

# 2nd Quarter FY2010

## Progress of Business Strategy

November 2010

 **SUMITOMO METAL MINING Co., Ltd.**

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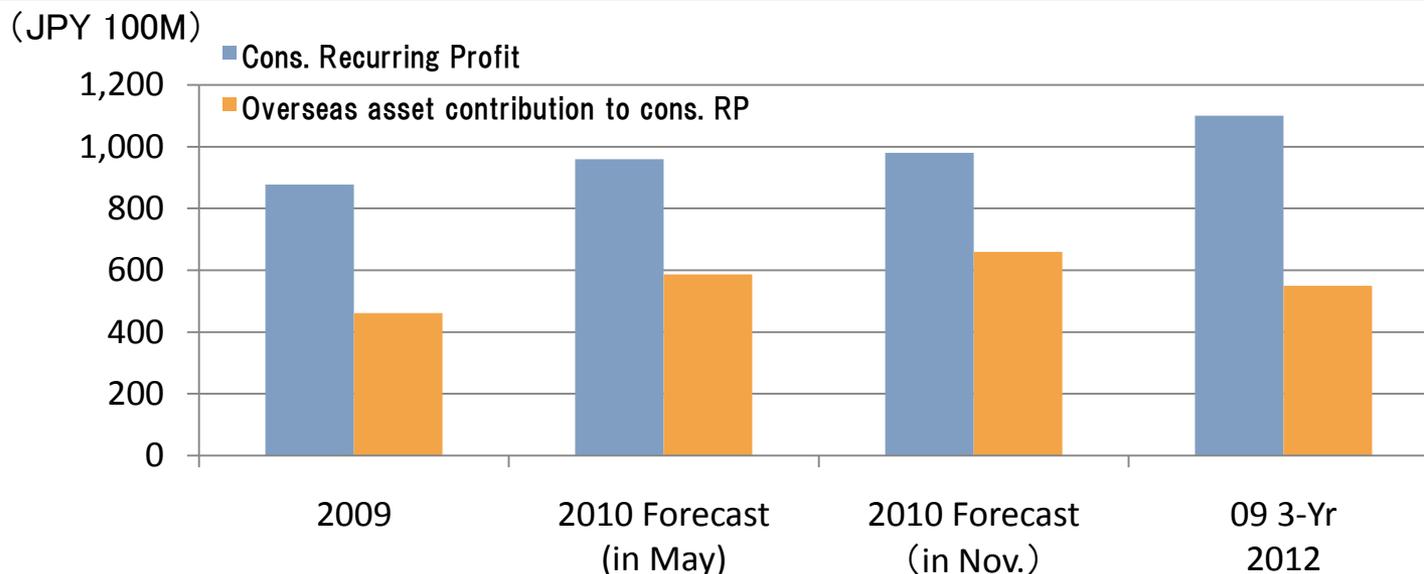
# I. Financial Summary and Strategy



**Pogo Gold Mine**

SUMITOMO METAL MINING CO., LTD.

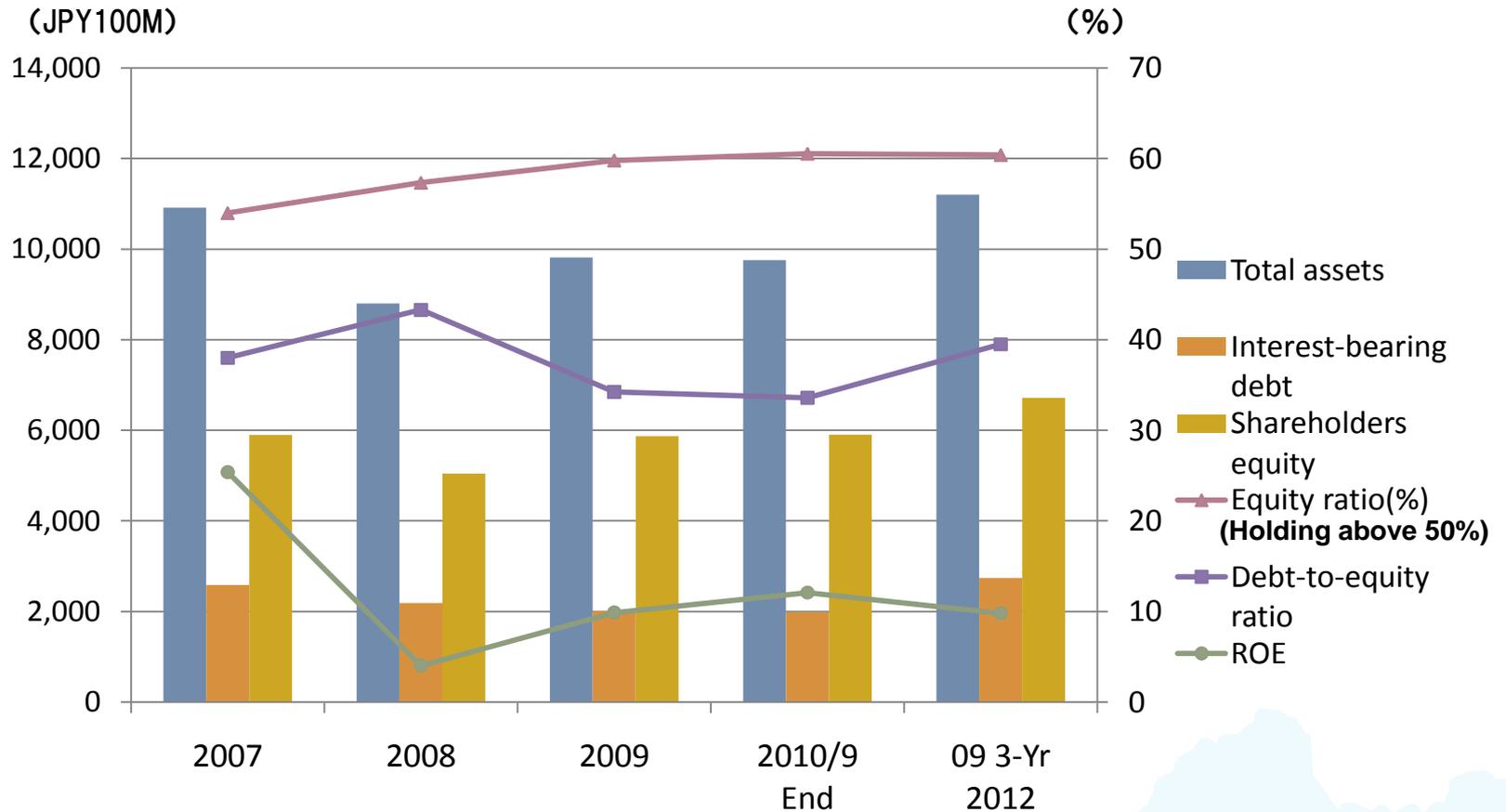
# 1) Consolidated results



(JPY100M)	FY2009	2010/1H (Result)	2010/2H (Forecast)	FY2010 (Forecast on Nov.)	09 3-Yr 2012
Cons. Recurring Profit	878	474	506	980	1,100
Overseas asset contribution to cons. RP	461	297	363	660	550
Cu (\$/T)	6,101	7,135	8,000	7,568	6,000
Ni (\$/lb)	7.7	9.9	10.0	10.0	8.0
Au (\$/Toz)	1,023	1,211	1,300	1,256	1,000
Forex	92.86	88.96	80.00	84.48	90.0

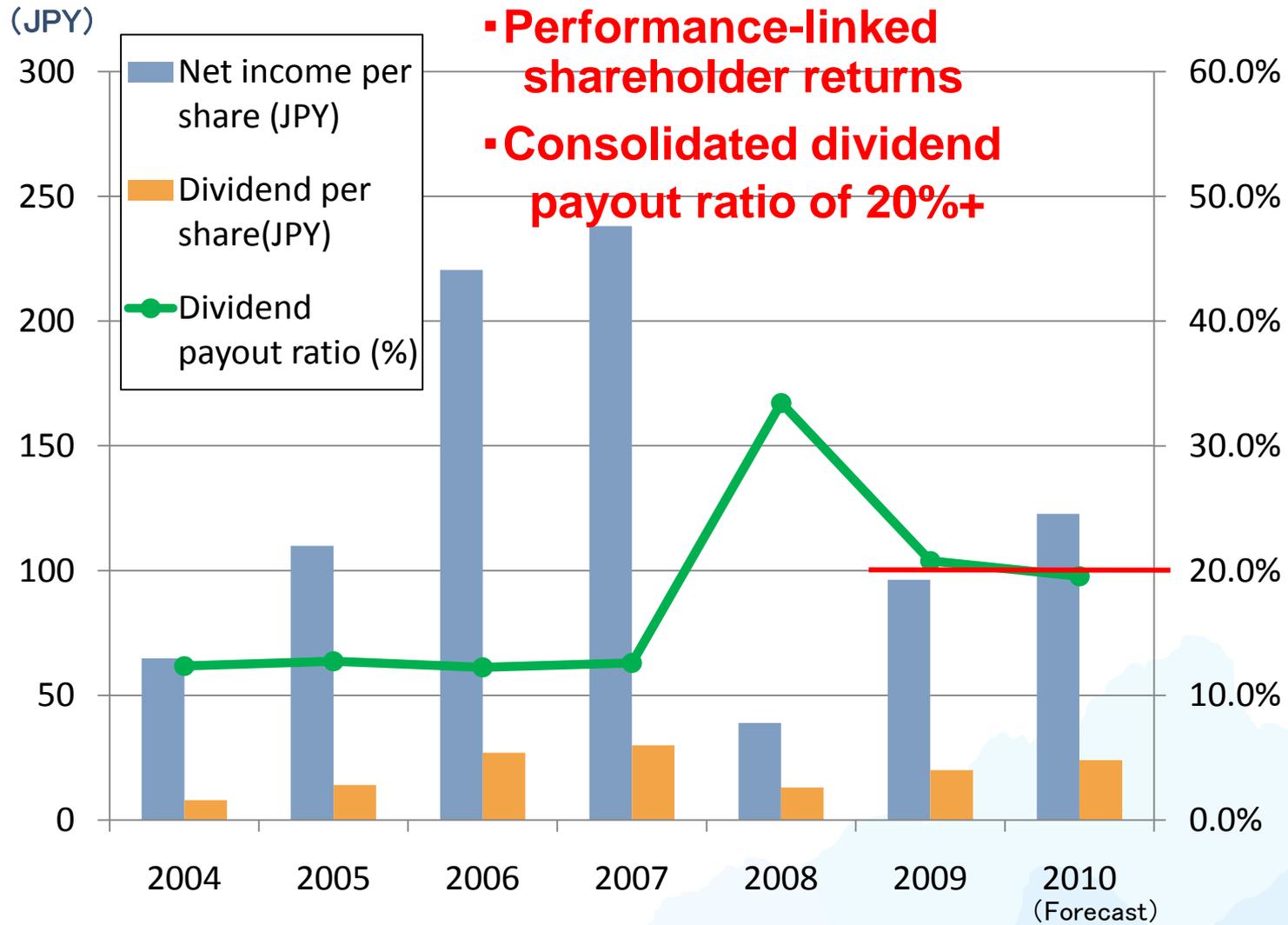
Note: Goro Project results are included in consolidated recurring profit, but not in overseas asset contribution to consolidated recurring profit.

## 2) Maintenance and utilization of sound finances



Funding for o/seas interests

# 3) Shareholder dividends



# II. External Environment

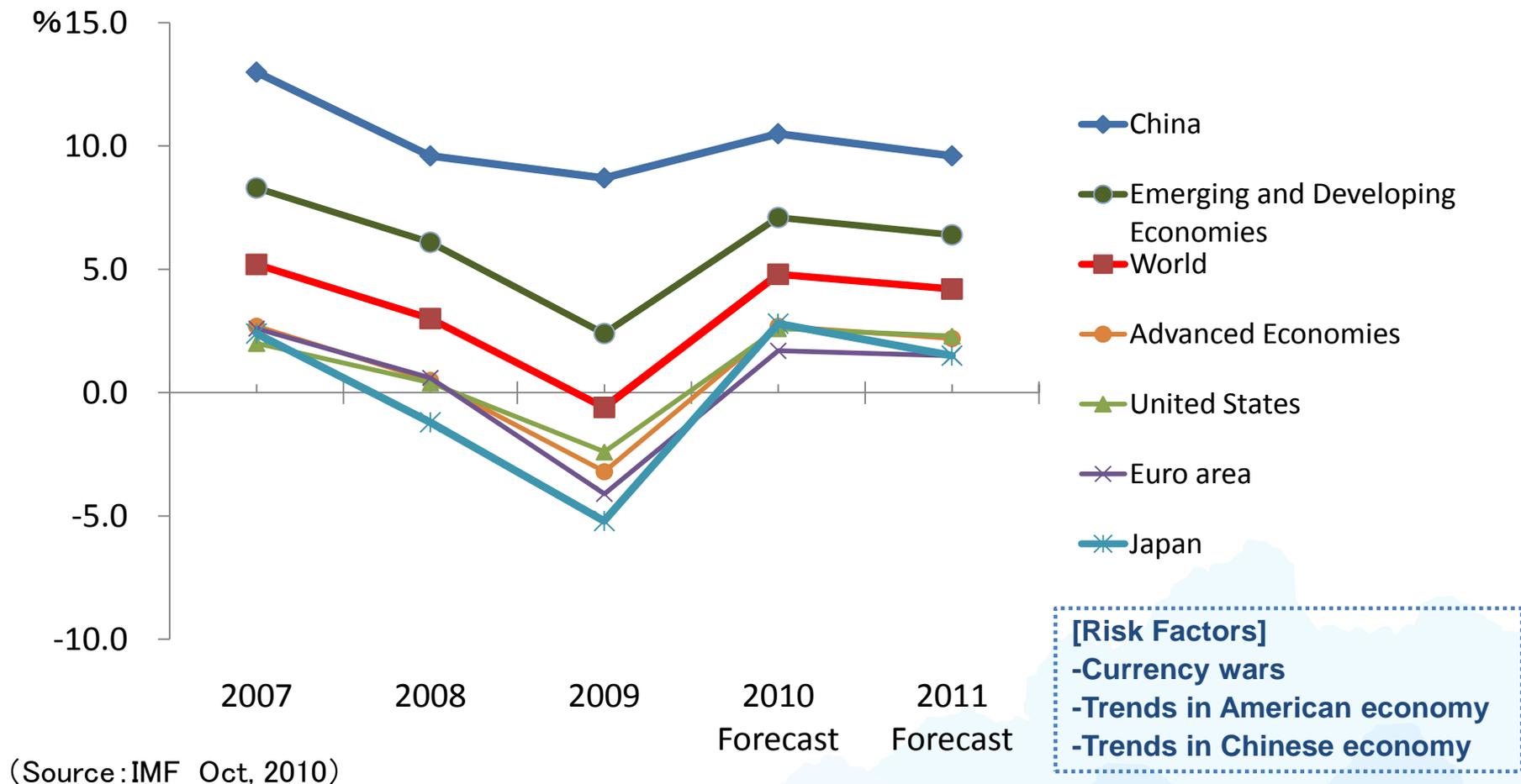


**Pogo Gold Mine**

SUMITOMO METAL MINING CO., LTD.

