

# Opportunities and Risks

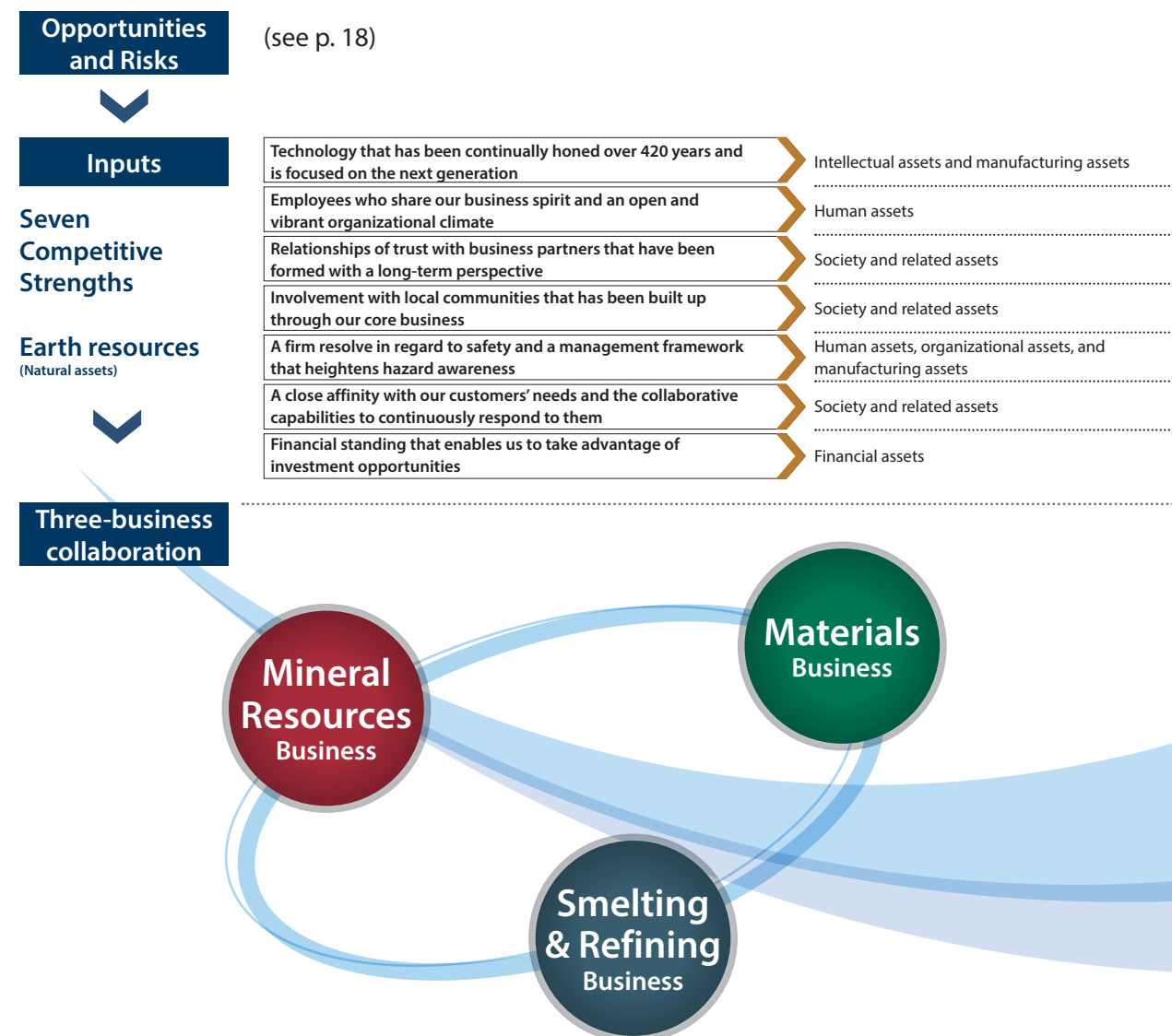
As the SMM Group advances value creation, it is unavoidable that our management will have to tackle opportunities and risks. We have established a medium- to long-term strategy based on our Seven Competitive Strengths and by working to maximize opportunities and reduce risks, we are balancing the maximizing of corporate value with disciplined management to contribute to realizing a sustainable society.

External Environment	Risks to the Group	Opportunities for the Group	Three Main Basic Strategies (see p. 45)	Strategies	Competitive Strengths
<b>1 Current situation and issues regarding governments and policy</b> <ul style="list-style-type: none"> <li>• Sharp rise in protectionism</li> <li>• Growing state capitalism</li> <li>• Stricter regulation accompanying environmental destruction</li> <li>• Heightening mineral resource nationalism</li> </ul>	<ul style="list-style-type: none"> <li>■ Fall in profits due to increased taxation</li> <li>■ Increase in the cost of investing in and operating mines and refineries</li> </ul>	<ul style="list-style-type: none"> <li>■ Procure stably from mine interests possessed</li> <li>■ Realize the advanced processing of local nickel ores through HPAL plants</li> </ul>	<b>1 Strengthen the growth foundation</b>	<ul style="list-style-type: none"> <li>• Leverage our extensive experience and knowledge of exploration and mine valuation to carry out selective investment that fully considers cost competitiveness and country risk</li> <li>• Avoid taxation risk through local smelting and refining using HPAL plants</li> </ul>	<ul style="list-style-type: none"> <li>• Technology that has been continually honed over 420 years and is focused on the next generation</li> <li>• Involvement with local communities that has been built up through our core business</li> <li>• Relationships of trust with business partners that have been formed with a long-term perspective</li> <li>• Financial standing that enables us to take advantage of investment opportunities</li> </ul>
<b>2 Current situation and issues regarding the business environment</b> <ul style="list-style-type: none"> <li>• Metal price and forex movement</li> <li>• Commodification of technology</li> <li>• Rising awareness regarding the forming of a sustainable society</li> </ul>	<ul style="list-style-type: none"> <li>■ Fall in profits</li> <li>■ Fall in price and decline in superiority of material products</li> <li>■ Decline in superiority of HPAL technology</li> <li>■ Rise in development and operation costs in response to the demands of society (carbon taxes, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>■ Rise in demand for nickel, cobalt, and copper accompanying growth in demand for electric vehicles</li> <li>■ Rise in demand for cathode materials accompanying growth in demand for electric vehicles</li> </ul>	<b>1 Strengthen the growth foundation</b> <b>2 Strengthen three-business collaboration</b> <b>3 Strengthen corporate functions</b>	<ul style="list-style-type: none"> <li>• Actively engage in measures to tackle climate change</li> <li>• Build a framework for sustainable new product creation</li> <li>• Strengthen cost competitiveness by turning by-products from HPAL plants into resources</li> <li>• Further strengthen collaboration between the three businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Employees who share our business spirit and an open and vibrant organizational climate</li> <li>• Technology that has been continually honed over 420 years and is focused on the next generation</li> <li>• A close affinity with our customers' needs and the collaborative capabilities to continuously respond to them</li> <li>• Financial standing that enables us to take advantage of investment opportunities</li> </ul>
<b>3 Current situation and issues regarding resource development</b> <ul style="list-style-type: none"> <li>• Resource depletion</li> <li>• Growing seriousness of accidents and disasters</li> <li>• Growing awareness of human rights</li> </ul>	<ul style="list-style-type: none"> <li>■ Increase in the cost of investing in and operating mines</li> <li>■ Stronger competition for acquiring interests in superior mines</li> <li>■ Delay and/or withdraw from projects due to opposition from local communities</li> </ul>	<ul style="list-style-type: none"> <li>■ Collaborate with business partners building good relationships</li> <li>■ Increase in demand for the procurement of conflict-free resources</li> </ul>	<b>1 Strengthen the growth foundation</b> <b>2 Strengthen three-business collaboration</b>	<ul style="list-style-type: none"> <li>• Continue to build relationships with good partners</li> <li>• Build relationships of trust with local communities</li> <li>• Further strengthen collaboration between the three businesses</li> </ul>	<ul style="list-style-type: none"> <li>• Relationships of trust with business partners that have been formed with a long-term perspective</li> <li>• Involvement with local communities that has been built up through our core business</li> <li>• Technology that has been continually honed over 420 years and is focused on the next generation</li> <li>• Employees who share our business spirit and an open and vibrant organizational climate</li> </ul>
<b>4 Current situation and issues regarding work environments</b> <ul style="list-style-type: none"> <li>• Decreasing working-age population due to dwindling birth-rates and aging populations</li> </ul>	<ul style="list-style-type: none"> <li>■ Decrease production due to labor shortages</li> <li>■ Loss of opportunities to participate in new projects due to a lack of human assets</li> </ul>	<ul style="list-style-type: none"> <li>■ Evolve and develop digital technology and streamlining and labor-savings as it enhances infrastructure (IoT, AI, VR, 5G, etc.)</li> </ul>	<b>1 Strengthen the growth foundation</b> <b>3 Strengthen corporate functions</b>	<ul style="list-style-type: none"> <li>• Strengthen recruitment of new graduates</li> <li>• Ensure diversity by actively recruiting mid-career employees who can hit the ground running</li> <li>• Enhance training systems</li> <li>• Expand opportunities in the Materials business</li> </ul>	<ul style="list-style-type: none"> <li>• Technology that has been continually honed over 420 years and is focused on the next generation</li> <li>• Employees who share our business spirit and an open and vibrant organizational climate</li> <li>• A firm resolve in regard to safety and a management framework that heightens hazard awareness</li> </ul>

## Business Model

### Become a World Leader in the Non-Ferrous Metals Industry Through a Collaboration Model Between Mineral Resources, Smelting & Refining, and Materials

The SMM Group, which started as a copper smelting and refining business 420 years ago, has organically diversified to engage in mine development to acquire superior resources and a materials business that adds new value to metals produced by the company. As a result of selection and concentration based on our growth strategy, we designed a model in which our three businesses collaborate and today we have established a business model that cannot be easily emulated by other companies. In our 2018 3-Year Business Plan, we have further strengthened collaboration between the three businesses with a central role for electric vehicles.



#### Long-Term Vision

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

Achieve sustainable growth and maximize corporate value

#### Outcomes

#### Solve social issues and contribute to realizing a sustainable society together with our partners

Providing value for customers and business partners leads to solutions for social issues and contributions to realizing a sustainable society.

- The securing of mineral resources and swift, stable development, production, and supply structures
- The generation of wisdom through the application of knowledge and experience
- The securing of long-term profits through participation in highly difficult resource development projects
- Co-existence with the local communities and preservation of the global environment
- Stronger unity between employees and the building of long-term relationships of trust with suppliers
- Contributions to new industries through the expansion of uses of resources
- The return of profits to investors through appropriately timed investments

#### Outputs

Nickel (Ni)	Annual production capacity of 150 kt
Copper (Cu)	Annual production interest of 300 kt
Gold (Au)	Participation in new mine operations through the acquisition of superior interests
Materials	Achievement of annual profit before tax of ¥25.0 billion through portfolio management
Profit	Annual profit ¥150.0 billion

#### Competitive Capabilities Generated by our Unique Three-Business Collaboration Model

- Greatly reduced procurement risk due to the sharing of controlled resource development and supply and demand trends
- Efficient collaboration such as new product development with materials business customers through the sharing of technological information concerning non-ferrous metals
- A stable supply of cathode materials for electric vehicle secondary batteries made possible by collaboration between the smelting & refining and materials businesses
- Optimized characteristics in the materials we supply realized through collaboration between the smelting & refining and materials businesses
- Advance knowledge and expansion of mining business opportunities through collaboration between the mineral resources and smelting & refining businesses
- Cutting-edge innovation through the collective wisdom possessed by human resources with diverse backgrounds

# Our Vision for 2020 and Material Issues

The social conditions surrounding the SMM Group and the demands of the times continue to change. In our Six CSR Areas of High Priority, the SMM Group has put forth its Vision for 2020 to establish the directions that we must pursue, and is assessing our achievement of these through KPIs. With the aim of sustainable co-existence with the global environment as advocated in our Corporate Philosophy, we will actively tackle these areas and achieve sustainable growth.

## The Background to Our Efforts

### Effective Use of Resources

The mining of mineral resources reduces and eventually depletes reserves. As the business of the SMM Group is built on the utilization of these valuable but limited natural resources, the effective use of resources is a key management issue for the sustainable development of our business. We are tackling the effective utilization of low-grade ores, hard-to-process ores, and other unused resources through technological development aimed at using by-products as resources. At the same time, from the perspective of resource recycling, we are advancing cost optimization while moving forward with effective recovery technologies.

### Environment Preservation

The risk of climate change has come to be recognized as a societal issue, and international countermeasures continue to move forward, as seen in the Paris Agreement. In addition, considerable thought is being given to the preservation of biodiversity and of local communities' living environments in areas undergoing development, as this preservation is very likely to be connected to people's lifestyles and interests. As the SMM Group handles a large number of chemical substances in our manufacturing activities and generates a relatively high amount of CO<sub>2</sub>, as well, it is vital that we engage in such environmentally considerate initiatives. We are working to reduce our impacts on the environment, with a focus on the prevention of environmental pollution.

### Contribution to Society and Local Communities

Improving local communities' living environments through contributions to society in places where we engage in business is connected to the sustainable development of our Group's business in those regions. By engaging actively in economic activities such as employing people from surrounding communities and procuring from local suppliers, as well as by improving infrastructure, we contribute to the invigoration of local economies. Furthermore, through contributions to society such as improvement of sanitation and operation of schools and hospitals, we are working to improve co-existence and relationships of trust with local communities.

### Respect for People and Human Rights

An environment in which diverse people can fully exert their respective capabilities and take action is vital to the sustainable growth of a company. A material issue for the SMM Group is the development of diverse human resources that share our goals and the Sumitomo Group Corporate Philosophy, which is based on The Sumitomo Business Spirit. Moreover, respecting the human rights of not only the SMM Group's employees but of all of our stakeholders is one of our social responsibilities and is vital to the smooth execution of projects and business. To prevent violations of human rights in the areas where we operate, we undertake all due considerations and exchange information with partner companies at mines where we hold interests.

### Occupational Health and Safety

Safe and sanitary workplaces lead to greater employee motivation, to relationships of trust with the company, and eventually to improved retention rates, the stable supply of products, greater production efficiency, cost reductions, and other positive effects. To achieve this, it is important that we move to strengthen essential measures for equipment safety, as well as improve employees' hazard awareness and ability to respond to hazards, under appropriate occupational health and safety management systems. We are taking action to do so, under this declaration in our CSR Policy: "According safety the highest priority, SMM shall provide safe, comfortable working environments and seek to eliminate occupational accidents."

### Stakeholder Communication

A company must identify the stakeholders that can be considered to bear impacts from the company's business, and must bear accountability for how it has met those expectations and concerns. Under the belief that transparent, timely, and appropriate disclosure of information is a responsibility of companies, the SMM Group works to impartially disclose information to related stakeholders. To meet their expectations, we seek to deepen mutual understanding through open communication.

## 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

▶ See p. 91 for details.



### Environment 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

▶ See p. 92 for details.



### 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

- Communicate with local communities to recognize social issues in regions where we do business, and implement programs to support solutions to those issues.
- 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.
- Provide support for recovery and reconstruction after large-scale disasters.
- Allocate financial resources for initiatives above.

▶ See p. 93 for details.



### 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

▶ See p. 94 for details.



### Occupational Health and Safety

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

#### KPI

- Ensure safety
- Provide comfortable working environments

▶ See p. 96 for details.



### 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 civil society organizations
- Encourage mutual understanding with shareholders and investors
- Encourage mutual understanding with other stakeholders

▶ See p. 97 for details.



# Material Issues for the SMM Group

The 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. Below is an explanation of the background to these material issues, from four perspectives: management issues, risks, development and making the most of human resources, and the ESG initiatives that form the foundation for all of our activities.

## Global Management Issues

As the profitability of the SMM Group is greatly affected by metals prices and exchange rates, strengthening our cost competitiveness is vital. At the same time, resource development and the smelting and refining business cannot continue unless they are accepted by local communities. In order to bring projects to success over the long term, it is necessary that we not commit ourselves simply to success that lies immediately before us, but rather invest in communities and engage in local hiring and procurement, building relationships of trust with the local communities where we engage in business. Together with legal approvals to operate business, we consider the earning of a "social license to operate" based on relationships of trust with communities as a major premise of our business continuity. Addressing such issues will connect to the sustainable operation of business.

## Risks

Amid global recognition of the importance of measures to combat resource depletion and climate change risks, working toward environmental risk management and the reduction of environmental impacts in our corporate activities is an issue that we must actively undertake. In the business of the SMM Group, activities such as mine development and metal smelting and refining in plants have a great effect on local environments. We also handle many chemical substances in our business activities and release relatively large quantities of greenhouse gases. Accordingly, we must undertake environmental countermeasures from a long-term perspective. Moreover, in order to secure and stably supply limited global resources, it is vital that we advance the effective use and recycling of low-grade ores and other unused resources and by-products.

## Development and Making the Most of Human Resources

In order for a company to continue its corporate activities and grow its business sustainably, securing and developing human resources is indispensable. Taking into account the shrinking labor forces that accompany aging societies in advanced countries, there is a need for development of the human resources who will carry forward technology and personal networks, and for initiatives aimed at respect for diversity of employees' values and equalization of opportunities. By reconstructing a free and open organizational culture, the SMM Group seeks to prepare an environment in which employees can take individual action and exert their capabilities. What is first essential to achieving this is the assurance of safety. Under a powerful determination to keep any major accident from happening again, it is important that we always enhance our hazard awareness, actively invest in technologies and equipment for safety, and work to ensure occupational health and safety.

## ESG Initiatives that Form the Foundation for All of Our Activities

In the performance of business activities, companies exert impacts on their various stakeholders, and experience those impacts as well. For the survival and sustained growth of a company, it is important to understand diverse stakeholders' demands and changes in those demands through communication, and to build and maintain relationships of trust. The foundation for this is respect for human rights. Among vital issues in this area are survey activities aimed at avoiding involvement in human rights violations through the supply chain, and respect for the rights of not only the SMM Group's employees but also local communities and indigenous peoples who are affected by our business activities.

