the throes of major reorganization

## 3. Strengthening of Operating Base

- (1) Promotion of CSR activities: full-scale launch in October 2008
- (2) Solid operation of internal control systems (Company Law, J-SOX)
- (3) Role of R&D more important than ever (cost reduction not an issue)

# Ⅲ. Progress of 06 3-Yr Plan& Strengthening of Operating Base



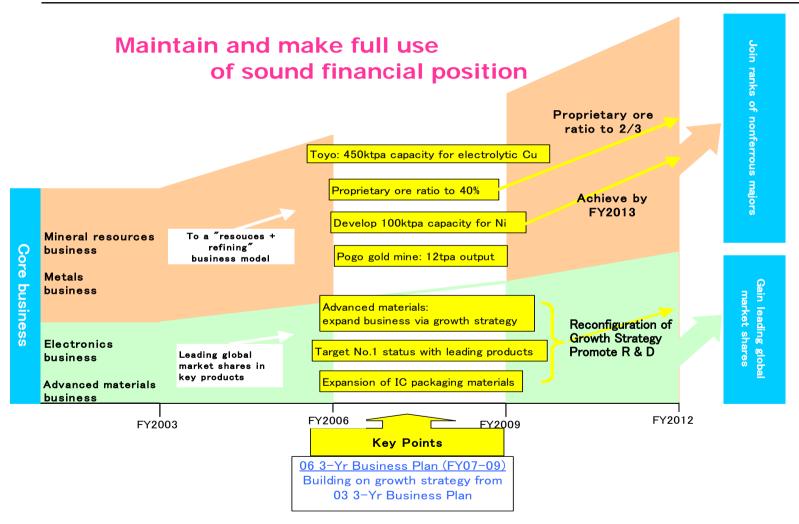
# 1) Current Position of 06 3-Yr Plan and Run-up to 09 3-Yr Plan ~ Reconfiguration of Growth Strategy

"Triple punch": low metal prices, reduced sales, strong yen Target set on securing earnings and reconfiguration of growth strategy

Shift from assumption of sustained metal prices and robust economic growth to expansionary trend assuming slow economic growth

- Reassessment of growth potential and competitive strength of all business operations and products : consideration and implementation of radical measures to strengthen earnings
- 2. Mineral Resources & Metals : Complete securing of profitability with all projects
- 3. Electronics & Advanced Materials : Strengthening of cost competitiveness Rethinking of SMM's role and value within the supply chain
- 4. Continued strengthening of R&D and acceleration of development Development of new products and processes; productivity enhancement
- 5. Securing and education (primarily OJT) of personnel adaptable to focusing on growth/expansion

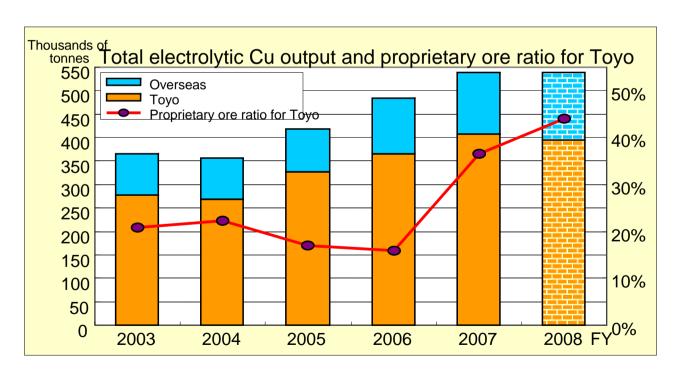
## 2) Current Position of 06 3-Yr Plan and Run-up to 09 3-Yr Plan