# 1) World GDP outlook

World economy in 2010 is recovering, but forecast is for slowdown



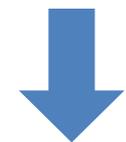
## 2) Currency trends – Effect of strong yen/strong currencies of resource-rich countries

### Significant Impact on Japanese Economy and Price of Metal Resources

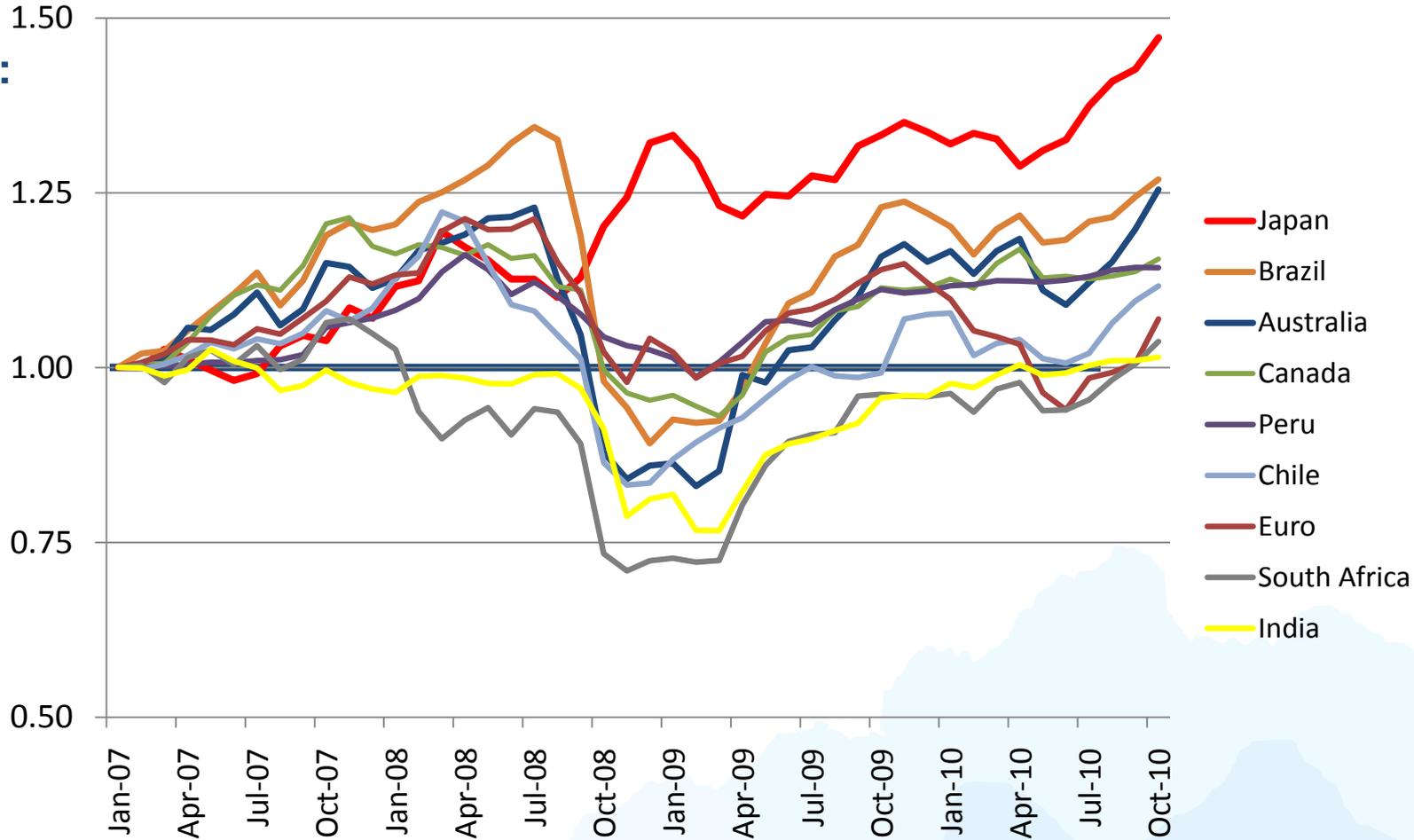
Index : Jan-07 = 1.0

Value of US\$:

Drops

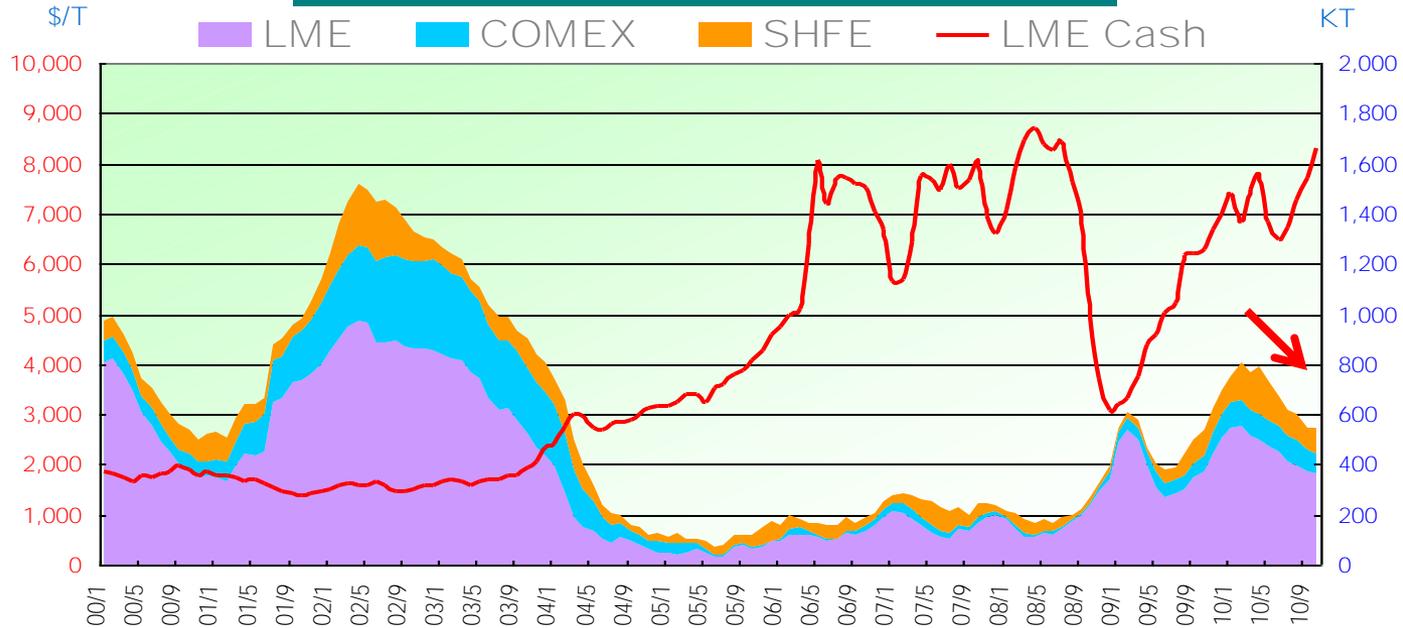


Rises

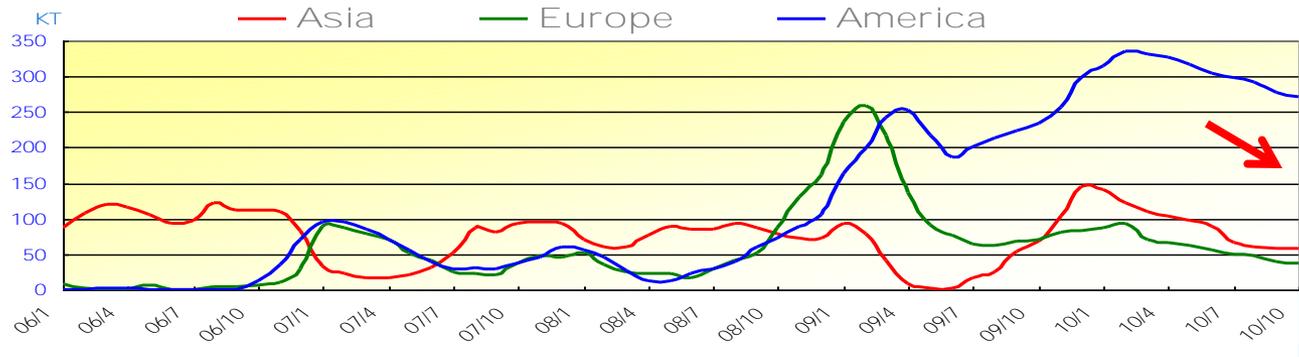


# 3) Copper – (1) LME prices and stocks

Current LME Cash & Stock Historical Chart



LME Stock Chart by Area



# 3) Copper – (2) Supply & demand balance

(kt)	ICSG			Macquarie	
	2009	2010	2011	2010	2011
Production	18,356	19,081	19,293	18,634	19,340
Consumption	18,189	18,882	19,729	18,873	19,757
Balance	167	199	△ 436	△ 239	△ 417
FY(\$/t)	6,101	—	—	—	—
CY(\$/t)	5,150	—	—	7,353	8,378
Prediction	2010.10			2010.10	

Cerro Verde Mine

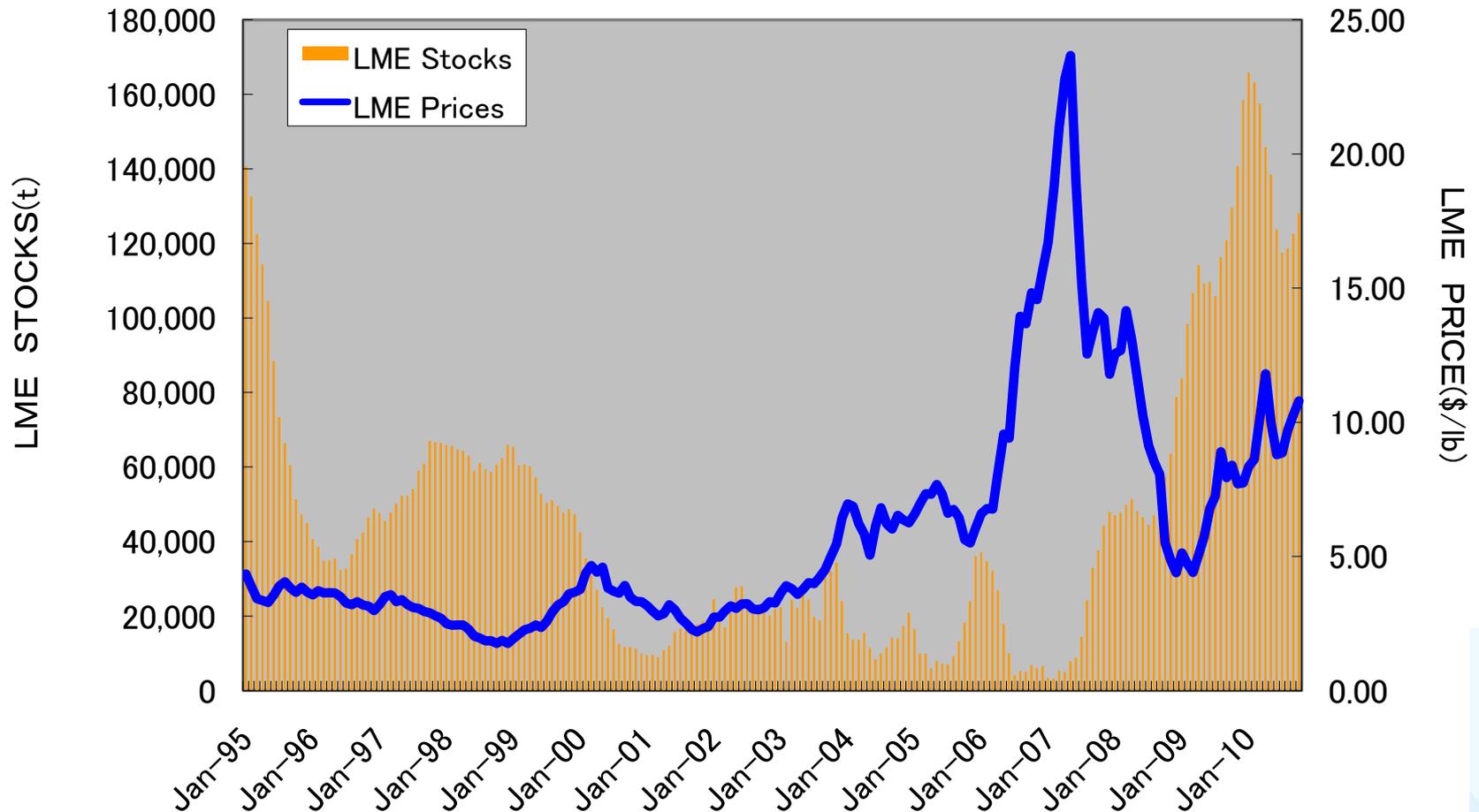


Toyo Smelter & Refinery



# 4) Nickel – (1) LME prices and stocks

## Nickel LME Prices & Stocks



# 4) Nickel – (2) Supply & demand balance

(Kt)	SMM			INSG			Macquarie
	2009	2010	2011	2009	2010	2011	2010
Output	1,292	1,374	1,566	1,347	1,427	1,610	1,395
Consumption	1,265	1,431	1,534	1,242	1,429	1,525	1,480
Balance	27	△ 57	32	105	△ 2	85	△ 85
Estimated Timing	2010.9			2010.10			2010.10
FY (\$/lb)	7.72		–	–	–	–	9.73
Ni Pig Iron (Included)	95	140	140	–	–	–	149
Stainless steel	25,421	29,905	31,716	–	–	–	31,128

**Coral Bay Nickel Corporation**



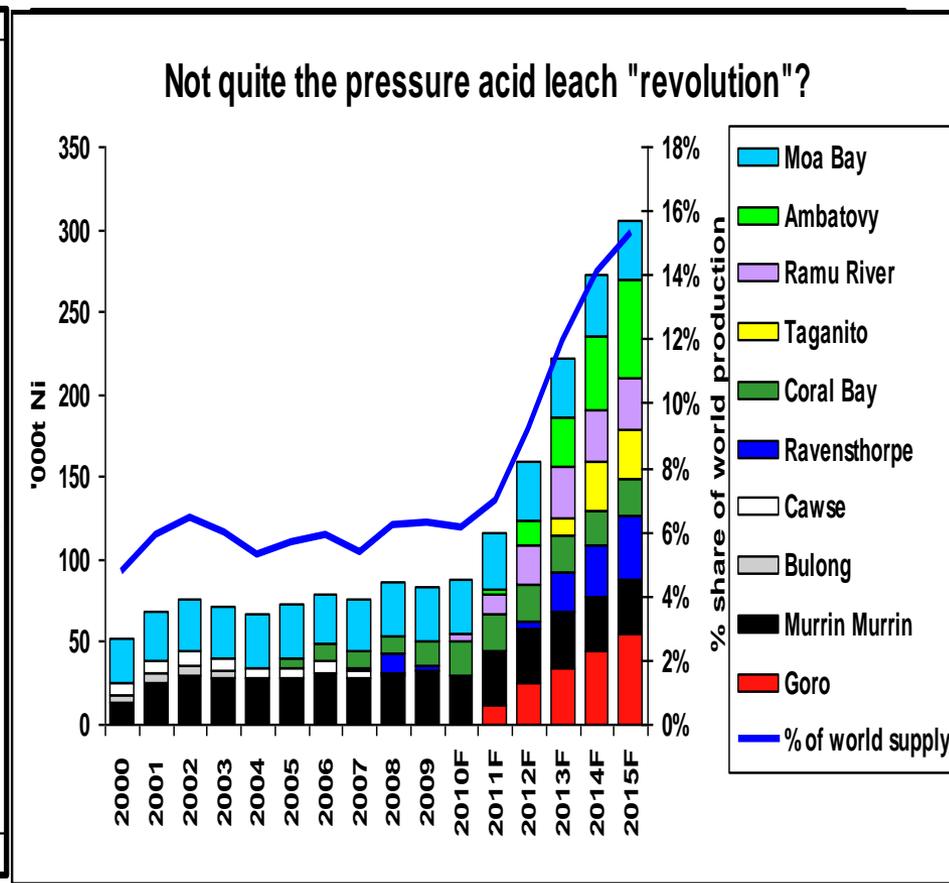
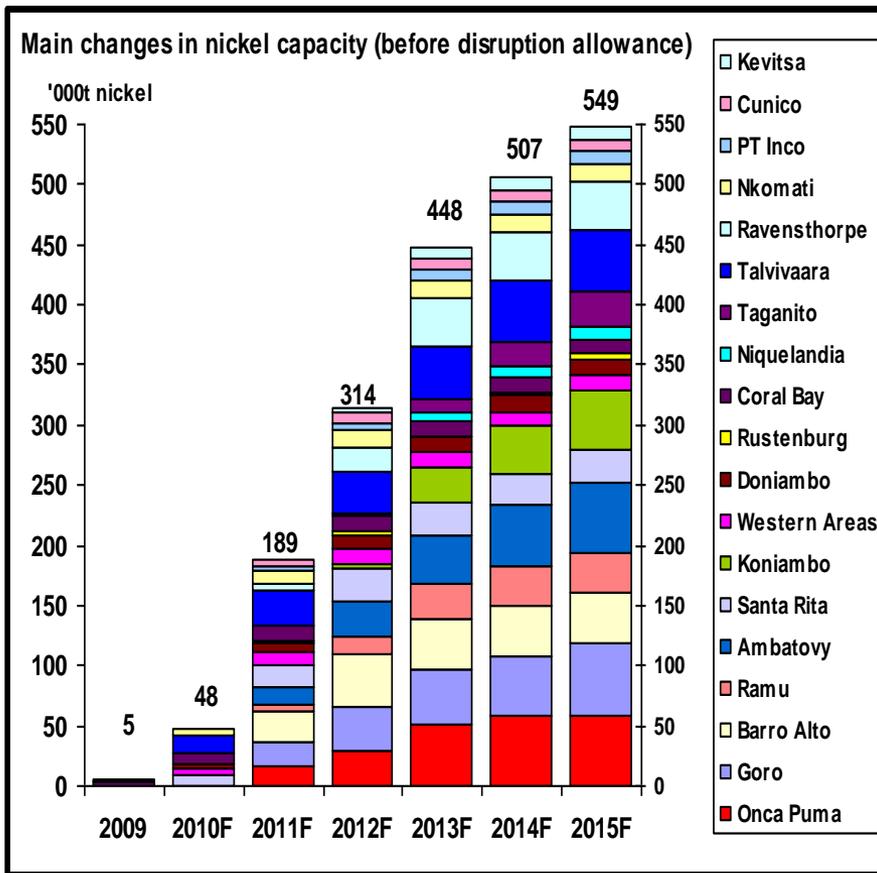
**Niihama Nickel Refinery**