## The Twenty-Six Material Issues and the Purpose of Initiatives

The Six CSR Areas of High Priority	The Twenty-Six Material Issues	
Effective Use of Resources		<b>Effective Use of Resources</b> <span>Growth Potential</span> <ul style="list-style-type: none"><li>Utilizing unused resources (low-grade/hard-to-process ores)</li><li>Development of new applications and effective use of by-products</li><li>Exploration and development of new resources</li></ul>
		<b>Consideration of the Ecosystem and Preservation of Biodiversity</b> <span>Sustainability</span> <ul style="list-style-type: none"><li>Energy conservation at SMM business sites</li><li>Respect for nature preservation areas</li><li>Preservation and restoration of ecosystems in areas where we do business</li><li>Minimizing chemical substance emissions into the air, water, and soil (including in our portfolio companies and supply chain)</li><li>Reduction of release and transfer volume of chemical substances</li><li>Waste management</li></ul>
Environment Preservation		<b>Development and Stable Supply of Products with Low Environmental Impact</b> <span>Growth Potential</span> <ul style="list-style-type: none"><li>Development of products and technologies that contribute to reducing environmental impact</li></ul>
		<b>Contribution to Society and Local Communities</b> <span>Sustainability</span> <ul style="list-style-type: none"><li>Community investments</li><li>Local hiring</li><li>Local procurement</li><li>Utilization of partnerships</li><li>Management of closed mines</li><li>Recovery support for areas affected by devastating disasters</li></ul>
Contribution to Society and Local Communities		<b>Development of Human Resources and Making the Most of Diverse Human Resources</b> <span>Growth Potential</span> <ul style="list-style-type: none"><li>Human resources development</li><li>Diversity and equal opportunity</li></ul>
		<b>Occupational Health and Safety</b> <span>Sustainability</span> <ul style="list-style-type: none"><li>Ensure safety</li><li>Secure occupational health</li></ul>
Respect for People and Human Rights		<b>Communication and Respect for Human Rights</b> <span>Foundation</span> <ul style="list-style-type: none"><li>Protection of employees' human rights</li><li>Avoidance of contributing to human rights infringements with our supply chain</li><li>Respect for the rights of indigenous people</li><li>Engagement with local communities</li><li>Engagement with employees</li><li>Communication with shareholders and investors</li></ul>
		<b>Stakeholder Communication</b>

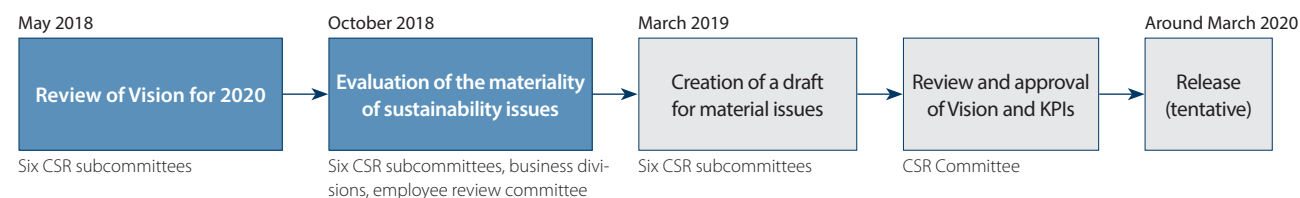
■ Material issues related to the sustainability of our business  
■ Material issues related to the growth of our business  
■ Material issues underlying all of our activities

# Toward the Formulation of the SMM Group's Vision for 2030

2030

Calling for sustainable co-existence with the global environment in our Corporate Philosophy, the SMM Group has worked to solve social issues through our business while communicating with diverse stakeholders. Our Vision for 2020, established as one indicator of directions for creating value, will shortly reach its final year. We are next setting a Vision with 2030 as its target year. Taking a sustainable society as our aim, during FY2019 we will formulate a new Vision that is linked to the SDGs that share the same target year.

## ■ Formulation Process



## ■ Review of Vision for 2020 Evaluation of main initiatives and issues for the future (examples)

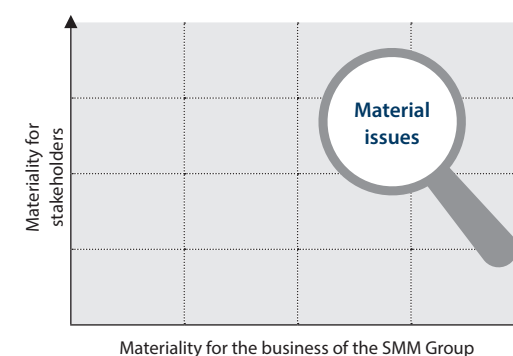
	Goals and KPIs	Evaluation	Reason for evaluation	Future issues
Effective Use of Resources	<b>Promote recycling</b> Improve our effective use of recycled resources	○	• In the development of the LIB recycling process, we developed a process for the generation, leaching, and refinement of battery raw materials from detoxified battery scrap, using a pyrometallurgical process and a hydrometallurgical process.	• With the rapid proliferation of electric vehicles (EVs), the early launch of battery recycling plants, and their expansion to meet this proliferation, are expected.
Environment Preservation	<b>Advance biodiversity preservation initiatives</b> Implement global warming counter-measures Achieve a 5-fold expansion of revenue (measured against FY2011) from materials for products contributing to a low carbon society	◎	• Products with low carbon impact (battery materials (for EV batteries), ink materials (for infrared absorbing films for buildings and automobiles), and lead frame materials (for LED substrates)) continue to grow steadily, with sales in FY2017 reaching 6.04 times sales in FY2011.	• Development of solid-state batteries and other materials for new batteries, securing of raw materials, expansion of production and supply of battery materials through recycling, etc.
Contribution to Local Society and Local Communities	<b>Communicate with local communities to recognize social issues in regions where we do business, and implement programs to support solutions to those issues</b>	○	• In activities to contribute to society, Coral Bay Nickel Corporation and Taganito HPAL Nickel Corporation communicate with local government bodies and communities, and conduct activities that range from improvement of social infrastructure such as education and medicine to agriculture and other projects involved with people's livelihoods.	• We must take further steps toward employees' participation in volunteer activities, toward dialog and collaboration with NPOs and NGOs engaged in social issues, etc.
Respect for People and Human Rights	<b>Prevent major human rights infringements</b> Implement regular human rights due diligence (human rights DD) in three categories (employees, supply chain, local communities): once every 3 years	○	• With regard to employees, we surveyed the human rights support structure of all SMM Group sites through questionnaires. • With regard to local residents, we performed a test survey in the Hishikari District (FY2017). • With regard to the supply chain, we conducted hearings with four companies every year.	• We must move forward in creating mechanisms for human rights due diligence involving employees. • Regarding local communities, we must further move forward in considering the implementation of human rights due diligence in the regions of our overseas sites. • We must move ahead in addressing supply chains not only in Japan but also overseas.
Occupational Health and Safety	<b>Ensure safety</b>	X	• The number of accidents in recent years is about 14 (with one fatal accident in 2017). • Reduction of risks on site and reform of safety consciousness in top management at sites are both progressing, but we have not deterred accidents that are caused primarily by unsafe behavior.	• While engaging in communication with workers, top management and managing supervisors must assess and improve work sites based on "the three realities principle (real places, real facts, real things)," and must advance the creation of workplaces where activities follow procedures that fully take safety into consideration.
Stakeholder Communication	<b>Encourage mutual understanding with shareholders and investors</b> Publish integrated reports and improve their content	◎	• Since 2015, we have made preparations for the integration of related departments, and in October 2016 published our first integrated report on schedule. Incorporating revisions based on opinions received inside and outside the company, the FY2017 edition has received a degree of acclaim, including commendations from outside the company.	• The information disclosure demands on integrated reports, such as information on ESG investing and connections to the SDGs, are becoming more sophisticated and wide-ranging. We will strengthen our editing structure and polish the content of our reports.



### We held employee review committee meetings for our Vision (July to September 2018)

We conducted Vision review committee meetings with participation by 21 young management track employees and 20 Besshi district plant leader employees. The management track employees offered opinions on evaluation systems, business activities, the appeal of the SMM Group's initiatives, and other topics. The plant leader employees reviewed the initiatives on health and safety and environmental preservation related to Vision for 2020, and exchanged ideas from workplace-based perspectives. The opinions of the committee are being incorporated into the process of formulating Vision for 2030, including use as reference in evaluating the materiality of sustainability issues.

## ■ Results of Evaluation of the Materiality of Sustainability Issues



### Supplementary information

The term "sustainability issues" refers to the goals and targets of the SDGs and the GRI Standards, the industry rules and international norms of the ICMM and other groups, conditions in the year 2030 as predicted by bodies such as the OECD and IEA, and social issues organized in the reports of leading companies, especially Japanese and foreign companies in our industry.

The six CSR subcommittees evaluated materiality for stakeholders on the basis of the demands and expectations of stakeholders.

Our business divisions evaluated materiality for the SMM Group's business on the basis of impacts on our business.

## ■ Engagement with Experts (January 2019)

In formulating our Vision for 2030, based on our evaluation of the materiality of sustainability issues we held discussions and exchanged ideas with three experts concerning their evaluations of and expectations toward the SMM Group's initiatives.



**Mizue Unno** Representative Director, So-Tech Consulting Inc.

- Sustainability issues have now become business issues. Investors view sustainability issues as opportunities and risks for businesses.
- For the Mineral Resources business and Smelting & Refining business, gaining the trust of society has a higher importance than in other industries. SMM should consider how to better communicate the connections between its business and society.
- Just as Toyota is boldly changing into a "mobility company," SMM should also include innovation in its considerations. Among major resource companies overseas are those that have expressed visions with a change of business model in mind. Moreover, even if SMM takes its present condition as the starting point, in constructing its Vision the Group should perhaps develop an awareness that it cannot continue doing things in the same way that it has.
- "Partnership" is one of the goals of the SDGs, and the idea of "collective impact" exists as well. In its considerations, SMM should include cooperating with other organizations to carry out in what it cannot do on its own.



**Kaori Kuroda** Advisor, CSO Network Japan

- An "outside-in approach" is important. Thinking through the Vision, finding gaps with present conditions (i.e., issues), and considering measures should facilitate the birth of innovation. Another technique is to think through the steps of "output" for the sake of "outcomes," and initiatives to achieve this. SMM is already undertaking various forms of innovation, but does not seem to be successfully publicizing this.
- "Human rights due diligence (DD)" was a key word at the 2018 United Nations Forum on Business and Human Rights. In the business of the SMM Group, it is important to reconstruct and deepen mechanisms for human rights DD, to determine what sort of human rights violation risks are present.
- Regarding the human rights of local communities and indigenous peoples, and human rights in the supply chain, SMM should separately organize and consider these matters.



**Hidemi Tomita** Director, Lloyd's Register Japan K.K.

- Should the Vision address the year 2030 (10 years from now)? That year may be set as a milestone, but I understand that the resource business is a long, sustained one, and I feel that it would be ideal to set the Vision accordingly.
- As the "world leader in the non-ferrous metals industry" put forth in SMM's Long-Term Vision, I have expectations for a more positive Vision. Why not explicitly point to leveraging the SMM Group's strength in technology for making use of yet-unused resources? For the Mineral Resources business and Smelting & Refining business, thinking of safety as the top priority seems appropriate.
- "Business" and "sustainability" have been compared with a medical check-up. The idea is that financials are visible numbers for height and weight, non-financials are like the results of a blood test, and the results determine the health (quality) of the body. I suggest that the SMM Group consider what sort of vision to put forth for quality, not only quantity.



## The SDGs and the SMM Group

How can the SMM Group contribute to a sustainable society, and a society in which no one is left behind?  
Drawing material issues that involve both our stakeholders and our Group from the SDGs, we are considering our SMM Group Vision for 2030.

## What the SDGs Mean to the SMM Group

Adopted by the United Nations in 2015 with 2030 as its target year, the Sustainable Development Goals (SDGs) address a wide range of issues involving economies, societies, and the environment, with an aim of achieving a society in which no one is left behind.

The principle of sustainable co-existence with the global environment is shared by both the SDGs and the SMM Group Corporate Philosophy. In order for our Mineral Resources business, one of the core businesses of the SMM Group, to secure the mineral resources unevenly distributed in certain regions around the world, it is necessary that we continue business in those regions. From long ago in the Meiji era (in the 1900s), the SMM Group has made the building of sustained relationships with local communities a major premise of our business, as seen in reforestation work at the Besshi Copper Mine.

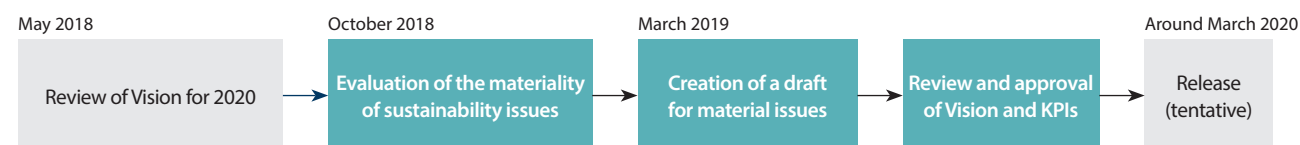
Regarding the SDGs that are so highly attuned to our Group's philosophy, in FY2018 we worked to enable learning and understanding of the SDGs by our officers and employees, through in-house lectures by experts, special features in in-house bulletins, the use of e-learning, and other means. At the same time, we are continuing activities that let people "experience" the SDGs, talking and working together with NPOs that support persons with disabilities, student and university NPOs, and other people undertaking advanced initiatives based on the principles of the SDGs (see a selection on the following page).

Toward the achievement of a sustainable society, we will formulate a Vision that further deepens our existing initiatives, and work with an awareness of partnerships aimed at the SDGs and other social issues.



**Shuichi Yasukawa**  
Executive Officer,  
General Manager of CSR Dept.

## The Relationship between Vision for 2030 and the SDGs



## The SMM Group's Initiatives Involving the SDGs



University SDGs ACTION! AWARDS 2019 (February 2019)

## Special Cooperation with the University SDGs ACTION! AWARDS 2019

SMM offered special cooperation with the University SDGs ACTION! AWARDS 2019 sponsored by The Asahi Shimbun Company. These awards support the activities of young people whose contributions will be vital to achieving the SDGs.

The final screening featured presentations on activity achievements and ideas by 12 groups, and workshops were held to generate suggestions to achieve the SDGs with the involvement of the businesses of the sponsoring companies. The SMM Group awarded the runner-up Sumitomo Metal Mining Award to Kindai University students who made a proposal for reducing unpaid labor by farmers and environmental burdens.



CSR Forum (April 2019)

## SMM CSR Forum (lecture meeting on social issues)

Shinsei is an NPO engaged in activities to support persons with disabilities in Koriyama, Fukushima Prefecture. We invited Director Tominaga of Shinsei to hold a lecture meeting on the theme of "a Fukushima in which no one is left behind." Shinsei was established after the Great East Japan Earthquake, and immediately after the Fukushima nuclear accident up to the present, it has cooperated with welfare offices on a variety of initiatives in the evacuation area. The NPO has now received the SDG Promotion Deputy-chiefs' Award (by the Chief Cabinet Secretary and the Foreign Minister) at the 1st Japan SDGs Awards.

After the lecture, a spot sale of the sweets, bags, and other goods sold by Shinsei was held. Learning from the activities of Shinsei, a group which puts into practice the "no one left behind" principle of the SDGs, provided us with an opportunity for deepening our understanding of the SDGs.



SDGs Networking Meet by the Ritsumeikan University Sustainable Week Steering Committee (April 2019)

## Special Support for the Ritsumeikan University SDGs Networking Meet

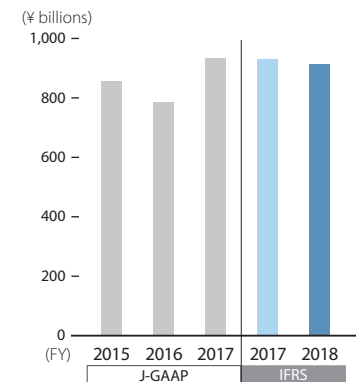
The steering committee of Sustainable Week, a student group at Ritsumeikan University, offers opportunities that let a variety of people and organizations feel connected to the SDGs and to take action.

Providing cooperation with the SDGs Networking Meet held by the steering committee, SMM presented a talk for students on the CSR activities that we conduct through our Group's business as company initiatives aimed at the SDGs.

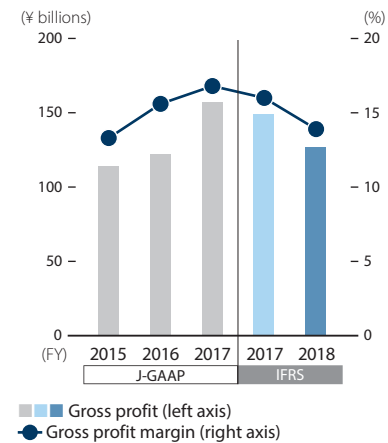
At the networking meet, we learned about students' diverse actions aimed at achieving the SDGs under a variety of ideas, which offered us an opportunity to gain new inspiration as a company.

# Financial and Non-Financial Highlights

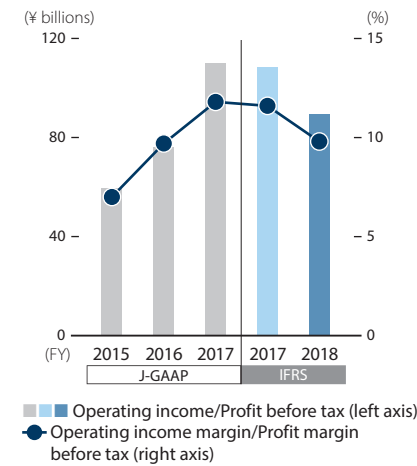
## Net Sales



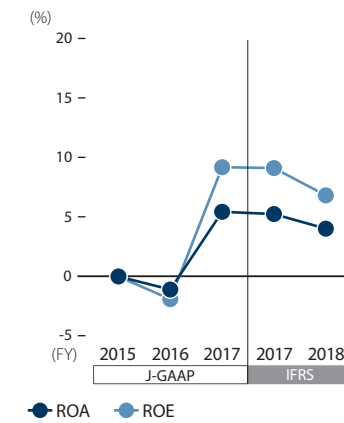
## Gross Profit/Gross Profit Margin



## Operating Income/Operating Income Margin Profit Before Tax/Profit Margin Before Tax (IFRS)



## ROA/ROE

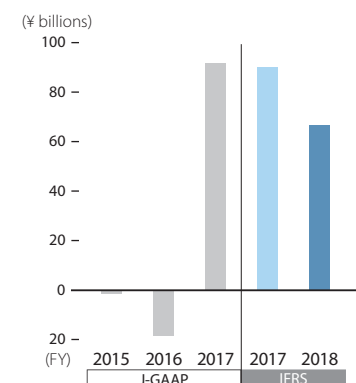


## Share Price by Fiscal Year

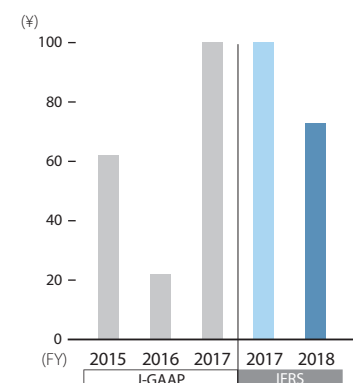
FY	Annual high (yen)	Annual low (yen)	Year-end (yen)	Volatility
2009	3,180	1,936	2,782	38.4%
2010	3,152	2,140	2,862	34.0%
2011	2,932	1,900	2,326	27.9%
2012	3,214	1,580	2,686	33.5%
2013	2,974	2,136	2,592	32.8%
2014	3,898	2,568	3,517	31.1%
2015	4,044	2,074	2,235	40.9%
2016	3,333	1,997	3,167	35.7%
2017	5,491	2,642	4,480	33.7%
2018	4,882	2,796	3,270	36.4%

• Volatility is calculated by annualizing the standard deviation of weekly closing prices for the 52 weeks of the year.  
• Prices before October 1, 2017 have been recalculated to be in line with the post-consolidation share basis.

## Profit Attributable to Owners of Parent

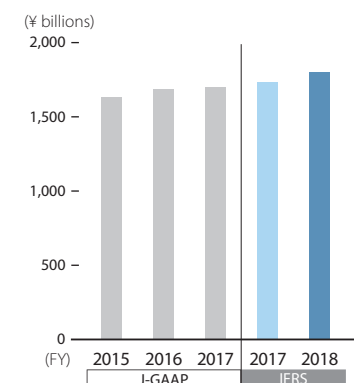


## Dividend per Share

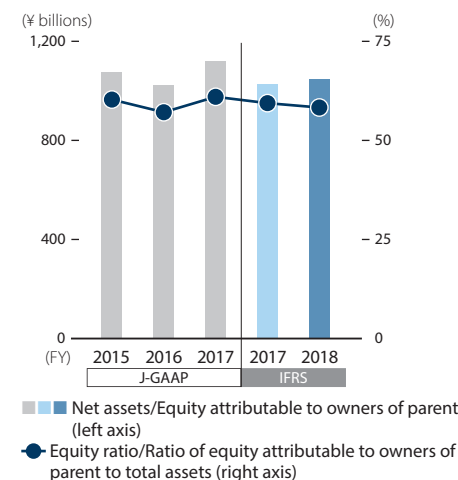


SMM consolidated its common stock at a rate of one share for every two shares with October 1, 2017 as the effective date. Values for 2015 and 2016 have been converted according to post-consolidation criteria.

