

# Relationship between the Long-Term Vision and the Vision for 2020

The SMM Group has established the Long-Term Vision and the Vision for 2020 (which states “The Kind of Company that We Would Like to be in 2020”) to indicate our approach to creating value. The activities to attain these twin goals are inseparable for sustainable growth and maximization of corporate value, and we are proceeding on them as a single Vision.

## Sustainable Growth and Maximization of Corporate Value

### Long-Term Vision

Our Long-Term Vision is a goal to execute a continuous growth strategy aimed at a stable supply of materials and products over the long term. In order to attain the

Long-Term Vision, which has a target year of 2021, we set out a medium-term business plan every three years as a mid-term strategic goal.

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

Long-Term Vision Targets

### Become a World Leader in the Non-Ferrous Metals Industry

#### Copper

Annual production interest

**300 kt**

With regards to copper, our 300,000-ton target of annual production from our interests is in sight, with the additional interests in the Morenci Copper Mine and stable operation at the Sierra Gorda Copper Mine, in addition to copper mines already in operation. However, we are pursuing the possibility of obtaining further interests.

#### Nickel

Annual production capacity

**150 kt**

In FY2017, we produced a total of approximately 94,000 tons, when converted to pure nickel, and are very close to achieving stable annual production of 100,000 tons. In addition, our long-term vision draws the idea of raising that to 150,000 tons annually by securing new mineral resources.

#### Gold

Annual production interest

**30 t**

Through entry into the Côte Gold Project we increased our annual production interests approximately 2.7 tons. However, due to our sale of the Pogo Gold Mine, there is still a large gap with our FY2021 target of 30 tons, so we are continuing to search for superior opportunities.

#### New Materials

Recurring profit

**¥5 billion**

Through collaboration between the Materials Division and the Research & Development Division, we aim to accelerate new materials development and aim for an annual profit contribution of ¥5 billion from new materials by FY2021.

### An Excellent Company of Japan

Net sales

**¥1 trillion**

Net income

**¥100 billion**



### Vision for 2020

#### —and the Six CSR Areas of High Priority—



##### Effective Use of Resources

A company that generates resources using innovative technology

KPI

Develop and implement technologies to efficiently recover resources (low-grade/hard-to-process ores)  
Develop new and effective uses for by-products  
Promote recycling



##### Environmental Preservation

A company that uses advanced technologies to reduce environmental impacts and contributes to preserving the global environment

KPI

Advance biodiversity preservation initiatives  
Maintain our record of zero significant environmental accidents



##### Contribution to Society and Local Communities

A company that earns trust and contributes to regional development through our business and social contribution activities rooted in each region

KPI

1. Communicate with local communities to recognize social issues in regions where we do business, and implement programs to support solutions to those issues.
  2. Provide support for the improvement of educational infrastructure and the maintenance and development of academic activities, culture, tradition, and art in countries where we do business.
  3. Provide support for recovery and reconstruction after large-scale disasters.
- Allocate financial resources for initiatives 1 to 3 above.



##### Respect for People and Human Rights

A company where diverse human resources exercise their ability sufficiently and take a vibrant and active part in each field

A company that works with its stakeholders to strive for a society that actively respects human rights

KPI

A company where employees can take a vibrant and active part  
Respect diversity  
Develop human resources  
Prevent major human rights infringements



##### Occupational Health and Safety

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

KPI

Ensure safety  
Provide comfortable working environments



##### Stakeholder Communication

A company that works to communicate transparently with all worldwide stakeholders to deepen mutual understanding

KPI

Encourage deeper mutual understanding with employees  
Encourage mutual understanding with local communities and citizen groups  
Encourage mutual understanding with shareholders and investors  
Encourage mutual understanding with other stakeholders

# The SMM Group's Value Creation Process

The SMM Group will continuously grow by stably supplying basic materials and high-quality products through collaboration by its mineral resources business, smelting and refining business, and materials business. At the same time, these businesses can have a considerable impact on the environment. Accordingly, we contribute to a sustainable society by working toward global environmental preservation, development of products with low environmental impact, and co-existence with local communities.

Seven strengths nurtured over 420 years

## Continually honed technology

Our technology, accumulated and honed over many years, enables the stable supply of high-quality materials and products. Our HPAL technology, for example, marks the world's first success in commercialization of this technology, and is a major strength of our company.

## Employees who share our Business Spirit and goals

Employees share our goals and corporate philosophy, which are based on the Sumitomo Business Spirit, and support the SMM Group's creation of value. Aiming to achieve our goals, employees respect human rights and put their capabilities to work in each of their fields.

## Solid relationships with business partners

Strong relationships of trust with partners are vital in the stable operation and development of mines. The SMM Group builds solid relationships of trust through technical cooperation and other collaboration.

## Relationships of trust with local communities

Holding up co-existence with local communities as part of our corporate philosophy, the SMM Group has built relationships of trust with these communities over many years through varied activities. These relationships support the long-term operation of our businesses.

## Safe labor environment

While many major mineral resource companies have an occupational accident frequency rate of two to four, the SMM Group has maintained a rate of about one. Establishing and maintaining this safe labor environment enables stable work by employees and provides a foundation for the stable supply of products.

2021

Long-Term Vision  
Become a world leader in the non-ferrous metals industry and an excellent company of Japan

Nurtured strengths

Our three-business process

Created value

Current value creation

Spiraling up toward goals

## Sustainable growth and maximization of corporate value



### Created value

Sustainable growth through the securing of mineral resources and the stable supply of basic materials and high-functionality materials

Contribution to sustainable society through global environmental preservation, development of products with low environmental impact, and co-existence with local communities



### Our three-business process

The SMM Group is leveraging the strengths produced by its globally unique, seamless collaboration of three businesses: mineral resources, smelting and refining, and materials. In addition, it is advancing its business, with a focus on manufacturing capabilities based on technological and development capabilities cultivated over many years. Furthermore, we

also collaborate with market-leading customers in areas such as product development, and collaborate with business partners primarily through the development and management of mines. By maximizing the effects of these three types of collaboration, we can respond flexibly and effectively to social issues and market needs.



### Mineral Resources Business

The mineral resources business takes the first step towards extracting the natural mineral resources that have lain dormant underground over the ages, and turning them into metals. Making good use of the skills accumulated through 283 years of operating the Besshi Copper Mine, from 1691 to 1973, and other businesses, we participate in mining operations as a professional mine developer and operator in regions around the world, while pursuing myriad exploration projects, and proceeding with surveys to develop new mines.

### Smelting & Refining Business

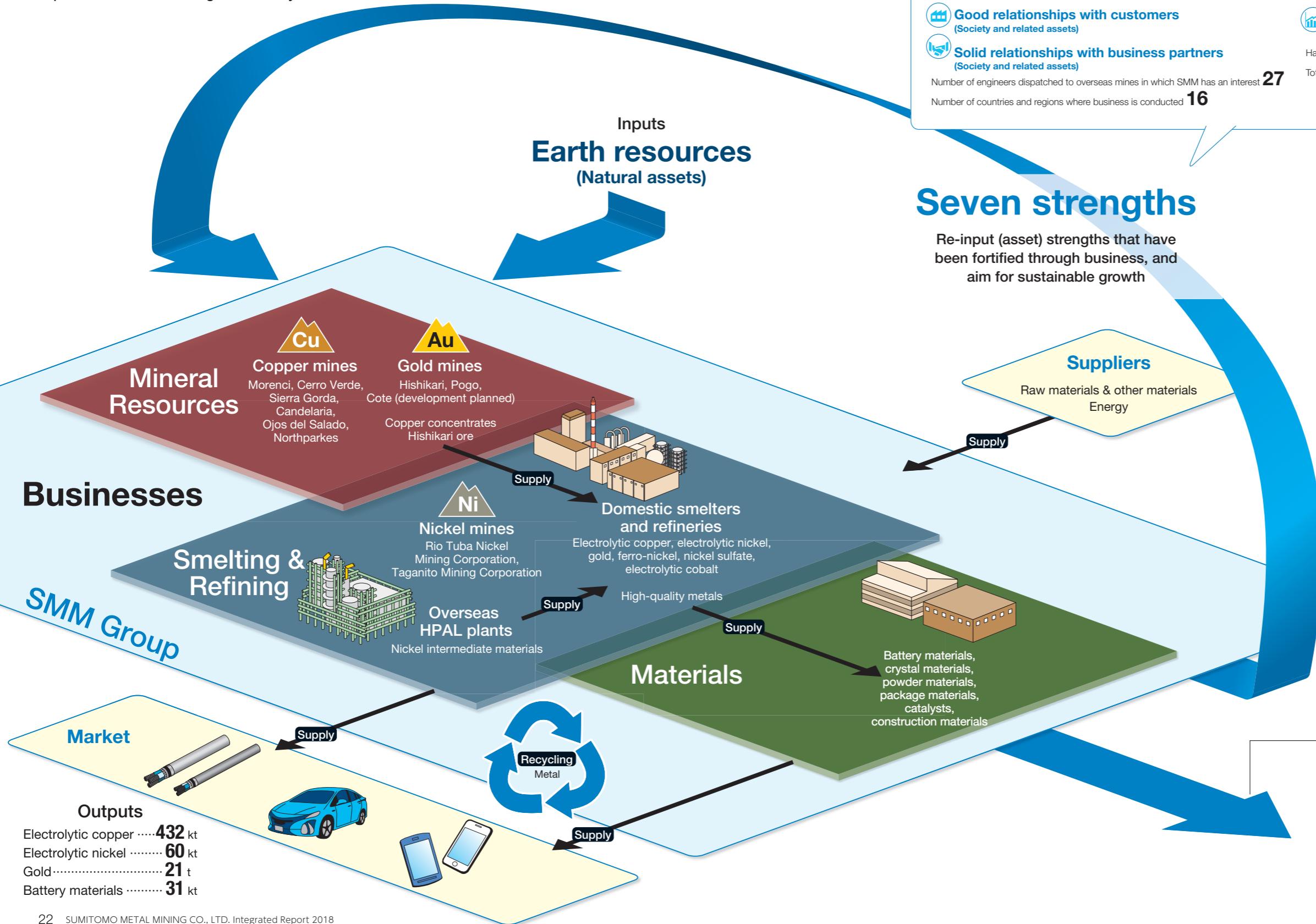
The smelting and refining business produces metals, particularly copper, nickel, and gold, from ores and other such material. Over the 420 years since 1596, when Soga Riemon perfected the *Nanban-buki* method of separating silver from copper, the business has continuously passed down and developed smelting and refining technologies. And today, too, the company possesses world-class smelting and refining technology, and cost competitiveness. We are also the only company in Japan to produce electrolytic nickel and electrolytic cobalt.