# 4) Ni – (3) New PJ trends have significant impact on supply & demand

## Ni Production Increase Plan

## HPAL Ni Production

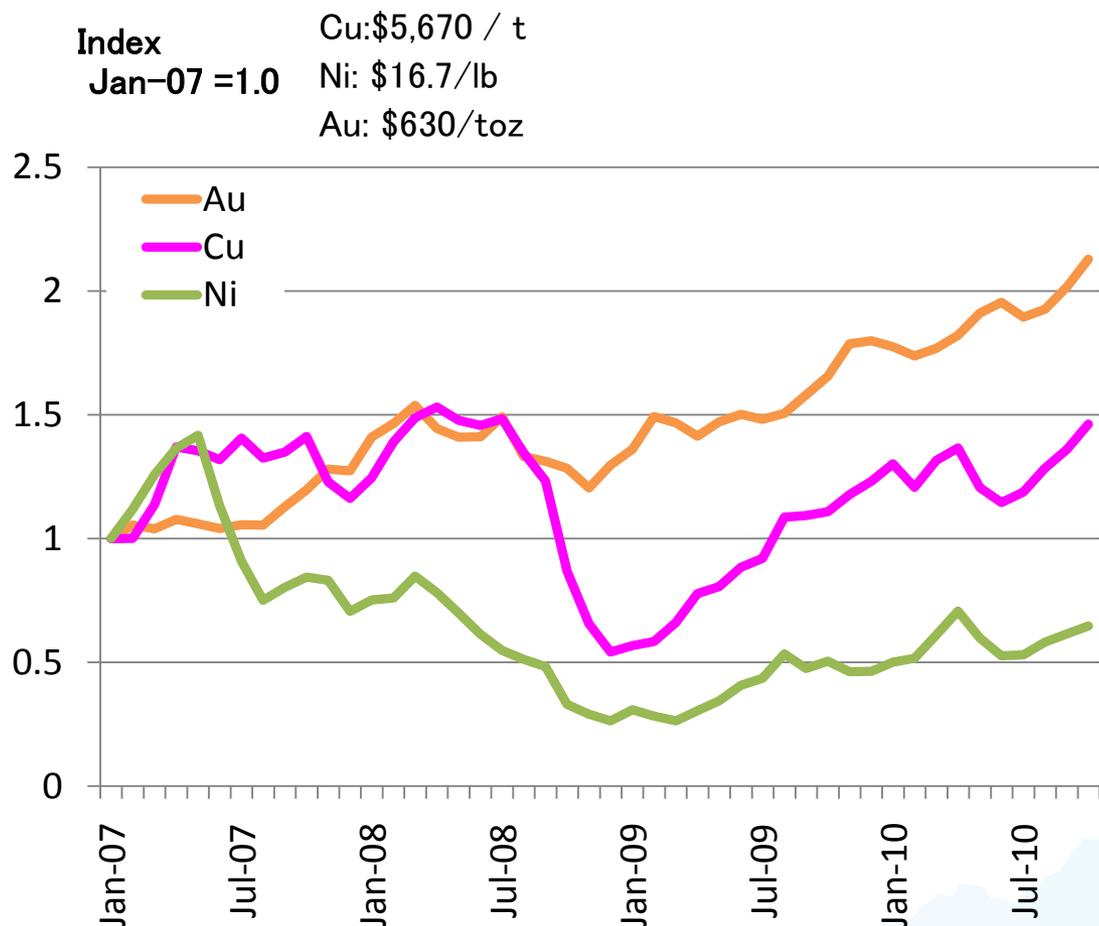


Source: Macquarie Research, October 2010

**Only CBNC is operating according to the plan**

# 5) Au – Price at all-time high

## Au prices continuing strong



Public gold reserves by country  
(September 2010)

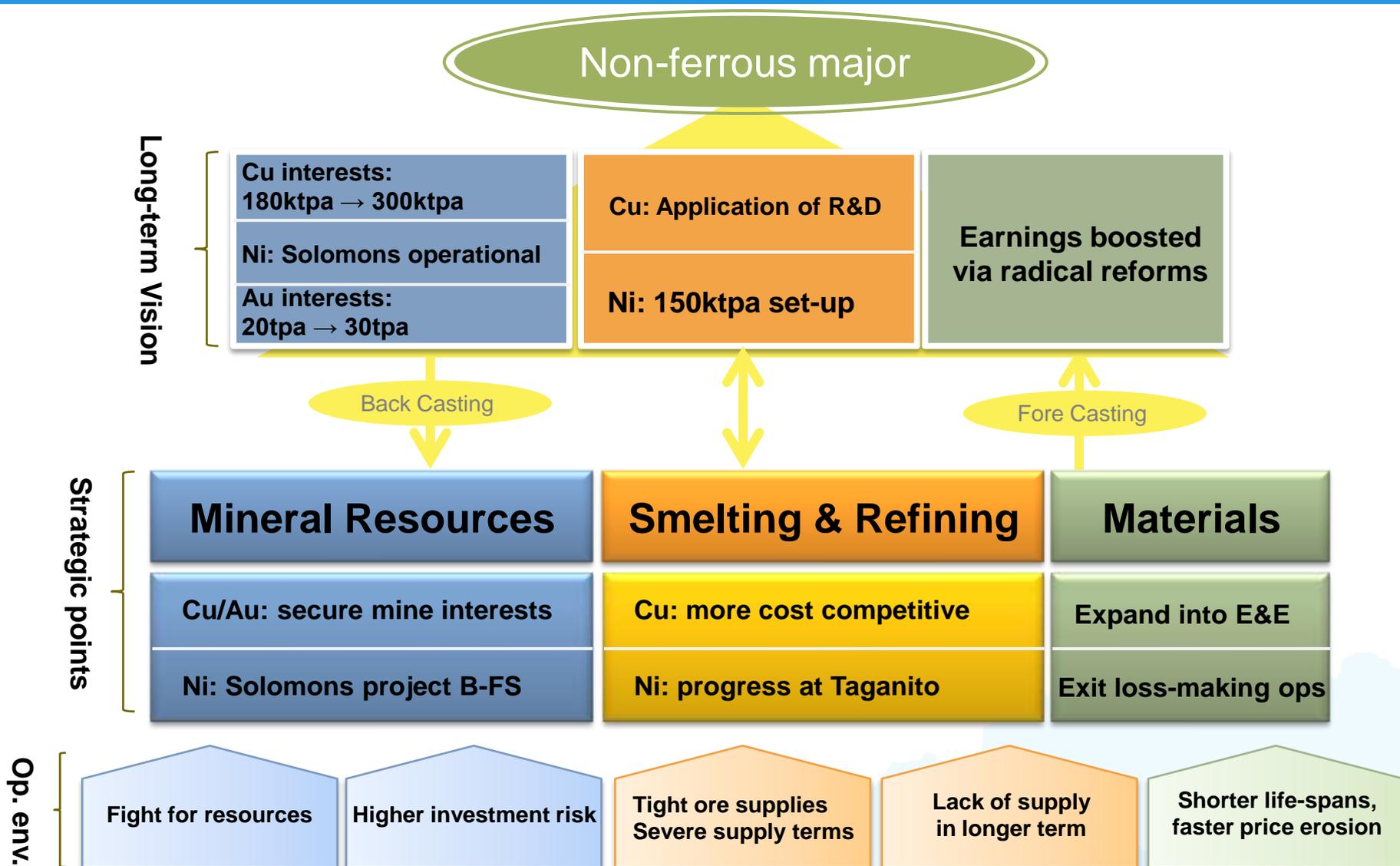
	Sectors	Gold reserves (t)	Gold / foreign reserves (%)
1	USA	8,134	72.1%
2	Germany	3,403	67.4%
3	IMF	2,907	–
4	Italy	2,452	66.2%
5	France	2,435	65.7%
6	China	1,054	1.5%
7	Switzerland	1,040	15.1%
8	Japan	765	2.7%
9	Russia	726	5.7%
10	Netherlands	613	55.8%
11	India	558	7.4%

# III. Progress of Growth Strategy

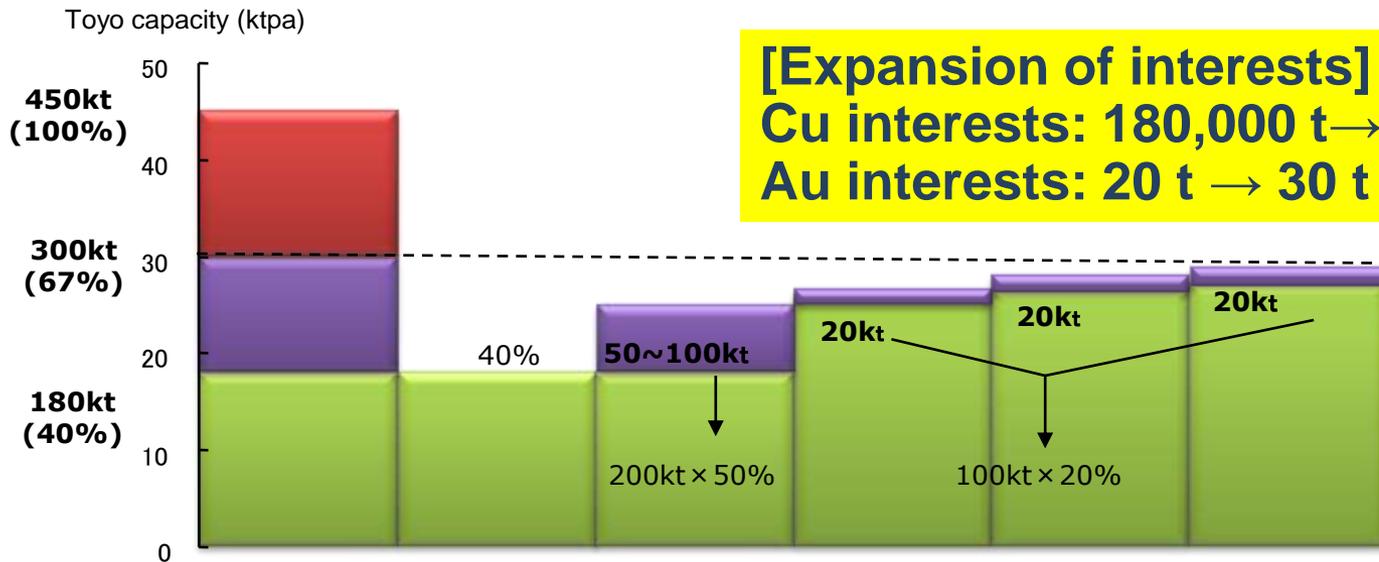


**Pogo Gold Mine**

# 1) 09 3-Yr Business Plan outline



# 2) Resources – (1) Three ways to expand interests in overseas mines



**[Expansion of interests]**  
 Cu interests: 180,000 t → 300,000 t  
 Au interests: 20 t → 30 t

## [Three ways]

1) SMM development

Expansion of exploration area

2) Participation in development projects

Focus on projects in earlier stages

3) Increased production at existing mines

- Cerro Verde doubling plan, F/S complete in 1H 2011  
 - Increased production at Morenci

## 2) Resources – (1)-<1> SMM development: Flow of exploration

It takes roughly 10 years from the launch of exploration activities to the launch of mining operations

### 4<sup>th</sup> Stage: Evaluation of resources

Prepare development plan and evaluate profitability of deposit

### 3<sup>rd</sup> Stage: Grid drilling

Perform multiple test drills in a grid to ascertain size and shape of deposit

### 2<sup>nd</sup> Stage: Pilot drilling (<1%)

Perform a few test drills to verify the target

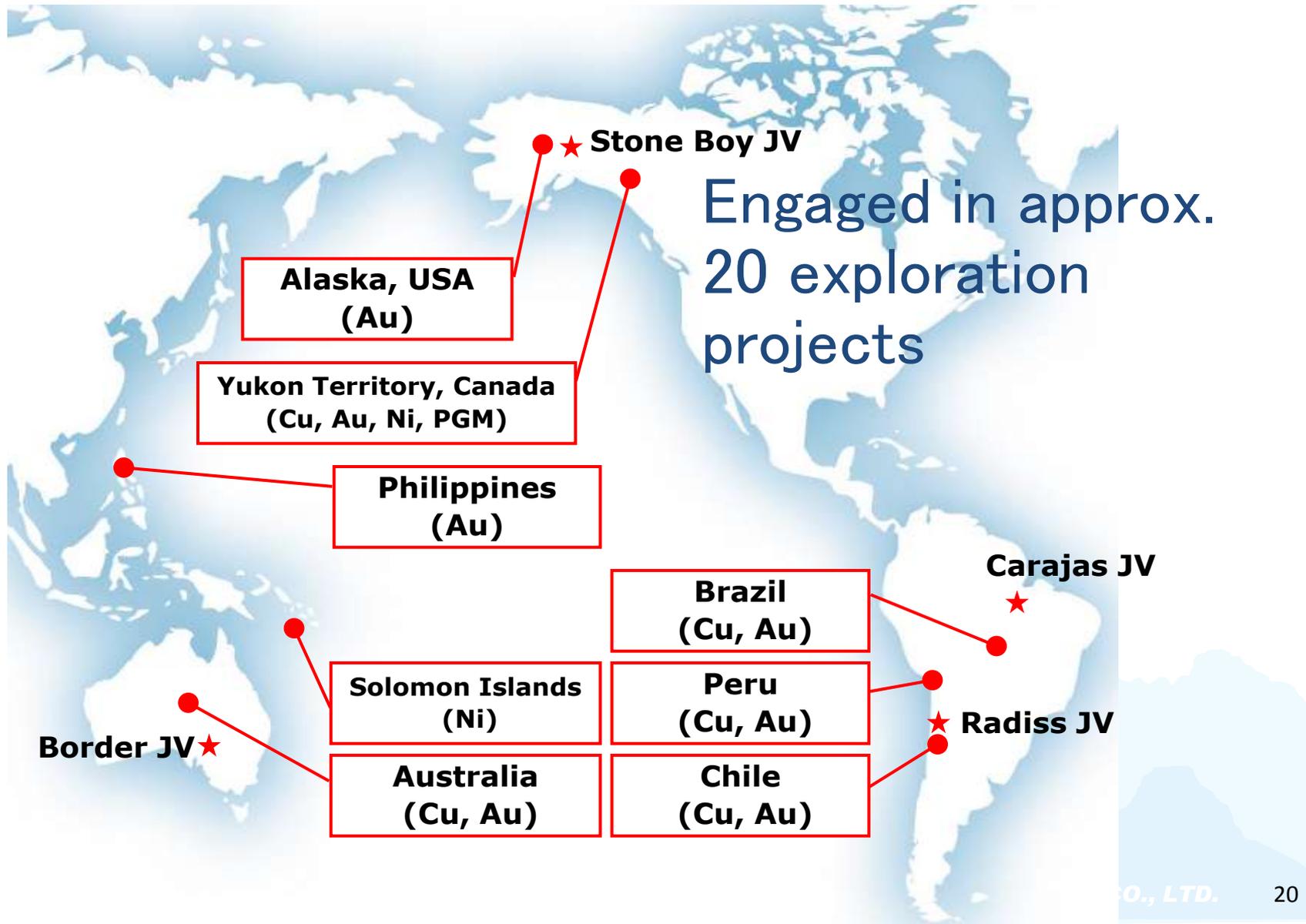
### 1<sup>st</sup> Stage: Exploration from surface (10%)