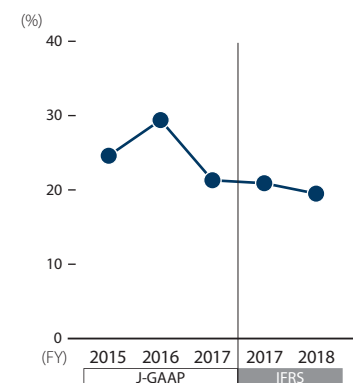
## Total Assets



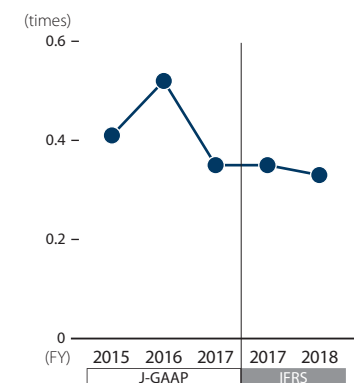
## Net Assets/Equity Ratio Equity Attributable to Owners of Parent/Ratio of Equity Attributable to Owners of Parent to Total Assets (IFRS)



## Interest-Bearing Liabilities to Total Assets Ratio



## Debt-to-Equity Ratio



## Share Price Performance (TSR)

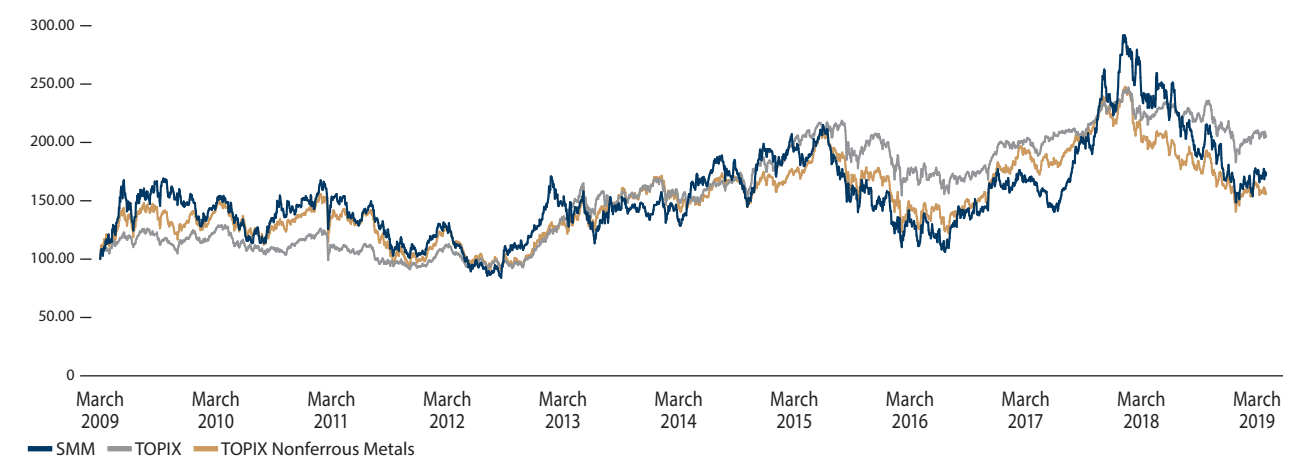
Investment period	1 year	3 years		5 years		10 years	
	Cumulative and Annualized	Cumulative	Annualized	Cumulative	Annualized	Cumulative	Annualized
SMM	-25.4%	55.0%	15.7%	39.8%	6.9%	108.6%	7.6%
TOPIX	-5.1%	25.5%	7.9%	45.0%	7.7%	138.0%	9.1%
TOPIX Nonferrous Metals	-19.9%	23.9%	7.4%	16.9%	3.2%	86.0%	6.4%

• TSR (Total Shareholder Return): Calculated using  $[(\text{share price at the end of the fiscal year ended March 31, 2019}) - (\text{share price at the end of the fiscal year X years previous to the fiscal year ended March 31, 2019}) + (\text{total cash dividend per share for the relevant period})] \div (\text{share price at the end of the fiscal year X years previous to the fiscal year ended March 31, 2019})$

• Annual cash dividend per share for TOPIX and TOPIX Nonferrous Metals: Calculated using the weighted average of the cash dividend per share value for each stock over the 12 months previous to the base date and the formula used by TOPIX itself (Calculated using Bloomberg values)

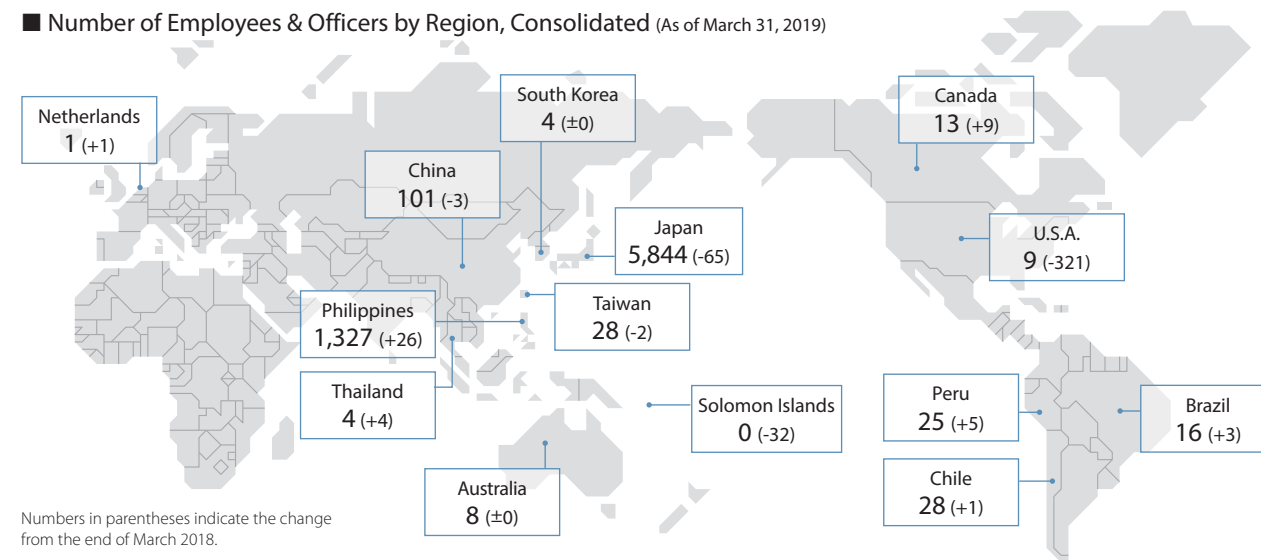
## Share Price Performance

Share price movement reflected using the share price at the end of March 31, 2009 as 100

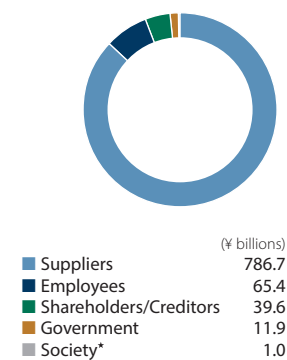


## Financial and Non-Financial Highlights

### Number of Employees & Officers by Region, Consolidated (As of March 31, 2019)



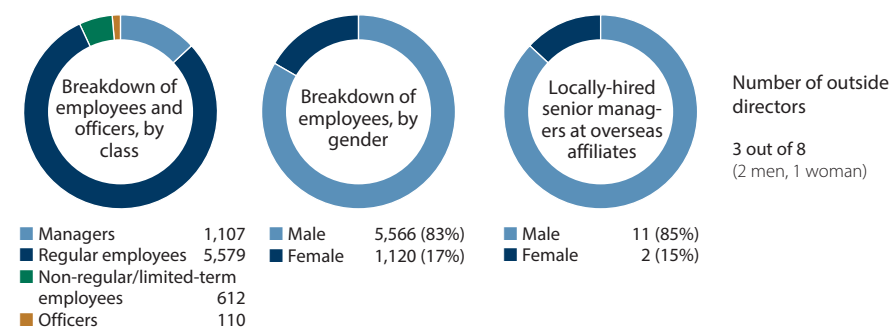
### Distribution of Economic Value to Stakeholders (FY2018)



\* Other than the above, there is retained value of ¥30.9 billion. Rent for use of land is minimal and therefore included in "Payments to suppliers."

★ In the Philippines (CBNC, THPAL), the ¥0.9 billion expended through the social development management program (SDMP) and other contributions in the same country is included.

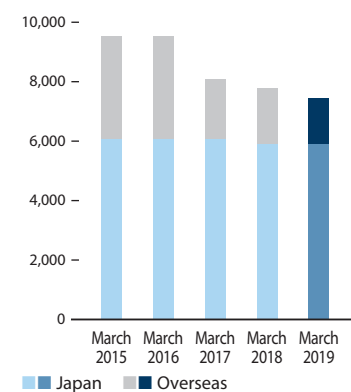
### Number of Employees & Officers Worldwide (Consolidated) (March 31, 2019)



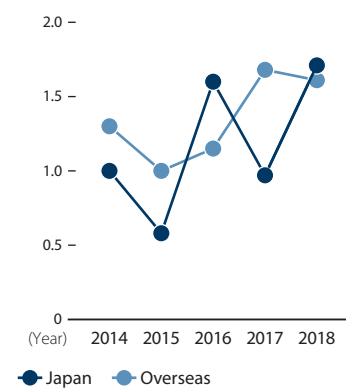
### Capital Expenditure Related to Environmental Preservation

FY	Pollution prevention / environmental preservation	Energy conservation	Total	Ratio of capital expenditure
2018	5,508	100	5,608	11.8%
2019 (plan)	8,655	245	8,901	12.3%

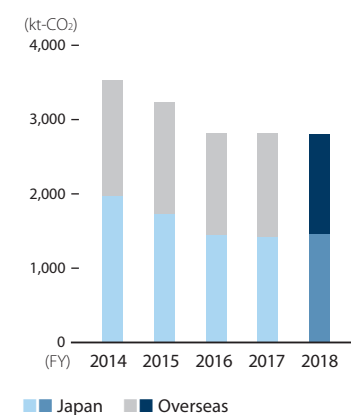
### Number of Employees & Officers Worldwide (Consolidated)



### Occupational Accident Frequency Rate



### CO<sub>2</sub> Emissions



# Where is the SMM Group Going?



# Interview with the President



Toward a New Growth Phase, Aiming to Become a “World Leader in the Non-Ferrous Metals Industry”

Akira Nozaki  
President and Representative Director

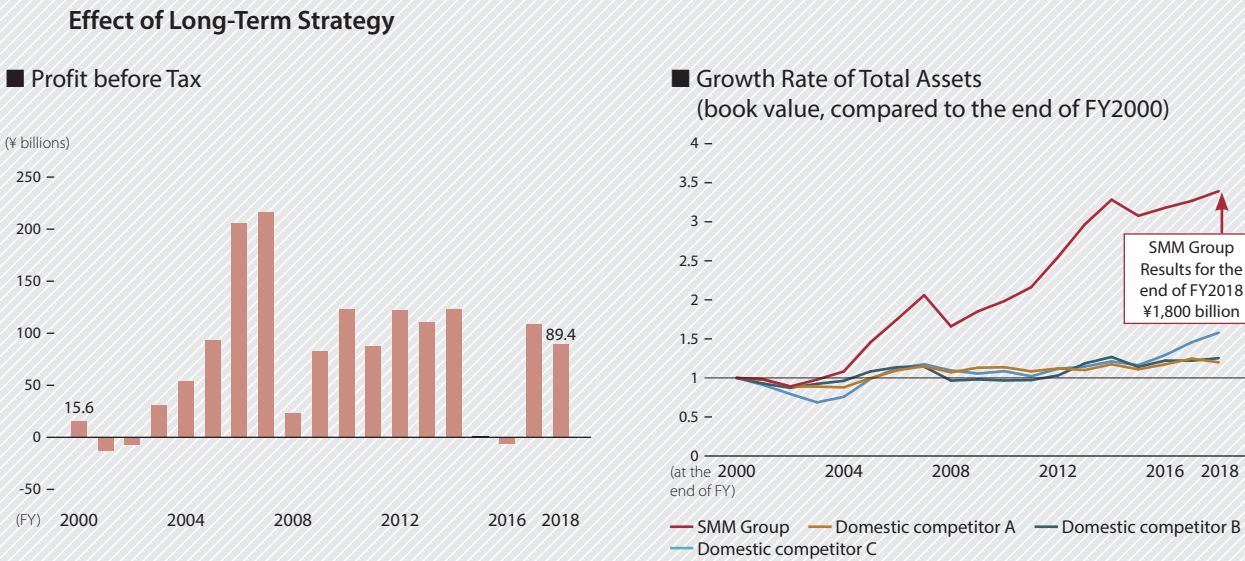
## Achievements and Challenges of the 3-Year Business Plans Under My Three Predecessors

Fiscal 2019 marks the first year of SMM’s 2018 3-Year Business Plan and 20 years since the JCO criticality accident. The year after the accident, the Company launched its Corporate Reform Plan aimed at achieving a major management shift, including reaffirmation and thorough implementation of SMM’s corporate philosophy. Starting with the 2003 3-Year Business Plan, we changed course significantly toward promotion of a growth strategy. Up to now, the management plans announced by my most recent three predecessors have been carried out as a concerted effort by all SMM Group employees. In the course of promoting a growth strategy, expanding our core businesses, and realigning our business structure, under the 2015 3-Year Business Plan the Company focused mainly on achieving collaboration between our three core businesses—Mineral Resources, Smelting & Refining, and Materials—advancement of large-scale projects, and restructuring of our Materials business. These initiatives included, I believe that our growth strategy reached an estimable level of success. Now, in our 2018 3-Year Business Plan, we are entering a new growth phase focused 10 to 15 years into the future, to maximize our corporate value.

Compared with fiscal 2000, we have achieved robust growth in assets, production scale and profit levels. Whereas in fiscal 2000 our copper interest production stood at 94 kilotonnes, as of fiscal 2018 this had increased to 249 kilotonnes. Meanwhile electrolytic copper production grew from 250 kilotonnes in fiscal 2000 to 450 kilotonnes in fiscal 2018. Nickel-based product production expanded from 58 kilotonnes in fiscal 2000 to 85 kilotonnes in fiscal 2018. Especially noteworthy is the fact that our nickel refining business now boasts one of the world’s highest levels of cost competitiveness, thanks to the pairing of our HPAL technology and MCLE processing at our Niihama Nickel Refinery.

SMM’s business results are significantly impacted by non-ferrous metal prices and fluctuations in exchange rates. However, when extraordinary temporary factors such as booking of impairment losses are excluded, I believe that, through steady implementation of our growth strategy, we have achieved a corporate structure that enables us to secure a certain level of profits even when these market conditions are in a slump. Our total assets have increased roughly 3.5 times compared to the end of fiscal 2000. To have achieved this level of growth without any large-scale mergers or acquisitions is surely rare, even at major overseas mineral resource companies. That said, our safety record has underperformed our target by a wide margin and our net sales and profit targets for fiscal 2018 in our 2015 3-Year Business Plan went unachieved. As such, today strengthening our business base is an issue that needs to be addressed, to further nurture a safety-oriented in-house culture and enhance our manufacturing and business management capabilities.

Themes of the 3-Year Business Plans in the Past 20 Years																							
'99	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18				
JCO criticality accident Sept. 30	Corporate Reform Plan		2001 2-Yr Business Plan		2003 3-Yr Business Plan			2006 3-Yr Business Plan			2009 3-Yr Business Plan			2012 3-Yr Business Plan			2015 3-Yr Business Plan						
	Nurture legal compliance and a safety culture Reconfirm the Corporate Philosophy Reinforce Corporate Organization		Return to core business (Selection and Concentration)		Promote growth strategy (5 Major Projects +1)			Further boosting corporate value by promoting growth strategy			Growth strategy based on realigned business structure			Strengthen competitiveness through the execution of a continuous growth strategy			Growth strategy focused on efficient response to external business environment changes						
	Reform management systems Manage risks Restructure the organization		Reform business structure		Expand and strengthen core businesses (Mineral Resources & Metals, Electronics & Advanced Materials)			Further expand core businesses			Shift business model to three core businesses (Mineral Resources, Smelting & Refining, Materials)  Concentrate management resources on mineral resources and nickel			Develop measures in line with the basic growth strategy model (Sowing, Planting, Nurturing, Harvesting)			Strengthen synergy through three-business collaboration (Mineral Resources x Smelting & Refining x Materials)  Globalization of the corporation • Publish an integrated report • Transition to IFRS						
			Reform cost structure																				
President Fukushima (from Apr. 1, 2000)								President Kemori (from Jun. 28, 2007)								President Nakazato (from Jun. 24, 2013)				President Nozaki (from Jun. 26, 2018)			



## Interview with the President

## Long-Term Vision: “Becoming a World Leader in the Non-Ferrous Metals Industry”

In formulating the 2018 3-Year Business Plan, SMM partially revised its Long-Term Vision, removing the words “and an Excellent Company of Japan” and rephrasing the Company’s aim to “Becoming a World Leader in the Non-Ferrous Metals Industry.” This modification was based on the assumption that being “an excellent company of Japan” is inherently included in what defines a “World Leader in the Non-Ferrous Metals Industry.” Also, in lieu of setting numerical targets for gold as it did earlier, the Company has revised its long-range goal for gold to “new participation in mine operations through the acquisition of superior interests.” It has further revised its annual net profit target to 150.0 billion yen, on a par with the major overseas mineral resource companies.

The “World Leader in the Non-Ferrous Metals Industry” that SMM aspires to satisfies the following five conditions: 1) has a global presence in terms of mineral resource interests and metal production volumes; 2) has leading technology and a unique business model that cannot be easily emulated by other major mineral resource companies; 3) is growing sustainably and stably producing a certain amount of profit; 4) is actively tackling social issues such as the SDGs; and 5) has employees working with spirit.

The “unique business model that cannot be easily emulated” cited in the second point is a concise reference to SMM’s competitive strength: especially its 3-business collaboration, unseen anywhere else in the world, between its Mineral Resources, Smelting & Refining, and Materials businesses. This unique 3-business collaboration business model is sustained by the Company’s superlative technological capabilities burnished over the course of more than 420 years: for example, our exploration, mining and mineral processing technologies enabling the development of difficult new deposits; our smelting technologies enabling recovery of non-ferrous metal products from low-grade or difficult-to-process ore; and, in the Materials area, our battery materials and powder technologies applied in multi-layer ceramic capacitors (MLCC). And by enhancing our earning capacity by further improving our cost competitiveness, we will all the more strengthen our ability to generate a certain level of profit even when the non-ferrous metals market is severe.

If we are to be a true world leader, then in addition to achieving a certain business scale and earning power, we also hope to be a company that can contribute through its core businesses to society’s demands arising from environmental changes. Based on our deeply rooted “Sumitomo Business Spirit,” I, in my leadership role, aim not only to secure a safe work environment but also to make SMM a company worthy of being called a “world leader” in addressing corporate social responsibility (CSR) and the sustainable development goals (SDGs).