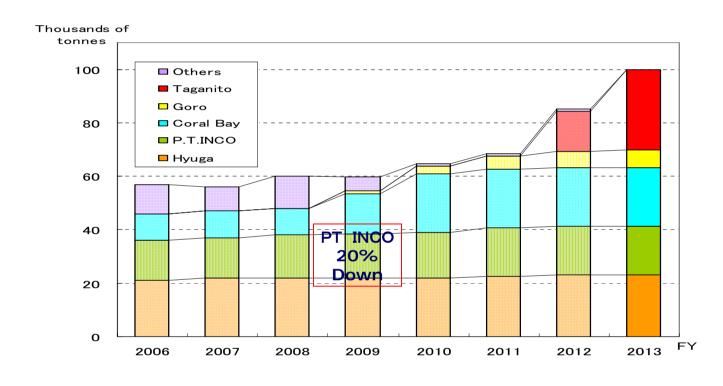
## 3) Copper: Toyo 450kt • Proprietary ore ratio

In 2009 aiming to

- 1 pursuit big reduction of production cost,
- 2 take rights on profitable copper mines



## 4) Develop 100kt capacity for Nickel



- (1) FY09 CBNC•Ni refinery expansion vertical(smooth) start up CBNC II increase Capa.10kt ⇒ 22kt Ni refinery Capa. 36kt ⇒ 41kt
- (3) Taganito: Induce maximum effect from the PJ F/S is on going and still plan to start in 2012
- (4) 2013 Ni refinery Capa.  $41kt \Rightarrow 65kt$
- (5) 2010 P.T.INCO Capa. 15kt ⇒ 18kt

(2) 09 Goro start

## 4) Progress of CBNC Phase II

Phase I: 10,000t/yr started in 2004

Phase II: Total Investment 307M\$

Completion: 2009 Capa. 22,000t/yr

CBNC's product: Mixed Sulfide
Niihama Nickel Refinery's product:
E-Ni from Mixed sulfide

## **HPAL**: High Pressure Acid Leach

"The technology to recover nickel and cobalt from low-grade nickel oxide ore"

SMM succeeded to be the first commercial mass producer in the world.



#### **HPAL Process won:**

- In 2007 Nikkei Monozukuri Award
- •In 2008 Watanabe Award (The Mining and Materials Processing Institute of Japan)
- In 2009 Okochi Memorial Production Award

## 4) Expansion of Niihama Nickel Refinery

April 2009: capacity increase 36kt→41kt

(with completion of CBNCII)

Total investment: ¥5.7bn

(Also planning more capital investment

to boost capacity 65ktpa by 2013)

Applied equipments:

Exudation, solvent extraction, higher electrolytic capacity, etc.

## **MCLE**: Matte Chlorine Leach Electro-winning

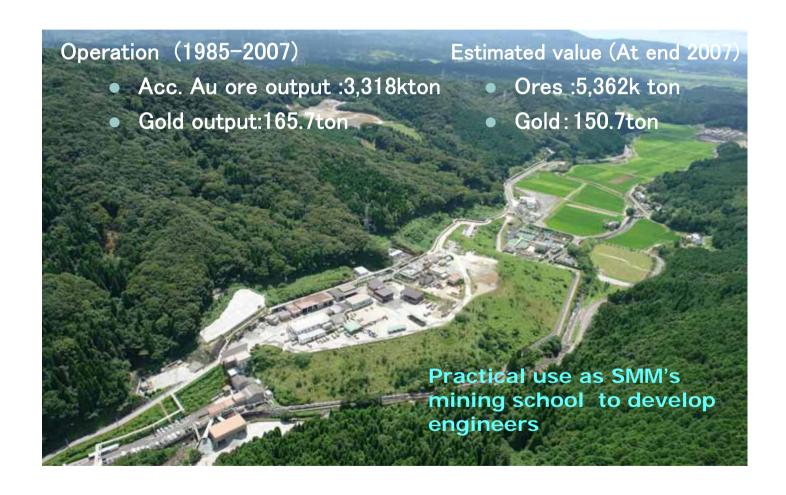


#### Niihama Nickel Refinery won

**Okochi Memorial Production Award twice** 

- •In 1980 Separation and refinery process of Cobalt by Solvent Extraction method
- •In 1996 MCLE Process

## 5) Hishikari Gold Mine (SMM 100%)



## 5) Pogo Gold Mine



12 10 8 6 4 2 0 2006 2007 2008 (CY)

Gold output

(t)

