2012 3-Year Business Plan

Aiming to be a World Leader in the Non-Ferrous Metal industry and an Excellent Company of Japan

February 2013

SUMITOMO METAL MINING CO., LTD.

Nobumasa Kemori
President and Representative Director

SUMITOMO METAL MINING CO., LTD.
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III  Core Business Growth Strategy

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I. Long-Term Vision (LTV) & Basic Strategy of 12 3-Yr Business Plan

Sierra Gorda Project
1) Our Goals

Our Goals

World Leader in the Non-Ferrous Metals industry

Excellent Company of Japan
2) Long-Term Vision Targets

Aiming to be a World Leader in the Non-Ferrous Metals Industry & an Excellent Company of Japan

Targets

World Leader in the Non-Ferrous Metals Industry

FY 2021

- Nickel 150kt
- Copper interests 300kt
- Gold 30 t
- New materials
  - Recurring profit ¥5 billion

Excellent Company of Japan

- Net Sales ¥1 trillion
- Net Income ¥100 billion

SUMITOMO METAL MINING CO., LTD.
3) Long-Term Vision Targets
World Leader in the Non-Ferrous Metals

World Leader in the Non-Ferrous Metals Industry

We are contributing to society by securing superior mineral resources, smelting and refining those resources into metal, and supplying them to the market. To provide added value in Materials Business that uses non-ferrous metals.

- Operates its own mines and smelters both in Japan and abroad
- Among the top 5 companies in the world in production volume

Mineral Resources
- Expand our resource interests
- Pursue our own profit in mining business
- Stable procurement of raw materials for Smelting & Refining Business

Smelting & Refining
- Develop globally by being highly competitive
- Smelting technologies of less environmental impact
- Expanded recycling of valuable metals

Materials
- Growth in the Environment & Energy domain
- Development of new materials
- Continuous structural reform
Excellent Company of Japan

A solid corporate philosophy and management vision

Practicing corporate governance and CSR activities as a pillar of our business

Net sales: ¥1 trillion
Net income: ¥100 billion

Lays out continuous growth strategy
5) Strengths Supporting Strategy

Growing business and improving corporate value through the execution of a continuous growth strategy

Strategies that build on strengths

- Mineral Resources
  Capability of Exploration and project development cultivated over a long history in the world

- Smelting & Refining
  Outstanding pyrometallurgical and hydrometallurgical technologies

- Materials
  Using strengths of upstream fields in the Environment & Energy domain

- Capacity to expand business globally
- Sound financial position
- Technology and R&D expertise
6) Positioning of the 12 3-Yr Business Plan

Long-Term Vision

FY2013-2015
12 3-Yr Business Plan

FY2010-2012
09 3-Yr Business Plan

FY2004-2009
03 & 06 3-Yr
Business Plans

Become a World Leader in the Non-Ferrous Metals Industry & an Excellent Company of Japan

Execute a continuous growth strategy

Strengthen global competitiveness

Strengthen Platform for global competition
7) Key Strategies of the 12 3-Yr Business Plan

Top priorities in the 12 3-Yr Business Plan

- Promote and establish operations in the Sierra Gorda Project
- Complete the Taganito Project and ensure a smooth launch of operations
- Implement structural reforms in the Materials Business and stable acquisition of own profit
- Reduce costs by ¥10 billion/year

(Cut costs company-wide to compensate for increases in the costs of overseas locations and head office expenses)

Strategies for achieving our Long-Term Vision

Planting plans for the period covered in the 12 3-Yr Business Plan

- Existing copper mine expansion project
- Sierra Gorda Phase 2, Oxide Ore Project
- HPAL development, efforts to improve competitiveness
- Recycling of valuable metals
- 3rd and 4th HPAL, 2nd Ni Refinery
- New Ni resources exploration

Sowing plans for the period covered in the 15 3-Yr Business Plan

- Own Cu/Au exploration
- Copper mine development projects in North and South America
- Au (Stone Boy, etc.) projects
Every period of 3-year plan includes large-scale projects in our three core businesses: Mineral Resources, Smelting & Refining, and Materials. Vigorous developments are being made in each stage: Sowing, Planting, Nurturing, and Harvesting.
9) Profit Trends (1)

Trends of Recurring profit in each 3-Year plan

<table>
<thead>
<tr>
<th>Year</th>
<th>03 3-Year Average</th>
<th>06 3-Year Average</th>
<th>09 3-Year Average</th>
<th>12 3-Year 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>(JPY100M)</td>
<td>1,199</td>
<td>1,129</td>
<td>1,092</td>
<td>1,500</td>
</tr>
</tbody>
</table>

Total of Recurring profit in each 3-Year Plan (Result and 2012 Forecast)

<table>
<thead>
<tr>
<th></th>
<th>03 3-Year Plan</th>
<th>06 3-Year Plan</th>
<th>09 3-Year Plan</th>
<th>12 3-Year Plan 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,597</td>
<td>3,386</td>
<td>3,276</td>
<td></td>
<td>-</td>
</tr>
</tbody>
</table>

Yearly average of each 3-Year plan

<table>
<thead>
<tr>
<th></th>
<th>1,199</th>
<th>1,129</th>
<th>1,092</th>
<th>1,500</th>
</tr>
</thead>
</table>
### 9) Profit Trends (2)