Discover target through geological, geochemical and geophysical surveying

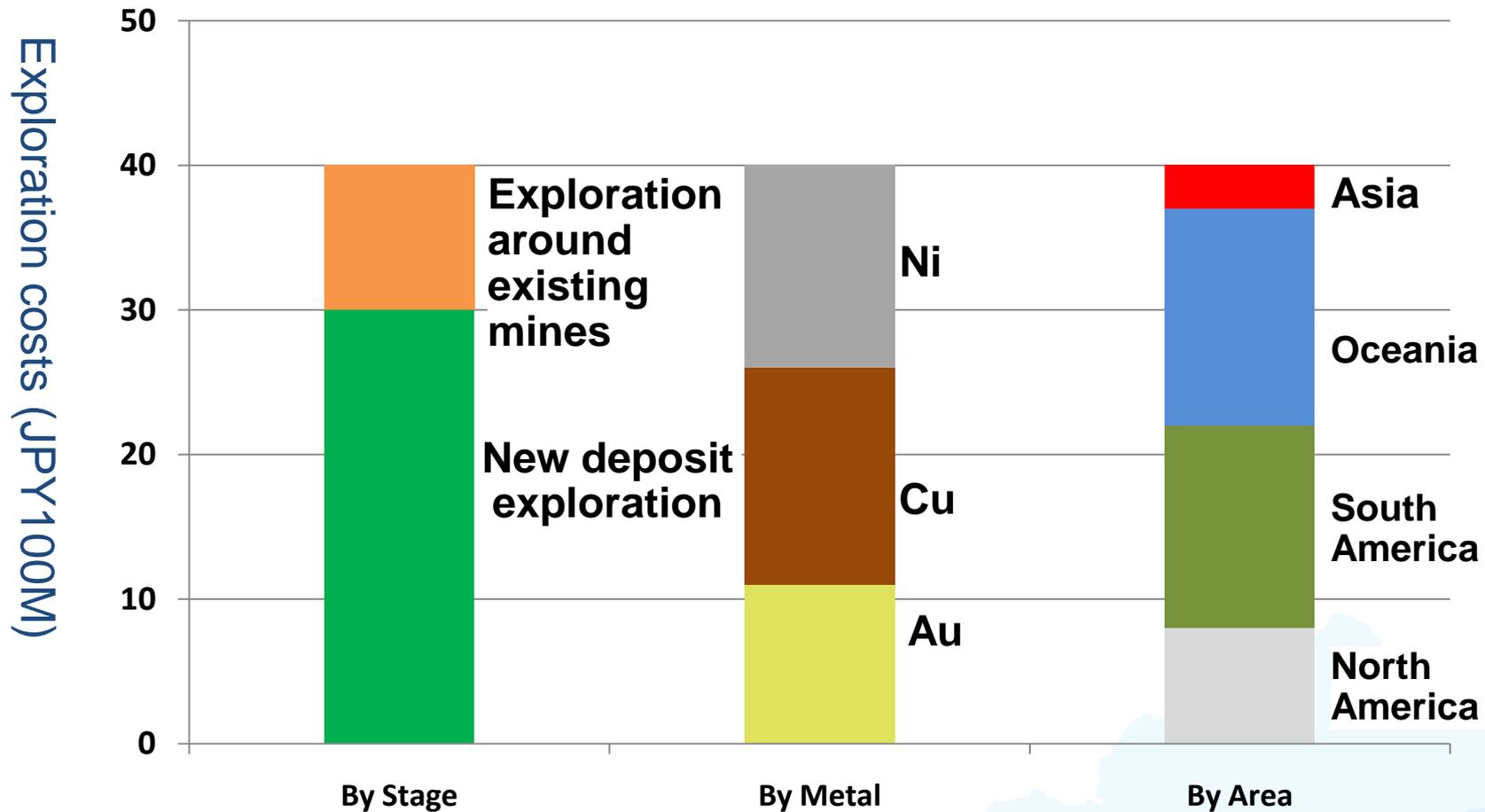
Pre 1<sup>st</sup> Stage: Identification of promising areas (100%)

Identify promising areas by studying literature, analyzing published data, remote sensing, etc. and acquire mine lots

## 2) Resources – (1)-<1> SMM development: Exploration projects in progress



## 2) Resources – (1)-<1> SMM development: 2010 exploration costs



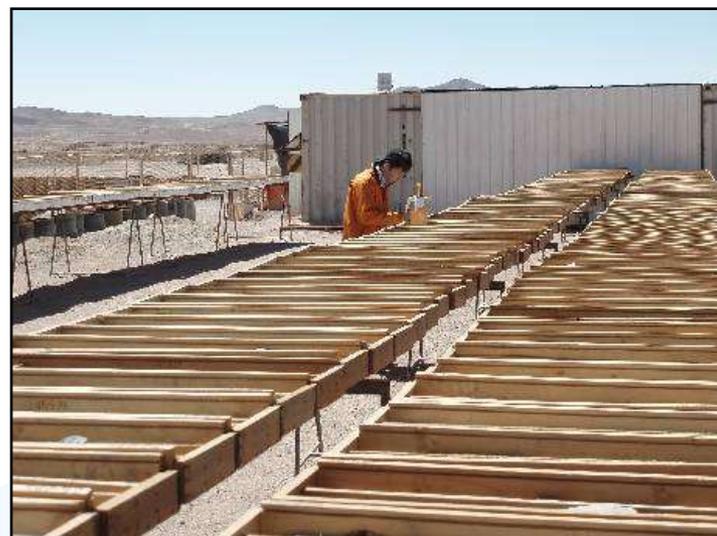
## 2) Resources – (1)-<2> Participation in development projects: Technical capabilities

Utilization of technical capabilities  
-Independent evaluation based on test drilling data-

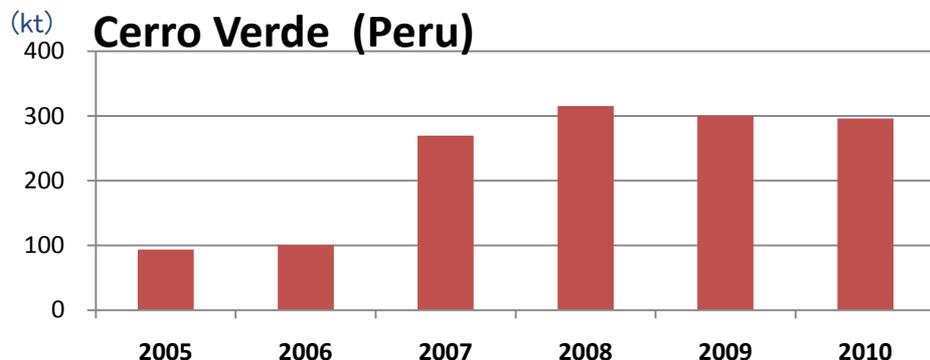
- Review 15-20 projects a year
- For promising projects:  
Perform due diligence
  - **Calculation of resources**
  - **Mining plan**
  - **Processing test (Niihama Research Laboratories)**
  - **Cost estimate**
  - **Profitability assessment**



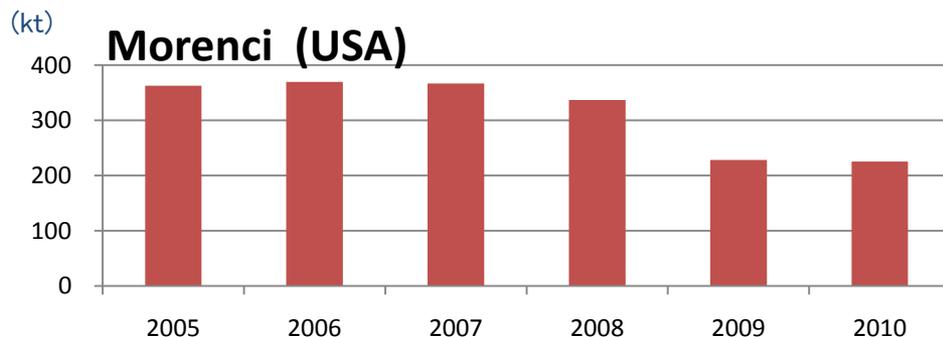
Negotiate and acquire interests  
(10 projects currently in negotiation stage)



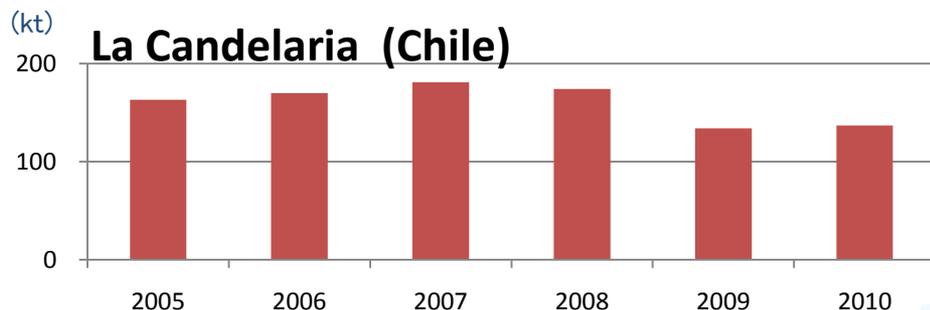
## 2) Resources – (1)-<3> Increased production at favorably performing existing mines



**SMM interests: 16.8% (FCX: 53.56%)**  
**Capa: Concentrate 180 kt / E-Cu 90 kt/y**  
 - FY2010: Increase processing volume and increase production of concentrate by approx. 14 kt-Cu  
 - F/S for “Increase concentrate production” will be prepared by 1H 2011



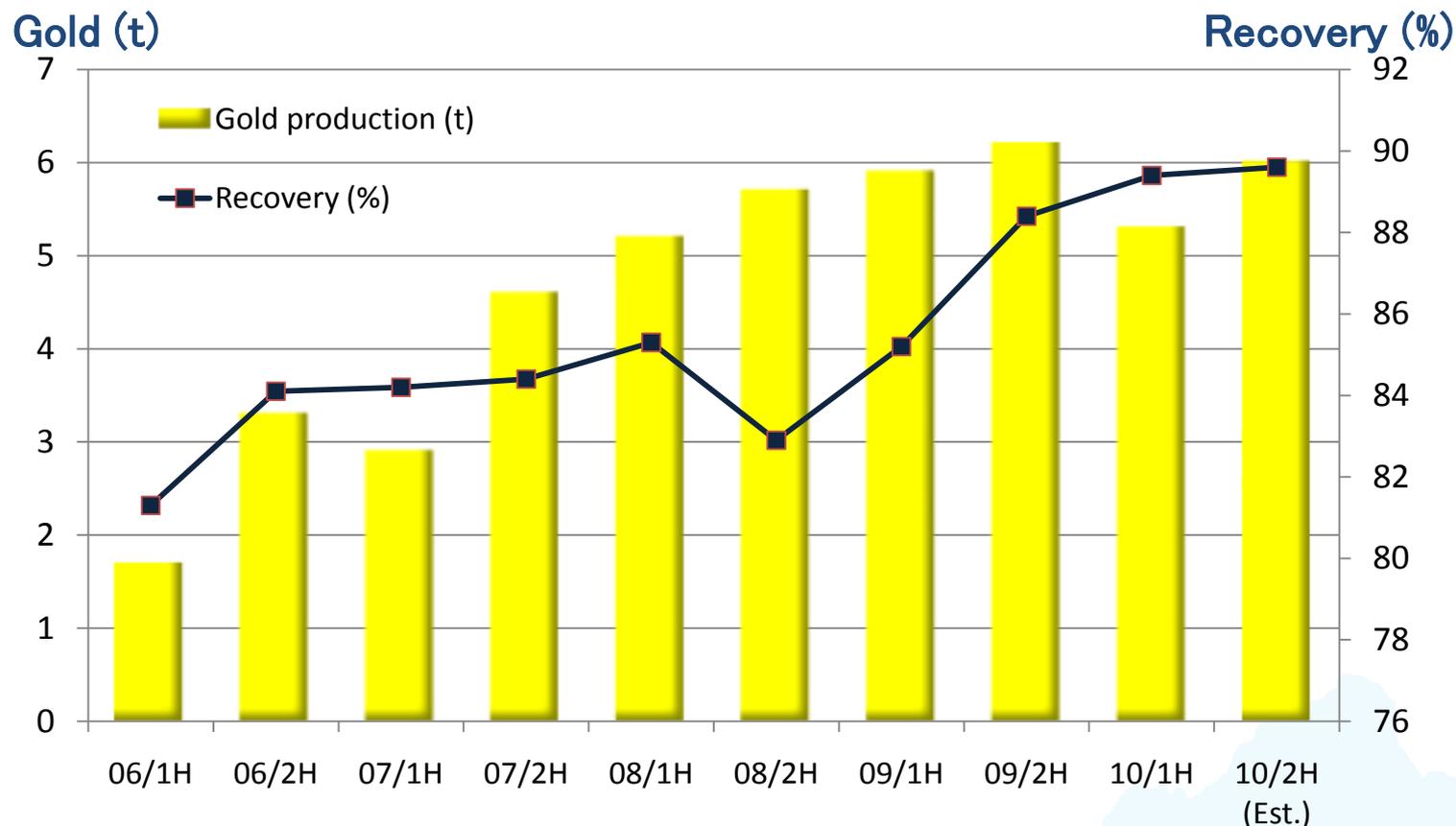
**SMM interests: 12% (FCX: 85%)**  
**(Take-in-Kind method/Australia NP same)**  
 -Almost all E-Cu production  
 -Increase mining output from 500 kt/d in 4Q 2010 to 700 kt/d by 3Q 2011



**SMM interests: 16% (FCX: 80%)**  
 -Cu concentrate production  
 -Production increased in 2010 by higher Cu content

● Favorable production at Ojos Del Salade (Chile: 16% SMM) and North Parkes (Australia: 13.3% SMM) as well

## 2) Resources – (2)-<1>Steady operational improvements at Pogo Mine



Operations  
suspended for  
10 days due to  
mountain fire

## 2) Resources – (2)-<2> Exploration around Pogo Mine

- With goal of acquiring ore reserves and extending mine life:
    - Promote exploration around known ore bodies
    - Explore area in aims of discovering new deposits
- (2009/12 check: Approx. 140 t of Au resources)