2006. Feb Operation Started

CY2008 Overview

•Au Output : 10.8t

Pursuit moreover cost reduction

Cash operating cost

2008 4Q:US\$ 464 /toz

3Q: US\$ 493 /toz

2007 3Q:US\$ 554 /toz

## Ⅲ. 06 3-Yr Plan & Strengthening

6) Development of the environment / energy-related new products

1 Materials for Secondary Batteries etc.

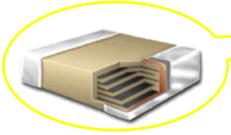
### [Battery Materials]

- Nickel Hydroxide
- Lithium Nickel Oxide

#### [Materials for Sell phones & PCs]

- Lithium Nickel Oxide
- Nickel Powder
- Palladium Powder
- Silver Powder Coated Palladium
- ITO fine powder





Multi layer chip condenser





Supplying functional materials for the leading industries

## Ⅲ. 06 3-Yr Plan & Strengthening

# 6) Development of the environment / energy-related new products 2 Materials for Solar Cell

Materials for Solar Cell: Thick film materials (Paste),

Thin film materials (Evaporation, Sputtering Target)



**Advanced Material for Solar Cell** 

### Film on plastic films type

Transparent Electrode

a-Si

Transparent Electrode

Plastic Film

Film Type SMM's Material

Sputter Indium-Oxide Target

CVD -

Sputter Zn-Oxide Target

**Evaporation** Ag Target

# IV. Financial Highlights



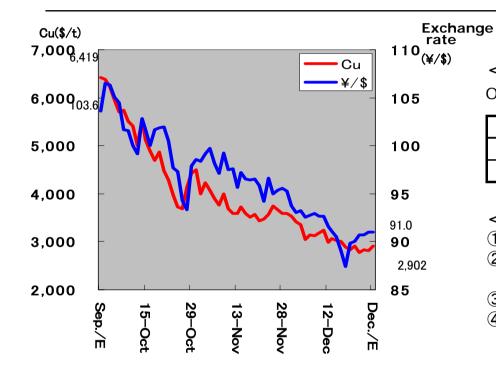
SUMITOMO METAL MINING

## 1) Consolidated financial summary

### (Billions of Yen)

	FY04	FY05	FY06	FY07	FY08
					Forecast
Sales	484.6	625.6	966.8	1,132.4	767.0
Operating income	47.9	82.8	162.6	155.4	8.0
Recurring Profit	54.5	99.7	205.3	217.9	26.0
Net Income	37.0	62.8	126.1	137.8	19.0
Net Income / Share (Yen)	64.77	109.96	220.49	238.13	34.40
Dividends / Share (Yen)	8.00	14.00	27.00	30.00	13.00

# 2) Quarterly settlement increase opacity of contents of result



### <Change of market price>

Oct-Dec = Japan 3Q / Overseas 4Q

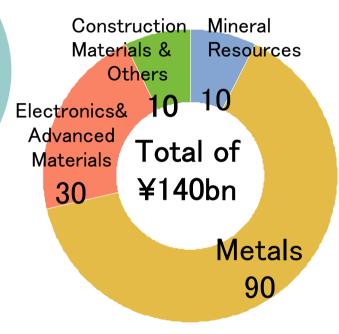
	High	Low	Change
Cu(\$/t)	6,379	2,770	230%
Ex.(¥/\$)	87.45	106.50	122%

### <Special Items>

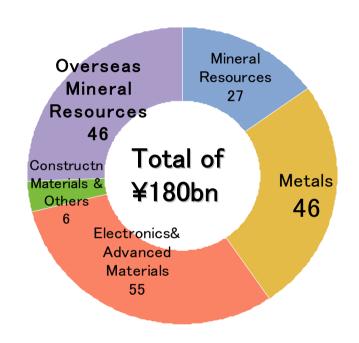
- ①Inventory impairment (QP loss)
- 2 Lower of cost or market inventory adjustment
- ③Exchange loss on overseas assets
- (4) Adjustment of previous sales in Cu mines and Ni production