### Materials Business

The materials business produces and supplies advanced materials and the like by applying core technologies to add a range of values to metals and materials procured by the smelting and refining business and others. We work with nickel and various other metals to supply products focused on environment and energy, such as electric vehicle secondary battery materials, and information communications related areas.

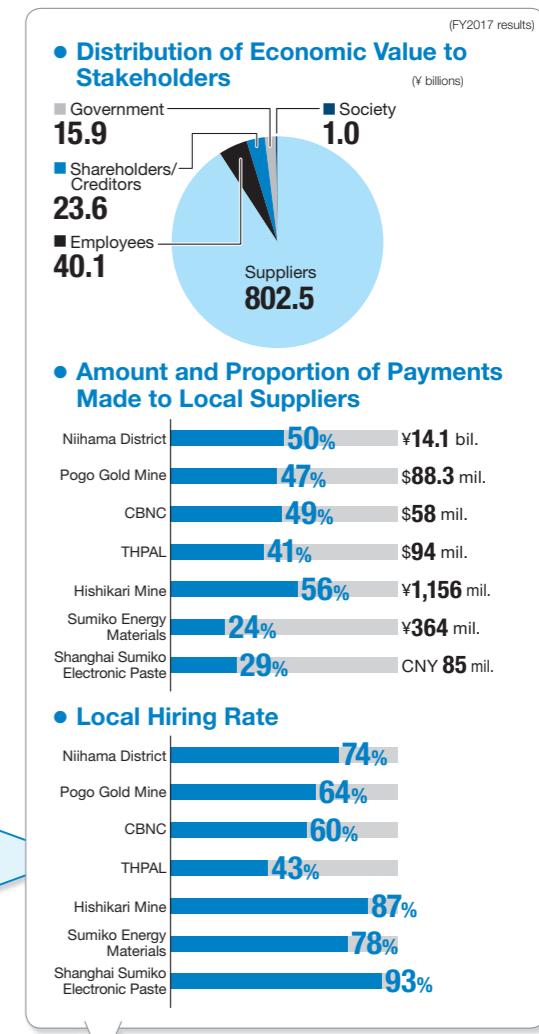
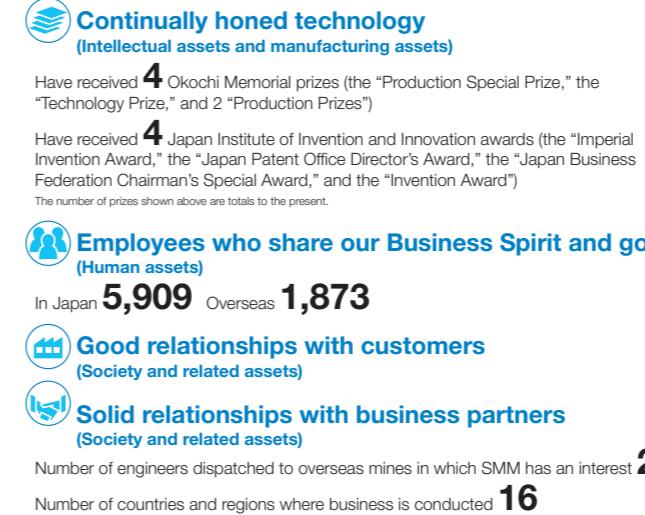
## Through the collaboration of our three core businesses, we contribute to the stable supply of goods from basic materials to high-quality products

"Excavating ore, a natural resource, making it into metal materials by smelting and refining, and adding new value to those materials." The materials we handle and the value we add vary through the ages, but the essence of this business process remains unchanged over the years.



## Seven strengths

Re-input (asset) strengths that have been fortified through business, and aim for sustainable growth

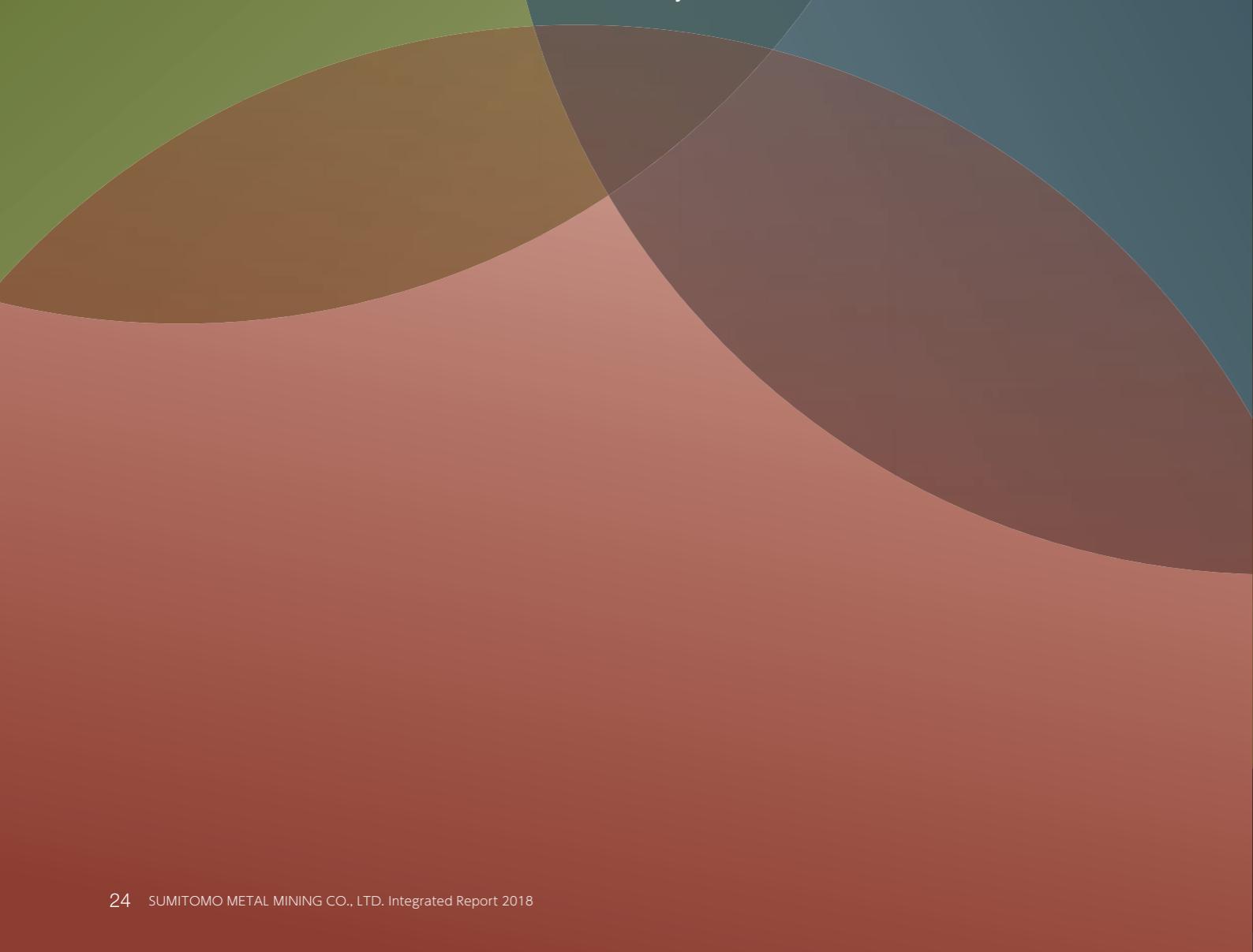


## Outcomes (Created value)

- Sustainable growth through the securing of mineral resources and the stable supply of basic materials and high-functionality materials
- Contribution to sustainable society through global environmental preservation, development of products with low environmental impact, and co-existence with local communities

# Addressing the needs of society through collaboration among our three businesses of mineral resources, smelting and refining, and materials

Continued rapid growth is forecast for the electric vehicle market. SMM supplies cathode materials for the lithium-ion batteries which can be called the heart of these vehicles. Our cathode materials are infused with the technology and know-how that we have nurtured through the long traditions of our smelting and refining business and our mineral resources business. Through collaboration among our three businesses, mineral resources, smelting and refining, and materials, we are able to produce high-quality materials that address the issues and needs of society.



# Smelting & Refining Business

Providing metals that support society and industry



## The foundation of our business is in the *Nanban-buki* smelting and refining technique

Copper is said to be the first metal that humans began to use. With the advance of civilization, applications for the metal expanded to utensils, coins, and building materials. Today, copper is widely used in plumbing, electric wiring, electronics, motors, generators, and more, supporting both society and industry.

SMM was founded in 1590 when Soga Riemon opened a copper blowing and coppersmith shop near Gojo Ohashi in Kyoto. “Copper blowing” is what is today called copper smelting and refining. After great pains, Soga Riemon created *Nanban-buki* technology based on methods learned from a foreigner. An advanced technology of the time, *Nanban-buki* made it possible to obtain high-purity copper from crude copper, and separate out the valuable silver contained in the crude copper.

In recent years, demand for copper has been growing in the automotive sector. A single vehicle uses 20 to 30 kg of copper, an amount that is expected to increase several times over with the proliferation of electric vehicles. Our Toyo Smelter & Refinery in Sajio, Ehime Prefecture, is a copper refinery boasting world-class productivity that ships 450,000 tons of electrolytic copper every year.