## 2) Resources –(3) Solomon Islands Ni exploration project

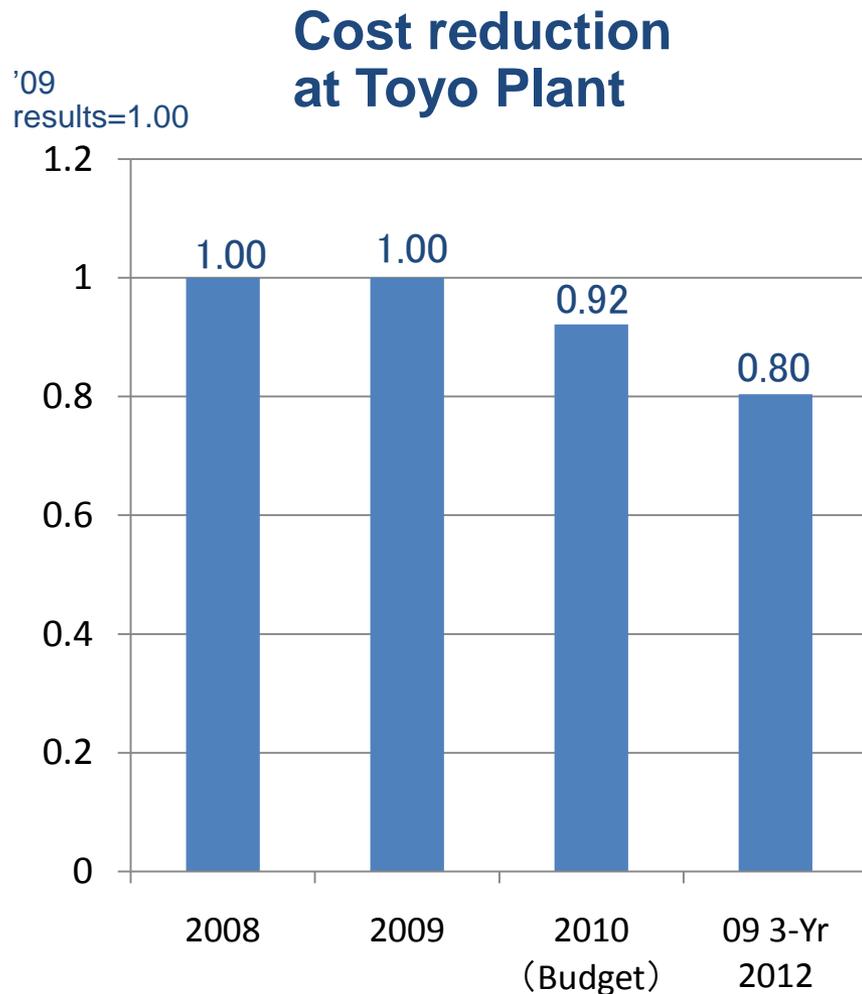
- Steady progress
  - Harmony with local residents
    - Capital participation of JOGMEC (Country assistance)
  - Promotion of exploration
  - Basic environmental surveys



River survey



# 3) Smelting & Refining – (1) Securing Cu profits/Promoting cost reduction <1>



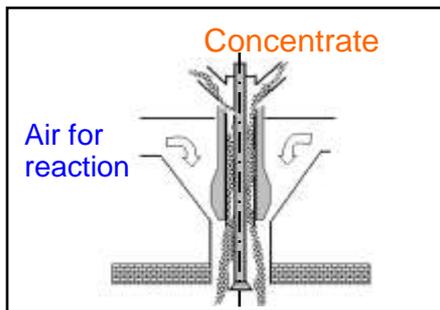
## [Securing profits]

- (1) Raise prod. margins (cut losses)
- (2) Improve sales premium
- (3) Securing TC/RC

## “Maintain minimum cost operations”

- (1) Continuation of approx. 10% production decrease
- (2) Promotion of cost reductions
  - Reduction of operating/materials costs and repairs
  - Control of capital expenditure and reduction of depreciation expenses
- (3) Promotion of technological improvement/development

# 3) Smelting & Refining – (1) Securing Cu profits/Promoting cost reduction <2>



## [Development of flash furnace concentrate burner at Toyo Plant]

### S.O.F (Side-blowing and Oxy-fuel Flash smelting)

➤ Proprietary SMM technology developed in the 1980s at the Niihama Research Laboratories

Air for reaction from the top of the shaft is blasted from the side nozzles on the side walls of the shaft

➤ Based on the results of the pilot test, the inside walls of the shaft can be expected to be protected by the low dust generation rate\* and high oxygen efficiency\*

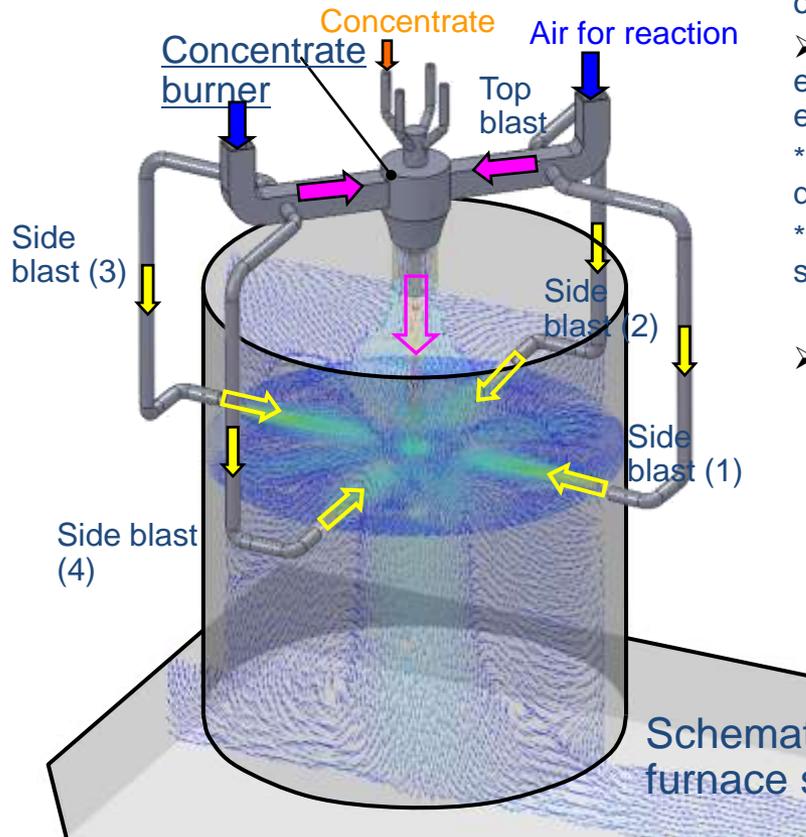
\*Dust generation rate: The percentage of copper concentrate put in that is discharged from the furnace unburned (dust); the lower the better

\*Oxygen efficiency: The percentage of oxygen put in that is used for smelting reaction within the furnace; the higher the better

➤ Test operation in the first stage of tests for demonstration was conducted for one month in August 2010

-2,500-3,000 t/day of copper concentrate was melted without any problems

-The dust generation rate can be lowered by increasing the blast from the side nozzles



# 3) Smelting & Refining – (1) Securing Cu profits/Promoting cost reduction <3>

## [Renovation of all bricks in flash furnace at Toyo Plant in 2011]

First renovation of all bricks, including at bottom of furnace, since start-up in 1971 (41<sup>st</sup> year)

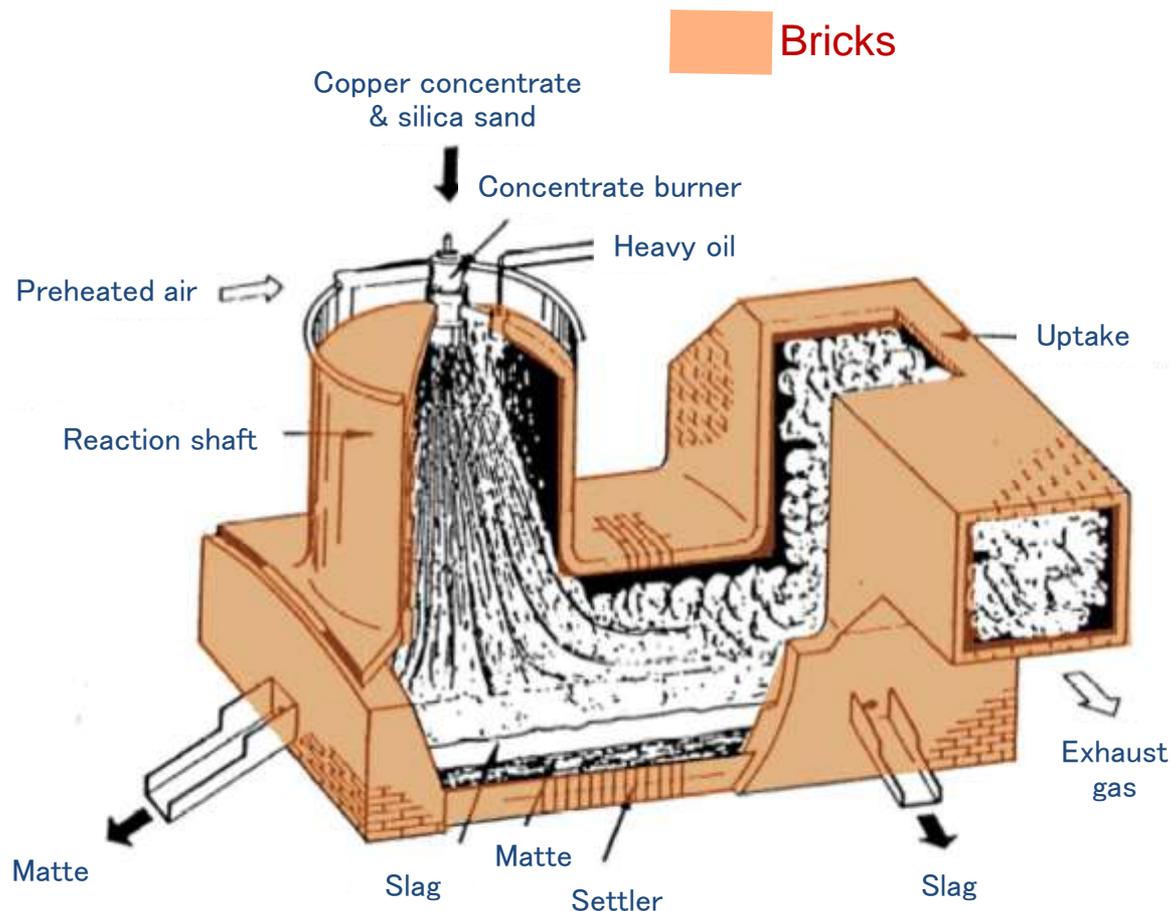
Planned for middle of FY 2011 during 60 days of furnace maintenance

(Effect)

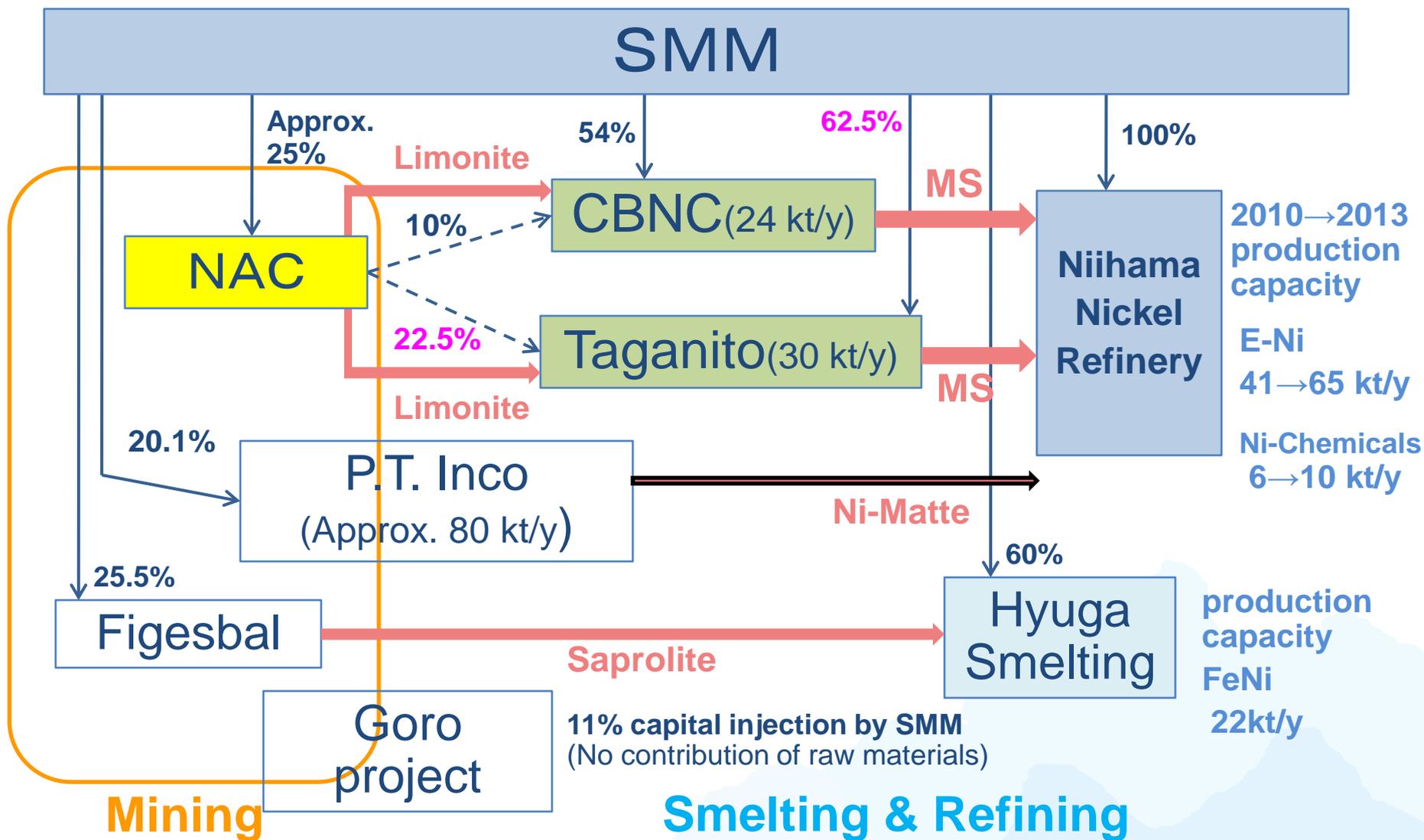
-Avoid risk of molten metal leaks caused by furnace degradation

-Respond to high-load operations by strengthening and improving furnace cooling mechanism