#### LTV & Basic Strategy of 12 3-Yr Business Plan

#### Recurring Profit vs. Net Profit

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurring profit (¥100 million)</td>
<td>1,100</td>
<td>1,238</td>
<td>1,088</td>
<td>950</td>
<td>1,500</td>
</tr>
<tr>
<td>Net income (¥100 million)</td>
<td>700</td>
<td>841</td>
<td>653</td>
<td>730</td>
<td>1,000</td>
</tr>
<tr>
<td>Cu price ($/T)</td>
<td>6,000</td>
<td>8,140</td>
<td>8,485</td>
<td>7,873</td>
<td>7,500</td>
</tr>
<tr>
<td>Ni price ($/lb)</td>
<td>8.0</td>
<td>10.7</td>
<td>9.6</td>
<td>7.7</td>
<td>9.0</td>
</tr>
<tr>
<td>Au price ($/toz)</td>
<td>1,000</td>
<td>1,294</td>
<td>1,646</td>
<td>1,658</td>
<td>1,550</td>
</tr>
<tr>
<td>Forex (¥/$)</td>
<td>90.0</td>
<td>85.7</td>
<td>79.1</td>
<td>81.3</td>
<td>80.0</td>
</tr>
</tbody>
</table>
10) Recurring Profit Analysis
12 3-Yr Plan 2015 vs. FY12 Forecast

- **Strategy effects**: +400
- **Materials business (excluding cost cuts)**: +80
- **Cost reduction**: +100
- **VNC**: +100
- **Ni price**: +50
- **Cu price**: +50
- **Au price**: +30
- **Forex**: +30
- **Others**: +70

- **Sierra Gorda**: +60
- **Morenci**: +100
- **Taganito / Increased production of E-Ni**: +230

2012 Forecast: ¥950 million
12 3-Year 2015: ¥1,500 million

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11) Profit Trends by Segment

**Forecast**

<table>
<thead>
<tr>
<th>Segment Profit</th>
<th>2010</th>
<th>2011</th>
<th>2012 Forecast</th>
<th>12 3-Yr Plan 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resources</td>
<td>705</td>
<td>805</td>
<td>640</td>
<td>760</td>
</tr>
<tr>
<td>Smelting &amp; Refining</td>
<td>495</td>
<td>256</td>
<td>230</td>
<td>640</td>
</tr>
<tr>
<td>Materials</td>
<td>54</td>
<td>-3</td>
<td>30</td>
<td>120</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td>34</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Adjustment</td>
<td>-39</td>
<td>-5</td>
<td>30</td>
<td>-60</td>
</tr>
<tr>
<td>Recurring profit</td>
<td>1,238</td>
<td>1,088</td>
<td>950</td>
<td>1,500</td>
</tr>
</tbody>
</table>

(Unit: ¥100 million)

※FY2010-FY2012: Contribution Margin (Earlier Bases)  12 3-Yr 2015: New Segment Profit
12) Investments in Large Projects

### 06 3-Yr Plan
- Mineral Resources: ¥138 billion
- Smelting & Refining (Taganito): 60
- Smelting & Refining (Japan, etc.): 300
- Materials: 70
- Other: 370
- Acquisitions of overseas interest: ¥100 million
  - Pogo: 200
  - Goro: 180
  - NAC: 60
  - Total: 440

### 09 3-Yr Plan
- Mineral Resources: ¥193 billion
- Smelting & Refining (Taganito): 90
- Smelting & Refining (Japan, etc.): 290
- Materials: 100
- Other: 390
- Acquisitions of overseas interest: ¥100 million
  - Sierra Gorda: 410
  - Goro: 40
  - NAC: 15
  - Total: 465

### 12 3-Yr Plan
- Mineral Resources: ¥170 billion
- Smelting & Refining (Taganito): 140
- Smelting & Refining (Japan, etc.): 260
- Materials: 110
- Other: 480
- Acquisitions of overseas interest: ¥100 million
  - Sierra Gorda: 350
  - Goro: 360
  - NAC: 140
  - Total: 965
13) R&D Expenses, Exploration Expenses

R&D
- Acceleration of new product development in Materials Business
- Technological innovations in Mineral Resources and Smelting & Refining
- Promotion of process development

Exploration
- Expand target area
- Acquisition of advance-stage exploration projects

<table>
<thead>
<tr>
<th>Year</th>
<th>R&amp;D Expenses</th>
<th>Exploration Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 3-Yr Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09 3-Yr Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 3-Yr Plan</td>
<td>200</td>
<td>240</td>
</tr>
</tbody>
</table>
14) Financial Strategies
(1) Maintenance of a Sound Financial Structure

- Equity ratio: 61%
- D/E ratio: 0.35
- ROE: 12%

Graph showing financial metrics over time:
- Total assets
- Interest-bearing debt
- Shareholder's equity
- Equity ratio
- Debt-to-equity ratio
- ROE

Forecast for 2012 and 2015.
14) Financial Strategies
(2) Dividend Policy and Financial Structure

Dividend policy
- Continue performance linked dividend
- Profit Return
  Consolidated dividend payout ratio raised from
  20% or higher ⇒ 25% or higher