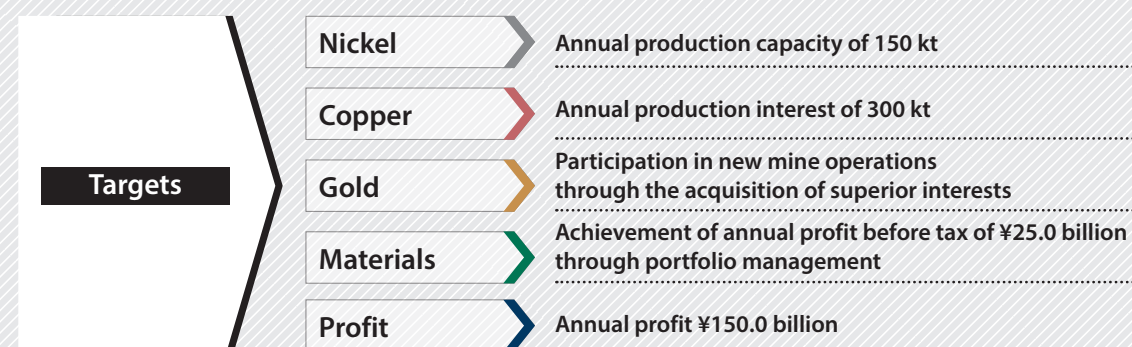
## Class 1 Nickel Integrated Production System Like No Other

The 150.0 billion yen annual net profit target which we newly set in reviewing our Long-Term Vision is of a level on par with the major overseas mineral resource companies, including our business partners Freeport McMoRan and Teck Resources. It is a target befitting a true “World Leader in the Non-Ferrous Metals Industry,” and to achieve it all SMM Group companies will need to join forces. Although this isn’t a figure that we can achieve within the time frame of our 2018 3-Year Business Plan, we can expect to top 40.0 billion yen in profit if the major projects planned for these three years are brought to successful completion.

Our target for copper production from interests, 300 kilotonnes per year, places us in the middle ranks worldwide. This should be within our reach if Quebrada Blanca Copper Mine Phase 2 goes into operation. We haven’t changed our nickel target, but its significance has changed greatly now that business in cathode materials, in our Battery Materials Division, has expanded. Earlier, 300 kilotonnes was a quantity that would place SMM around No. 5 worldwide in terms of production volume, and our emphasis was on “scale.” Going forward, backed by HPAL technology, one of our core strengths, we will pursue top-class “quality,” with a focus on pure nickel usable in advanced materials, including battery materials. We will solidify our unique position as the only nickel producer operating a totally integrated system from raw material procurement through to product supply. Regarding gold, originally we had set a numerical target of 30 tonnes, but this has been eliminated. Various business models exist for developing gold resources: from mines of limited scale that produce high-grade ore at around 30 grams/tonne—like our Hishikari Mine—to mines of large scale but yielding low-grade ore near 1 gram/tonne. In the years ahead, SMM will continue to carefully select outstanding projects in which we can put our technologies to full use, and also to seek out operation opportunities. In our Materials segment, we will burnish our earning capability focused on battery materials while simultaneously targeting growth in other highly advanced materials. Because this is a business area characterized by the most intense technological changes, we will need to focus on increasing interfaces with the customer and continuously create new profit-generating businesses availing of our technological strengths. For this reason, we have set a profit target in this area.

### Long-Term Vision

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



### Reasoning Behind the Targets

- A quantity that will position us as top class globally (about 5th)
- A responsible quantity for meeting growing demand, including for battery materials
- A quantity that will position us as mid-level globally
- Likelihood of achievement through participation in Quebrada Blanca 2 → Continued Stronger
- Rather than increasing the number of interests, participating in superior projects will increase profitability and value of operational experience
- Create a presence as a core business by selecting the best mix of businesses based on the life cycle of each product group



## Interview with the President

### ■ 2018 3-Year Business Plan: “Taking on the Challenge for New Growth”

The theme selected for our new 3-Year Business Plan is “Becoming a World Leader in the Non-Ferrous Metals Industry: Taking on the Challenge for New Growth.” In much of SMM’s business operations there is a need to commit a long span of time—five to 10 years—to proceed from initial conception through idea development and then planning, to actual implementation. For this reason, our Business Plans are formulated by “backcasting”: always looking 10 to 15 years into the future and then deciding what measures should be taken during the next three years. Our 2018 3-Year Business Plan too isn’t a strategy limited to the upcoming three years, but rather incorporates what needs to be done toward reaching the Company’s long-range targets. Much of what it contains are matters currently at a stage preliminary to decision-making or implementation: what in-house we call the “planting” phase. The 2018 3-Year Business Plan is an “aggressive” plan in which we will invest our management resources on unprecedented scale. The timing of investments isn’t ours to choose, and during the period of the 3-Year Business Plan investments ended up overlapping. I believe the plan was prepared with full consideration paid to financial background and each project’s feasibility. We are wholly resolved to implement the new plan in order to achieve our sustained growth.

### ■ Human Resources Development to Create Value Indispensable for Implementing the “Aggressive” Plan

Another major duty of ours is to carry on the solid relationships with SMM’s partners steadily forged by our predecessors and pass them onward to the next generation. Today, we are being called on to respond with specific working style reforms, and Japanese society in general is said to be marked by a decline in younger people’s sense of belonging to their company, a decline in their retention rate at one company, and increasing fluidity of the labor force. Amid these circumstances, a major management challenge today is how to develop and secure human resources that will enable us to keep ranks with our domestic or overseas partners or competitors.

Under our 2018 3-Year Business Plan, we will drive forward our growth strategy through three initiatives: “Secure human resources;” “Develop and make the most of human resources;” and “Improve organizational and workplace environments.” Specific measures toward those ends include: reviewing the Company’s recruitment strategy; promoting SMM’s uniqueness in coordination with PR activities; reviewing personnel-related systems to lead to flexibility, fairness and dynamism; and promoting diversity to improve productivity and respond to

various needs. We will also continue to support increasingly active participation by female employees. Up to now we have set in place various mechanisms for developing human resources, such as selective education, specialized education and unique introductory education; going forward we will rebuild an open and vibrant organizational climate. The “open and vibrant” environment I envision is one in which everyone within the organization can express their frank opinions with total honesty. During my first year as president, I took every opportunity to go straight to the workplaces. Through free exchanges of opinions with diverse employees having many different backgrounds, I will devise innovations in a broad sense, including improvements in our everyday business administrative procedures.

### ■ Simultaneous Maximization of Corporate Value and Achievement of Sound Management Practices

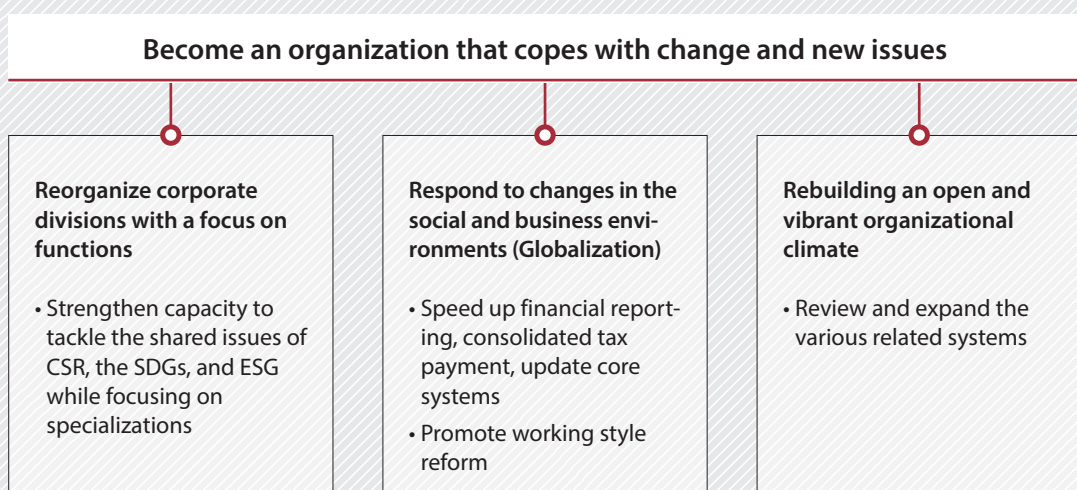
SMM views corporate governance as a “disciplinary framework for maximizing the corporate value of the SMM Group and for ensuring sound management practices,” and this is considered one of the most important management issues. Maximization of corporate value entails implementation of a growth strategy and strengthening of the business foundation in order to enable assured profitability. Only when a cycle of strategic profitability can be achieved can the Company proceed to its next growth measures. I hope to make ours an organization in which every employee will address the challenges ahead with a firm awareness that they are the key players in their respective positions.

SMM’s succession planning for holders of the office of Chief Executive Officer, i.e. President and Director, is conducted and executed on the basis of the Company’s corporate philosophy and business plans. To enhance transparency and objectivity in selecting the best candidate, the current CEO seeks advice from the Governance Committee—composed of the chairman of the Board of Directors, who is not an executive officer, and three independent Outside Directors—concerning whether the proposed candidates have qualifications, knowledge, experience, abilities and insight worthy of a President and Director. The final decision is then made by the Board of Directors.

The effective period for the takeover defense measures previously adopted ended with the Ordinary General Meeting of Shareholders held in June 2019, but in view of the ongoing risk of a hostile takeover due to the uniqueness of our business, those measures have been renewed. We have also drawn up Basic Policies for Compliance with Competition Laws and Basic Policies for Anti-Bribery for compliance with corruption prevention laws.

Currently, more than one in three members of the Board of Directors are Outside Directors. They actively take part in discussions pertaining to SMM management, bringing their outside perspective to all Board meetings.

## Strengthen Corporate Functions





## Interview with the President

## Joint Value Creation Together with Shareholders

Because SMM handles mineral resources that deplete over time, we are always seeking opportunities to acquire new interests. For that purpose, besides continuing our exploration endeavors it is vital that we maintain a sound financial standing so we can be viewed as a worthy partner in developing mineral resources, as well as to prepare for ever-larger projects and M&A activities. In our 2018 3-Year Business Plan, we have again set a financial target to maintain an equity ratio of 50% or higher. We have also raised our dividend payout ratio from 30% or higher to 35% or higher.

During the 2018 3-Year Business Plan the Company will be undertaking multiple large-scale investments. This is expected to result in a significant free cash flow deficit of 110 billion yen. However, each of those investments will strengthen the Company's future earnings base and set the foundation for our next growth phase. While executing investments at a high level, we will also implement measures to increase the earning capacity of our existing businesses, so we fully expect to be able to maintain a favorable financial standing. That said, the business environment defies prediction. Were the environment to deteriorate substantially or if deterioration is projected, we will steadily maintain our financial position by carefully screening investment projects in light of financial conditions, defer investments that are not urgent to the maximum extent, etc.

The decision to raise our dividend payout ratio reflects management's desire to increase returns to our shareholders, even if only to a modest degree. We are confident that the large-scale investments to be made under our 2018 3-Year Business Plan will contribute to enhancing future shareholder value. Just as management will steer the course of Company operations from a long-range perspective, we sincerely hope our shareholders will continue to support us as shareholders over the long term.

## Message to Our Stakeholders

Our business environment is becoming increasingly opaque. Prices of non-ferrous metals entered a recovery mode early in 2019, but the prices of copper and nickel are now weakening, despite a favorable balance between supply and demand, under the impact mainly of U.S.-China trade frictions. Against this backdrop, fiscal 2019, the first year under our 2018 3-Year Business Plan, will be an important year for giving shape to major projects to drive our next growth phase.

In the Mineral Resources business, we will move forward plans to develop the Quebrada Blanca Copper Mine, which is expected to contribute robustly to realization of our Long-Term Vision; carry forward the Côté Gold Project; and take steps to increase processing volume at the Sierra Gorda Copper Mine. In our Smelting & Refining business, we will develop more detailed plans for achieving the Pomalaa Project. We will also strengthen our management capabilities to improve our expertise in manufacturing, and fulfill our responsibility to supply our products to both our customers and our own Materials business. In our Materials business, in April we reorganized our former Materials Division into a new Battery Materials Division and Advanced Materials Division; this move was taken in order to put in place a structure for carrying out our strategy for the battery materials business and achieve sustained growth in our advanced materials business. In the area of research and development, we aim to strengthen our ability to propose themes using new businesses and new creation systems. In terms of next-generation businesses, we will explore for the "seeds" to sow in response to social trends and needs.

Concerning safety, our target for 2021 is "workplaces that prevent serious accidents by clearly defining priority issues needing improvement and implementing Plan-Do-Check-Act (PDCA) cycles while promoting safety activities." In managing production lines at workplaces, we will seek to nurture a safety culture in which those concerned observe work from the inside and communicate with workers, making improvements based primarily on the three realities principle—real places, real facts and real things.

Society at large and investors in particular today are making increasingly diverse and specific demands of corporations' stance toward achieving sustained social development. At SMM, we fully understand that responding appropriately to significantly changing trends is a challenge of great urgency. Going forward, we will further deepen our communication with all stakeholders in order to win their understanding of our strategies and the measures we are taking to implement them.

Our 3-Year Business Plans are our "guidance" for managing the Company, and their targets are immutable. However, to achieve those targets, at times it is necessary to change the measures taken, as circumstances may demand. We will hold firmly to our targets, which have been set after sufficient discussions, but we will take a flexible approach to the measures taken to achieve them, never sticking inflexibly to our original plans. My personal philosophy, when facing a difficulty, is that the method thought to be most difficult is the shortest toward resolving the problem. To realize our Long-Term Vision, we will set to the task in the 2018 3-Year Business Plan. And though the issues needing to be resolved are many, striving in concert with all employees we will achieve sustained growth and respond to the hopes and expectations of all stakeholders.

### Dividend Policy and Financial Targets

#### Dividend Policy

- Continue policy of performance-linked dividends
- Consolidated dividend payout ratio raised from 30% or higher ➤ **35% or higher**

#### Financial Targets

- Prepare for even larger-scale projects or M&A by maintaining sound financial standing
- Maintain **an equity ratio of 50% or higher**

#### Reasoning Behind Dividend Payout Ratio Increase

In the 2018 3-Yr Business Plan, there will be a significant FCF deficit. However, the overall scale and profitability of business will be significantly greater than before, enabling us to cope with greater strategic investment while maintaining a healthy financial structure.

Reflects SMM management's resolve to increase shareholder return as much as possible

### Free Cash Flow

#### Three-year cumulative FCF in the 2018 3-Year Business Plan to be a significant deficit of ¥110.0 billion

Plan to be financed through business profits, borrowing, reduction of cash and deposits, etc.

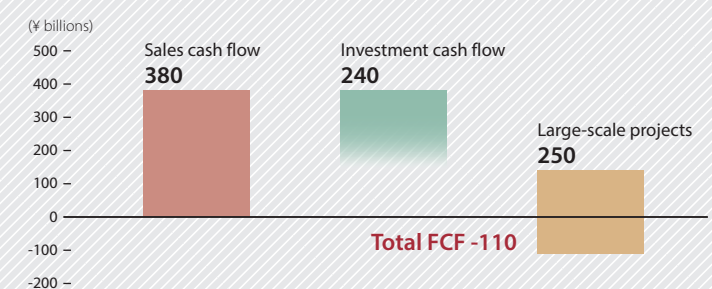
#### Equity Ratio

**0.9 Pt. reduction**  
(61.5% ➤ 60.6%)  
(Forecast at the time of 2018 3-Year Business Plan Announcement)

#### Debt-to-Equity Ratio

**4.4 Pt. worsen**  
(33.0% ➤ 37.4%)  
(Forecast at the time of 2018 3-Year Business Plan Announcement)

#### 3-Year Business Plan Free Cash Flow



## Special Feature: Start of a New 3-Year Business Plan

# Become a World Leader in the Non-Ferrous Metals Industry —Taking on the Challenge for New Growth

We launched our 2018 3-Year Business Plan in April 2019. Under the theme of “Taking on the Challenge for New Growth,” we formulated three Main Basic Strategies in this new 3-Year Business Plan, based on issues that became clear in the previous 2015 3-Year Business Plan. By steadily executing an aggressive plan to invest management resources on an unprecedented scale, we plan to achieve sustainable growth and maximize our corporate value.

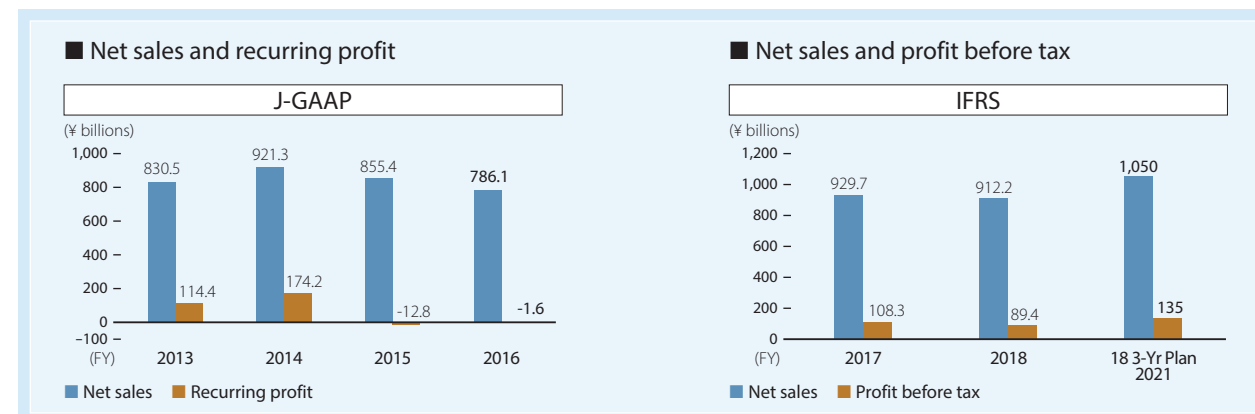
## Review of the 2015 3-Year Business Plan and Positioning of the 2018 3-Year Business Plan

### Evaluation of Our Three Businesses with Respect to Priorities

In our 2015 3-Year Business Plan, we were able to make significant achievements in securing and expanding interests, particularly for copper. While we faced issues such as reduced production of nickel due to equipment troubles at Taganito HPAL Nickel Corporation (THPAL) and the recording of an impairment loss due to production troubles at the Sierra Gorda Copper Mine, we evaluate our performance as having achieved most of our priorities. In the Materials business, we met our aim of growing battery materials to a scale that has a presence in the marketplace.

### Performance Trends

Looking at our performance, the 2015 3-Year Business Plan ended without meeting its estimated net sales or profit targets. Net sales were ¥912.2 billion, against projections of ¥1,060.0 billion, while profit before tax was ¥89.4 billion, against projections of ¥170.0 billion. Major factors behind the decline in profit before tax were a worsening of ¥34.0 billion attributable to a difference in quantity sold (due to reduced production caused by decline in quality, particularly at overseas copper mines, and equipment troubles at THPAL), and a worsening of ¥35.0 billion due to a difference in unit cost prices accompanying the decline in production. However, although estimated targets were unmet, our profit level and total assets in FY2018 were about 6 times and 3.5 times, respectively, those in FY2000, showing that our business base has grown remarkably.



### Current Issues

The issues facing our group span a wide range. They include enhancing and improving our site management capability (production capabilities) and management capability, creating new products and businesses, and securing and developing of human resources to support growth. To rebuild an open and vibrant organizational climate and strengthen our ability to assuredly achieve the plans we have set, we will work on strengthening our ability to engage in dialogues with business partners and key customers, and our ability to gather and analyze information.