	1Q+2Q	3Q(result)	4Q(est.)	4Q estimate rate
Recurring Profit	794	△ 212	△ 322	Cu \$3,000
Special Items	△ 68	△ 390	Investigating	Ni \$5
Recurring Profit before Special Items	862	178	I	Au \$820 Ex.Rate 90¥/\$

## 3) Equipment & Investment Plan







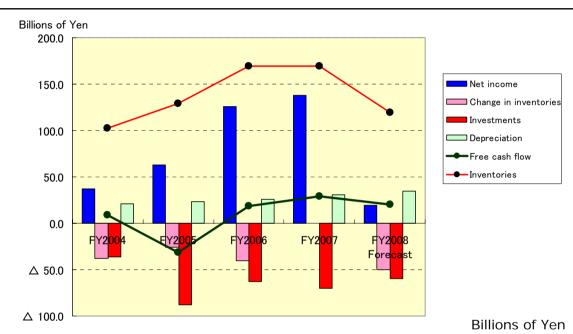
03 3-Yr Business Plan (FY04-06)

06 3-Year Business plan's CAPEX ¥140bn does not
include overseas mineral resources assets.
molade over seas minoral resources assets.
Inc. ¥60bn for Ni to achieve 100,000 tpa production
(CBNC II etcrelated at 300, HPAL II (partial)260 etc.

(E	Billion YEN)
FY07	70.3
FY08	60.0
Goro	△14.4
<u>Total</u>	115.9
FY09	24.1

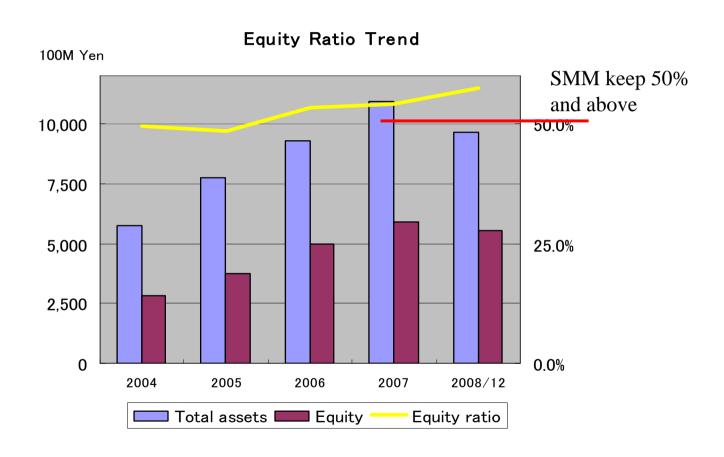
## ■ Financial Highlights

## 4) Cash Flows

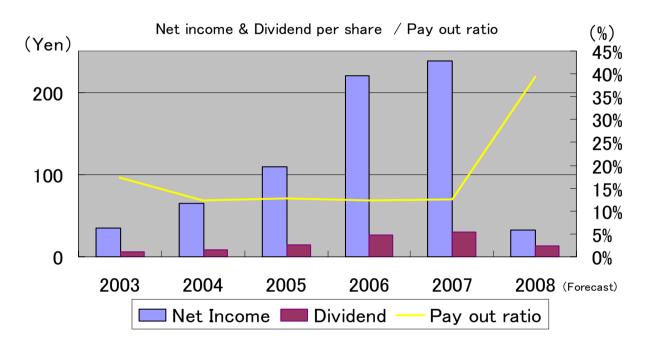


	FY2004	FY2005	FY2006	FY2007	FY2008 Forecast
Net income	37.0	62.8	126.1	137.8	19.0
Change in inventories (-)	△ 37.8	△ 26.1	△ 40.4	△ 0.3	△ 50.0
Investments	△ 36.5	△ 87.8	△ 62.5	△ 70.3	△ 60.0
Depreciation	20.6	23.0	25.7	30.5	34.7
Inventories	102.8	128.9	169.3	169.3	119.6
Free cash flow	8.5	△ 31.6	18.6	28.9	20.0