Financial structure
- Keep sufficient cash on hand
- Prepare for large-scale projects
- Maintain an equity ratio of 50% or higher
II. Business Environment

Celebration of Hishikari Mine 30th Anniversary and total production of 200 tons
1) General Conditions - Global GDP Growth

(IMF Oct. 2012 forecast)
2) Prices of Metals

Index: Jan. 1973 = 1.00

- Au
- Cu
- Ni
3) Long-Term Forecast (Cu)

Trending from a slightly excess supply to a supply-demand balance

- Total Refined Cu Production
- Refined Cu Consumption

(SMM forecast)
Currently there is excess supply, but a supply shortage is forecast for the future.
5) Forex Trends
III. Core Business Growth Strategy

Taganito Project
1) Mineral Resources

(1) Roadmap Ahead for Cu, Ni, Au

- **Cu**
  - New mines: 300,000 t
  - Existing mines (include Sierra Gorda): 300,000 t

- **Ni**
  - New: 150,000 t
  - Existing Capacity: 150,000 t

- **Au**
  - New mines: 30 t
  - Existing mines: 30 t
### 1) Mineral Resources

#### (2) Three Methods of Overseas Resource Acquisition

<table>
<thead>
<tr>
<th>Method</th>
<th>Project Details</th>
</tr>
</thead>
</table>
| **1) Exploration by SMM**                                            | • Majority acquisition is possible  
• Considerable time needed before mining can start |
|                                                                      | - Stone Boy Project (Au) Evaluation stage  
- Solomon Project (Ni) F/S development |
| **2) Participation in mine development projects**                    | • Operable in a relatively short period  
• Difficult to acquire a majority share  
• Risks of competition with other companies, increased expenses |
|                                                                      | - Sierra Gorda Project (Cu)  
  Established in 2014/Moving to next phase  
  Investigating introduction of new projects  
  Also actively evaluating proposals prior to F/S |
| **3) Increasing production at existing mines**                       | • Pursue a win-win situation with our partners  
• There are not many project for large-scale production increases  
• Difficult to increase SMM’s share of interests |
|                                                                      | (Cu mines)  
- Morenci Full production sch. for 2014Q3  
- Cerro Verde Full production sch. for end of 2015  
- Northparkes Pre/FS implementation scheduled |
1) Mineral Resources

(3) Participation in Development Projects - Sierra Gorda Project -Cu

SUMITOMO METAL MINING CO., LTD.

Ⅲ Core Business Growth Strategy

**Sierra Gorda**

**Antofagasta**

**Santiago**

### Phase 1 (110kt annual production capacity):
- Promote construction work for business launch

### Phase 2 (220kt annual production capacity):
- Start construction
- Evaluate Oxide Ore Project, make decision about participation
- Oxide Ore Project operations to begin (annual production of 30kt to 40kt with SX-EW)
- Operating with 220kt tons in annual production (Concentrate, Cu equivalent)

#### Investment for Phase 1:
- $2.9B

#### Equity interest ratios:
- KGHM 55%
- SMM 31.5%
- Sumitomo Corp. 13.5%

**2013**
- Production begins, Phase 1 ramp up

**2014**
- Phase 1 (110kt annual production capacity):
  - Promote construction work for business launch

**2015**
- Phase 2 (220kt annual production capacity):
  - Start construction
  - Evaluate Oxide Ore Project, make decision about participation

**2018**
- Oxide Ore Project operations to begin (annual production of 30kt to 40kt with SX-EW)
- Operating with 220kt tons in annual production (Concentrate, Cu equivalent)
### 1) Mineral Resources

#### (3) Participation in Development Projects - Sierra Gorda Project - Cu

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch operation with a 110kt capacity</td>
<td>Construction work</td>
<td></td>
<td>Launch, Operations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Launch operation with a 220kt capacity</td>
<td></td>
<td></td>
<td>Detail engineering, Construction</td>
<td></td>
<td>Launch, operations</td>
<td></td>
</tr>
<tr>
<td>Oxide Ore Project</td>
<td></td>
<td></td>
<td></td>
<td>FS evaluation</td>
<td>Detail engineering, Construction</td>
<td></td>
</tr>
</tbody>
</table>

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**Phase 2**

- Operations begin: 2017
- Investment: $850M
- Metal production volumes: Cu 220kt/year, Mo 8kt/year

**Oxide Ore Project**

- Operations begin: Early 2018; 10 years of operation
- Complete FS, decide on participation in 2015
- Investment: $700M
- Reserves (Ore volume): 146 million t
- Metal production volumes: Cu 30-40kt/year

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SUMITOMO METAL MINING CO., LTD.
Situation for acquiring new projects

- Decreasing the number of large-scale projects
- Increasing the number of projects located in remote areas and in high altitude
- Decline Cu ore grade
- Initial investment, operating cost increases

- Expand target areas of our projects
- Partnerships with overseas partners and external organizations
- Aggressive study of early stage projects
1) Mineral Resources
(5) Increasing Production at Existing Mines - Morenci -Cu

Morenci Mine Expansion Project (U.S)

<table>
<thead>
<tr>
<th>Equity interest ratios</th>
<th>FCX 85%</th>
<th>SMM 12%</th>
<th>Sumitomo Corp. 3%</th>
<th>Total investment $1.7B</th>
</tr>
</thead>
</table>