### Positioning of the 2018 3-Year Business Plan

Positioned as a plan for “Taking on the Challenge for New Growth,” our 2018 3-Year Business Plan was formulated as a preparatory period to break into the next strategic stage and aim for new heights, from a medium- to long-term perspective that looks ahead to the next 10 to 15 years. The SMM Group’s technologies for mineral resource development, non-ferrous metal smelting and refining, and battery and functional materials are sectors expected to see considerable growth. Compared with an investment and financing amount of ¥392.1 billion in the 2015 3-Year Business Plan, the 2018 3-Year Business Plan calls for investment and financing of ¥490.0 billion. Through the assured execution of this aggressive plan to invest management resources on an unprecedented scale, we will work to achieve sustainable growth and maximize our corporate value.

### Top Priorities in the 2015 3-Year Business Plan

#### Mineral Resources

- Full-scale production at the Sierra Gorda Copper Mine
- Acquisition of new gold mine interests

- Sierra Gorda Copper Mine Production slump and rise in costs  
▶ Large impairment loss incurred



#### Corporate Governance

Increase number of outside directors, female directors, etc.

#### Smelting & Refining

- Expanding Taganito HPAL Nickel Corporation
- Advancing growth strategies using peripheral HPAL technologies
- Enhancing competitiveness of the copper smelting business

- Complete 36-kt production structure at Taganito HPAL  
▶ Stabilization measures are needed



#### Globalization Measures

Publish integrated report  
Transition to IFRS

#### Materials

- Profit contribution from expanded battery material and LT/LN production
- Sustainable innovation and adaptation of next-generation products

- Complete 4,550-t/month battery material production structure
- Complete increased LN/LT production structure  
▶ No contribution to profits yet due to continued fall in demand





## Special Feature: Start of a New 3-Year Business Plan Become a World Leader in the Non-Ferrous Metals Industry —Taking on the Challenge for New Growth

### As a World Leader in the Non-Ferrous Metals Industry We Are Aiming to

- Have a global presence in terms of mineral resource interests and metal production volumes (be in the global top five)
- Have leading technology and a unique business model that cannot be easily emulated by other major mineral resource companies
- Be growing sustainably and stably producing a certain amount of profit
- Be actively tackling social issues such as the SDGs
- Have employees working with spirit

### Safety Initiatives and Our Three Main Basic Strategies

#### Safety Initiatives

The creation of work environments that are free from accidents and are conducive to work is vital in achieving our goals of actively tackling social issues such as the SDGs, and having employees working with spirit, as stated in our Long-Term Vision. The risks involved in our business are not small, but we have moved forward with

#### To Achieve by FY2021

Workplaces that prevent serious accidents by clearly defining priority issues needing improvement and implementing PDCA cycles while promoting safety activities

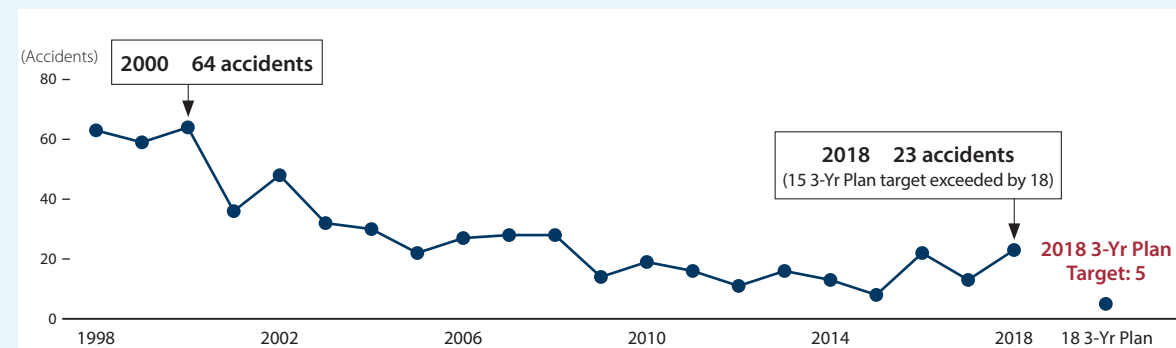
Workplaces that ensure that top management and supervisors communicate with workers, grasp actual conditions at sites and promote facility improvements based on the three realities principle (real places, real facts, real things), and work using procedures that naturally take safety into sufficient consideration.

#### 2018 3-Year Business Plan Targets

Limit domestic occupational accidents **to 5 or less**

Limit overseas occupational accidents **to 3 or less**

#### Domestic occupational accidents



countermeasures in both physical terms (safer equipment) and non-physical terms (safety education), to protect the well-being of our employees and their families. At the same time, our safety performance in Japan has been worsening since FY2016. In FY2018, 23 accidents occurred, greatly exceeding our targeted number of five and leaving our 3-Year Business Plan target unmet. Insufficiently thorough line management and insufficient safety improvements in facilities can be viewed as among the causes of this. However, a variety of factors are intertwined in safety management, and there is no particular countermeasure that will cut accidents to zero. To further enhance safety measures, we set a clear vision to achieve by FY2021 and are operating an effective PDCA cycle based on this, with the aim of cutting domestic employee accidents to five or fewer and all overseas business site accidents to three or fewer under the 2018 3-Year Business Plan.

### Three Main Basic Strategies

#### 1 Strengthen the growth foundation of core businesses (Mineral Resources, Smelting & Refining, Materials)

- Steady promotion of growth strategy and swift realization of competitiveness: Aggressive investment
- Minimization of lost profits and opportunity loss and consolidation of business base: Defensive investment

#### 2 Strengthen three-business collaboration centered on cathode materials for batteries

- Maximally leverage the integrated production structure and win through overall capabilities, including battery recycling

#### 3 Strengthen corporate functions

- Stimulate communication with stakeholders both inside and outside the company
- Rebuild an open and vibrant organizational climate

Seize the chances presented by changing times and establish a position as a world leader in the non-ferrous metals industry

Employees take the initiative and work with resolve to produce results

Move into a new stage of the growth strategy  
Minimize lost profits and opportunity loss

Investment on an unprecedented scale  
Secure and develop the human resources to promote and support growth



## Special Feature: Start of a New 3-Year Business Plan Become a World Leader in the Non-Ferrous Metals Industry —Taking on the Challenge for New Growth

### Specific Initiatives for Our Three Main Basic Strategies

#### 1 Strengthen the Growth Foundation of Core Businesses (Mineral Resources, Smelting & Refining, Materials): Three Major Projects

##### Mineral Resources Quebrada Blanca 2

In March 2019, we acquired a 25% interest in the Quebrada Blanca Copper Mine by acquiring some of the interest held by Teck Resources Limited of Canada. We will devote all our energies to moving forward with plans to start production in 2021 and achieve our goal of 300 kt/year copper production from interests, as put forth in our Long-Term Vision. We made efforts to accurately assess the state of progress through information sharing with partners, and began dispatching SMM Group employees to make effective use of our Group's experience.

##### Smelting & Refining Pomalaa Project

The Pomalaa Project is positioned as the third HPAL plant, following the Coral Bay Nickel Corporation and Taganito HPAL Nickel Corporation in the Philippines. During FY2019, we will conclude our definitive feasibility study and then make a decision on whether to invest. We envision a large-scale project with a nickel production quantity of 40 kt/year, which, if realized, will bring us close to the 150 kt/year nickel production set forth in our Long-Term Vision.

##### Materials Battery expansion

In the Battery Materials Business, we will increase our production capacity for cathode materials to 4,550 t/month, with a focus on profitability. With the aim of a production structure for cathode material (NCA, NMC, nickel hydroxide) of 10 kt/month during the 2024 3-Year Business Plan, during the period of the 2018 3-Year Business Plan we will invest ¥35.0 billion and make stepwise enhancements to capacity. In line with the shift to EVs, demand for automotive secondary batteries is on an upward trend. As changes in the external environment are increasing in severity and speed, we will respond aptly after first carefully assessing customer trends.

##### Mineral Resources

###### Quebrada Blanca 2 (Cu)

- Copper mine development project in Chile. Entry decided in December 2018 (Planned start of production: 2021. Mine life: Approx. 28 years. Average annual copper production volume: 240 kt)
- Capital contribution: Teck Resources Limited 60%, SMM 25%, Sumitomo Corporation 5%, other 10%
- Investment: US\$4.7 billion (100% of the project)

##### Smelting & Refining

###### Pomalaa (Ni/ Co)

- Third HPAL project in Sulawesi, Indonesia
- DFS (Definitive Feasibility Study) to be completed in FY2019 ▶ Decide whether or not to invest
- Production volume: 40 kt of Ni mixed sulfides (roughly)
- Investment: Several billion US\$ (100% of the project)
- Operation to start in the mid-2020s (target)

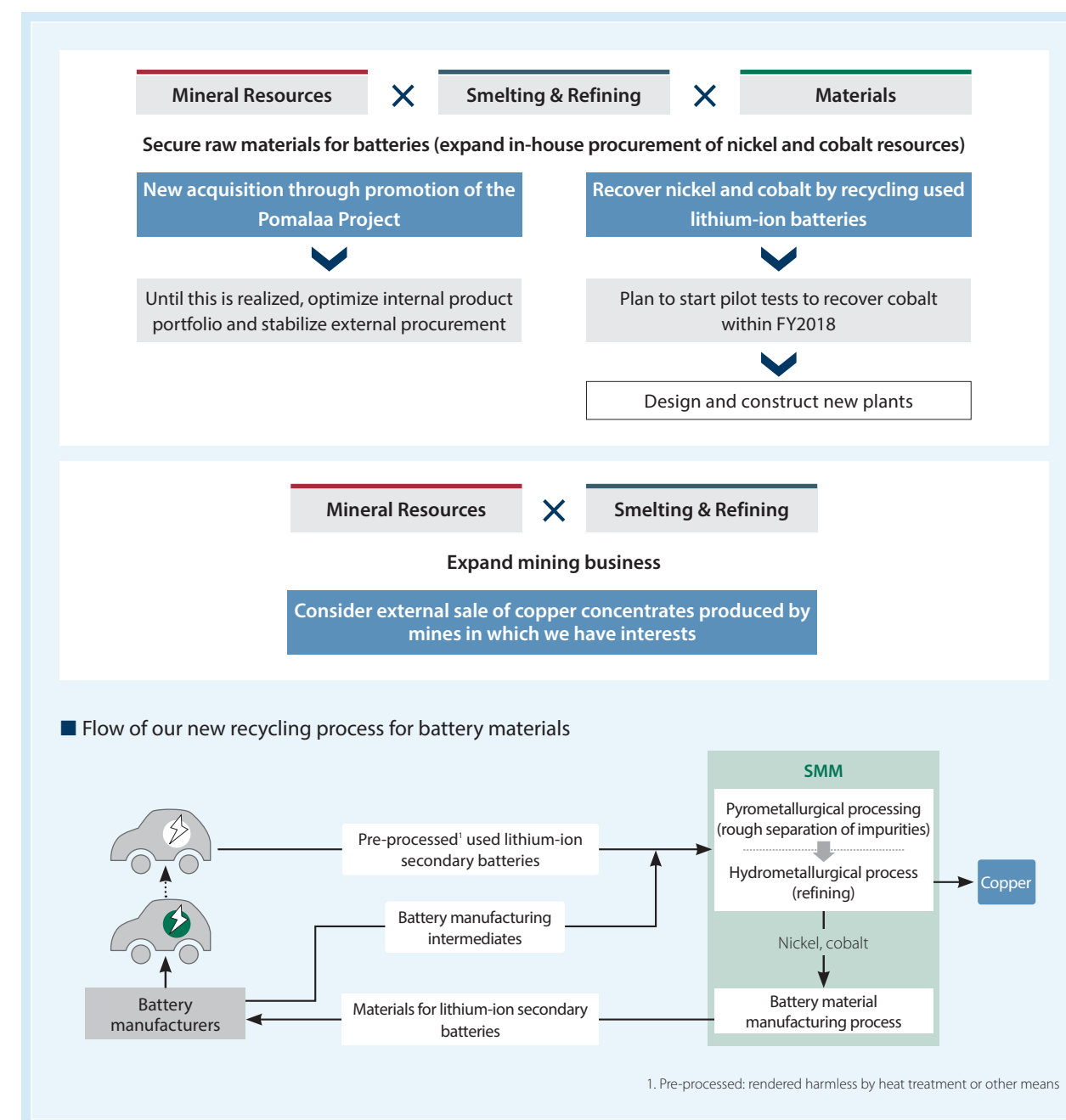
##### Materials

###### Battery expansion

- Expand capabilities in stages, and aim to produce 10 kt/month of cathode materials (NCA + NMC + Nickel hydroxide) during the 2024 3-Year Business Plan
- Investment (2018 3-Year Business Plan period): ¥35.0 billion

#### 2 Strengthen Three-Business Collaboration

Three-business collaboration among our Mineral Resources, Smelting and Refining, and Materials businesses, centered on cathode materials for batteries, is the key to competitive advantage for the SMM Group. To maximally leverage the strengths of our integrated production system, we aim to expand in-house procured resources, by acquiring new sources of raw materials through promotion of the Pomalaa Project, recovering nickel and cobalt through waste lithium-ion battery (LiB) recycling, and so on. We will perfect such original business models to become a one-of-a-kind company.



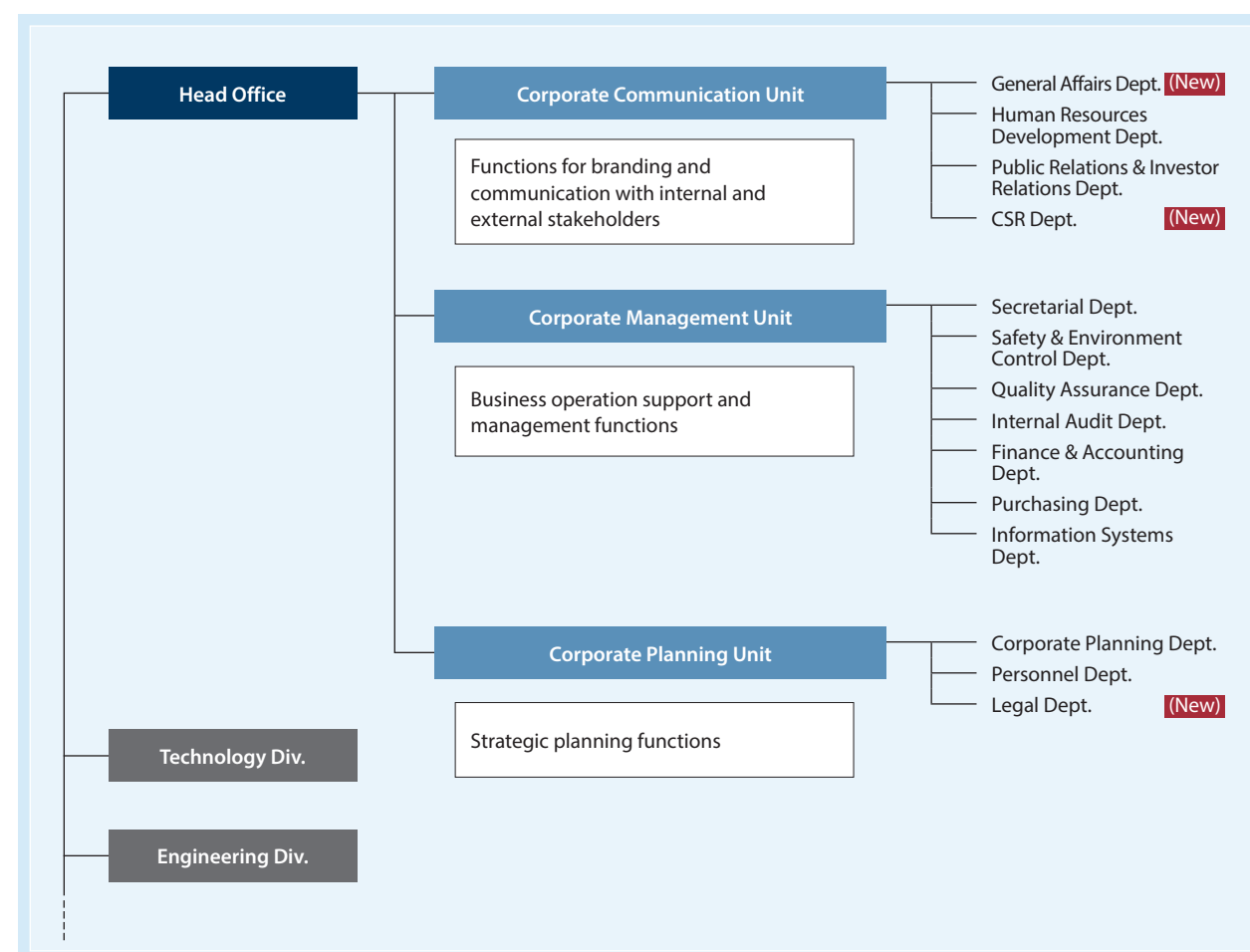
## Special Feature: Start of a New 3-Year Business Plan Become a World Leader in the Non-Ferrous Metals Industry —Taking on the Challenge for New Growth

### 3 Strengthen Corporate Functions

#### ① Reorganize corporate divisions with a focus on functions

In the 2018 3-Year Business Plan, we are taking on a transformation to aggressive corporate divisions. In April 2019, we changed our Head Office divisions to an organizational classification of Head Office, and reorganized it to three units by function: Corporate Communication Unit, Corporate Management Unit, and Corporate Planning Unit. By organizing the functions of each department into units and placing officers in charge of these, and by each organization collaborating to exert its functions and support business divisions, we will carry out the role of supporting growth strategies.

Specifically, we separated CSR Secretariat functions from the Safety & Environment Control Dept. and established the CSR Dept., which will take on the role of leading collaboration of units regarding SDG-related and other initiatives that are demanded as a part of our response to globalization. In addition, we divided the Legal & General Affairs Dept. into the Legal Dept. and the General Affairs Dept., which handles external communication, with the aim of creating organizations that address new issues with greater expertise.



#### ② Respond to changes in the social and business environments (Globalization)

Through over 420 years of history, the SMM Group has shared with its employees the idea that our Group's business operation itself is a CSR activity, and that we cannot achieve sustainable growth without such initiatives. Our units and divisions, and the Corporate Communication Unit in particular, will collaborate to address CSR, the SDGs, ESG, and other issues common to all units, while focusing on their own expertise.

The Corporate Management Unit will work to increase the efficiency of the flow of goods and information, along with reviewing work processes throughout the company, through the upgrading of core systems such as accounting and information systems. It will connect these to the promotion of working style reform and productivity improvements. In addition, it will move ahead with initiatives including earlier settling of accounts and consolidated payment of taxes.

#### ③ Rebuild an open and vibrant organizational climate

An open and vibrant organizational climate is essential to the achievement of "Have employees working with spirit," one of the goals in our Long-Term Vision. We will move ahead with tasks such as reviewing our personnel systems to create motivating workplaces. To adapt to an ever-changing business environment, we must be sensitive to changes around us and consider how these will affect the management and business of our Group. The ability to conceptualize how to collaborate with other units and the ability to take action will be vital in resolving the issues faced by not only our business units but also by each of our organizations. We will establish venues for discussion across units and otherwise communicate broadly, and will build an organizational climate in which open and vibrant ideas can be proposed and in which innovation is born.

## Human Resources

In relation to human resources, we face changes in the external environment such as Japan's aging population and dwindling birthrate, the increasing difficulty of securing human resources, and the growing need for diverse work styles. We also face changes in our internal environment, such as increasingly high turnover (especially of young people), and the fact that the generation of large-scale employment will reach the retirement age of 60 in several years. To tackle new growth amid these circumstances, the SMM Group will address issues under the important themes of securing human resources (creating recruitment strategies, strengthening of structures, etc.), developing and making the most of human resources (reviewing personnel-related systems, promoting diversity, etc.), and improving organizational and workplace environments (promoting working style reform, etc.).