## Enabling efficient recovery from low-grade nickel ore

Nickel is a metal vital to contemporary society as a raw material in plating and in alloys such as stainless steels. SMM was the first to commercialize nickel refining in Japan, in 1939. Since then, nickel production has become a pillar of our smelting and refining business, on a par with copper.

In 2005, SMM established technology known as the HPAL (high pressure acid leaching) method, which efficiently recovers nickel from low-grade ore that had earlier been discarded. Then, at Coral Bay Nickel Corporation on Palawan Island in the Philippines, we were the first in the world to successfully launch commercial production of nickel intermediates (nickel-cobalt mixed sulfide). Through this, we achieved the effective use and stable supply of limited nickel resources. In 2014, we established Taganito HPAL Nickel Corporation in Mindanao Island in the Philippines. Together, the two companies boast an annual production capacity of 60,000 tons of nickel intermediates.

These nickel intermediates are sent to the Niihama Nickel Refinery in Niihama, Ehime Prefecture, and to the Harima Refinery in Hyogo Prefecture, where they are further refined into electrolytic nickel, electrolytic cobalt, and nickel sulfate. In recent years, demand for nickel and cobalt has been growing for use as battery materials.

# Mineral Business

## From development of to development of

### The 280 years of tradition supporting the mineral resources business

One hundred years after the company's founding by Soga Riemon, a promising copper deposit was found in Besshi, Iyo Province (now Ehime Prefecture). The following year, the Sumitomo family obtained mining authorization from the Tokugawa Shogunate, and embarked upon copper mine development. With the introduction of modern technologies from the Meiji Era onward, the amount excavated from the mine increased greatly and made major contributions to the industrial advancement of Japan. The history of the Besshi Copper Mine came to an end in 1973, but the technologies and experience gained at the mine are carried forward in today's mineral resources business and smelting and refining business.

With the closure of Sazare Mine (Shikokuchuo City, Ehime Prefecture) in 1979, the mineral resources business in Japan came to a halt momentarily. In 1981, however, a high-grade gold ore vein was discovered in the town of Hishikari (currently Hishikari, Isa City) in the northern part of Kagoshima Prefecture, and ore extraction began in 1985. Hishikari Mine, currently the only gold mine in Japan engaging in commercial-scale production, ships about 6 tons of gold per year, and has produced 236 tons since the start of ore extraction (as of March 2018). While its scale is small, the mine boasts a world-class gold content ratio.

### SMM's mineral resources development strategy and our mission as a supplier

With copper raw materials shifting to imports after the closure of mines in

## Resources

### the Besshi Copper Mine resources worldwide

Japan, SMM set its policy on securing mineral resources through capital participation in copper mines overseas. In 1986, we made a capital investment in the Morenci Copper Mine in the U.S., followed by capital investments in copper mines in Chile and Australia. In 1995, SMM discovered gold deposits in Pogo, Alaska, and started operating the Pogo Gold Mine in 2006. SMM also acquired an interest in the Côte Gold Project in Canada in 2017, where we are continuing to aim at production launch in 2021.

Hishikari Mine, the only mine of its kind in Japan, plays an important role as a place for human resources education in which the skills and experience needed for mine operation are handed down. SMM also dispatches engineers to the overseas mines in which we invest, and engages in human resource development at those sites. Worldwide, outstanding ore veins are becoming depleted, and new discoveries become more difficult every year. At the same time, amid a growing trend toward "resource nationalism," by which countries seek to hoard resources, building relationships of trust with the mining companies that are our partners and with local communities also leads to the securing of new mineral resources interests.

### Advising appropriately inside and outside the company as mineral resource development professionals

The work of the Mineral Resources Div. has a broad range, covering process development and operational management such as from mineral resource exploration to the evaluation of ore grade and mineral resource volume, mining, and plant launches. Our long experience with mineral resource exploration, and mine development and management,

also sees use in overseas mineral resource development, where our performance has earned a high reputation among overseas mining companies.

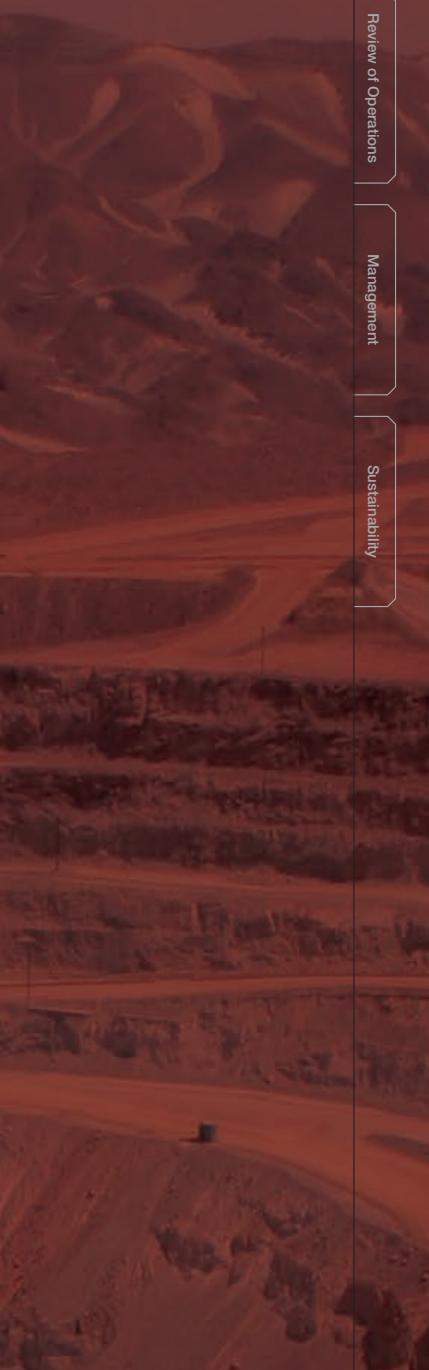
Although we have enhanced our mineral resource exploration with cutting-edge technologies such as electromagnetic exploration and remote sensing using satellites and aircraft, in the end, it is humans that make decisions. It is here that the experience and knowledge SMM has built up is put to use. In addition, as the knowledge of our mineral resource engineers extends beyond gold and copper and into a wide range of ores and geology, we are able to draw on their geological perspectives to offer appropriate advice on ore quality and volume within the company and to customers of our Non-Ferrous Metals Div. and the Materials Div., even concerning ores other than the copper, gold, and nickel that our Non-Ferrous Metals Div. procures.

The Minerals Resources Div. has the role of supplying raw material ores to the Non-Ferrous Metals Div. By procuring raw materials from within the company, the Non-Ferrous Metals Div. is able to reduce risk and constrain costs, while also helping reduce risk for the Mineral Resources Div. by acting as a stable outlet for that division's supply. Unlike major mineral resource businesses, we have built a vertical business model that includes the downstream materials business, as we work to ensure stable supply of product along with efficiency and differentiation in our businesses.

### Column

#### Recovering scandium from nickel ore

Using HPAL technology, SMM recovers the rare-earth element scandium from the process of nickel intermediate production, and has created technology to turn the material into a product as scandium oxide. At Taganito HPAL Nickel Corporation, we have constructed a scandium intermediate manufacturing plant and at the Harima Refinery, have established a process for producing scandium oxide from intermediates. We plan to begin commercial production of 7.5 tons per year in 2018. Scandium is found in ore in exceedingly small amounts, and is a difficult metal to refine. When added to aluminum, it strengthens the aluminum and enables it to be welded, which makes it promising as a material for aircraft bodies. There are also expectations for applications where it is used as an electrolyte and anode material, improving performance in solid oxide fuel cells, which offer high power generation efficiency. We have further constructed a plant at Taganito HPAL Nickel Corporation to recover the stainless steel raw ingredient chromite from the process for nickel-cobalt mixed sulfide manufacturing, and plan to launch production in 2020.



# Materials Business

Materials technology that addresses the demands of the times

## Providing cathode material for EV batteries

In response to the issues of climate change and air pollution, the movement is growing to expand the use of EVs (electric vehicles) in European countries, China, and many other countries. In the past, EVs suffered from a short running distance per charge, but the adoption of high-performance batteries has extended running distance and increased the practicality of EVs. Lithium-ion automobile batteries are representative of today's high-performance batteries, and SMM's Materials Div. supplies the lithium nickel oxide (NCA) that is used as a cathode material.

SMM has earned the trust of customers for its ability to supply NCA and for its quality. SMM is the only company in the world that offers an integrated production chain that runs from mineral resources to cathode material, the key to the lithium-ion batteries at the heart of EVs.

## Building close relationships with customers and capturing their needs

Our connection to automobile batteries begins with the provision of cathode material for the nickel-metal hydride battery of the first-generation Toyota Prius. Following that, SMM and Panasonic Corporation jointly embarked upon the development of next-generation lithium-ion batteries using

NCA as a cathode material. This lithium-ion battery was adopted by an advanced EV manufacturer, and our NCA production output has increased every year since. Our cathode material is also used in the lithium-ion battery of the Toyota Prius PHV (plug-in hybrid vehicle). Through joint development and close communication with customers, we are creating a framework for accurately discerning the products and functions that will be demanded in the future, and for offering stable supply of high-quality products.

At present, automobile manufacturers and battery manufacturers are seeking to minimize the cobalt contained in cathode materials, for reasons of resources and cost. Development is also moving forward on new types of batteries, such as solid-state batteries. SMM is engaged in the development of new cathode materials with an eye toward the direction of such technological developments and the needs of customers. SMM has also decided to participate in the all-Japan solid-state Li-ion battery research & development project led by the New Energy and Industrial Technology Development Organization (NEDO).

## SMM's strength: An end-to-end framework for mineral resources, smelting and refining, and materials

The production of metal materials is always affected by fluctuations in the market for raw materials, with nickel and cobalt in particular prone to large price fluctuations.

With our own nickel smelting and refining business and the ability to procure nickel and cobalt in-house, SMM is able to offer stable production of cathode materials.