Upgrade Plan

<table>
<thead>
<tr>
<th></th>
<th>Current Status</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining output</td>
<td>635kt/day</td>
<td>815kt/day</td>
</tr>
<tr>
<td>Concentration Capacity</td>
<td>50kt/day</td>
<td>115kt/day</td>
</tr>
<tr>
<td>Production volume of copper</td>
<td>280kt/year</td>
<td>400kt/year</td>
</tr>
</tbody>
</table>

Schedule

- 2014 Q2 Complete construction
- 2014 Q3 Full Production
1) Mineral Resources
(5) Increasing Production at Existing Mines - Cerro Verde -Cu

Cerro Verde Mine Expansion Project (Peru)

<table>
<thead>
<tr>
<th>Equity interest ratios</th>
<th>FCX 53.56%</th>
<th>SMM 16.80%</th>
<th>Sumitomo Corp. 4.20%</th>
<th>Other 25.44%</th>
<th>Total investment $4.4B</th>
</tr>
</thead>
</table>

Upgrade Plan

<table>
<thead>
<tr>
<th></th>
<th>Current Status</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining output</td>
<td>320kt/day</td>
<td>850kt/day</td>
</tr>
<tr>
<td>Concentration Capacity</td>
<td>120kt/day</td>
<td>360kt/day</td>
</tr>
<tr>
<td>Production volume of copper</td>
<td>300kt/year</td>
<td>500kt/year</td>
</tr>
</tbody>
</table>

SMM +34kt

Schedule

- 2013 Q2: Complete final planning (including financing)
- 2013: Start construction
- By the end of 2015: Full production
- Planned for 30 years of operation
1) Mineral Resources

(5) Increasing Production at Existing Mines - Northparkes -Cu

Northparkes Mine Expansion Project (Australia)

<table>
<thead>
<tr>
<th>Equity interest ratios</th>
<th>Rio Tinto 80.0%</th>
<th>SMM 13.3%</th>
<th>Sumitomo Corp. 6.7%</th>
</tr>
</thead>
</table>

Upgrade Plan

<table>
<thead>
<tr>
<th>Ore dressing capacity</th>
<th>Current Status</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.8Mt/year</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Production volume of copper</th>
<th>38kt/year</th>
<th>Investigating 30Mt/year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>150kt/year is under consideration</td>
</tr>
</tbody>
</table>

SMM +15kt

Step Change Project
Plan to expand the scale of production by developing the bottom of three existing ore bodies and one new ore body (development through block caving)

Schedule

- 2013 Complete pre-F/S
- 2016 Planned for full production to start
Hishikari Mine

Production volumes in the 12 3-Yr Plan

Total production volume for FY 2013-2015: 21 tons per three years

- Establishment of stable mining systems
- Planned production at of bonanzas (high grade zones)

Develop lower ore bodies

- Installed hot spring drawdown equipment at 80ML below sea level
- Mining scheduled to start in 2018
  Expected new Au: 30t

Continue active exploration

- Explore unexplored areas and undeveloped veins

Strengthen low-cost operating systems

- Deal with cost increases through deeper mining
  Face consolidation, loss reductions in ore preparation, energy-saving policies
Pogo Mine

Production volumes in the 12 3-Yr Business Plan

Maintenance of stable mined quantities and production quantities through efficiency improvements
- Continue mining from the Liese deposit as planned
- Improve the mill recovery rate

East Deep deposit development
- Resource: 40t of gold
- Schedule
  - 2013: Exploratory mining begins
  - 2014: Portal is constructed, Commercial mining begins

Cost-cutting efforts
- Deal with increasingly remote locations and lower grade resources

Continuation of exploration in surrounding area
1) Mineral Resources
(7) Exploration by SMM – Worldwide

Asia
- Alaska, US (Au)
- Yukon, Canada (Cu, Au)
- Philippines (Au)
- Solomon Islands (Ni)

North America
- Brazil (Cu, Au)
- Peru (Cu, Au)

South America
- Chile (Cu, Au)

Oceania
- Australia (Au)

Core Business
Growth Strategy
1) Mineral Resources
(7) Exploration by SMM - Stone Boy(Au) / Solomon (Ni)

**Stone Boy Project**

12 3-Yr Plan

- Conduct environmental surveys, pre-FS
- Start the final FS during the 3-Yr Plan period
- Implement permitting procedures

Move toward planting during the 15 3-Yr Plan

**Solomon Project**

12 3-Yr Plan

- Conduct environmental surveys, pre-FS
- Continue to conduct exploration surveys
- Apply for mining rights, make development preparations
1) Mineral Resources

(7) Promotion of Exploration by SMM - Exploration Costs

By stage:
- Exploration around existing mines
- New mine exploration

By metal:
- Au
- Ni
- Cu

By region:
- Asia
- Oceania
- South America
- North & Central America

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**Taganito Project**

- Implementation decided in 2009
- Start commercial production in Autumn 2013

Production starts with 30kt per year capacity → **36kt capacity in 2016** (20% increase in production)

**Investment amount**

$1.6B (up to the start of commercial production)
In 2016, reach MS production volume of 60k tons (Ni equivalent)