### Secure Human Resources

An extremely harsh employment environment has continued in recent years, and we have struggled to secure our target number of new recruits. In response, we will make effective use of the recruitment branding that we reconsidered last year and will review related structures.

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Specifically, we will post our recruitment catch copy, “A venture founded 430 years ago: Sumitomo Metal Mining,” on our website and in other media and will share it with recruiters and other recruitment-related parties, to maintain consistency throughout our recruitment. We will also adapt to year-round recruitment, and will increase recruitment staff throughout the Group to boost opportunities for direct contact with students to convey the appeal of our company. In addition, through cooperation between the Public Relations & Investor Relations Dept. and the CSR Dept., we will carry out PR activities to let students learn about our company, and will take part in activities such as events related to the SDGs.

In addition to these initiatives, with the aim of achieving recruitment targets we will make use of career recruitment in close cooperation with individual divisions.

### Develop and Make the Most of Human Resources

We promote reviews of personnel-related systems that lead to fairness and the activation of human resources, and promote diversity to improve productivity and respond to varied needs. We will review systems aimed at achieving a society where people are still working at age 65, and will study new personnel management categories adapted to diversifying work styles, housing and solitary assignment systems, evaluation systems for working style reform, and so on. Moreover, we have strengthened our diversity promotion structure by assigning a dedicated director to the Diversity Promotion Section, and will further support active participation in work by women through individual training in line with a road map. In addition to activities to boost awareness of our support for the employment of people with disabilities and support for illness treatment based on guidelines from the Ministry of Health, Labour and Welfare, we will enhance initiatives to prevent major human rights violations and prevent harassment and will work toward respect for human rights. While continuing the training cycle and the ideal employee that was reviewed under the 2015 3-Year Business Plan, we will develop on-the-job training, off-the-job training, and self-study for the strategic human resources development.

### Improve Organizational and Workplace Environments

With the aim of achieving diverse work styles, we will expand our flextime system and optional staggered working hours system, expand the system for working at home, consider satellite offices, and review other systems, to carry out working style reform. We also launched a new employment system in March 2019 which supports working style reform and will act on departments and individuals with a pattern of long working hours, moving forward through the introduction of unit-specific training and AI, RPA, and systemization under a framework of accepting proposals from units.

With regard to health management, we will address mental health with a focus on prevention and prompt response, in partnership with health insurance societies. In addition, we will improve systems in our personnel department, strengthen the systems of the recruitment group, and provide support overseas through information exchanges with overseas sites and with other companies in the industry. We will also strengthen governance through the continuance of labor management training, and will provide support through ongoing working environment surveys and suggestions for improvement measures.

## Research and Development

In the 2018 3-Year Business Plan, we will make investments that are at least 20% more than the three-year cumulative research and development expenses under the 2015 3-Year Business Plan. We will make priority allocations of management resources to growth businesses, new businesses, and new product creation, and, targeting the automobile, environment, energy, and telecommunications sectors and waste LiB recycling, will engage in the creation of new businesses with a view to 10 years from now, the development of products that will be chosen by customers to win against the competition, and the development of new processes capable of differentiation to support sustainable growth.

## Capital Expenditure

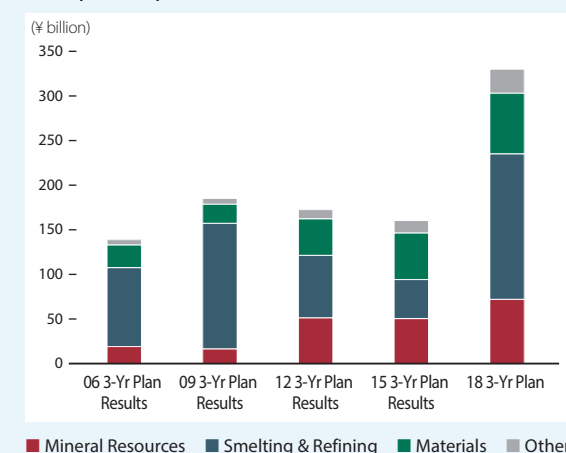
Planned three-year cumulative capital expenditure, investment, and financing under the 2018 3-Year Business Plan is an unprecedented ¥490.0 billion. However, most of the effects of this will not be seen until the next 3-year business plan (2021 3-Year Business Plan) and later.

Many of the growth strategies that our Group has undertaken over the past 15 years have yielded returns, and are built into our business foundation. The unprecedented scale of investment this time is indispensable to the further growth of our Group. To make our Long-Term Vision of “Become a World Leader in the Non-Ferrous Metals Industry” a reality, we will continue working to maximize our corporate value.

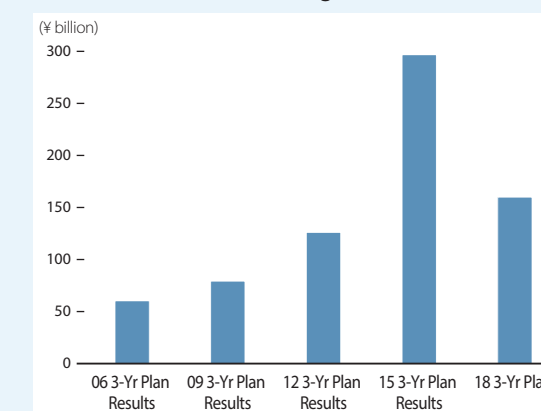
### Capital Expenditure

	FY2007-2009	FY2010-2012	FY2013-2015	FY2016-2018	FY2019-2021
Unit: billion yen	06 3-Yr Plan Results	09 3-Yr Plan Results	12 3-Yr Plan Results	15 3-Yr Plan Results	18 3-Yr Plan
<b>Total Investment</b> (Capital Expenditure + Investment and financing)	199.3	264.6	298.8	457.2	490.0

### Capital Expenditure (3-Yr Plan)



### Investment and Financing





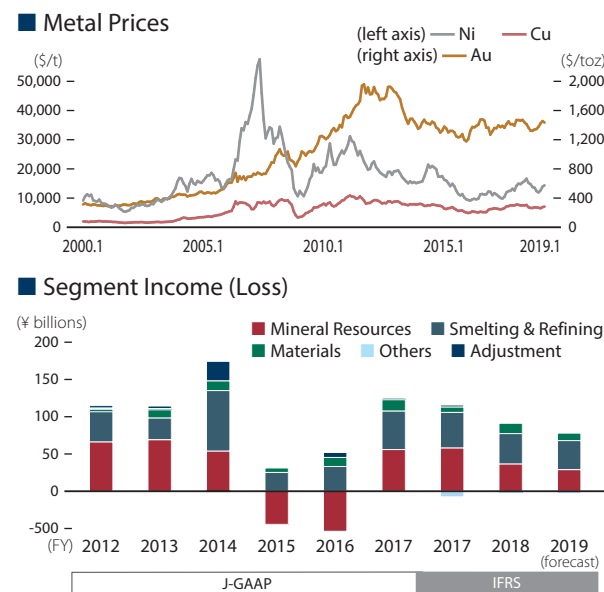
# FY2018 Results and FY2019 Plan

## Review of FY2018 Results

From FY2018, the SMM Group voluntarily adheres to International Financial Reporting Standards (IFRS). Financial figures for the previous fiscal year are also presented in accordance with IFRS for year-on-year comparative analysis.

Despite increased sales of battery materials, consolidated net sales in FY2018 decreased by ¥17.5 billion year-on-year to ¥912.3 billion, mainly due to the sale of the Pogo Gold Mine.

Consolidated profit before tax decreased by ¥18.9 billion year-on-year to ¥89.4 billion, due mainly to deterioration in gross profit and the share of profit (loss) of entities accounted for using equity method. Profit attributable to owners of parent decreased by ¥23.4 billion year-on-year to ¥66.8 billion, due mainly to decreased consolidated profit before tax.



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).

## Mineral Resources Segment

Segment income decreased year-on-year, due primarily to a decrease in production at our main mines resulting from a drop in the grade of copper ore. Mining operations at the Hishikari Mine remained steady, and the gold content in sold ore was nearly unchanged from the previous fiscal year at 6 t. Production levels at the Morenci Copper Mine (of which the SMM Group holds a 25% interest) in the United States was 430 kt, due mainly to a decline in the grade of copper ore. Production levels at the Cerro Verde Copper Mine (of which the SMM Group holds a 16.8% interest) in Peru was 476 kt, due to a decline in the grade of copper ore. Production levels at the Sierra Gorda Copper Mine (of which the SMM Group holds a 31.5% interest) in Chile was 97 kt despite a temporary drop in the grade of supplied ore, due to improvements in operation capacity stemming from increased yield.

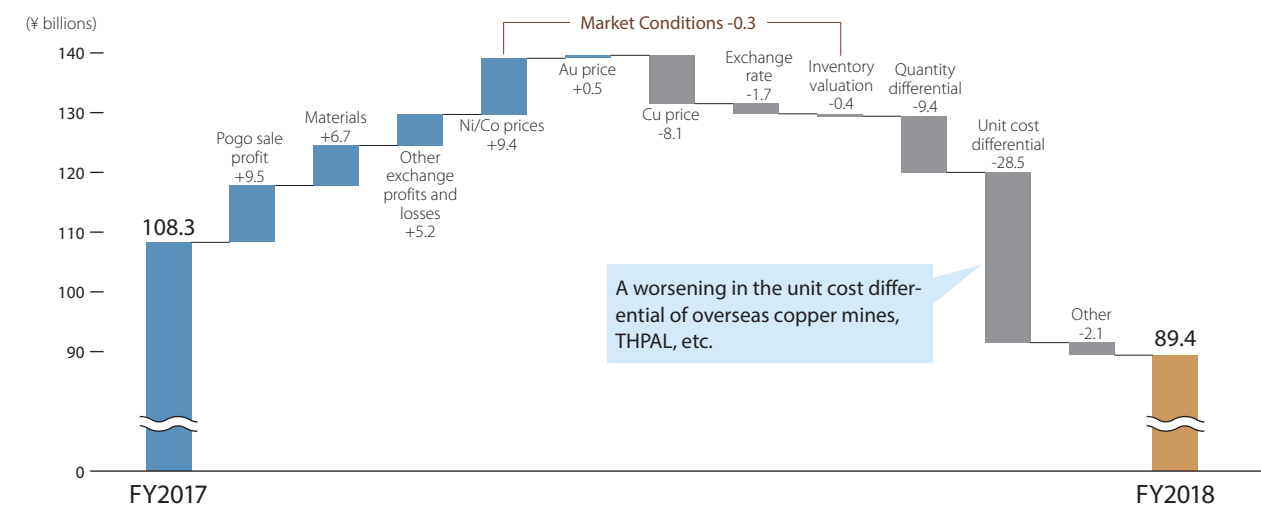
## Smelting & Refining Segment

Although production levels of nickel at Coral Bay Nickel Corporation (CBNC) increased year-on-year, production levels and sales volume of electrolytic nickel declined year-on-year due primarily to equipment problems at Taganito HPAL Nickel Corporation (THPAL). Although production levels and sales volume of copper increased year-on-year, segment income decreased year-on-year due mainly to the decline in electrolytic nickel sales.

## Materials Segment

While customer inventory adjustments continued in crystal materials, segment income increased year-on-year, due mainly to continued robust sales of battery materials against a backdrop of active demand for automotive batteries.

## Analysis of Profit before Tax (FY2017 vs. FY2018)



## FY2019 Plan

We have set a forecast for consolidated operating results for the next fiscal year, taking into account the current price levels of major non-ferrous metals prices to predict future supply and demand, and have made plans for production levels and

sales volumes of major products based on current results. As a result, we forecast net sales of ¥868.0 billion, profit before tax of ¥74.0 billion, and profit attributable to owners of parent of ¥64.0 billion on a consolidated basis.

## Mineral Resources Segment

In copper, we will move ahead with Phase 2 development plans at the Quebrada Blanca Copper Mine, will proceed with debottlenecking as planned at the Sierra Gorda Copper Mine, and will maintain stable operations at other overseas copper mines. In gold, we will continue stable operations at the Hishikari Mine while actively engaging in exploration to extend the life of the mine. We will also make every effort to begin production at the Côté Gold Project in 2021.

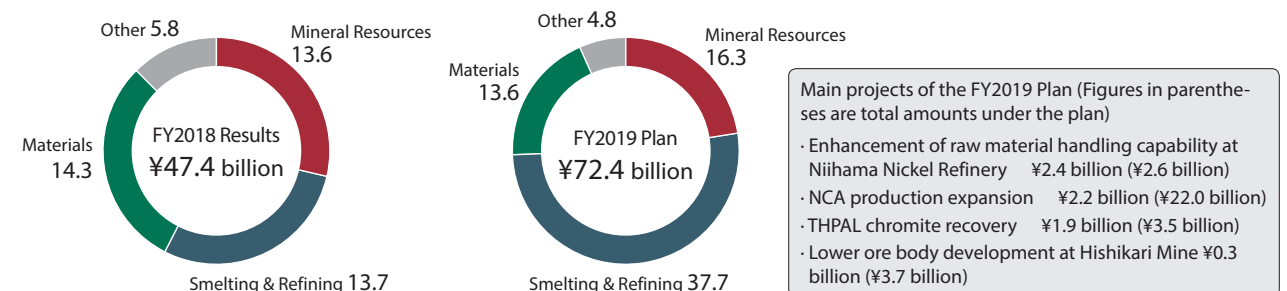
## Smelting & Refining Segment

In copper smelting and refining, we plan production of 420 kt, taking into account scheduled regular plant repair from late October 2019. In nickel smelting and refining, we will implement measures to improve the capacity utilization ratio at THPAL, and will move forward with operations under a full production structure. In by-product recovery, we are aiming for commercial production of chromite in 2020.

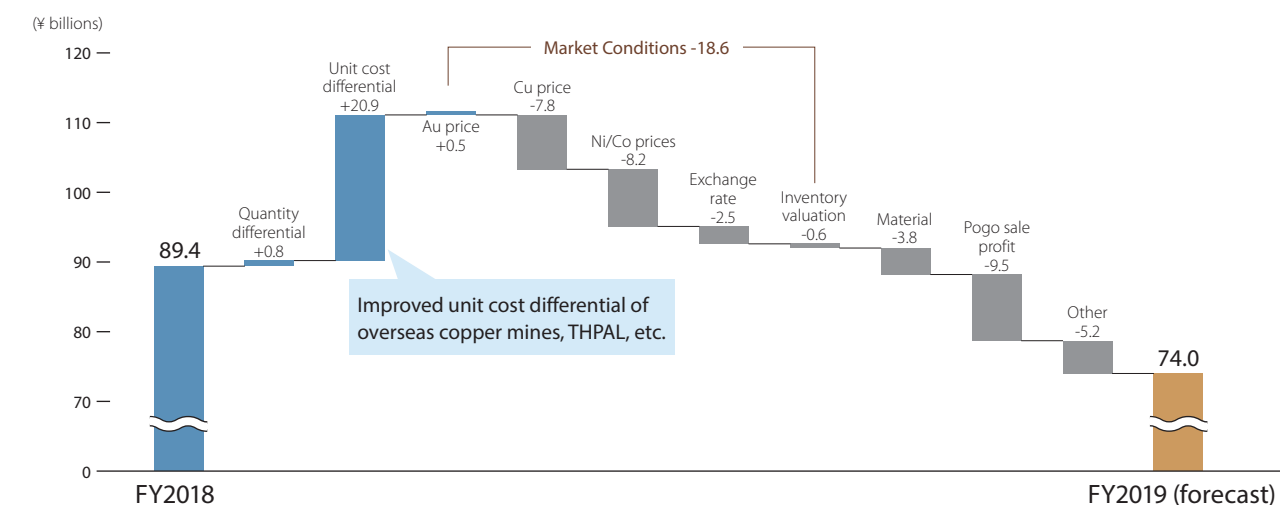
## Materials Segment

We will continue full production of battery materials to meet robust demand against a background of the electrification of automobiles.

## Capital Expenditures (FY2018 Results and FY2019 Plan)



## Analysis of Profit before Tax (FY2018 Results vs. FY2019 Forecast)



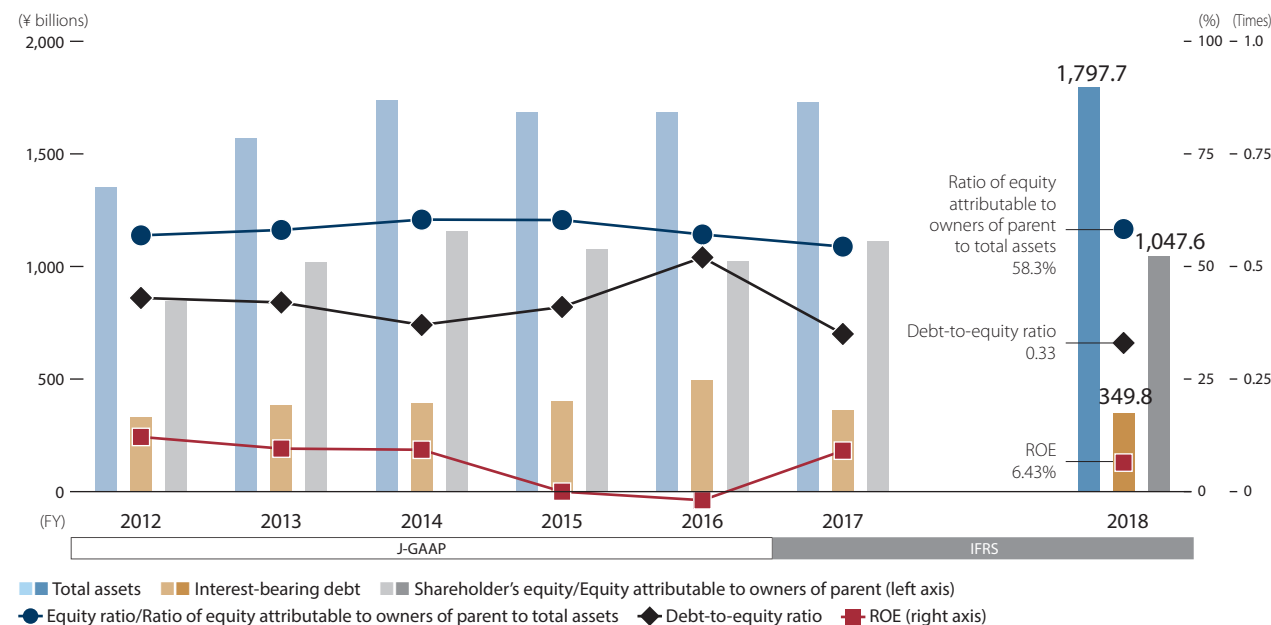
## Financial Position and Financial Strategy

The SMM Group's interest-bearing debt at the end of FY2018 was ¥349.8 billion on a consolidated basis, with a debt-to-equity ratio of 0.33. Our equity ratio was 58.3% on a consolidated basis. With regard to financial soundness, we are maintaining the 50% equity ratio that is a numerical target of our 3-Year Business Plan. Consistency of management is important to our Group, and we believe that executing growth strategies, reinforcing our business base, and steadily turning strategy into profit will lead to improvement of our corporate value. While preparing for medium- to long-term investment and risk and working to always maintain financial soundness, our Group aims to raise ROA and ROE in the medium to long term by improving profitability and asset efficiency.