-Improvement of degree of operational freedom and copper slag loss



# 3) Smelting & Refining – (2) Ni <1> SMM Ni business expansion



# 3) Smelting & Refining – (2) Ni <2> SMM HPAL

## [Key factors of overseas expansion]

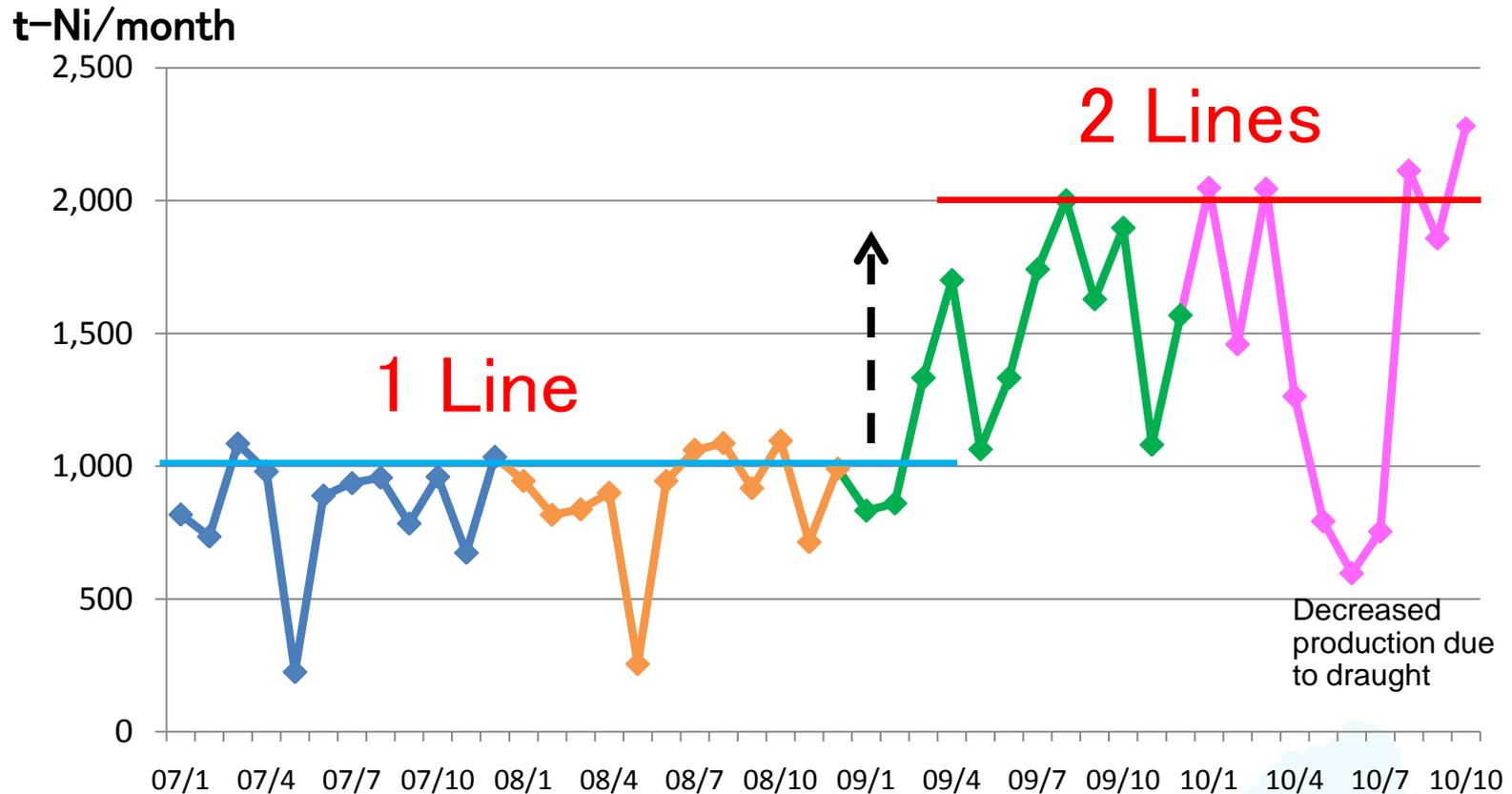
- (1) Technical capabilities with smelting
  - SMM Ni technology
  - Metal anode electrolysis
  - Matte anode electrolysis
  - MCLE

Technology accumulated through development of three proprietary technologies
- (2) Partners
  - NAC, largest mining company in the Philippines
  - ⇒ Best partner
- (3) Human resources
  - Excellent allocation of human resources with local management/project management

## [Factors behind CBNC success]

- (1) Learning from other HPAL projects
  - Analysis of factors behind failure against backdrop of proprietary technology
- (2) Rio Tuba latelite ore stock
  - Average samples easily obtained
- (3) Utilization of outstanding Philippine employees
  - Implementation of thorough specialized training at Niihama Nickel Plant

# 3) Smelting & Refining – (2) Ni <3> CBNC production status

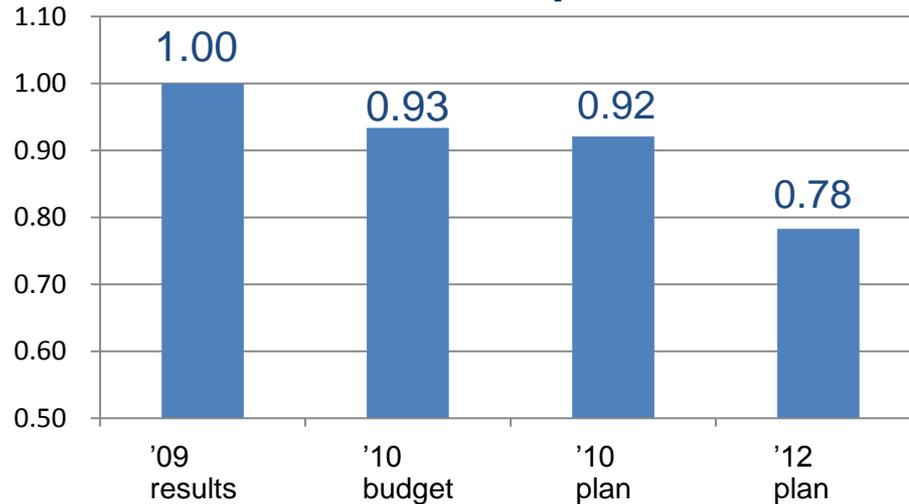


- Establishment of production capacity of 24 kt/year: Production exceeding 2 kt/month in January, March, August and October
- Draught countermeasures: (1) Increase level of existing reservoir by end of 2010, (2) recycling of used water and (3) installation of new reservoir in 2011

# 3) Smelting & Refining – (2) Ni <4> Maximization of competitiveness

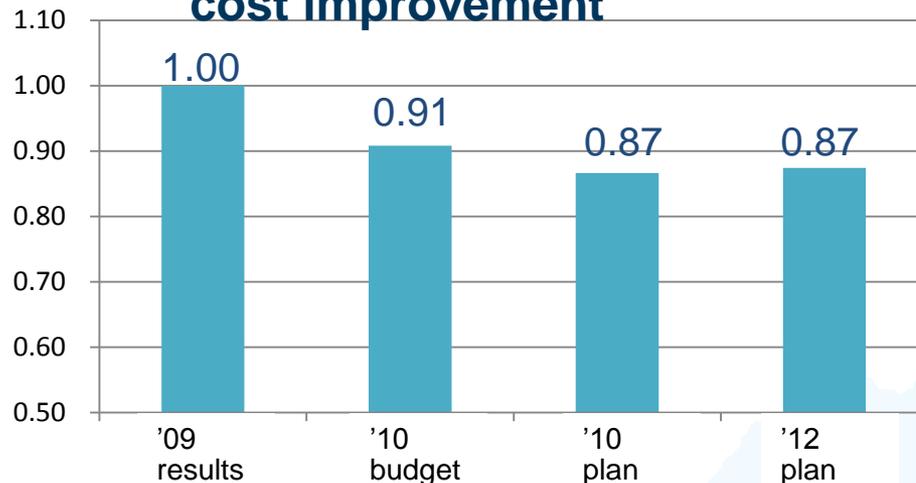
'09 results=1.00

## CBNC cost improvement



- (1) 24 kt/year system  
Installation of deep cone thickener
- (2) Promotion of cost reduction  
Reduction of major operational costs

## Niihama Nickel Refinery cost improvement



- (1) Study 65 kt/year system  
Process, sales and product planning
- (2) Promotion of cost reduction  
Reduction of major operational costs  
Reduction of proportional cost of SX process

# 3) Smelting & Refining – (2) Ni <5>Progress on Taganito Project (1)

**Launch of construction of world's most advanced HPAL plant based on CBNC results**

- ◆ Perform treatment test on Taganito ore at CBNC and improve precision of process/equipment design
- ◆ Enlist help of NAC, which is knowledgeable of the local area, to obtain necessary permits like environmental permits and PEZA registration



Before project launch (2008)

Leveling of plant site (Sep 2010)

### 3) Smelting & Refining – (2) Ni <5>Progress on Taganito Project (2)

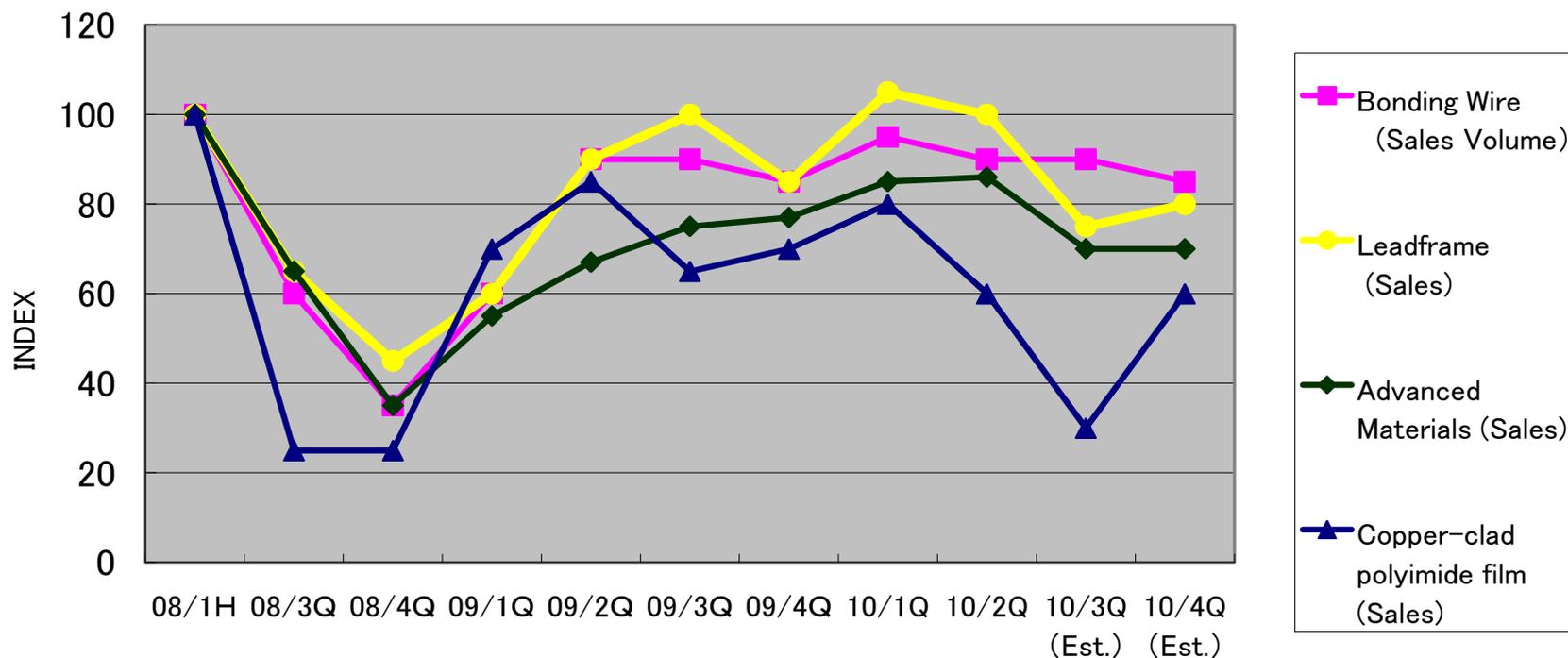
- ◆ Production capacity: Ni 30kt/year; Co 2.6 kt/year
- ◆ Investment amount: US\$1.3bn
- ◆ Investment ratio: SMM (62.5%), NAC (22.5%), Mitsui & Co. (15%)
- ◆ Project operating life: 30 yrs
- ◆ Sep 2009: Announcement of project
- ◆ Mar 2010: Launch of construction
- ◆ 2013: Completion of construction
- ◆ Test operations
- ◆ Commercial production



Port construction (Sep 2010)

# 4) Materials – (1) Sales trends

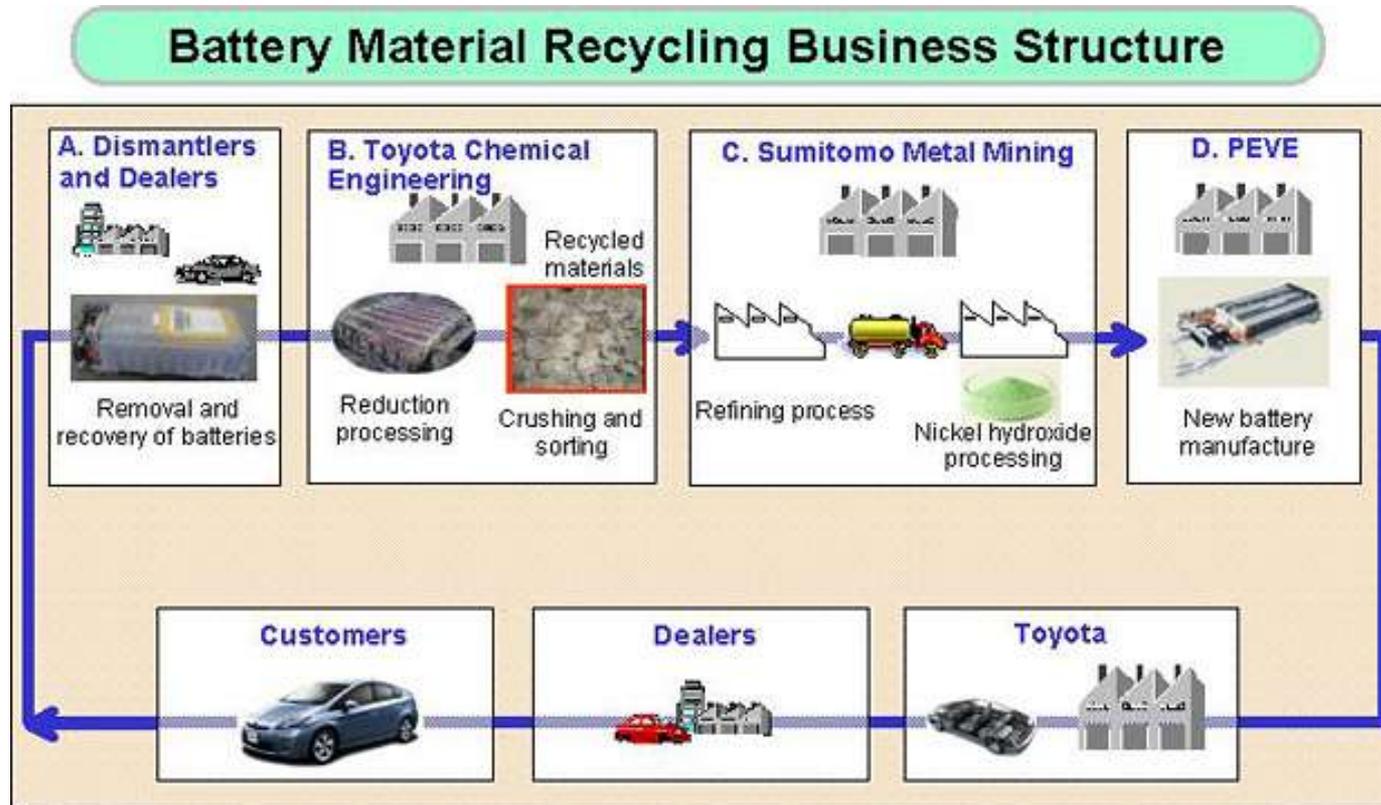
Slowdown is forecast for 3Q 2010, but strategy is progressing steadily



08/1H=100

## 4) Materials – (2) Batteries <1> Utilization of supply chain

### [Launch of battery to battery system]

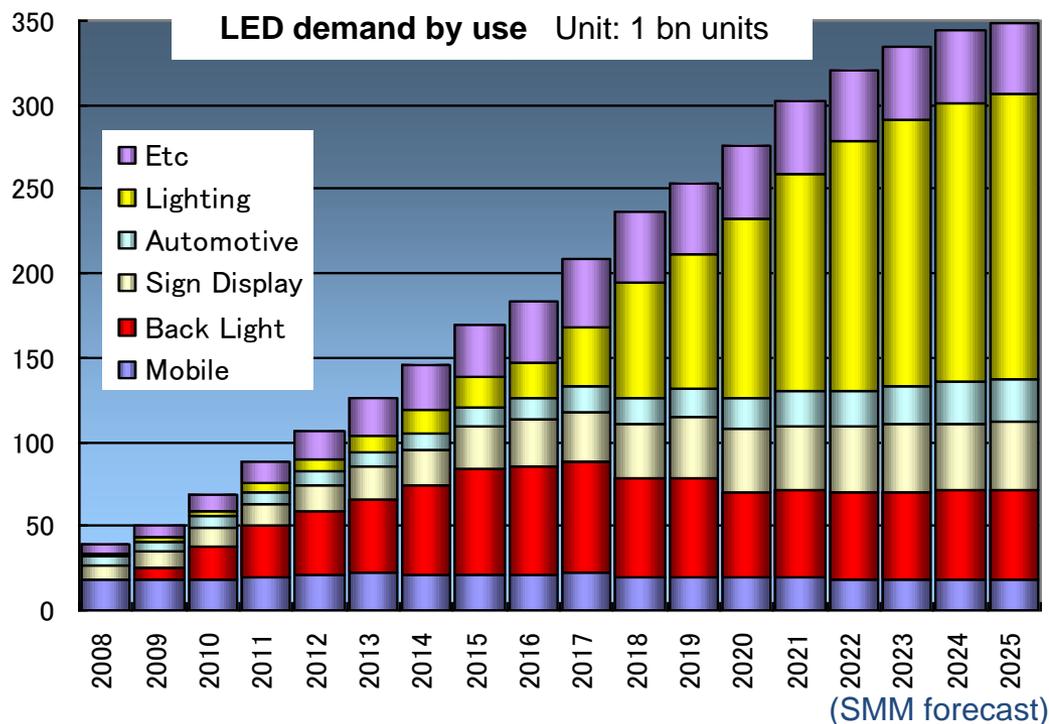


**[Establishment of new SMM Battery Research Laboratory]**  
Respond quickly and accurately to customer needs and strengthen basic technology related to battery materials