65kt capacity was completed at the end of FY12
2) Smelting & Refining
(3) Upgrade to 150kt capacity of Nickel

Process development for Second Ni Refinery
- Develop hydrometallurgical refining at the RHPC (Resource & Hydrometallurgy Process Center)

Projects to secure new mine resources
- Investigate projects in the Philippines and Indonesia
- Take measures with the Indonesian Mining Law (national level negotiations and the procurement of raw materials sources)

<table>
<thead>
<tr>
<th>Ni kt/year</th>
<th>2012</th>
<th>2013</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Ni</td>
<td>41</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Second Nickel Refinery</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fe-Ni</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>Other Ni chemical products</td>
<td>7</td>
<td>13</td>
<td>Balance</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>150</td>
</tr>
</tbody>
</table>

Ni kt/year

(All non-SMM figures are status of 2012)

Moving to join the top 5 in the world

Core Business Growth Strategy

SUMITOMO METAL MINING CO., LTD.
2) Smelting & Refining

(4) Expand the Ni Sulfate capacity

(Nickel sulfate volume)
(Ni sulfate production volume)

Expand production capacity for the growing battery materials sector

Harima’s Plant Operations

<table>
<thead>
<tr>
<th>Year</th>
<th>Operation Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Refining plant is completed, operations begin</td>
</tr>
<tr>
<td>2014</td>
<td>Stable operations of 20kt, prepare for increased production</td>
</tr>
<tr>
<td>2015</td>
<td>Achieve 25kt capacity, prepare for further production increases</td>
</tr>
</tbody>
</table>
2) Smelting & Refining
(5) Strengthen Competitiveness of Toyo Smelter & Refinery (Cu)

2015: Achieve electrolytic copper production of 450kt/year

- **Smelting**: Achieve stable operations through burner development, etc.
- **Electrolysis**: Achieve high-load operations while maintaining product quality

⇒ Secure electrolytic copper production volumes

Improve revenues through cost reductions
3) Materials

(1) Pursue Selection and Consolidation, Complete Business Structure Changes

Goals of the 12 3-Yr Business Plan

- Achieve profit goals by investing management resources in growth businesses
- Achieve sound results in our competitive, solid foundation businesses
- Pursue further R&D partnerships, bring new materials to market based on market needs

Core businesses

| Battery Materials | Crystals | Thick film Materials | Lead frames | Catalysts |

Profit trends in materials segment

- 2010
- 2011
- 2012 Forecast
- 12 3-Yr 2015

SUMITOMO METAL MINING CO., LTD.
3) Materials

(2) Expand the Battery Materials Business

Long-Term Vision for the Expansion of the Battery Materials Business

Increase our share of the worldwide xEV battery materials sector to 25% or higher

2012 3-Yr Plan strategy and measures

Respond to Toyota's xEV expansion strategy
- Maintain our top share of the market nickel hydroxide for HEV
- Take firm steps to adapt to the shift to lithium-ion battery materials

Promote for next-generation batteries (develop new markets)
- Make high performance batteries (capacity, output, durability)
- Grow our market share through cost reductions
- New high capacity materials

Propose new business models
- Respond to customer needs with a comprehensive business model that includes
  Raw Materials → Precursors → Cathode Materials → Recycling

Demand forecast for xEV

From survey company's B3 report
3) Materials

(3) Expand the Crystal Materials Business

Long-Term Vision

Sapphire substrates: Secure 30% of the LED lighting market

2012 3-Year Plan strategy and measures

Sapphire Substrates

• Achieve 400φ, 3-bar extraction technologies
• Improve cost competitiveness through manufacturing process improvements
• Acquire new customers
3) Materials

(4) Achieve Expected Effects in the Lead Frame Business Integration

Entry into the power semiconductor applications

- Synergistic effects of overseas business network
  - Expand sales of lead frames for power semiconductors using our overseas business network
- Synergistic effects in technology
  - SMM's precision processing technologies
  - Hitachi Cable's thicker material bending technologies
  - Work on new products

Vertical integration

- Improve competitiveness in materials development and procurement through capital investment in Hitachi Cable's copper products business

Structural reforms

- Make effective use of production equipment and facilities
- Construct efficient production systems

Total effect: ¥1 billion/year
4) R&D - Process and Equipment Development

Resource & Hydrometallurgy Process Center (RHPC) (Specializing in Ni meantime)

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
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</thead>
<tbody>
<tr>
<td>Process development for</td>
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<td></td>
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<tr>
<td>the Second Ni Plant</td>
<td></td>
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</tr>
<tr>
<td>RHPC Building</td>
<td><strong>construction</strong></td>
<td></td>
<td></td>
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<td>Pilot demo plant testing</td>
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<tr>
<td>MCLE technology</td>
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<tr>
<td>innovations</td>
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<td>Mid-scale testing</td>
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<tr>
<td>HPAL technology</td>
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<td>innovations</td>
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<tr>
<td>Mid-scale continuous</td>
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<td></td>
</tr>
<tr>
<td>process test</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Battery Research Laboratories

- Multifaceted involvement in vehicle batteries
- Cost reductions
- New product development, strengthening of proprietary technologies

Materials Research & Development Center

- Acceleration of new product development through consolidation of engineers
IV. Platform Reinforcement