This strength of ours is also put to use in the recycling of used batteries, which we have undertaken since the 1990s. In 2017, we used the smelting and refining processes of our Toyo Smelter & Refinery and Niihama Nickel Refinery to successfully recover copper and nickel from lithium-ion batteries. Following this nickel metal hydride battery recycling, we have subsequently achieved "battery to battery" recycling.

As seen in this example, the downstream Materials Div. understands markets and the needs of customers, the Non-Ferrous Metals Div. supplies raw materials, and the Materials Div. assesses mineral resource trends and performs resource evaluations of raw material ores. Through this vertical collaboration, we are able to steadily procure raw materials, stably supply product without pause, and respond to production increases, all in line with customers' plans. There is no company besides SMM that has created this sort of business structure.

## Comment from a stakeholder

Sustainability from a broad perspective



**Tomio Shida**

Senior Staff Writer and Editorial Writer  
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ESG investing, which urges companies to consider the environment and human rights issues through investment, and the Sustainable Development Goals (SDGs) have become key words of the times, appearing frequently even on the pages of our paper. Both are issues advocated by the United Nations, and both call for long-term perspectives.

In order to maintain comfortable living for the world's population, which now numbers over seven billion, the proliferation of renewable energy and electric vehicles (EVs) is indispensable. The metal materials such as copper and nickel that the SMM Group handles will become all the more necessary. It goes without saying that sustainability with consideration of the environment and human rights will be demanded in the development of copper and other resources. All sustainability issues are connected.

The pursuit of sustainability must not be nearsighted. In that sense, the SMM Group's collaboration among the three businesses of mineral resources, smelting and refining, and materials is also an approach that pursues sustainability from a broad perspective. I would like for the company to consider sustainability from a variety of angles, and act as a pacesetter of Japanese companies.



## Emphasize “cognition,” “conceptualization,” and “action” to maximize sustainable growth and corporate value, and develop the next generation of managerial human resources

Along with growing recognition of the SDGs and ESG investment, sustainable contribution

to society is becoming an indispensable standard for estimating corporate value.

SMM has long carried forward the Sumitomo Business Spirit,

which values reputation in society and mutual relationships of trust.

At the same time, we are making great efforts to develop the next generation of managerial human resources who will take over the business in the future, so that we can respond to new business models and changing business conditions.

In 2015, we undertook a full-scale renewal of our Vision for 2020, and identified specific targets and KPIs for future human resources development.

We are moving forward with a transformation that incorporates new perspectives, including mechanisms for human resources development, and the creation of a free and open corporate culture.



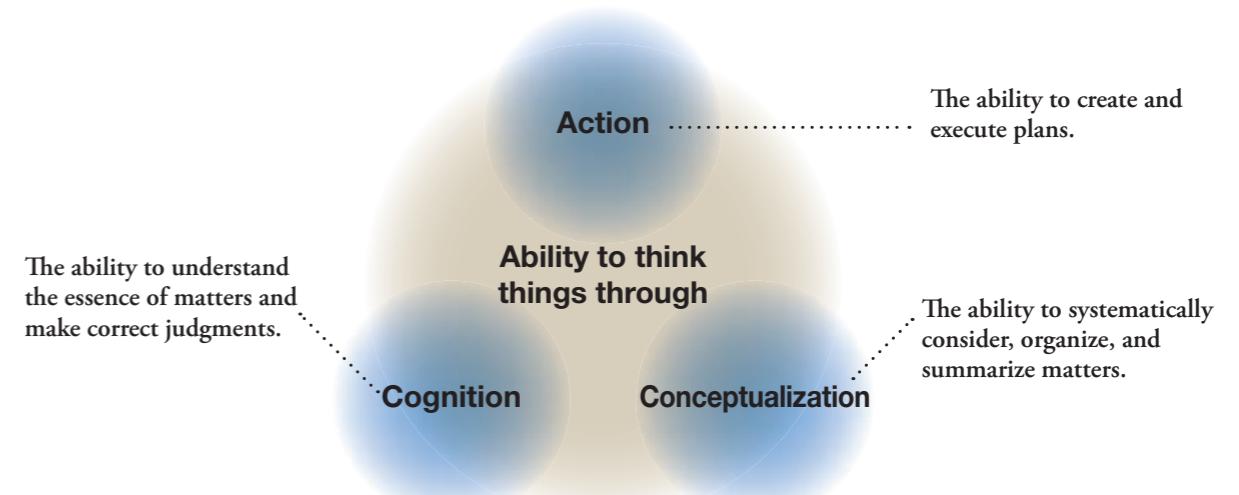
### Creating a vision for and working to develop the next generation of managerial human resources, based on three key words

SMM pursues an original business model that brings together our three businesses of mineral resources, smelting and refining, and materials. While the mineral resources and smelting and refining businesses call for a long-term perspective, the materials business requires us to quickly capture changes in the times and supply materials that meet customers' demands. Achieving collaboration among our businesses requires new capabilities in the management human resources who will lead the next generation. It is important that these managers are equipped with acute sensibilities to aptly incorporate changes in society into business, while maintaining a high-level global and long-term

perspective. They must be equipped with keen discernment rooted in a thorough acquaintance with their respective fields, and must further expand that potential to create new societal value. Moreover, to negotiate for interests in mines, manage overseas sites, and otherwise lead global projects, it is important that they also possess human appeal while competing with the leaders of the world's major mineral resource businesses.

SMM has set “cognition,” “conceptualization,” and “action” as three key words for the capabilities sought in the next generation of managerial human resources, and is continually working to develop these managers.

The skills required of SMM's next generation of managerial human resources



- Introductory training (includes overseas training)
- Specialized education (job-specific training)
- Education for selected people

### Working style reform to nurture people

In FY2017, the SMM Group began to tackle working style reform. One of our goals is to achieve an average of 1,900 working hours or less per year for all employees, and a maximum of 240 hours per year of overtime and holiday work, by FY2019.

The purpose of the reform is not merely the shortening of working hours, but also the

associated creation of new value. Our aim is to recreate a free and open corporate culture in which all employees can use their limited time effectively and engage in work with motivation. We believe that this reform is also extremely important in the development of the next generation of managerial human resources.

# Education of the next generation of managerial human resources, beginning with introductory training for new employees

## Introductory training

### Learning the Sumitomo Spirit and nurturing a global perspective

For management track employees who will be the next generation of managerial human resources, we position the first three years with SMM as a period for learning the fundamentals as working adults and conduct proprietary off-the-job training (Off-JT). From April to June in employees' first year, we conduct introductory training. In this program, participants learn about the Sumitomo Business Spirit by climbing into the former Besshi Copper Mine to observe the initiatives of their forerunners, and by visiting Kyoto, Sumitomo's birthplace, to directly view company historical materials. The curriculum lets participants learn about

SMM's commitment to manufacturing and its stance toward earning the trust of society, through means including hands-on experience.

To quickly foster an awareness among participants as global human resources, we also conduct short-term overseas training for new employees during their first year. The aim of this training is the improvement of language abilities as well as the enhancement of motivation to learn about other cultures. Following this, we conduct Off-JT in the second and third years of employment matched to employees' growth.

While our human resources development is based on on-the-job training (OJT), we have also systematically prepared job capability-specific Off-JT programs for the acquisition of skills necessary for employees' job type and level. We proceed with flexible human resources development by organically combining this OJT and Off-JT.

#### Introductory training

Basic education as company employees

**3rd year: Follow-up training**  
Presentation of 3-year achievements, etc.

**2nd year: Group training**  
Participation in problem-solving training

**1st year: Short-term overseas training**  
Fostering the desire for continuous study of language and other cultures  
Duration: About 2 months  
Destinations: Educational organizations overseas (U.S., U.K., Australia, Canada, etc.)  
Number of people sent: 392 (from 2006 to 2018)

**1st to 3rd year of employment**



Short-term overseas training



Climbing tour of the former Besshi Copper Mine

### Human resources development through joint research with Tohoku University

SMM has set up a joint research division within the Institute of Multidisciplinary Research for Advanced Materials, Tohoku University. Its objectives are the evolution of technologies related to non-ferrous metal smelting and refining in Japan, and the development and securing of young engineers. In recent years, the number of non-ferrous metal refining engineers in Japan has been declining. In addition to joint

research, SMM advances cooperation with other companies in the industry and with other universities, makes efforts to maintain and expand non-ferrous metal smelting and refining courses within university education, and conducts seminars and plant tours, as we work to develop human resources who will shoulder the next generation of the non-ferrous metal smelting and refining industry in Japan.

## Specialized education (job-specific training) Enhancing qualities as specialists

In order to develop the next generation of managerial human resources who will shoulder management and projects in the future, it is important to nurture qualities as specialists. SMM places a focus on job-specific human resources development for the first 10 years of employment. We carefully consider a full series of career steps matched to each individual's qualities, and conduct training appropriate to the trainee's job type and area of business.

While we have OJT as the foundation of job-specific training, we also conduct proprietary Off-JT matched to specific fields, centered on acquisition of qualifications, overseas training, and on-site practical training. This type of training is not only for technical jobs such as those in mineral resources and smelting and refining, we carryout similar human resources development matched to the characteristics of each of the fields of accounting, personnel, and other clerical jobs.

Other education programs unique to SMM include the Mining School (see p. 49), where, after joining the company, exploration and mining engineers learn operational

fundamentals, technology, safety management, and more at the Hishikari Mine; and the Smelting & Refining University (see p. 57), where metallurgy-related engineers learn the fundamentals of refining technologies through Off-JT classes and practical training.

#### Specialized education

Specialized education to advance and deepen individual expertise

##### Technical

Mineral resources, metals, and materials research & development; facilities technologies

##### Clerical

Accounting, general affairs, legal, personnel, materials, sales

##### Overseas training

##### Acquisition of qualifications

##### On-site practical training

The Mining School

The Smelting & Refining University

Proprietary in-house specialized education programs

**For about 10 years after joining the company**

## Education for selected people

### Developing the next generation of leaders for sustainable growth

The development of senior management is also a key theme for SMM in achieving sustainable growth. We select senior management candidates at every level of the company, and conduct training aimed at developing leaders.