At the same time, in mining and smelting projects, it is normal for recovery of investment to begin after about five years. While moving forward with such projects, enacting measures

to raise only the ROA or ROE of a given year is difficult by the nature of our business. For that reason, we aim to raise ROA and ROE in the medium to long term. Cash flow in the 2018 3-Year Business Plan is forecast to be a cumulative ¥-110.0 billion over the three years. However, we are working to reinforce our financial standing by strengthening capital efficiency, through means including creation of cash flow by improving the cash conversion cycle (CCC) and cash management systems (CMSs) within the Group. We will prepare for even larger projects and M&A, maintain an equity ratio of 50% and AA- (JCR) credit rating, and steadily enhance our investment capabilities for future business continuity and growth investments. Similarly, by strengthening our financial standing, we will also ready ourselves for changes in the business environment, including in non-ferrous metals markets and exchange rates.

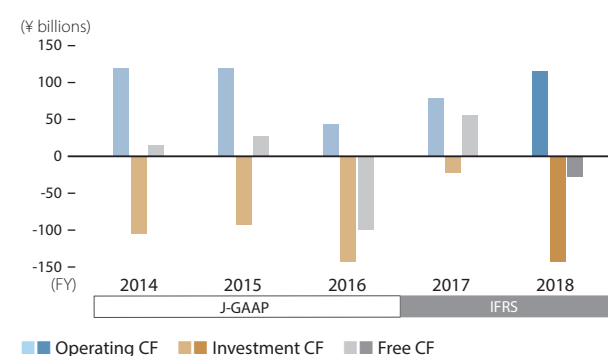
### Financial Strategies



### 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.

### Cash Flow Trends



### Investment

The SMM Group works to enhance its competitiveness in both raw materials procurement and manufacturing, pursuing measures to meet changes in the business environment. With regard to cost competitiveness in smelting and refining in particular, we have set a target of becoming world-class, ranking in at least the top one-third of companies. Due to factors including supply and demand, it is not always possible to purchase the raw material ores for non-ferrous metals in the necessary quantities or at economical prices. Natural disasters and other factors can also greatly impact prices. For that reason, it is our policy to raise our ratio of procurement from our own mines, securing stable sources of raw materials by developing and acquiring interests in overseas mines. In

mine development and acquisition of interests, we select investments carefully through strict assessments leveraging our long experience and knowledge of exploration and mine valuation, and fully taking country risk into account, to avoid additional expenditures or increases in mining costs arising from uncertainty. Under the 2018 3-Year Business Plan, we will actively carry out strategic investments, with cumulative capital expenditure, investment, and financing of ¥490.0 billion planned over the three years. While nearly all of the effects will not be seen until the next 2021 3-Year Business Plan and later, it is possible for us to maintain a sound financial standing during the 2018 3-Year Business Plan.

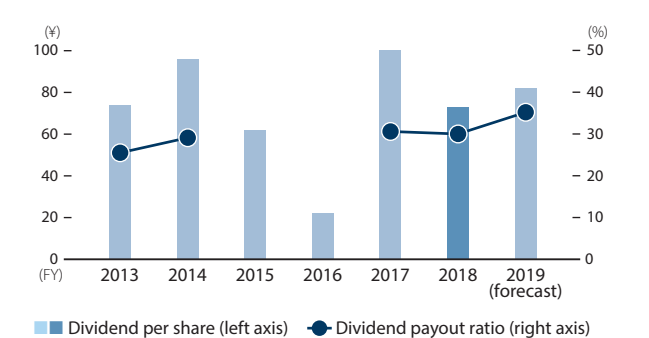
### Major Projects

Project name	FY2015	FY2016	FY2017	FY2018	FY2019 and later
<b>Mineral Resources</b>					
Cu Sierra Gorda Copper Mine	Start commercial production	110-kt production structure		Start debottlenecking	
Cu Morenci Copper Mine	Start expanded full-scale production	Acquisition of additional interest (12%→25%)			
Cu Cerro Verde Copper Mine		Start expanded full-scale production			
Ni Solomon			Decision to withdraw		
Au Côté			Acquisition of interest and start feasibility study	Completion of feasibility study	Start production
<b>Smelting &amp; Refining</b>					
Ni THPAL			36-kt production structure		
Ni Pomalaa Project			Start definitive feasibility study		Decision on whether to invest
Ni Harima Refinery nickel sulfate		Second line launch		49-kt production structure	
<b>Materials</b>					
Battery materials		NCA 1,850-t structure	NCA 3,550-t structure	NCA 4,550-t structure	
Crystal materials (LT/LN)	Decision on production increase	300-k piece production structure		(400-k piece production structure)	

### Return to Shareholders

In our dividend policy, we decide on a balance of distribution of surplus and internal reserves through comprehensive consideration of our business performance, dividend payout ratio, the future business outlook, the soundness of our financial standing, and other factors. The number of times that we distribute dividends during each fiscal year is based on business conditions. As our financial strategy in the 2018 3-Year Business Plan, we will continually preserve the soundness of our financial standing and maintain a consolidated equity ratio of 50% or higher. In the distribution of surplus in the fiscal year, we raised the consolidated dividend payout ratio to 35% or higher, under a wish by top management to increase returns to shareholders as much as possible even amid a decline in sales and profit before tax. While free cash flow will become significantly negative under the 2018 3-Year Business Plan, taking into account business scale and profitability, we believe that we can continue to maintain a healthy financial standing even while undertaking strategic investments.

### Dividends



SMM consolidated its common stock at a rate of one share for every two shares with October 1, 2017 as the effective date. Dividends per share trends for FY2017 and previous fiscal years shown in the graph above have been adjusted to reflect levels after said share consolidation.

# Mineral Resources Business



**Hiroshi Asahi**  
Director,  
Managing Executive Officer,  
General Manager of Mineral  
Resources Division



## The Business Environment and a Review of the 2015 3-Year Business Plan

Although U.S.-China trade friction and other factors have brought short-term uncertainties to non-ferrous metals market, we forecast continued growth on a global scale as the world economy expands in the medium to long term. In supply and demand of non-ferrous metals, there are expectations for continuing tight conditions for the time being and a rising trend in mineral resource prices over the medium term. We must solidly catch up with this growth and seek out new development projects. At the same time, finding new mine

development projects is not easy, and country risks such as resource nationalism are on the rise as well, making investment decisions increasingly difficult.

In the 2015 3-Year Business Plan, we named full production at the Sierra Gorda Copper Mine and the acquisition of new gold mine interests as top priorities. We recorded an impairment loss due to production troubles at the Sierra Gorda Copper Mine immediately after the start of the 3-Year Business Plan, but achieved full production in FY2018.

### Progress and Issues in Our Top Priorities

		FY2015	FY2016	FY2017	FY2018	FY2019 and later
Cu	Sierra Gorda Copper Mine	Start commercial production	110-kt production structure		Start debottlenecking	
Cu	Morenci Copper Mine	Start expanded full-scale production	Acquisition of additional interest (12%→25%)			
Cu	Cerro Verde Copper Mine		Start expanded full-scale production			
Ni	Solomon Exploration Project			Decision to withdraw		
Au	Côté Gold Project		Acquisition of interest and start feasibility study		Completion of feasibility study	Start production

**Full-scale production at the Sierra Gorda Copper Mine**  
**Acquisition of new gold mine interests**

**Sierra Gorda Copper Mine**  
**Production slump and rise in costs.**

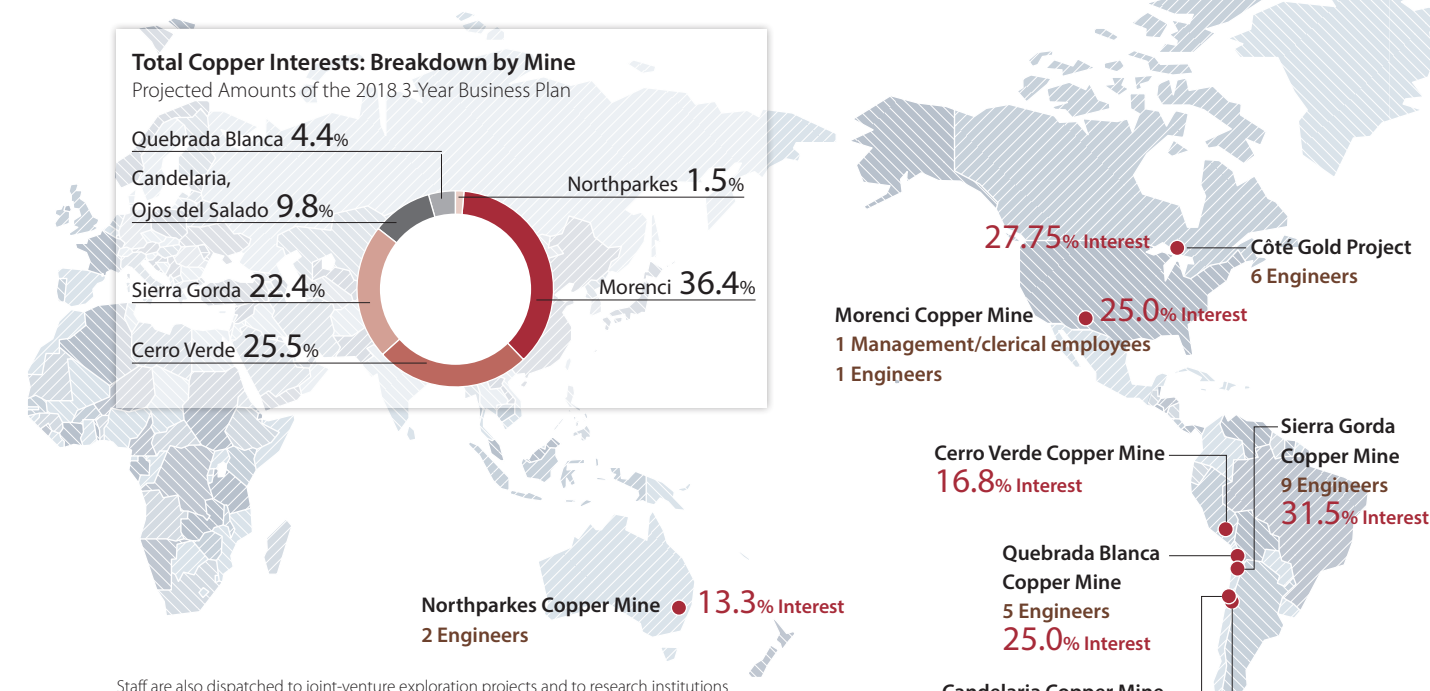
- Large impairment loss incurred
- Implementation of debottlenecking

- Expand Cerro Verde Copper Mine
- Acquire additional interest in Morenci Copper Mine
- Acquire interest in Quebrada Blanca Copper Mine
- Enter into Côté Gold Project
- Transfer Pogo Gold Mine interest

Furthermore, we significantly expanded production capacity in the copper business overall, including the expansion of the Cerro Verde Copper Mine, the acquisition of additional interests in the Morenci Copper Mine, and the acquisition of interests in the Quebrada Blanca Copper Mine. With regard to gold, we began participating in the Côté Gold Project in Canada, while disposing of the Pogo Gold Mine that we had operated in the US since 2006.

Mineral reserves decrease as a mine is excavated; accordingly, it is necessary to always acquire new interests. With regard to copper in particular, we must continue to hold world-class mines that can be excavated on a large scale, consistently, and at low cost. Amid these circumstances, we believe that it was the three years of the 2015 3-Year Business Plan that drove the leadership of top management's to strategic acquisition of interests.

### Staff Dispatched to Mines (as of July 1, 2019)



## The Role of the Mineral Resources Business in Business Collaboration

With the discovery of superior mines getting more difficult and an upsurge in resource nationalism, the relationships of trust that we have built with our partner companies over the years are leading to the acquisition of new resource interests for the SMM Group. Collaboration among our business divisions is another strength of our Group. The Mineral Resources Division has the role of supplying raw material ore and other

items to the Non-Ferrous Metals Division, achieving cost control and reduction of risk. The Division also leverages the diverse geological knowledge of resource engineers to support the Non-Ferrous Metals Division, the Materials Division, and the customers of these by providing information regarding the amounts and properties of mineral ore resources other than the non-ferrous metals produced by our Group.



## Mineral Resources Business

## Strengthen the Growth Foundation

## Quebrada Blanca 2 (QB2)

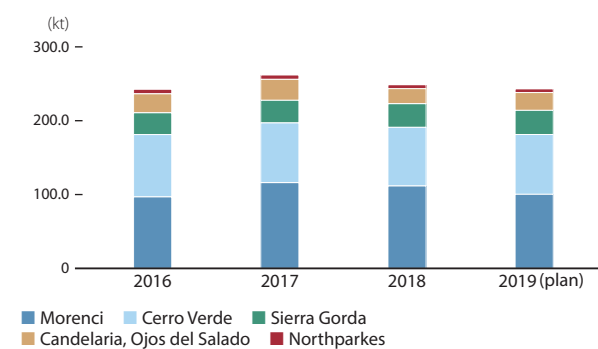
- Copper mine development project in Chile. Entry decided in December 2018 (Planned start of production: 2021. Mine life: Approximately 28 years. Average annual copper production volume: Approximately 240 kt)
- Capital contribution: Teck Resources Limited 60%, SMM 25%, Sumitomo Corporation 5%, other 10%
- Planned investment: US\$4.7 billion (100% of the project)

## Investment in Growth

## Promotion of the Quebrada Blanca 2 Project

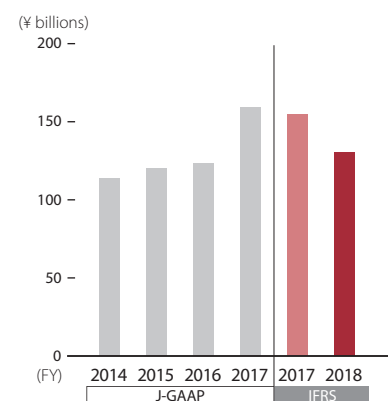
In December 2018, we entered into an agreement to acquire a 30% portion of the Quebrada Blanca Copper Mine held by the major Canadian resource company Teck Resources Limited, with 25% of that acquired by Sumitomo Metal Mining Co., Ltd. and 5% by Sumitomo Corporation. Production will be possible at the copper mine until the latter part of the 2040s under the current development plan (QB2), and abundant mineral resource reserves also lie below the mineral deposits targeted for development. For that reason, we will engage in long-range investigation with Teck Resources concerning large-scale expansion of production capacity and plans to extend the mine's life. The planned investment amount is US\$4.7 billion for 100% of the project. Our Group paid US\$800 million for the entry fee and US\$200 million in construction expenses in FY2018. Through the acquisition of interests, we expect to achieve the 300 kt/year copper production capacity from interests noted in our Long-Term Vision. Based on our reconsideration of the Sierra Gorda Project, we will put forth all our power and proceed accordingly to plan.

## Copper Production from Interests

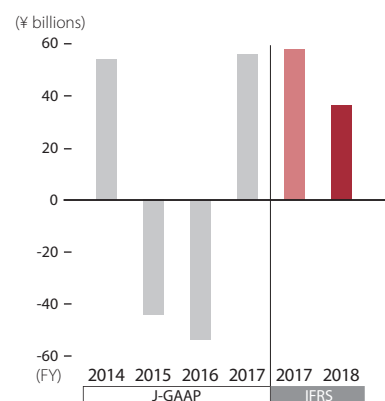


Location: About 240 km southeast of Iquique, capital of Iquique Province, Chile

## Segment Net Sales

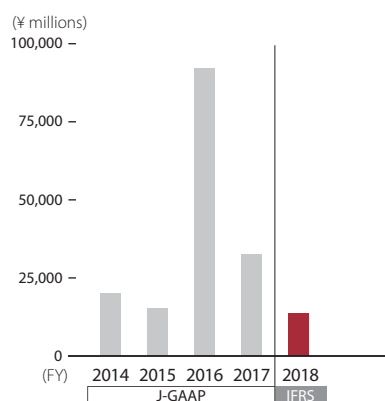


## Segment Income



Although we continued stable operation at major mines, segment income declined from the previous fiscal year due to factors such as lower production caused by a decline in the quality of copper contained in ore.

## Capital Expenditure



Capital expenditures in FY2018 include primarily capital expenditures for development at the Hishikari Mine and capital expenditures for exploitation and production at overseas mines.

## Stabilization of Operations at the Sierra Gorda Copper Mine

The Sierra Gorda Copper Mine in Chile was unable to achieve planned equipment capacity and planned production of copper volume and molybdenum volume, due to cost overruns at the construction stage and equipment troubles at initial launch.

With a decline in copper prices also having an impact, we recorded a second impairment loss.

However, at present we have been able to secure production volume according to plan by improving operating rate and actual yields, through operational improvements and strengthening of management during scheduled operation halts.

Furthermore, we are currently implementing debottlenecking measures aimed at boosting processing volume, which, if executed according to plan, will raise ore processing volume from the current 110 kt/day to 130 kt/day by 2020.

We expect to achieve profitability with stable cash flow through the increase in production output accompanying this increase in processing volume. We expect to reach high-quality mineral deposits in 2020, with copper production of about 200 kt/year in 2021, or nearly double the current level.

## Promotion of the Côté Gold Project

In the Côté Gold Project in Canada, in June 2017 we concluded the acquisition of 30% of the 92.5% interest held by Canadian gold producer IAMGOLD Corporation (IMG), an amount equivalent to 27.75% of the project overall. The life of the mine is about 16 years, with recoverable gold reserves of 198 tonnes. The interests that we acquired include periphery mining zones and are located within the Abitibi area in eastern Canada, one of the world's leading gold producing regions, so we believe that additional resource amounts may

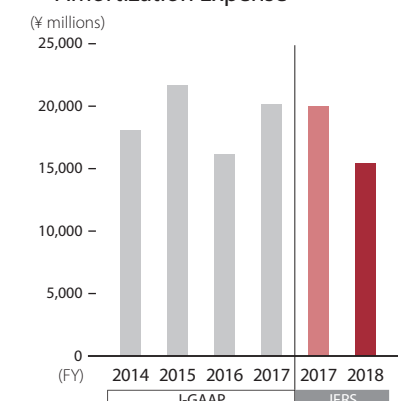
be added through future exploration. We will begin construction in the second half of 2019 and undertake the construction phase through collective effort with the aim of beginning production in FY2021. We have dispatched a nine-person project study team from our company, and are tackling detailed design and risk reduction measures. We also aim to use the acquisition of the interest as an opportunity to solidify our partnership with IMG in the gold business.

FY2017	FY2018	FY2019	FY2020	FY2021
PFS	FS	Detailed design	Construction	Commissioning & Ramp up

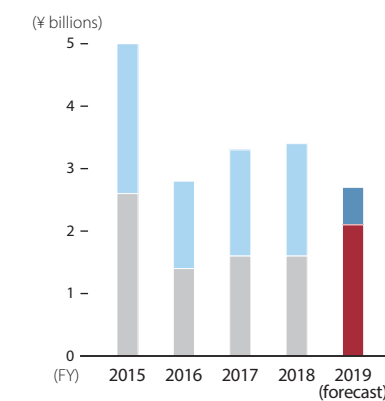


Location: About 120 km southwest of Timmins in Ontario Province, Canada

## Depreciation and Amortization Expense



## Exploration Costs



We will continue exploration in FY2019, with a focus on gold. Expenses for exploration in areas around operating mines will be at the same level as the previous year, but the amount is lower due to the transfer of interest in the Pogo Gold Mine.

## Metal Reserves at the Hishikari Mine

(gold: t)	2014	2015	2016	2017	2018
	170	170	169	169	167

Reserves of gold at the Hishikari Mine, calculated as of December 31, 2018, are 167 tonnes (down 2 tons from last fiscal year).