Water quality measurements being taken around Coral Bay Nickel Corp.
1) Corporate Governance Structure

- **Decision-Making and Supervision**
  - General Meeting of Shareholders
  - Board of Directors (Chair: President)
  - Board of Corporate Auditors
  - Independent Public Accountant
  - Corporate Auditors participate in all meetings held by the president

- **Execution of Business**
  - President
  - Executive Officers
  - Management Committee (Chair: President)
  - Auditing Department (Headquarters)
  - CSR Committee
  - Internal Control Committee
  - Enterprise value Enhancement Committee

- **Social Responsibility**
  - Efficient Resource Utilization
    - Environmental Protection
    - Corporate Citizenship
    - Human Rights and Human Resources Development
    - Occupational Health & Safety
    - Communications

- **Business Execution**

**Improve corporate value**

**Maintain a balance with the Earth and society**
2) CSR Activities
(1) CSR Policies

1. SMM shall work to **combat global warming** by promoting recycling and effective resource utilization while also targeting technological innovation and continuous improvements in energy efficiency.

2. SMM shall promote **sustainable co-existence with society** by respecting the needs of local communities in which we operate around the world.

3. To continue sound business activities, SMM shall **respect human rights** and shall try to be a company in which **diverse human resources take active parts**.

4. According **safety the highest priority**, SMM shall provide safe, comfortable working environments and seek to eliminate occupational accidents.

5. SMM shall **strengthen communications with all stakeholders** to build healthy, trust-based relationships.
## 2) CSR Activities

### (2) Vision for 2020 in Six Key CSR Areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effective Use of Resources</strong></td>
<td>A company that generates resources using innovative technology</td>
</tr>
<tr>
<td><strong>Environmental Preservation</strong></td>
<td><strong>Reduced CO2 emissions (energy savings)</strong> and conservation of biodiversity</td>
</tr>
<tr>
<td><strong>Contribution to Society and Local Communities</strong></td>
<td>A company in which employees are proud to work along with the company on social contribution activities rooted in the area</td>
</tr>
<tr>
<td><strong>Respect for People and Human Rights</strong></td>
<td><strong>A company that respects human rights and diversity of employees, develops employees with high awareness of human rights, and gives equal opportunities depending on motivations to work and abilities of employees</strong></td>
</tr>
<tr>
<td></td>
<td><strong>A company that respects human rights of people who are affected by business activities of the SMM Group</strong></td>
</tr>
<tr>
<td></td>
<td><strong>A company that does not get involved in complicity with an entity that causes violations of human rights at areas with undeveloped social infrastructure and at troubled areas</strong></td>
</tr>
<tr>
<td><strong>Occupational Health &amp; Safety</strong></td>
<td>A company that accords safety the highest priority and provides comfortable working environments</td>
</tr>
<tr>
<td><strong>Stakeholder Communication</strong></td>
<td>A company that is open to communication with stakeholder groups worldwide</td>
</tr>
</tbody>
</table>
3) Safety & Health Initiatives

Vision for 2020

A company that accords safety the highest priority and provides comfortable working environments

2013 Target

<table>
<thead>
<tr>
<th>SMM Group</th>
<th>3 or fewer lost-time accidents, 10 or fewer total accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner Companies</td>
<td>2 or fewer lost-time accidents, 4 or fewer total accidents</td>
</tr>
</tbody>
</table>

Occupational Health & Safety

No. of SMM Group Accidents

- Total no. of accidents
- No. of lost-time accidents

SUMITOMO METAL MINING CO., LTD.
4) Human Rights and Human Resources Initiatives

<table>
<thead>
<tr>
<th>SMM Group human rights policies (key elements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Compliance with domestic laws and ordinances, as well as international standards in regards to human rights</td>
</tr>
<tr>
<td>2. No discrimination</td>
</tr>
<tr>
<td>3. Prevention of child labor and forced labor</td>
</tr>
<tr>
<td>4. Establishment of appropriate measures and procedures for responding to human rights problems if they should occur</td>
</tr>
<tr>
<td>5. Ongoing implementation of human rights awareness and outreach activities</td>
</tr>
</tbody>
</table>

- Development of new human rights training in response to globalization
- Survey of human rights initiatives in the supply chain
- Encouragement of a strong awareness of human rights among employees

<table>
<thead>
<tr>
<th>Human resources development initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>International employee development</td>
</tr>
<tr>
<td>Next-generation senior management development</td>
</tr>
<tr>
<td>Securing a diverse workforce and engaging work environments</td>
</tr>
</tbody>
</table>
Changes in our takeover defense measures

- Introduced at 2007 General Meeting of Shareholders (GMS), renewed at 2010 GMS
- A proposal for renewal is expected to be submitted at the 2013 GMS

No change in basic approach

Large scale acquisition that does not contribute to our corporate value or the common interest of the shareholders

Need to secure our corporate value and the common benefit of shareholders by taking necessary and reasonable measures

Minor revisions to takeover defense scheme to achieve improved transparency and clarity
The Old Besshi Copper Mine
(Kanki-ko/Kanto-ko Pits)
## 1) Performance Trends