# 4) Materials – (3) LED sapphire substrates

[Demand forecast for LED sapphire substrates]



-Demand for white LEDs has grown rapidly for large LCD backlights

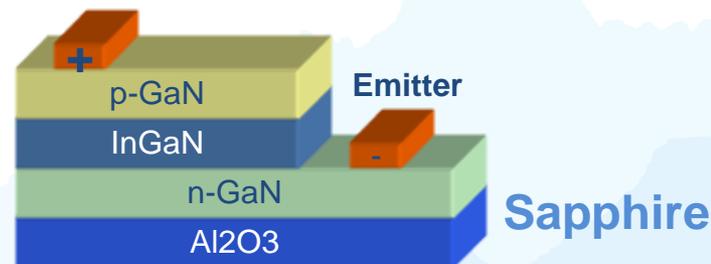
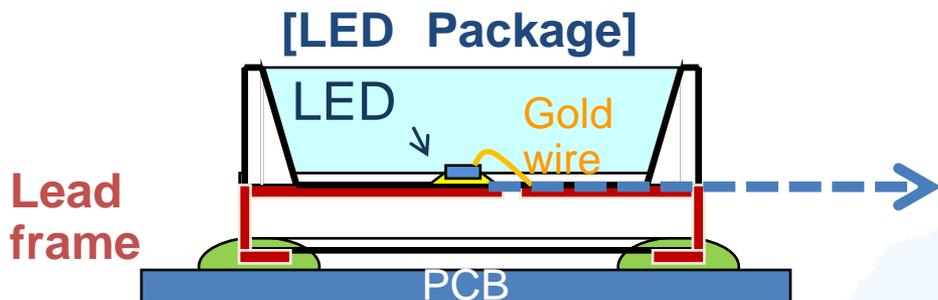
-Demand will grow even more for use in general lighting equipment

Cost reduction is essential for enlargement of LCD substrates usages



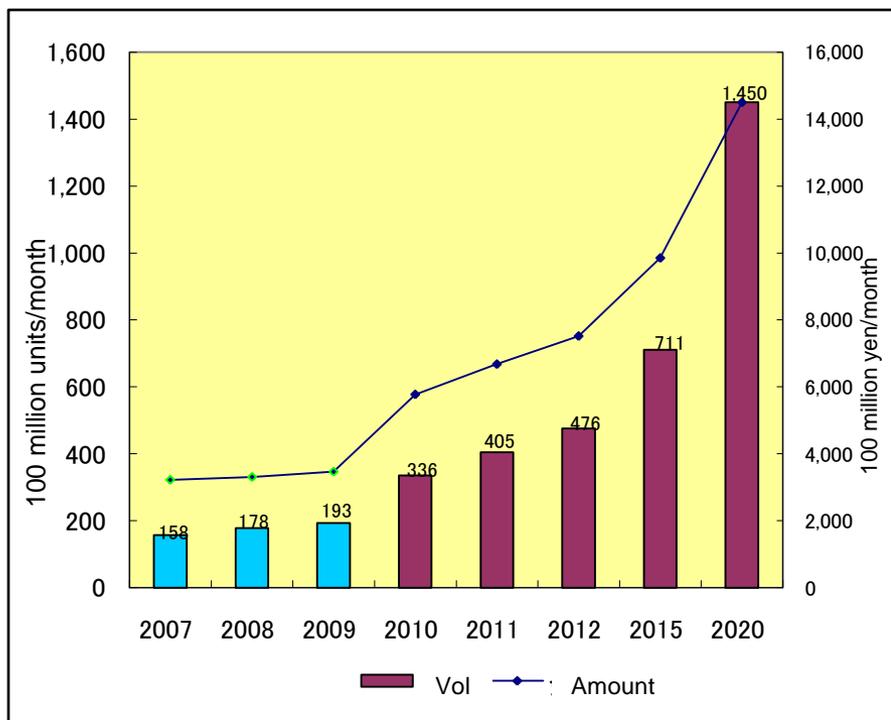
**Launch of mass production is planned**

Aim for No. 1 in cost through integrated production of large sapphire substrates



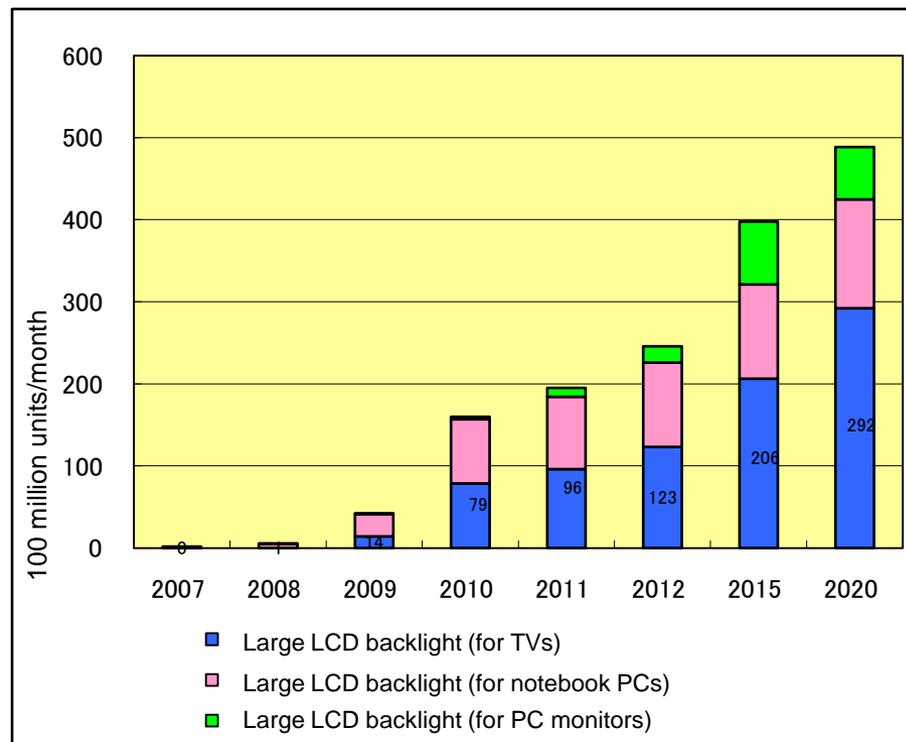
# 4) Materials – (4) Strengthening of foundation for semiconductor materials: LF for LEDs

## Growth of white LED market



For white LED in 2010: 33.6billion units  
 ⇒ in 2015: 71.1 billion units (double)

## Large LCD backlight market (W/W)



For TVs in 2010: 7.9 billion units  
 ⇒ in 2015: 20.6 billion units (2.6 times more)

**Environment/energy field: Completion of LED lead frame development  
 Commercialization in FY 2010**

# 5) Further strengthening of management foundation – Human resource development

## ▼SMM Strategy Planning Center (completed in September 2010)



Base for development of human resources that will be responsible for strategic planning and execution

## ▼“Hoshigoe-kan” human resource development center (completed in April 2010)



## ▼“Oji-kan” human resource development center Virtual danger /equipment technology (completed in October 2009)



# IV. Financial Highlights



**Pogo Gold Mine**

# 1) Trends of financial summary

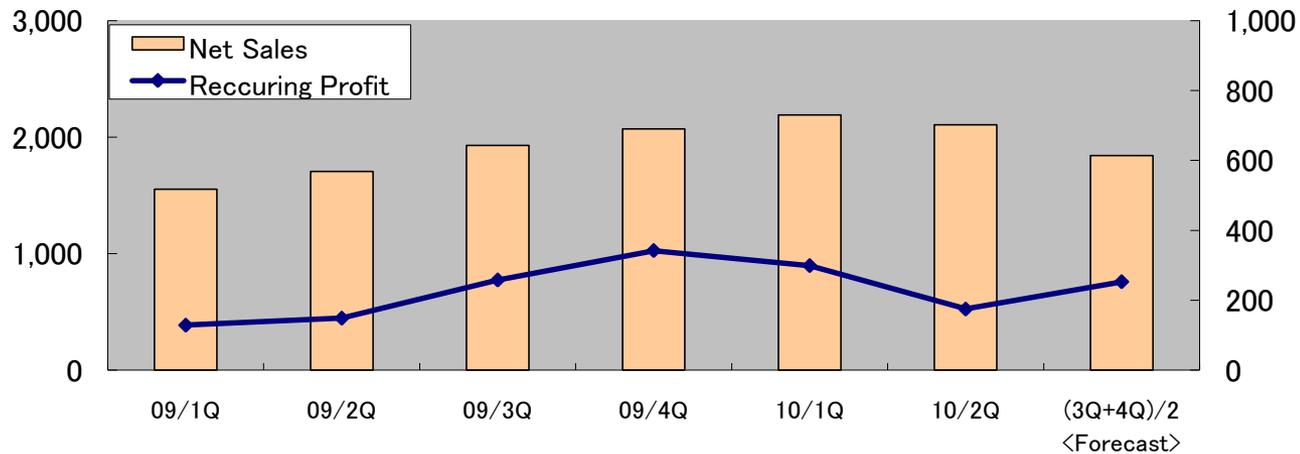
JPY100M

	2005	2006	2007	2008	2009	2010 Forecast	09 3-Yr 2012
Net Sales	6,256	9,668	11,324	7,938	7,258	7,980	7,800
Operating Income	828	1,626	1,554	105	663	830	850
Recurring Profit	997	2,053	2,179	326	878	980	1,100
Equity Method profit	219	467	740	315	261	240	300
Net Income	628	1,261	1,378	220	540	690	700
ROA(%)	9.3	14.8	13.6	2.2	5.8	N/A	6
ROE(%)	19.1	29.0	25.4	4.0	9.9	N/A	10
Dividend Per Share(¥)	14.0	27.0	30.0	13.0	20.0	24.0	N/A
Copper (\$/T)	4,097	6,970	7,584	5,864	6,101	7,568	6,000
Nickel (\$/lb)	6.6	14	15.5	7.5	7.7	10.0	8.0
Gold (\$/Toz)	477	629	766	867	1,023	1,256	1,000
Zinc (\$/T)	1,614	3,579	2,986	1,560	1,934	2,110	2,000
Forex (¥/\$)	113.3	117.0	114.4	100.7	92.9	84.5	90.0

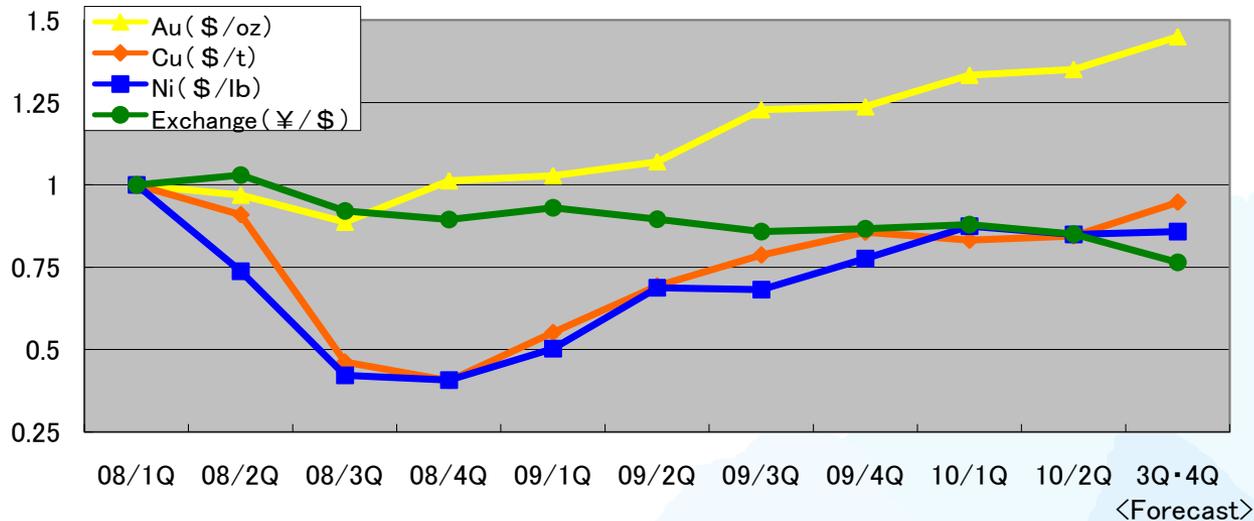
# 2) FY2010 financial results

Net Sales (JPY100M)

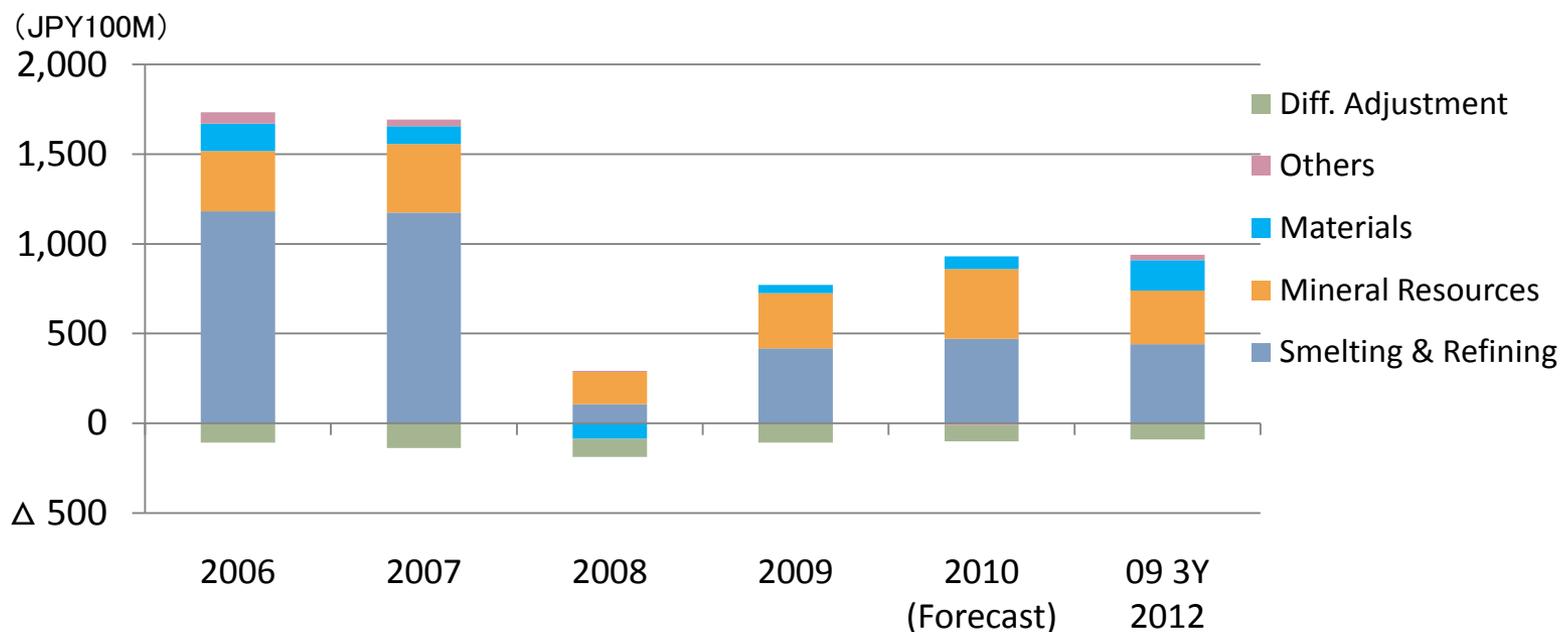
Recurring Profit (JPY100M)