The SMM Middle Management Program offers training aimed at the section manager level. In the program, participants learn diverse management abilities, including the knowledge and conceptual methods that they are expected to inherit as the company's top management, as well as systematic management skills and a company-wide

#### Education for selected people

Education of the next generation of leaders that takes matters from a high-level point of view

##### In-house education

**EMP**  
(Executive Management Program)  
Development of the next generation of top management

##### Outside education

**MMP**  
(Middle Management Program)  
• Development of young leaders  
• Basics and practice of management  
• Forging of cognition and conceptualization

**Officers' Coaching School**

management perspective, by learning through in-house education and at outside educational institutions. We offer the similar SMM Executive Management Program for the general manager level, with content aimed at network-building and gaining the knowledge and experience required of the next generation of top management. Content includes case studies and "inter-school contests" that allow networking with training participants from other companies. Another proprietary training program is the Officers' Coaching School, where participants learn leadership and knowledge unique to the company. Officers who are also at the top of every job type serve as instructors in this program.

Our human resources are becoming more diverse with the advance of diversity management, and the environment surrounding human resource development is also changing under working style reform and other factors. Even as we carry forward the Sumitomo Business Spirit, we quickly adapt to such changes in society as we advance reforms and engage in human resources development from a high-level point of view.



2017/18  
SMM MMP

# The SMM Group's Risks and Opportunities

As the SMM Group engages in value creation, it identifies, classifies and organizes the risks and opportunities that affect that value. We then use those results in making medium- to long-term strategies and, by undertaking actions through a risk management system (RMS), we strive to more reliably maximize corporate value and contribute to a sustainable society.

## External environment/ social issues

### Strong environmental awareness

- ① Climate change
- ④ ⑦ Biodiversity

### Growing awareness of human rights

- ① ③ Metal price and forex movement

### Development of an information society

### Natural resource depletion

- ② ⑤ Trend towards new mine development in higher and more remote locations
- ② ⑤ ⑤ Ores becoming lower grade and more difficult to process

### Heightening mineral resource nationalism

### Commodification of technology

## Risks

**Especially serious risks out of those specified and managed by the RMS**

- ① Explosions and fires
- ② Leakage of harmful substances (into air, water, or soil)
- ③ Earthquakes
- ④ Discharge of slag and the like due to dam or culvert failure
- ⑤ Terrorism, abduction, riots, or other such incidents
- ⑥ Theft of explosives or poisonous materials
- ⑦ Pandemic of a new strain of influenza or other disease

### Managerial risks

- ① Decline in profits due to fall in commodity prices and yen appreciation
- ② Increase in cost of investing in and operating mines
- ③ Increased taxation and rise in resource procurement risk
- ④ Increase in investment and operation costs due to tightened regulation
- ⑤ Fiercer competition for acquiring superior mining sites
- ⑥ Decline in the superiority of HPAL technology
- ⑦ Delays to development, operation, or expansion of sites, or the removal of permissions, due to opposition by local people or government action
- ⑧ Decline in selling prices or losing competitiveness of materials products

## Opportunities

- ### Managerial opportunities
- ① Rapid production increase of electric vehicles/higher demand for nickel and cobalt as battery materials
  - ② Increasing demand for high-speed communication devices and movement toward multiband, increasing demand for SAW filters or LT/LN
  - ③ Decline in metal prices/major mineral resource companies' asset reclassification
  - ④ Increasing demand for stable procurement of conflict-free materials
  - ⑤ Increasing demand for nickel from low-grade ore as a resource

## The SMM Group's RMS

SMM's RMS identifies and evaluates risks, particularly risk of serious infringement of laws and social values, risk of significant adverse effects to society or a third party, risk that invites serious damage to the social credibility of SMM, and risk of serious adverse effects on business operations, and then manages these risks according to priority.

## Governance

## RMS

## CSR Management

## Business Process

## Seven Strengths

Each individual risk and opportunity is classified as to whether it is a risk with potential to cause a serious environmental accident or disaster, in which case it will be managed through our RMS, or a managerial risk or opportunity.

Regarding risks managed through the RMS, we strive to maintain responsible operations, primarily through a management process involving risk identification and evaluation, preventive measures, proactive mitigation measures, and rapid response in the case of occurrence.

For managerial risks or opportunities, we reduce the risk or strategically turn it into an opportunity and maximize the effect by leveraging our business processes and seven strengths.

Furthermore, regarding the implementation of each of these activities, their appropriateness from a CSR point of view is properly evaluated and responded to in advance under an effective governance structure.

## Specific strategies regarding risks or opportunities

- ① – ⑦ Implement and maintain risk management (preventive measures, proactive mitigation measures, etc.) through RMS

Risk management (p. 84)

- ① ② ③ Minimize costs by increasing operational efficiency and productivity at highly cost-competitive mines and refineries

Smelting & refining business (p. 53)

- ② Accelerate development of technology for strengthening ability to handle hard-to-process ores

Effective use of resources (p. 92)

- ④ ⑦ Cultivate relationships of trust with local communities, employees who share SMM's philosophy and goals

Stakeholder communication (p. 97)

- ⑥ Maintain cost advantage by recovering and commercializing scandium and chromite, by-products of HPAL technology

Development of new applications and effective use of by-products (p. 54)

- ⑧ Maintain a positive development cycle and strengthen technological capabilities through continued good relationships with customers

Materials business (p. 60)

- ② ⑤ ① ⑤ Use HPAL technology to obtain nickel (Ni) and cobalt (Co) from low-grade oxide ore, a challenge for other companies at commercial production level

Utilizing unused resources (p. 55)

- ③ ⑤ Maintain a good management base for interest acquisition based on sound financial standing and robust relationships with partners

Financial strategies (p. 44)

Mineral resources business (p. 50, 51)

- ① ④ ⑤ Establish our superiority as a supplier and reduce procurement risk for customers, including making resource origins transparent, by developing a consistent business process from interest acquisition to material production

Special feature 1 (p. 24)

Responsible mineral sourcing (p. 87), partnerships with outside organizations (p. 81)

The SMM Group's business process (p. 22)

- ② Leverage our many years of experience developing crystal technology (growth, processing, etc.) to maintain our superiority and handle production increases

Materials business (p. 58)

Related information (reference page)

= Especially serious risk out of those specified and managed by the RMS  
 = Risk caused primarily by external factors      = Opportunity

# Material Issues for the SMM Group

SMM Group has identified 26 material issues based on risks and opportunities in the practice and execution of our Long-Term Vision and our Vision for 2020. These issues can be organized according to why we address them: material issues related to the sustainability of our business, material issues related to the growth of our business, and material issues underlying all of our activities.

**Related information** See p. 82, 83 for information on the Identification of Material Issues.

## Material Issues Related to the Sustainability of Our Business

As the SMM Group's business involves mine development and other large-scale developments, its impacts are particularly great in local communities surrounding the developments. Furthermore, its scope encompasses the economy, the environment, human rights, and many more factors. We must conduct mining in places where mineral resources are found, we are not able to continue our business removed from those locations. At the same time, given the self-evident truth that mineral resources eventually reach depletion through mining, we must give utmost consideration to our impact on local communities, which continue even after the mines close.

For these reasons, we consider the earning of a "social license to operate" through relationships of trust with communities as a major premise of our business continuity, along with our legal licenses to operate.

Among the 26 material issues we have identified, 14 that we position as issues related to the sustainability of our business are shown at right.

As these material issues can be connected to the benefit or harm of local communities, we believe they are of high concern to stakeholders such as local residents and local authorities. Actively working on these issues, and aiming for maintenance and improvement, leads to the building of relationships of trust with communities, which in turn has a positive impact on stable business operations.

### Consideration of the Ecosystem and Preservation of Biodiversity



- Energy conservation at SMM business sites ④
- Respect for nature preservation areas ⑥
- Preservation and restoration of ecosystems in areas where we do business ⑦
- Minimizing chemical substance emissions into the air, water, and soil ⑧  
(including in our portfolio companies and supply chain)
- Reduction of release and transfer volume of chemical substances ⑨
- Waste management ⑩



### Contribution to Society and Local Communities

- Community investments ⑪
- Local hiring ⑫
- Local procurement ⑬
- Utilization of partnerships ⑭
- Management of closed mines ⑮
- Recovery support for areas affected by devastating disasters ⑯



### Occupational Health and Safety

Ensure safety ⑰

Secure occupational health ⑱

## Material Issues Related to the Growth of Our Business

In a society undergoing great changes as time and technological innovation advance, the business of the SMM Group stably provides materials and products that can be widely used in industry and society. Our business supports the progress of technology in a wide range of fields, including mobile society and information and communications, contributing to affluent lifestyles for people around the world. While our business has a direct impact on societies and economies, it must meet the needs of changing times and continue to grow. Among the identified material issues, the six material issues related to the growth of our business are shown at right.



### Effective Use of Resources

- Utilizing unused resources ①  
(low-grade/hard-to-process ores)
- Development of new applications and effective use of by-products ②
- Exploration and development of new resources ③



### Development and Stable Supply of Products with Low Environmental Impact

Development of products and technologies that contribute to reducing environmental impact ⑤



### Development of Human Resources and Making the Most of Diverse Human Resources

Human resources development ⑯  
Diversity and equal opportunity ⑰

## Material Issues Underlying All of Our Activities

Underlying all of our activities is respect for human rights. Protection of employees' human rights, protection of indigenous peoples' and local residents' human rights, and avoidance of contributing to human rights infringements with our supply chain are among the particularly important issues.

Also, communication with stakeholders is important in the SMM Group's business achieving regular engagement and building relationships of trust with local communities, while maintaining our social license to operate, too. We aim to deepen mutual understanding with stakeholders through open dialogue.