## 5) Equity ratio



## 6) Net income & Dividend



#### Repurchase Own Share

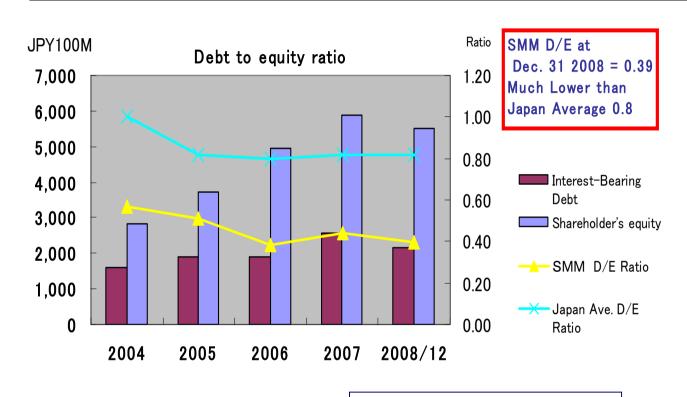
08/8 20 billion yen (14.6million shares)

08/11 10 billion yen (12.4million shares)

Total: 30 billion yen (27.million shares) + Dividend 7.3B yen = 37.3 billion yen

## IV. Financial Highlights

## 7) D/E Ratio~Keeping sound financial status



JCR Ranking

Short Term: J-1 (Highest Level)

Long Term : A+ (Top30%)

## 8) Sensitivity

Billions of Yen/FY08 3Q+4Q

	Fluctuation	FY2008(before)	FY2008(revised)
Cu	±100 \$/t	0.4/0.8	0.4/0.8
Ni	±1 \$/lb	3.2/4.2	2.8/3.7
Au	±30 \$/Toz	0.6/0.6	0.6/0.6
¥/\$	±1 ¥/\$	0.5 / 0.5	0.4/0.4

#### (Remarks)

- 1) Operating income / Recurring profit
- USD JPY translation differences only RC-related (excluding oversea profit effects)

## Appendix : Glossary

## Glossary

#### 1) [Five major projects]

SMM established five major projects for the FY2004–6 Medium-term Business Plan. All are strategic projects in the Mineral Resources and Metals sector.

- ① Capacity expansion to 450ktpa for copper at the Toyo Smelter & Refinery (Ehime Prefecture, Japan)
- 2 Cerro Verde Copper Mine Project (Peru)
- (3) Coral Bay Nickel Project (Philippines)
- Goro Nickel Project (New Caledonia)
- Pogo Gold Mine Project (Alaska, United States)



#### 2) [Proprietary ore ratio]

This ratio, which we use mainly for copper, equals the proportion by volume of ore procured from overseas mining interests relative to the overall volume of smelting ores used as raw materials. SMM has 50% off-take rights at the Cerro Verde Copper Mine for the first ten years after production commenced in 2006. These ores are also included in the numerator of the formula.

(Calculation formula:)

Copper equivalent to SMM interests by volume + Cerro Verde off-take rights in Cu-equivalents Volume of copper used to produce electrolytic Cu at Toyo facility

#### 3) [HPAL]

HPAL (High-Pressure Acid Leach, pronounced "H-PAL") is a groundbreaking refining method that facilitates the recovery of nickel and cobalt from difficult-to-process low-grade nickel oxide ores. In this method, low-grade nickel oxide ores are subjected to high temperature and pressure in an autoclave. Sulfuric acid is then fed into the autoclave to selectively extract nickel and cobalt. SMM subsidiary CBNC employs the HPAL

method to produce nickel-cobalt mixed sulfides, the intermediate raw material used in nickel refining.

#### 4) [MCLE]

MCLE (Matte Chlorine Leach Electrowinning) is a refining method employed in the manufacturing process at our nickel refinery to produce high-quality electrolytic nickel at low cost. By combining the HPAL and MCLE methods, SMM developed and successfully commercialized a state-of-the-art method for recovering high-purity nickel from low-grade nickel oxide ores.

#### 5) [LCD driver ICs]

Liquid crystals are substances that combine the properties of liquids and crystals. The application of an electric voltage across a liquid crystal alters these properties. Liquid crystal displays (LCDs) change in line with the precise way in which electricity is passed through the crystals.