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net sales (¥100 million)</td>
<td>9,668</td>
<td>11,324</td>
<td>7,938</td>
<td>7,258</td>
<td>8,641</td>
<td>8,479</td>
<td>7,790</td>
<td>9,100</td>
</tr>
<tr>
<td>Operating income (¥100 million)</td>
<td>1,627</td>
<td>1,555</td>
<td>107</td>
<td>663</td>
<td>962</td>
<td>886</td>
<td>800</td>
<td>1,200</td>
</tr>
<tr>
<td>Recurring profit (¥100 million)</td>
<td>2,054</td>
<td>2,179</td>
<td>328</td>
<td>879</td>
<td>1,238</td>
<td>1,088</td>
<td>950</td>
<td>1,500</td>
</tr>
<tr>
<td>Equity method profit (¥100 million)</td>
<td>467</td>
<td>740</td>
<td>315</td>
<td>261</td>
<td>348</td>
<td>232</td>
<td>160</td>
<td>360</td>
</tr>
<tr>
<td>Net income (¥100 million)</td>
<td>1,261</td>
<td>1,379</td>
<td>221</td>
<td>540</td>
<td>841</td>
<td>653</td>
<td>730</td>
<td>1,000</td>
</tr>
<tr>
<td>ROA (%)</td>
<td>14.8</td>
<td>13.6</td>
<td>2.2</td>
<td>5.8</td>
<td>8.3</td>
<td>5.9</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>ROE (%)</td>
<td>29.0</td>
<td>25.4</td>
<td>4.0</td>
<td>9.9</td>
<td>13.8</td>
<td>10.1</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Dividend per share (¥)</td>
<td>27.0</td>
<td>30.0</td>
<td>13.0</td>
<td>20.0</td>
<td>32.0</td>
<td>28.0</td>
<td>28.0</td>
<td>N/A</td>
</tr>
<tr>
<td>Copper ($/T)</td>
<td>6,970</td>
<td>7,584</td>
<td>5,864</td>
<td>6,101</td>
<td>8,140</td>
<td>8,485</td>
<td>7,873</td>
<td>7,500</td>
</tr>
<tr>
<td>Nickel ($/lb)</td>
<td>14.0</td>
<td>15.5</td>
<td>7.5</td>
<td>7.7</td>
<td>10.7</td>
<td>9.6</td>
<td>7.7</td>
<td>9.0</td>
</tr>
<tr>
<td>Gold ($/toz)</td>
<td>629</td>
<td>766</td>
<td>867</td>
<td>1,023</td>
<td>1,294</td>
<td>1,646</td>
<td>1,658</td>
<td>1,550</td>
</tr>
<tr>
<td>Zinc ($/T)</td>
<td>3,579</td>
<td>2,986</td>
<td>1,560</td>
<td>1,934</td>
<td>2,187</td>
<td>2,101</td>
<td>1,942</td>
<td>1,800</td>
</tr>
<tr>
<td>Forex (¥/$)</td>
<td>117.0</td>
<td>114.4</td>
<td>100.7</td>
<td>92.9</td>
<td>85.7</td>
<td>79.1</td>
<td>81.3</td>
<td>80.0</td>
</tr>
</tbody>
</table>
2) Operating Income by Segment

(¥100 million)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resources</td>
<td>338</td>
<td>384</td>
<td>181</td>
<td>309</td>
<td>432</td>
<td>528</td>
<td>470</td>
<td>540</td>
</tr>
<tr>
<td>Smelting &amp; Refining</td>
<td>1,181</td>
<td>1,174</td>
<td>107</td>
<td>417</td>
<td>569</td>
<td>480</td>
<td>370</td>
<td>640</td>
</tr>
<tr>
<td>Materials</td>
<td>152</td>
<td>98</td>
<td>-87</td>
<td>45</td>
<td>78</td>
<td>10</td>
<td>30</td>
<td>130</td>
</tr>
<tr>
<td>Other</td>
<td>63</td>
<td>37</td>
<td>6</td>
<td>-1</td>
<td>10</td>
<td>14</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Adjustment</td>
<td>-107</td>
<td>-138</td>
<td>-100</td>
<td>-107</td>
<td>-127</td>
<td>-146</td>
<td>-90</td>
<td>-120</td>
</tr>
<tr>
<td>Total</td>
<td>1,627</td>
<td>1,555</td>
<td>107</td>
<td>663</td>
<td>962</td>
<td>886</td>
<td>800</td>
<td>1,200</td>
</tr>
</tbody>
</table>
### 3) Segment Profit

#### Segment Profit (¥100 million)

<table>
<thead>
<tr>
<th>Segment</th>
<th>2010</th>
<th>2011</th>
<th>2012 Forecast</th>
<th>12 3-Yr 2015※</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mineral Resources</td>
<td>705</td>
<td>806</td>
<td>640</td>
<td>760</td>
</tr>
<tr>
<td>Smelting &amp; Refining</td>
<td>495</td>
<td>256</td>
<td>230</td>
<td>640</td>
</tr>
<tr>
<td>Materials</td>
<td>54</td>
<td>-3</td>
<td>30</td>
<td>120</td>
</tr>
<tr>
<td>Other</td>
<td>23</td>
<td>34</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Adjustment amount</td>
<td>-39</td>
<td>-5</td>
<td>30</td>
<td>-60</td>
</tr>
<tr>
<td>Recurring profit</td>
<td>1,238</td>
<td>1,088</td>
<td>950</td>
<td>1,500</td>
</tr>
</tbody>
</table>