### Communication and Respect for Human Rights

- Protection of employees' human rights ⑲
- Avoidance of contributing to human rights infringements with our supply chain ⑳
- Respect for the rights of indigenous populations ㉑
- Engagement with local communities ㉒
- Engagement with employees ㉓
- Communication with shareholders and investors ㉔

The numbers ① through ㉔ indicate the 26 material issues. See p. 82 for details.

# Background and Approaches to Material Issues

## Consideration of the Ecosystem and Preservation of Biodiversity

International efforts to address the risk of climate change continue to move forward, as seen in the example of the Paris Agreement. As a Group that has relatively high CO<sub>2</sub> emissions and handles many chemical substances, our stance with respect to environmental aspects is extremely important. Moreover, it is highly likely that the preservation of biodiversity and residents' living environments in regions of development is directly linked to people's lifestyles and interests, requiring significant consideration of environmental aspects. Furthermore, it is necessary that we continue the sustained management of mine effluent processing and of tailings dams, which accumulate tailings and slag, even after the end of mining operations.

The SMM Group places particular emphasis on the prevention of environmental pollution. While continuously enhancing our response in terms of both facilities and management, we conduct training and education for parties concerned, to enable the minimization of outside impacts in the unlikely event of trouble.

## Contribution to Society and Local Communities

By actively engaging in economic activities such as procurement from local suppliers and employment of people from communities around our business operations, and by improving infrastructure needed for our business and making it available for public use, we are directly involved in stabilizing the livelihoods of the local residents who are also our employees and suppliers, and being directly involved in invigorating economic activity in the region overall. Making other social contributions, such as operating schools and hospitals and improving sanitation, is also important in enhancing mutual prosperity in local communities and building relationships of trust.

The SMM Group believes that improving the living environments in these regions through such initiatives leads to the sustainable development of the Group's business in the regions.



Dressmaking training for women in the area of operation as employment assistance (Philippines)

## Occupational Health and Safety

We believe that a safe and comfortable workplace environment is not only necessary for employees but also leads to relationships of trust with the company, and improving motivation, and to lowering the possibility of the materialization of various risks. It also exerts positive impacts in improved hiring and employee retention rates and in reduced turnover rates, and leads to improving product supply stability, productivity, and yields, as well as reducing costs.

In the SMM Group, we promote safety-related activities under a basic policy that nurtures a safety culture and enhances line management. To secure occupational health, we assess the status of dust, noise, specified chemical substances, and organic solvents, aiming at achieving comfortable workplace environments, and enhance occupational health and safety management by making necessary improvements to work environments.



Foreseeing danger before and during work (inside the Hishikari Mine)

## Effective Use of Resources

The mining of natural resources reduces and eventually depletes reserves, ending the role of the site when it becomes mined out. To continue our mineral resources business and smelting and refining business, and ensure stable earnings, it is vital that we secure new mine resources and interests, and that we make effective use of unused mineral resources. We must also efficiently smelt and refine increasingly low-grade and difficult to process raw materials, as well as advance technological development to make effective use of byproducts. While doing so, we must also further enhance our cost competitiveness through the smelting and refining technologies that are the strength of our smelting and refining business, such as the HPAL technology and the MCLE technology.

At the same time, in an environment of limited resources, recycled materials also form an effective part of the resource cycle. We are pushing ahead with the development of efficient recovery technologies, and are tackling these issues within the context of cost optimization.



Côté Gold Project

## Development and Stable Supply of Products with Low Environmental Impact

Against a backdrop of environmental destruction, climate change, population increase, and numerous other social issues, the scale of the market for products and services that address these issues is expected to grow. The development of products with low environmental impact will not only contribute to CO<sub>2</sub> reduction through products that leverage our advantages in technology and business processes, but will also have a great effect on the improvement of our corporate value while resolving issues in society.

At present, the importance of stable supply and product development is growing for automobile secondary battery materials, which have vigorous demand, and are an area in which we plan to grow in partnership with market-leading customers.



Photo credit: Toyota Motor Corporation

## Development of Human Resources and Making the Most of Diverse Human Resources

Human resources support the growth of these businesses. In order for us to respond appropriately to changes in circumstances and to assuredly seize business opportunities, it is crucial that we develop diverse human resources who share both the company's goals and the Sumitomo Corporate Philosophy, which is based on the Sumitomo Business Spirit.

The SMM Group operates a development cycle based on a human resources development system composed of three areas: OJT (on-the-job training) as the foundation, self-development, and OFF-JT. By doing so, we strive to develop the human resources necessary to achieve our growth strategies. In recent years, we have moved forward with a particular focus on the development of global human resources, the development of the next generation of management, and support for participation by women.



Introductory training for new employees at Shisakajima Islands

## Communication and Respect for Human Rights

Consideration of human rights in our regions of operation spans the right to freedom and physical safety, freedom of mobility and residence, the right to property, and more. In development and the carrying out of business, the proper consideration of human rights has an impact on the smooth execution of projects and business operation. Artisanal and small-scale mining, which can present problems with child labor and the working environment in the development region, requires particular attention. The emergence of problems can affect operations, and can be viewed as involvement in human-rights violations. It is crucial that the SMM Group engages in close exchange of information with the mines and business sites that we

operate, as well as with our partner companies at mines where we hold interests, and take due consideration to prevent human-rights violations.

Under the SMM Group Policy on Human Rights, our Group conducts necessary awareness education for all employees, appropriately monitors conditions through hotlines and human rights due diligence, and works to respond to situations promptly and appropriately.

Under the belief that transparent, timely, and appropriate disclosure of information is a responsibility of companies, we strive to impartially disclose information to all stakeholders. We aim to build mutual understanding through communication, so that we can engage in business aligned with our stakeholders.

# Progress of the 2015 3-Year Business Plan

## Status of Progress of the 2015 3-Year Business Plan

The top priorities in the 2015 3-Year Business plan for our mineral resources business are full-scale production at the Sierra Gorda Copper Mine and acquiring new gold mine interests. The Sierra Gorda Copper Mine suffered a decline in production in FY2016 due to trouble with facilities, but in FY2017 we strengthened facility maintenance and improved operation rates, resulting in an increase in production volume. Regarding new gold mines, we are participating in the Côté Gold Project in Canada.

In our smelting and refining business, we completed a project that increased annual production of nickel from Taganito HPAL Nickel Corporation from 30,000 tons to 36,000 tons and also began recovery of scandium and chromite, by-products of the HPAL production process. In the copper smelting business, we continued to operate at full-scale operation and, by increasing the processing of profitable raw materials, we maintained profitability as a top-class copper smelter and refinery business on a global level.

In our materials business, in FY2017 we established a battery materials production system that increased monthly production from 1,850 tons to 3,550 tons and we are currently working on further raising monthly production to 4,550 tons. For LT/LN, although we established a production system that increased monthly production from 300,000 pieces to 400,000 pieces, sales volumes fell significantly short of those initially planned so we are now working toward reducing costs and improving yield for the next period of high demand.

We are continuing to focus resource allocation on research and development and are working on accelerating the development of new materials products and innovating resource smelting and refining technology.

### ■ 2015 3-Yr Business Plan Priorities and Status

#### Mineral Resources

##### Full-scale production at the Sierra Gorda Copper Mine

Improving capacity utilization

##### Acquisition of new gold mine interests

Participating in the Côté Gold Project in Canada

#### Smelting & Refining

##### Expanding Taganito HPAL Nickel Corporation

Construction for 20% production increase completed

##### Advancing growth strategies using peripheral HPAL technologies

Decision to start commercial production of scandium and chromite

##### Enhancing competitiveness of the copper smelting business

Continuation of full-scale operation and increased processing of profitable materials for maintained profitability as a top-class copper smelter and refinery business on a global level

#### Materials

##### Profit contribution from expanded battery material and LT/LN production

Battery materials contributed to an increase in sales and profits with the establishment of a production system to increase production.

Promoting LT/LN cost reductions and thorough yield improvement to prepare for increased demand.

##### Sustainable innovation and adaptation of next-generation products

Aiming to market new products through collaboration with the R&D division and building close relationships with customers

#### R&D

##### Developing new products and processes

Continuing to focus resource allocation on research and development and working on accelerating the development of new materials products and innovating resource smelting and refining technology

## Changes in the Business Environment Surrounding SMM

The overall global economy during FY2017 shifted tracks from recovery to expansion. Although protectionism grew in the United States, and geopolitical risks surrounding the situations in North Korea and the Middle East were heightened, global stock prices remained high reflecting improvements in corporate earnings and the easing of concerns over the slowing-down of the Chinese economy. In the non-ferrous metals industry, both copper and nickel prices continued an upward trend in general, and rose year-on-year. In industries related to the materials business, demand for automobile battery materials continued to increase. As for materials such as those for smartphones, the selling environment remained firm overall, although there was significant impact from customers' prolonged inventory adjustment for crystal materials. Exchange rates generally stayed within a narrow range.

In FY2018, the overall global economy is expected to continue its gradual growth, including strong performance in the United States, a continued gradual recovery in Japan and Europe, and continued economic upturns in China and other emerging nations. However, there is no small number of uncertain factors threatening an economic downturn, including the economic outlook of China and other emerging nations as well as resource-rich countries, increased protectionism in the United States, and the trend set off by the UK's exit from the EU. In the non-ferrous metals industry, copper and nickel supply and demand is expected to remain in a near state of equilibrium or face a slight supply shortage, while prices are expected to maintain levels in line with the balance of supply and demand. As for industries related to the materials business, in general, favorable conditions are expected to continue in the areas of automotive applications and communications.