LCD driver ICs are integrated circuits that are used to control the passage of electricity through the LCD panel to change (or "drive") the screen display.

#### 6) [COF]

Chip-on-film (COF) tape bonding materials are a type of semiconductor packaging material used with LCD driver ICs. They are substrates that are used to connect driver ICs to LCD panels.

#### 7) [Lead frames and tape bonding materials]

These are build-up packaging materials used in semiconductor assembly processes to provide electrical connections between semiconductor chips and printed circuit boards. Lead frames comprise metals to provide a flat, board-like substrate, while tape bonding materials consist of plastic tape attached to copper foil.

#### 8) [Bonding wire]

Bonding wire is used to create an electrical connection between the electrode on the semiconductor chip and the electrode on the lead frame or other build-up packaging material.

#### 9) [Sputtering targets and thin-film materials]

Fabricated in flat or disk-like shapes using metals and transparent conductors such as indium tin oxide (ITO), sputtering targets are used in the formation of electrode films and other thin-films for manufacturing products such as LCD panels and photovoltaic panels.

#### 10) [Paste]

Thick-film paste is ink-like substances produced by mixing powdered metals and glass in various solvents. They are used in the manufacture of electronic components such as capacitors based on a type of printing process. Resin pastes, which consist of powdered metals mixed with organic resins, are also used in the manufacture of electronic components.

#### 11) [Secondary batteries]

Secondary batteries are rechargeable and reusable. Nickel metal hydride (NiMH) batteries were commercialized in the 1990s as a replacement for the nickel-cadmium (NiCad) batteries that had been common until then. NiMH batteries are in turn now being superseded by high-capacity lithium-ion rechargeable batteries, which have been developed for widespread use in products such as mobile phones and PCs.

#### 12) [LNO]

Battery materials manufactured by the SMM Group include nickel hydroxide and lithium nickel oxide (LNO). Used in the positive electrodes in NIMH and lithium-ion batteries, these materials produce electricity as the result of a chemical reaction.

#### 13) [Lithium niobate and lithium tantalate]

Lithium niobate (LN) and lithium tantalate (LT) are materials used in the SAW filters of mobile phones. SAW (surface acoustic wave) filters are functional components that reduce background noise during mobile phone conversations.

#### Other terminology-

#### LME

#### (London Metal Exchange)

Established in 1877, the London Metal Exchange provides trading in spot contracts and commodity futures for non-ferrous metals such as copper, nickel, aluminum, lead and zinc. Producers can monetize surplus inventory of refined ores by holding these stocks in LME-designated warehouses. The exchange also enables users to purchase quantities of metal when needed.

#### London fixing

In contrast to copper, nickel and other base metals, gold is not traded on the LME. The price of gold is still determined largely by telephone or electronic communication methods between market participants for each transaction. The financial institutions that are the so-called "fixing members" of the London Bullion Market Association (LBMA) agree on a standard price for gold based on the results of all these individual transactions and publish it at 10:30 a.m. and 3:00 p.m. London time on each trading day. Buy and sell orders for gold bullion are then collated and processed at these times at the published prices. The London fixing price is thus the benchmark for global trading in gold.

#### Copper concentrates

Copper smelting based on the melting of ores (dry-process smelting) uses copper concentrates as its raw material. These are ores that have been "dressed" (the extracted ore is separated from non-metallic impurities), a process that raises the copper content to around 30% by weight. Copper concentrates typically contain around 30% each of copper, iron and sulfur, with the remaining 10% consisting of gold and platinum group metals.

#### Electrolytic nickel/ferronickel

Nickel is graded as Class 1 or Class 2. Electrolytic nickel is a typical Class 1 grade of high-purity nickel, which is traded on the LME. Ferronickel is the name given to Class 2 grades of nickel, which are alloys typically containing about 20% nickel and 70% iron. Ferronickel is mainly used in the manufacture of stainless steel. Electrolytic nickel is used in a broad range of applications, including specialty steels, electronics materials and electroplating.



## **Note**

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