※FY2010-FY2012: Contribution Margin (Earlier Bases) 12 3-Yr 2015: New Segment Profit
4) Recurring Profit / Equity Method Profit

<table>
<thead>
<tr>
<th>Year</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012 Forecast</th>
<th>12 3-Yr 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurring profit</td>
<td>2,054</td>
<td>2,179</td>
<td>328</td>
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<td>1,238</td>
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<td>261</td>
<td>348</td>
<td>232</td>
<td>160</td>
<td>360</td>
</tr>
</tbody>
</table>

(Unit: ¥100 million)
5) Cash Flow Trends

![Chart showing Cash Flow Trends for SUMITOMO METAL MINING CO., LTD. from 2004 to 2012, with forecasts for 2015. The chart displays operating cash flow (operating CF), investment cash flow (investment CF), and free cash flow (free CF).]
### Balance Sheet Projections

<table>
<thead>
<tr>
<th></th>
<th>End Mar. 2016 projection</th>
<th>2013 March Forecast</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets</td>
<td>5,900</td>
<td>5,190</td>
<td>710</td>
</tr>
<tr>
<td>Fixed assets</td>
<td>8,400</td>
<td>7,050</td>
<td>1,350</td>
</tr>
<tr>
<td>Total assets</td>
<td>14,300</td>
<td>12,240</td>
<td>2,060</td>
</tr>
<tr>
<td>Interest-bearing debt</td>
<td>3,100</td>
<td>3,170</td>
<td>-70</td>
</tr>
<tr>
<td>Other liabilities</td>
<td>1,500</td>
<td>1,390</td>
<td>110</td>
</tr>
<tr>
<td>Total liabilities</td>
<td>4,600</td>
<td>4,560</td>
<td>40</td>
</tr>
<tr>
<td>Total net assets</td>
<td>9,700</td>
<td>7,680</td>
<td>2,020</td>
</tr>
<tr>
<td>Total liabilities &amp; net assets</td>
<td>14,300</td>
<td>12,240</td>
<td>2,060</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(¥100 million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity ratio (%)</td>
<td>61%</td>
</tr>
<tr>
<td>D/E ratio</td>
<td>0.35</td>
</tr>
<tr>
<td>Equity</td>
<td>8,750</td>
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</table>

### Cash Flow Projection (3-Yr Plan)

<table>
<thead>
<tr>
<th></th>
<th>3-Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit before tax</td>
<td>2,400</td>
</tr>
<tr>
<td>Depreciation</td>
<td>1,100</td>
</tr>
<tr>
<td>Working capital</td>
<td>▲400</td>
</tr>
<tr>
<td>Equity method profit/loss</td>
<td>▲900</td>
</tr>
<tr>
<td>Equity method dividends</td>
<td>300</td>
</tr>
<tr>
<td>Operating cash flow</td>
<td>2,500</td>
</tr>
<tr>
<td>Investment activity cash flow</td>
<td>▲1,700</td>
</tr>
<tr>
<td>Financial activity cash flow</td>
<td>▲500</td>
</tr>
<tr>
<td>Net cash flow</td>
<td>300</td>
</tr>
</tbody>
</table>
7) Sensitivity Analysis

<table>
<thead>
<tr>
<th>Element</th>
<th>Degree of variation</th>
<th>FY15 Projection Operating income/Recurring profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu</td>
<td>±100$/t</td>
<td>7/17</td>
</tr>
<tr>
<td>Ni</td>
<td>±10¢/lb</td>
<td>12/14</td>
</tr>
<tr>
<td>Au</td>
<td>±10$/toz</td>
<td>4/4</td>
</tr>
<tr>
<td>¥/$</td>
<td>±1¥/$</td>
<td>13/13</td>
</tr>
</tbody>
</table>

(Unit: ¥100 million)

Note:
The ¥/$ figure only reflects exchange rate differences attributed to earnings on metal processing. Exchange rate differences on the performance of overseas subsidiaries when consolidated figures are calculated are not included.
8) SMM’s Mines and Smelters / Refineries

- Hishikari Mine
- Harima Smelter
- Toyo Smelter & Refinery
- Niihama Nickel Refinery
- Shisaka Smelting Co., Ltd. (100.0%)
- Hyuga Smelting Co., Ltd. (60.0%)

- Jinlong Copper Co., Ltd. (27.1%)
- Coral Bay Nickel Corporation (54.0%)
- Batu Hijau (3.5%)
- Northparkes (13.3%)
- Taganito HPAL Nickel Corporation (62.5%)
- Sorowako (20.1%)
- Figesbal (25.5%)
- Goro (7.6%)
- Pogo (85.0%)
- Morenci (12.0%)
- Cerro Verde (16.8%)
- Sierra Gorda (31.5%)
- Ojos del Salado (16.0%)
- Candelaria (16.0%)
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 and 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)
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 metric ton equals 2,204.62 lb.

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 Smelting
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)
CBNC and Taganito produce 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.
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.

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.

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.

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.
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