### ■ Changes in the Business Environment

#### 1. Increase in cost of mine development

- 1) Higher, deeper, and more remote locations of mines
- 2) Handling declining ore grade and difficult-to-process ores (impurities)
- 3) Strengthening of environmental regulations
- 4) Higher hurdles to acquire a social license to operate

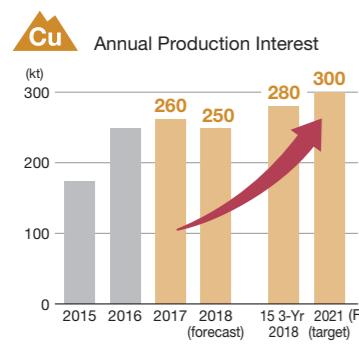
#### 2. Growth of mineral resource nationalism

- 1) Export restrictions on unprocessed ores, etc.
- 2) Moves to introduce various royalties
- 3) Moves to strengthen taxation
- 4) Moves to strengthen environmental regulations

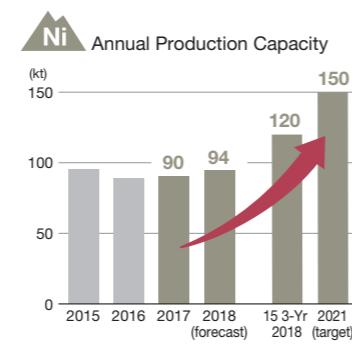
#### 3. Global EV acceleration and massive reform through IoT, AI, etc.

- 1) Development of business partnerships to secure raw materials
- 2) Entry of players from different industries and stiffening of competition accompanying structural changes

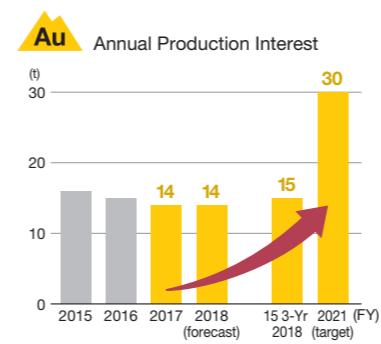
### ■ Targets of and Initiatives toward Our Long-Term Vision



With regards to copper, our 300,000-ton target of annual production from our interests is in sight, with the additional interests in the Morenci Copper Mine and stable operation at the Sierra Gorda Copper Mine, in addition to copper mines already in operation. However, we are pursuing the possibility of obtaining further interests.



In FY2017, we produced a total of approximately 94,000 tons, when converted to pure nickel, and are very close to achieving stable annual production of 100,000 tons. In addition, our long-term vision draws the idea of raising that to 150,000 tons annually by securing new mineral resources.



Through entry into the Côté Gold Project we increased our annual production interests approximately 2.7 tons. However, due to our sale of the Pogo Gold Mine, there is still a large gap with our FY2021 target of 30 tons, so we are continuing to search for superior opportunities.



Through collaboration between the Materials Division and the Research & Development Division, we aim to accelerate new materials development and aim for an annual profit contribution of ¥5 billion from new materials by FY2021.

# FY2017 Results and FY2018 Plan

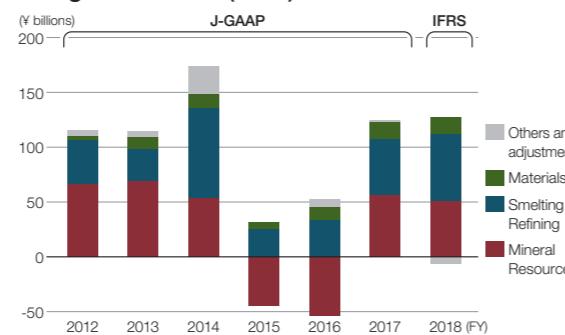
## Review of FY2017 Results

Consolidated net sales in FY2017 increased by ¥147.4 billion on a year-on-year basis to ¥933.5 billion, mainly due to the rise in major non-ferrous metals prices and yen depreciation. Consolidated operating income amounted to ¥110.2 billion, a year-on-year increase of ¥33.8 billion, mainly due to an increase in net sales. Consolidated recurring profit increased by ¥126.4 billion year-on-year to ¥124.9 billion, mainly due to a decrease in share of loss of entities accounted for using equity method for the Sierra Gorda Copper Mine, in addition to an increase in consolidated operating income. Profit attributable to owners of parent increased by ¥110.2 billion year-on-year to ¥91.6 billion, due mainly to an increase in consolidated recurring profit.

## Metal Prices

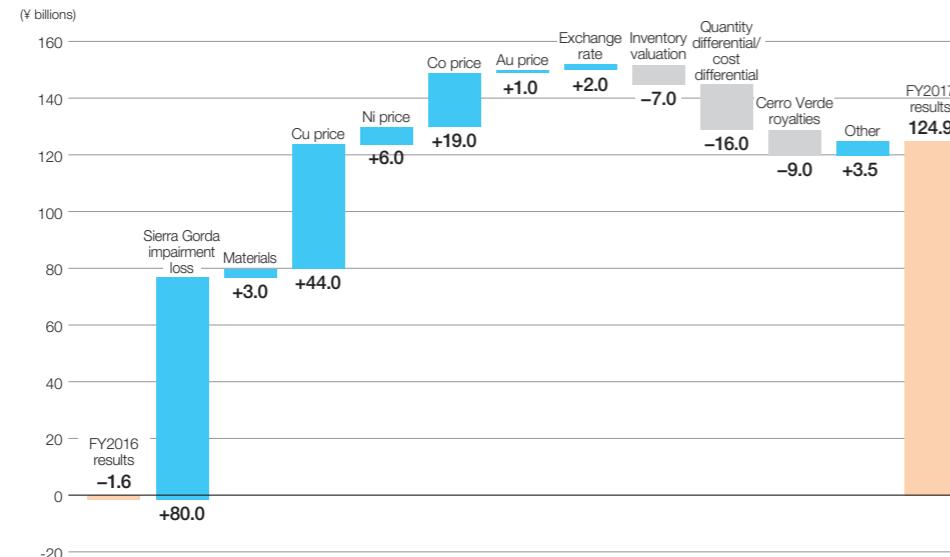


## Segment Profits (Loss)



The data used for values shown for fiscal years up to and including FY2017 is based on recurring profit or loss (J-GAAP), while data used for forecasts for FY2018 is based on profit before tax (IFRS).

## Recurring Profit Analysis (FY2016 vs. FY2017) (Segment Profit = Recurring Profit)



## Mineral Resources Segment

Segment loss recovered significantly year-on-year, mainly due to a decrease in share of loss of entities accounted for using equity method for the Sierra Gorda Copper Mine and an increase in copper prices, despite the reporting of royalties levied on mining companies for prior years at the Cerro Verde Copper Mine.

## Smelting & Refining Segment

Segment profit grew compared to the previous fiscal year, due mainly to the rise in non-ferrous metals prices as well as depreciation of the yen. Production levels and sales volume of gold increased year-on-year. However, production levels and sales volume of nickel, ferronickel, and copper declined year-on-year. Production levels of Coral Bay Nickel Corporation and Taganito HPAL Nickel Corporation remained at levels similar to the previous fiscal year.

## Materials Segment

Segment profit grew compared to the previous fiscal year, due mainly to strong sales of battery materials amid growing demand, despite a significant year-on-year decline in the sales volume of crystal materials for materials for smartphones due to prolonged inventory adjustment by customers, and the impact of withdrawal from the lead frame business.

## FY2018 Plan

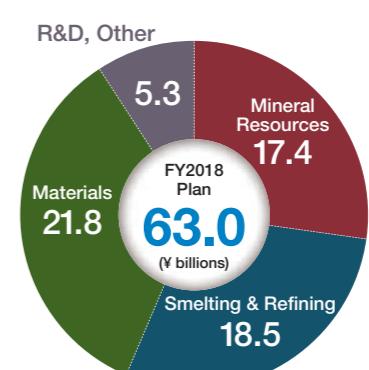
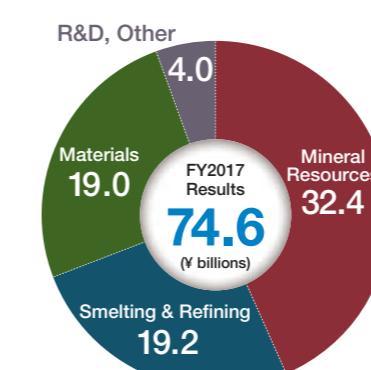
In FY2018, although prices of non-ferrous metals are expected to rise, net sales are expected to remain roughly on par with FY2017, due mainly to the appreciation of the yen and lower volume of ore sold. Consolidated net sales are expected to reach ¥930.0 billion, with profit before tax of ¥121.0 billion, and profit attributable to owners of parent of ¥94.0 billion.

## Capital Expenditure Related to Environmental Preservation

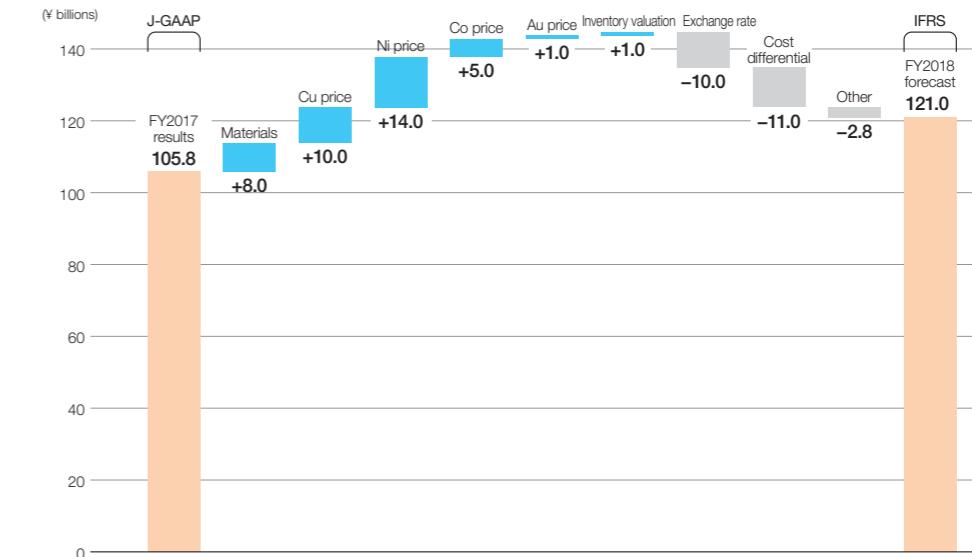
FY	Pollution prevention/environmental preservation	Energy conservation	Total
2017	4,343	198	4,541
2018 (plan)	6,927	93	7,020

For FY2018, we plan capital expenditures of ¥63.0 billion, a decrease of ¥11.6 billion from ¥74.6 billion in FY2017. Major investments include ¥11.2 billion for increasing production of battery materials and ¥1.0 billion for launching a chromite recovery business.