Metal Price / Exchange Rate (INDEX:08/1Q=1.0)



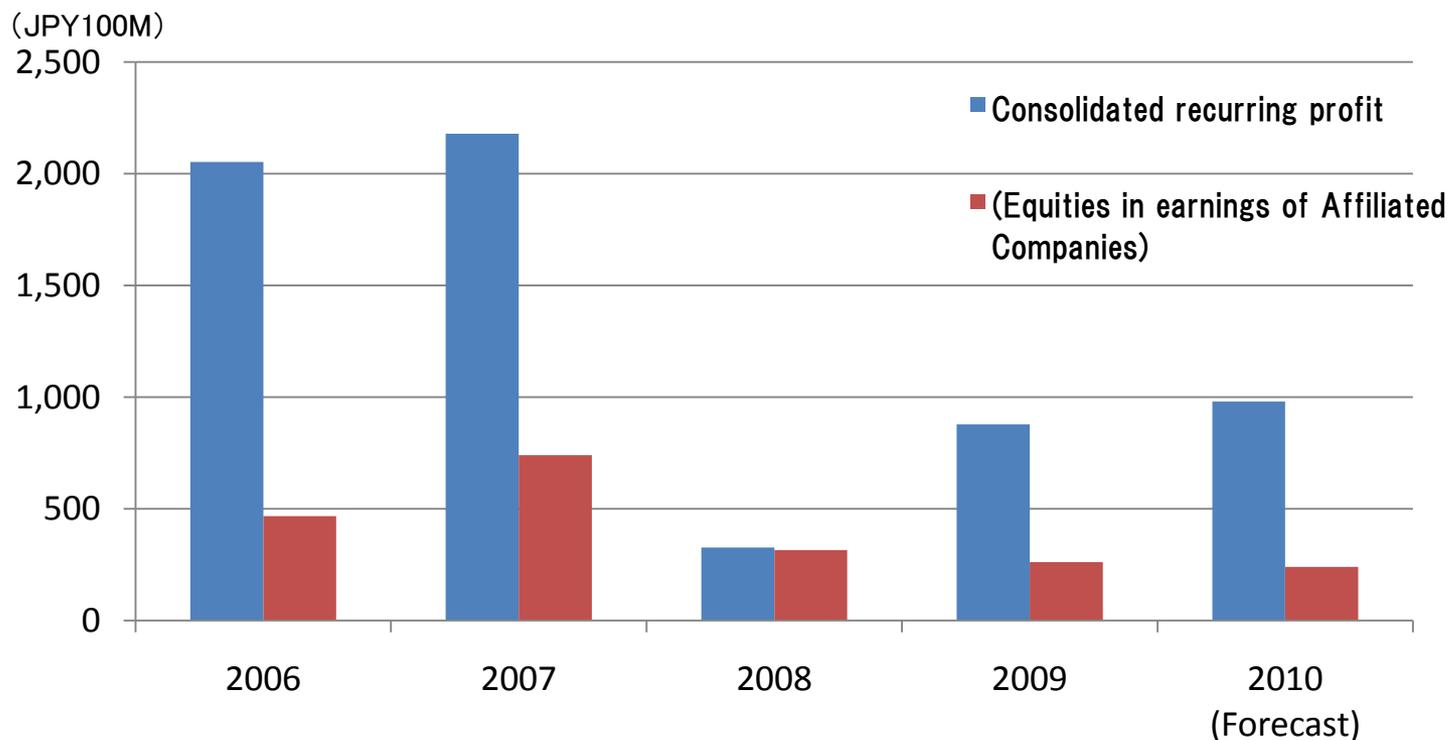
# 3) Operating income by segment



(JPY100M)

	2006	2007	2008	2009	10/1H Result	10/2H Forecast	FY10 Forecast	09 3-Yr 2012
Mineral Resources	337	383	179	309	221	169	390	290
Smelting & Refining	1,181	1,174	107	417	218	252	470	470
Materials	152	98	△ 87	45	63	7	70	160
Others	63	37	6	△ 1	△ 3	△ 7	△ 10	20
Sub-Total	1,733	1,692	205	770	499	421	920	940
Diff. Adjustment	△ 107	△ 138	△ 100	△ 107	△ 48	△ 42	△ 90	△ 90
Total	1,626	1,554	105	663	451	379	830	850

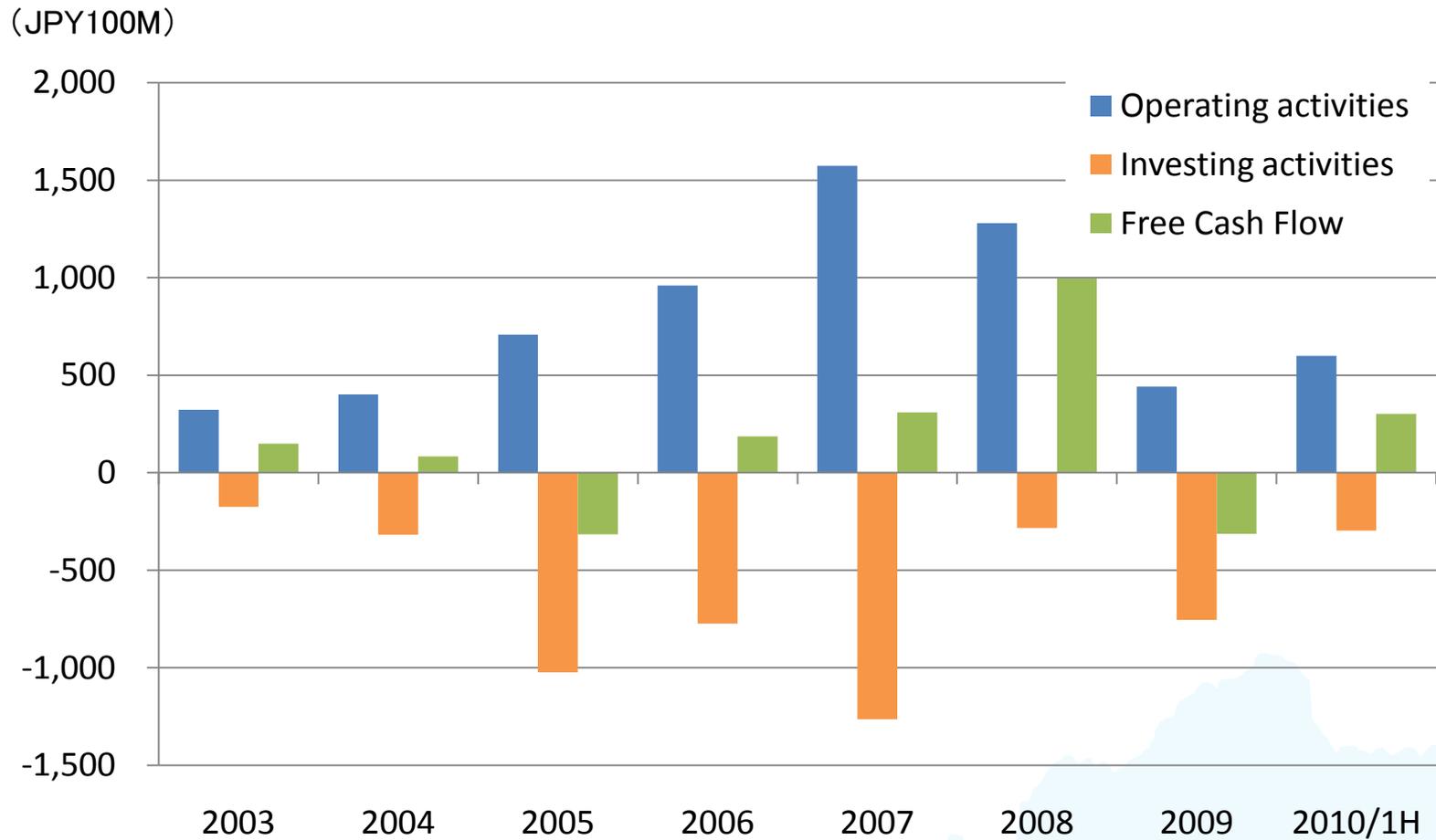
# 4) Earnings from Equity in Affiliated Companies



(JPY100M)

	2006	2007	2008	2009	10/1H Result	10/2H Forecast	FY2010 Forecast
Consolidated recurring profit	2,053	2,179	326	878	474	556	980
(Equities in earnings of Affiliated Companies)	467	740	315	261	78	162	240

# 5) Sound financial Position: FCF



# 6) Sensitivity

JPY 100M Per Year

	Fluctuation	"FY2010 Profit up/down" Forecast in Nov.	"FY2010 Profit up/down" Forecast in May
Cu	±100 \$/t	4/10	5/11
Ni	±10 ¢/lb	7/9	8/10
Au	±10 \$/Toz	4/4	5/5
¥/\$	±1 ¥/\$	9/9	9/9

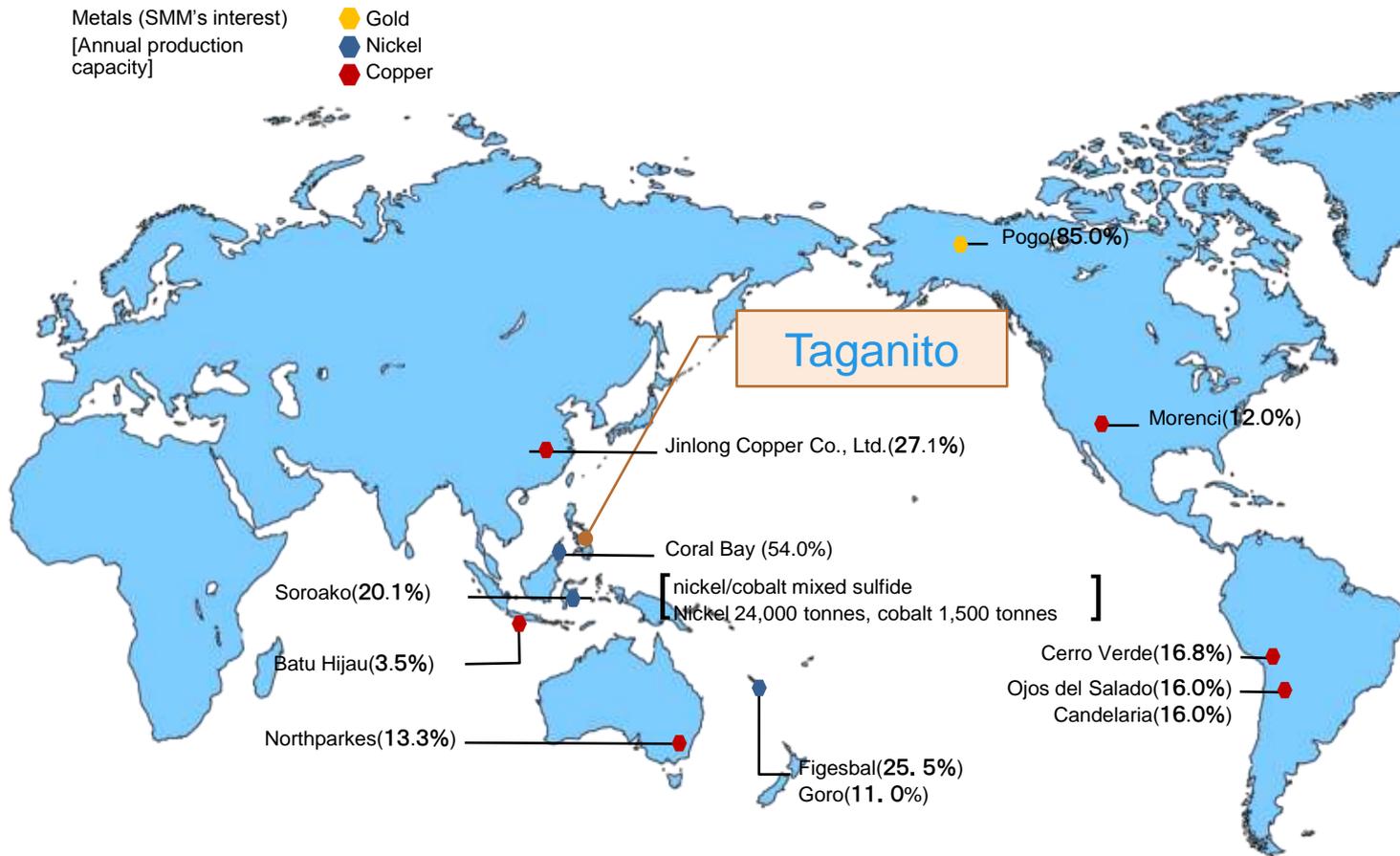
(Remarks)

**Operating income/Recurring profit**

USD/JPY translation applied to RC-related only.

(Overseas profit effects excluded).

# 7)SMM's overseas mines / Refinery



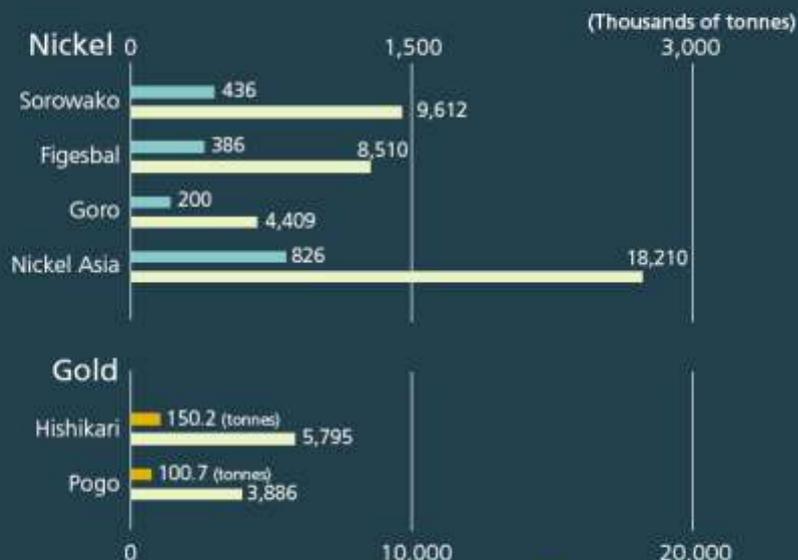
# 8) SMM's overseas mines

## By Mine



SMM share of reserves (top) ■  
 Estimated Value (bottom) ■

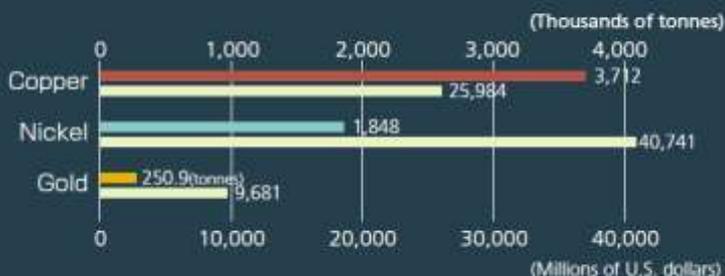
SMM share of reserves (end-Dec. '09)



SMM share of reserves (top) ■ Nickel ■ Gold  
 Estimated Value (bottom) ■

## By Metal

SMM share of reserves (end-Dec. '09)



SMM share of reserves (top) ■ ■ ■ Estimated Value (bottom) ■

- Notes:
1. Based on SMM equity interests
  2. SMM share of reserves = reserves x SMM equity interest in mine (%)
  3. Estimated value = SMM share of reserves x standard metal price
  4. Standard metal price = average price in Apr–Jun 2010  
 (Copper: US\$7,000/tonne; Nickel: US\$10/lb; Gold: US\$1,200/toz)

# Glossary

## 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 60% 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 75-80% 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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