## Capital Expenditures (FY2017 Results and FY2018 Plan)



## Analysis of Profit Before Tax (FY2017 Results vs. FY2018 Forecast) (Segment Profit = Profit Before Tax)



## Mineral Resources Segment

Due to factors such as the effects of the appreciation of the yen and a reduction in capacity utilization at Pogo Gold Mine, net sales for the segment are expected to decrease by ¥8.1 billion year-on-year to ¥630.0 billion. However, segment profit is expected to increase by ¥4.8 billion year-on-year to ¥51.0 billion.

## Smelting & Refining Segment

Due to factors such as the effects of the appreciation of the yen, net sales for the segment are expected to increase by ¥41.6 billion year-on-year to ¥227.0 billion and segment profit is expected to increase by ¥7.8 billion year-on-year to ¥15.0 billion.

## Materials Segment

Due to factors such as an increase in sales of crystal materials, net sales for the segment are expected to increase by ¥41.6 billion year-on-year to ¥227.0 billion and segment profit is expected to increase by ¥7.8 billion year-on-year to ¥15.0 billion.

The Company has decided to voluntarily apply IFRS from FY2018. Consequently, our forecasts of segment profit or loss for FY2018 are calculated based on IFRS. Furthermore, this time only, the FY2017 business performance figures are approximations of segment profits and losses calculated on the basis of profit before tax according to J-GAAP for reference purposes, since an accurate, simple comparison with values is not possible.

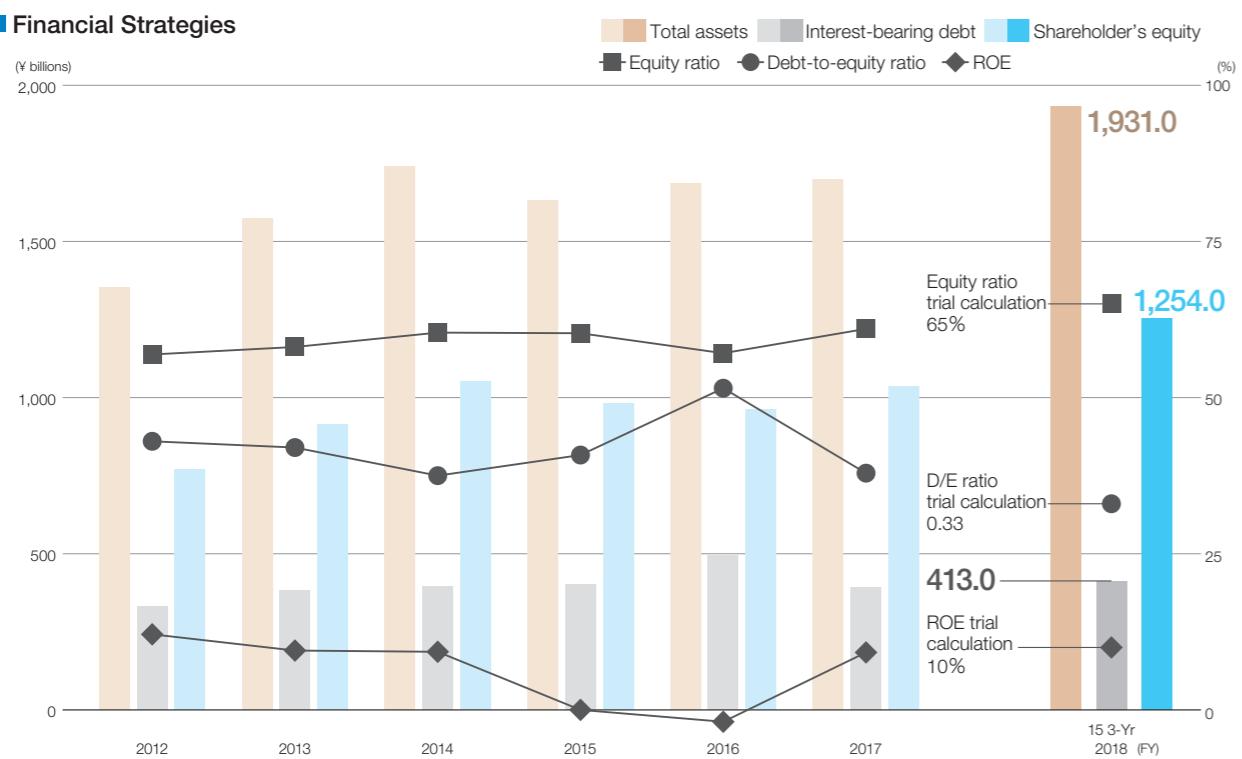
## Approach to Finance

### Maintaining a Sound Financial Standing in Preparation for Risk and Medium- to Long-Term Investments

The short-term performance of SMM's core businesses, mineral resources, and smelting and refining, is greatly affected by the volatility of non-ferrous metal prices and foreign exchange rates.

To prepare for risks and medium- to long-term investments, the SMM Group has always strived to maintain the soundness of its financial standing, and has maintained a consolidated equity ratio of at least 50% since FY2006. Under our 2015 3-Yr Business Plan, which covers FY2016 to 2018, we are continuing to leverage this strong financial base and concentrate management resources into priority areas, actively invest to acquire

#### Financial Strategies



#### Approach to Funding

We believe it is necessary to maintain a certain amount of liquid funds on hand based on overall demand for funds such as large-scale overseas mining or processing projects or strategic expansions within the materials business. This is essential from the standpoint of management stabilization.

Under that premise, we will procure funding that is favorable in accordance with the use of the funds, and also comprehensively consider the outlook for non-ferrous metal prices and currency exchange, and interest rate markets.

interests and operate overseas mines, enhance smelting and refining facilities in Japan and overseas, and expand battery production capacity.

Improving ROA is an important management barometer for the SMM Group. However, in mining or smelting and refining projects, it usually takes about five years before starting to recover the investment. By the nature of our business, it is difficult to engage in projects while simultaneously aiming simply to improve ROA or ROE for a certain year. Therefore, SMM sets ROA improvement as a medium- to long-term goal.

experience and knowledge of exploration and mine valuation, and fully taking risks into account to avoid any additional expenditure or increase of mining costs arising from uncertainty.

In FY2016, we increased our existing 12% interest in the Morenci Copper Mine with the acquisition of an additional 13% from Freeport-McMoRan Inc. The mine boasts world-class copper production and a long history of operation in the U.S. We believe that this mine will play a vital role in SMM's mineral resources business.

The needs and demands in the materials market change rapidly, even though a high level of product development capabilities and the input of considerable amounts of management resources are often required. In order to meet those needs, the SMM Group will build close, trusting relationships with leading companies in the market, and will grow together with them to ensure stable supply and by undertaking ceaseless cost reductions.

## Approach to Investment

### Cautiously Assessing Profitability and Executing Carefully Selected Investments

The SMM Group works to enhance its competitiveness in both raw materials procurement and manufacturing to overcome a deteriorating business environment. In terms of cost competitiveness of smelting and refining in particular, we have set a target to become world-class, or at least ranking in the top one-third.

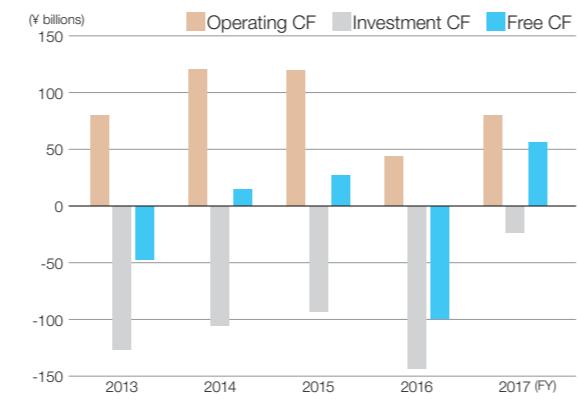
Due to uncontrollable factors such as changes in the balance of supply and demand for commodities and the impacts of natural disasters, it is not always possible to purchase the raw materials for non-ferrous metals in the necessary quantities or at economical prices. To hedge against such unforeseen changes, we do everything possible to secure stable sources by developing and acquiring interests in overseas mines, as well as through increasing SMM's holding ratio of these sources.

With respect to the development and acquisition of such sources, we select investments carefully through strict profitability assessments leveraging our extensive

#### Major Projects

Project name	FY2015	FY2016	FY2017	FY2018 and later
Mineral Resources				
Sierra Gorda Copper Mine	● Start commercial production	● 110-kt production structure		● Start debottlenecking
Morenci Copper Mine	● Start expanded full-scale production	● Acquisition of additional interest (12%→25%)		
Cerro Verde Copper Mine		● Start expanded full-scale production		
Solomon			● Decision to withdraw	
Cote			● Acquisition of interest and start feasibility study	
Smelting & Refining				● 36-kt production structure
THPAL				● Conduct DFS
Pomalaa Project				● Decision on investment
Harima Refinery nickel sulfate		● Second line launch		● 49-kt production structure
Materials				● Launch ternary materials
Battery materials		● NCA 1,850-t structure		● NCA 3,550-t structure
Crystal materials (LT/LN)	● Decision on production increase	● 300-k piece production structure		● (400-k piece production structure)

#### Cash Flow Trends



#### Dividend Policy

SMM determines the balance between dividends and the internal reserve by taking into consideration factors such as future business development, sound financial standing, operating performance and the payout ratio. As our financial strategy in the 15 3-Yr Business Plan, we have the policy of maintaining a consolidated equity ratio above 50% while also having a consolidated dividend payout ratio of at least 30% based on operating performance, in order to sustain our sound financial standing.