Reserves of gold in minable ore according to JIS standards

## Mineral Resources Business

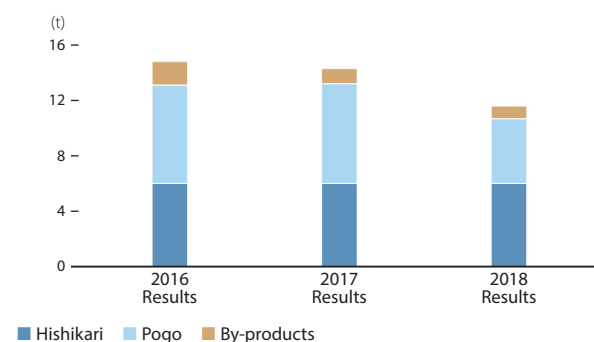
## Hishikari Mine: Establishment of a Foundation for Long-Term Stable Operation

Located in northern Kagoshima Prefecture, the Hishikari Mine has produced 242.2 tons of gold (as of the end of March 2019) since it opened in 1985. Worldwide, the amount of gold contained in gold ore is said to be 3 to 5 grams per ton. The Hishikari Mine is characterized by its high quality with 30 to 40 grams of gold per ton, or about 10 times the average. The mine continues to produce about 6 tons of gold per year. As of the end of December 2018, the mine has recoverable reserves of 167 tons. While maintaining stable operation under a 6 t/year gold production structure, we aim to secure ore reserves through the active continuation of exploration aimed at extending the life of the mine. The Hishikari Mine is the only gold mine in Japan at which large-scale operations are carried out on a commercial basis. We will also continue using the mine as a place for human resources development where resource engineers can accumulate the skills and experience needed for mine operation.

## Exploration Plans and Acquisition of New Interests

The possibility of success in exploration is said to be on the decline worldwide. However, exploration experts in the SMM Group are taking actions to enhance the chance of success through the strict selection of projects. We actively carry out investigation of gold- and copper-related exploration and participation projects, mainly in the Pacific Rim, and conduct exploration both on our own and through joint ventures, with a focus on high-potential regions. To enhance the possibility of fast transition to production, we also take an interest

## ■ Au Production (SMM's interests)



Location: Isa, Kagoshima Prefecture

in participation in exploration projects that deliver results at the initial stage. The difficulty of exploration is such that only about three in a thousand projects succeed, but we hope to engage in thorough target management and deliver results. With regard to the acquisition of new interests, in addition to the minor participation in large-scale projects that we have undertaken in the past, we are pursuing negotiations that also consider medium-scale mine participation where we can act as operator.

## ■ Business Strategy and Strategic Topics

## Transfer of the Pogo Gold Mine (Replacement of Assets)

The Pogo Gold Mine in Alaska, US, has been in operation since 2006, with the SMM Group acting as operator from 2009. In August 2018, however, we reached an agreement to transfer the entirety of our interest to major Australian gold producer Northern Star Resources Limited. Our Long-Term Vision calls for participation in new mine operations through the acquisition of superior interests. At the Côté Gold Project, in which we acquired an interest in 2017, there is no change

in our business development policy of seeking to operate it ourselves, and we have participated from the stage of considering business profitability and commercialization with the aim of full production from 2021. By acquiring further superior gold interests while continuing to work toward activation through the replacement of assets, we aim to be "The World Leader in the Non-Ferrous Metals Industry," a target we have set in our Long-Term Vision.

## SMM Human Resources Active around the World

The SMM Group's engineers became active around the world with our acquisition of interest in the Morenci Copper Mine in the US in 1986. Since then, by exposing engineers to experience through rotation among sites where we participate in business, we have accumulated skills and knowledge con-

cerning mining operations at international standards. When troubles occurred at the launch of the Sierra Gorda Copper Mine, we dispatched a group of expert engineers who are contributing to the stabilization the operations.

## ■ ESG Case Study

## The Appropriate Management of Tailings Dams (Slag Accumulation Sites)

Sustainable mine development and operation require efforts to minimize impacts on the environment. The rubble, slag, and sediment generated from a mine are collected in accumulation sites known as tailings dams. The SMM Group enacts safety measures at 42 tailing dam locations<sup>1</sup> that we manage in Japan. Of the 10 locations to which the "special conditions" in the Ministry of Economy, Trade and Industry's new technical guidelines apply, measures were deemed necessary for a total of five facilities at the Okuchi Mine (Kagoshima, closed in 1977) and Kounomai Mine (Hokkaido, closed in 1973). Roughly ¥4.5 billion was invested on stabilization work at these mines from FY2014 to FY2015. Furthermore, even at tailings dams to which "special conditions" do not apply, seismic resistance is being reevaluated for midscale seismic vibrations based on the previous technical guidelines. In FY2018, we completed stabilization work at the six locations that were determined to be insufficient.

1. We revised the number of tailing dams that require management, based on the study of past materials and local investigations.

## SMM's Mining School for Cultivating Mining Engineers

The continuation of mining operations requires that we develop engineers who are equipped with advanced and specialized knowledge and experience, and that we hand down these skills. Hishikari Mine, one of our main business sites, plays an important role as a training place for cultivating mining engineers and passing on advanced technological capabilities. The Mineral Resources Division assigns new mining and geology graduates to Hishikari Mine, and assigns new employees in mineral processing to the Niihama Research Laboratories in Ehime Prefecture, for on-the-job training (OJT) in specialized skills and the fundamentals of mine operation technologies. After graduating from the Mining School, the employees are sent to work at existing overseas mines, or in identification and development of new projects, resulting in engineers who are capable of performing at locations all over the world.

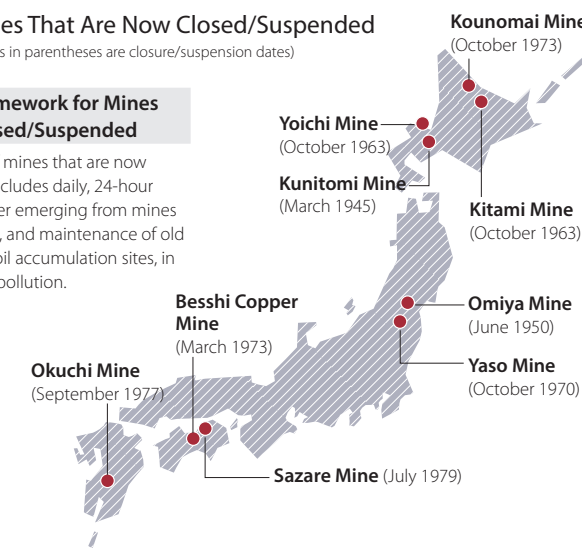


New employees receiving training inside the mine

■ Domestic Mines That Are Now Closed/Suspended  
(as of July 1, 2019, dates in parentheses are closure/suspension dates)

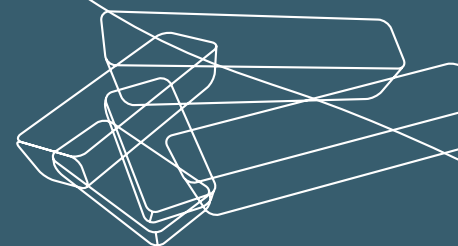
## Management Framework for Mines That Are Now Closed/Suspended

SMM's management of mines that are now closed or suspended includes daily, 24-hour treatment of wastewater emerging from mines and accumulation sites, and maintenance of old mines and slag and spoil accumulation sites, in order to prevent mine pollution.





# Smelting & Refining Business



**Nobuhiro Matsumoto**  
Director,  
Executive Officer,  
General Manager of  
Non-Ferrous Metals Division



## The Business Environment and a Review of the 2015 3-Year Business Plan

### Business Environment

Looking at the supply and demand of non-ferrous metals, despite concerns over a downswing in demand due to impacts from U.S.-China trade friction, supply shortages of copper and nickel are expected to continue at present.

Regarding copper, there are concerns over a decline in demand in China, which accounts for about half of global demand. However, as supply volume is also on a downswing due to factors including China's strengthened restrictions on scrap imports, reduced operating capacity at major Chilean

refineries, and suspension of operation at major Indian refineries, supply shortages are forecast to continue from 2018 into 2019.

For nickel, too, supply shortages are forecast to continue from 2018 into 2019, due to the steady growth in EV demand and the strength of stainless steel production in China, which accounts for about half of global demand for nickel. On the supply side, new projects are actively underway in Indonesia and elsewhere to produce the low-grade products known as

Class 2, including the nickel pig iron (NPI) and ferronickel used as raw materials in stainless steel. However, new projects to produce the high-grade products known as Class 1, which are raw materials used in special steels and EVs, are extremely limited, and demand continues to exceed supply.

### A Review of the 2015 3-Year Business Plan

In our 2015 3-Year Business Plan, we moved forward with initiatives under three top priorities: (1) Expanding Taganito HPAL Nickel Corporation (THPAL), (2) Advancing growth strategies using peripheral HPAL technologies, and (3) Enhancing the competitiveness of the copper smelting business.

First, regarding expansion at THPAL, we made low-cost investments in FY2017 to raise our annual production capacity of mixed nickel-cobalt sulfide (MS), a nickel intermediate product, by 20% from 30 kt (based on nickel content; the same applies below) to 36 kt, which, combined with the 24 kt annual production capacity at Coral Bay Nickel Corporation (CBNC), creates a 60 kt/year production structure. FY2018 output at THPAL stalled at over 27 kt due to the occurrence of equipment troubles, but through measures to strengthen and enforce preventive maintenance, we have returned to planned production volume from FY2019.

Next, in peripheral HPAL technologies, we are working to commercialize the recovery of scandium oxide and chromite. With regard to scandium oxide, we have constructed a plant to recover scandium from ore and manufacture intermediate products at THPAL, and a plant to process the intermediates into finished products at Harima Refinery, with commercial production starting in January 2019. Scandium is a rare earth element produced in small quantities, and demand for the element has been limited by its high cost. However, by enabling a stable supply, new applications for solid oxide fuel cells and aluminum alloys are expected to expand. Solid oxide fuel cells are expected to significantly reduce CO<sub>2</sub> emissions due to their high-power generation efficiency. In 2020, we aim to begin commercial production of chromite, a raw material used in products such as stainless steel containing chromium, and are now constructing a recovery plant at THPAL.

Finally, in enhancing the competitiveness of the copper smelting business, we have established a stable production structure under full-load operations, first achieving production of 450 kt of electrolytic copper in FY2016 and again in FY2018. Along with this, we promoted the processing of valuable secondary materials and reduction of costs to reinforce our competitiveness.

### Progress and Issues in Our Top Priorities

		FY2015	FY2016	FY2017	FY2018	FY2019 and later
Ni	Taganito HPAL Nickel Corporation			36-kt production structuring		
Ni	Pomalaa Project			Start definitive feasibility study		Decision on whether to invest
Ni	Harima Refinery Nickel sulfate		Second line launch	49-kt production structure		

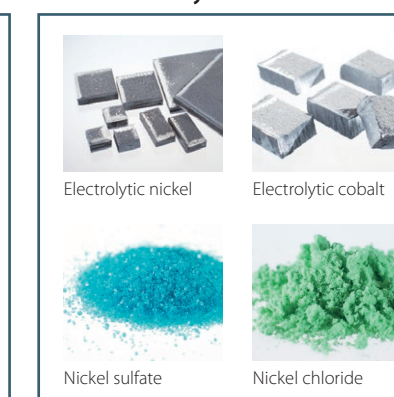
Expansion of Taganito HPAL Nickel Corporation	Development of growth strategy by peripheral technologies of HPAL	Enhancement of copper smelting and refining business competitiveness
<ul style="list-style-type: none"> <li>Taganito HPAL Nickel Corporation, complete 36-kt production structure</li> <li>Stabilization is an issue</li> </ul>	<ul style="list-style-type: none"> <li>Promotion of scandium and chromite recovery commercialization</li> </ul>	<ul style="list-style-type: none"> <li>Achievement of electrolytic copper production of 450 kt</li> <li>Complete 49-kt nickel sulfate production structure in Harima</li> <li>Begin DFS of Pomalaa Project</li> <li>Starting demonstration tests of recycling of lithium-ion rechargeable batteries</li> </ul>

### SMM Group Refineries and Their Main Products

#### Toyo Smelter & Refinery



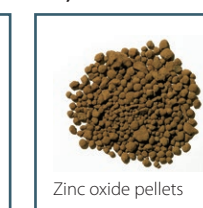
#### Niihama Nickel Refinery and Harima Refinery



#### Hyuga Smelting Co., Ltd.



#### Shisaka Smelting Co., Ltd.



#### Coral Bay Nickel Corporation Taganito HPAL Nickel Corporation





## Smelting & Refining Business

### ■ The Role of the Smelting & Refining Business in 3-Business Collaboration

The Smelting & Refining Business smelts and refines raw materials procured from mines in which we hold interests or from other overseas mining companies, creating high-purity copper, nickel, cobalt, gold, and other metals which we then sell. Among these metals, demand is growing year by year for nickel and cobalt, which are used in cathode materials in EV and other automobile secondary batteries. The SMM Group has established operations using the HPAL process, which can efficiently recover nickel and cobalt from previously-unused low-grade oxide ore, achieving the world's first commercial success in 2005 at CBNC. Subsequently, we launched THPAL as the second site for recovery of nickel and cobalt using the HPAL process and enhanced production capacity at the Niihama Nickel Refinery, as we worked to expand our production scale.

The SMM Group stably procures nickel ore through means including investment in overseas nickel mining companies,

and recovers nickel and cobalt through our technological capabilities in the HPAL process, Matte Chlorine Leaching Electrowinning (MCLE), and other processes. While stably supplying these materials to existing users, we also supply nickel sulfate and other products to materials business divisions. Few companies in the world have this sort of supply chain that spans the upstream to the downstream; with it, we are building a unique business model. We are earning the trust of customers by stably supplying products with a clear supply chain that enables use with confidence, and are working to achieve sustainable growth while creating synergies among our businesses.

Moreover, through our sharing of strategies among business divisions as we exchange information on a daily basis, there have been cases in which dealings with the customers of other business divisions have developed into new dealings for the Non-Ferrous Metals Division.

### ■ Investment in Growth

#### Expansion of Our Nickel Business

Our Long-Term Vision calls for annual nickel production capacity of 150 kt. To bring us closer to achievement of this target, we are moving forward with the Pomalaa Project in Indonesia. We plan to complete the definitive feasibility study by the end of the current fiscal year, then make a decision on

whether to invest. As an overview, we plan annual nickel production capacity of about 40 kt, with a total investment value of several billion U.S. dollars for 100% of the project, and launch of operations in the mid 2020s.

As an initiative to construct a sustainable, material-cycle society, we are developing recycling technology for lithium-ion secondary batteries. We developed a process that recovers and recycles cobalt, along with the copper and nickel that had previously been recoverable, from used lithium-ion secondary batteries or from intermediate products generated in the battery manufacturing process. We began operation of a pilot plant in March 2019 to verify this new recycling process and scale up the process to actual equipment. By recycling valuable metals contained in lithium-ion secondary batteries, we expect that we can further contribute to resource recycling to address worldwide depletion of resources.

#### Reinforcement and Improvement of Production Capabilities

##### Establishment of a Stable Full Production Structure at THPAL

Although THPAL increased its production capacity by 20% in FY2017, output fell short of plans in FY2018 due to the frequent occurrence of equipment troubles and the time required to procure the parts involved. By strengthening the management structure for spare parts and by increasing the number of managed items in daily inspection and in semi-annual scheduled operation halts from the standpoint of strengthening preventive maintenance, we are experiencing no major trouble at present and operation is proceeding as planned. Looking ahead, we aim to pursue the use of information and communication technology (ICT) as we establish a stable full production system.

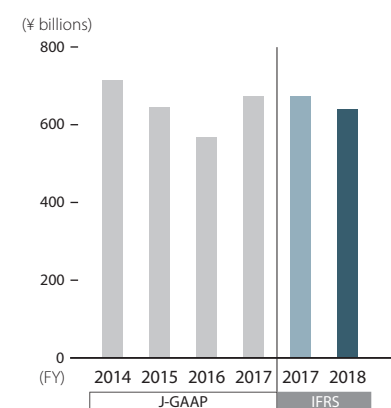
##### Toyo Smelter & Refinery: Establishment of a Stable Production System and the Pursuit of Earning Capacity

Located in Saijo, Ehime Prefecture, the Toyo Smelter & Refinery is a large-scale coastal smelter where we have established world-class smelting and refining technology, production management technology, and environmental preservation technology. It maintains a stable production system with annual electrolytic copper production capacity of 450 kt, and will strengthen its earning capacity through further streamlining and cost reductions. In FY2019, the smelter projects a 34 kt decline in production from the previous fiscal year to 420 kt, due to a planned one-month regular operation halt from late October 2019. While working to increase the facility's operating ratio through planned upkeep, renewal, and preventive maintenance of facilities, we will establish a stable production structure and strengthen profitability through increased collection of valuable secondary materials.

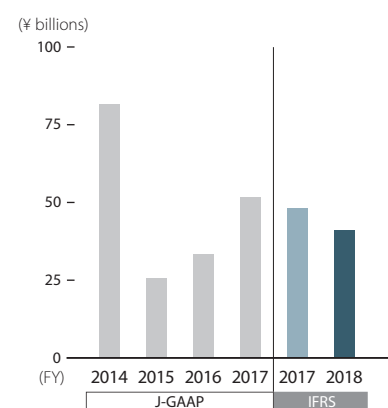


THPAL Plant

#### ■ Segment Net Sales

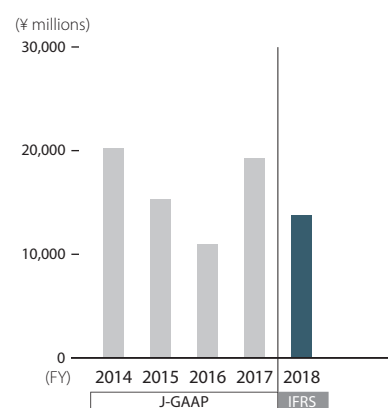


#### ■ Segment Income



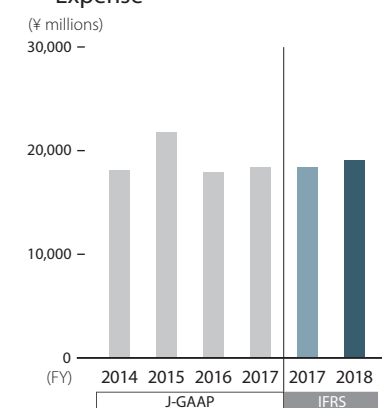
Although production and sales volume of copper increased year-on-year, segment income declined from the previous fiscal year due to factors including a decline in sales of electrolytic nickel.

#### ■ Capital Expenditure

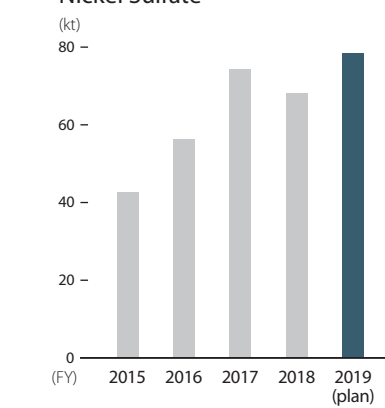


Capital expenditures in FY2018 include those related to upkeep and renewal of facilities at refineries and chromite recovery at THPAL.

#### ■ Depreciation and Amortization Expense



#### ■ Production Volume of Nickel Sulfate



#### ■ TC/RC (benchmark)



## Smelting &amp; Refining Business

## Niihama Nickel Refinery and Harima Refinery: Continuous Implementation of Productivity Improvements and Cost Reductions

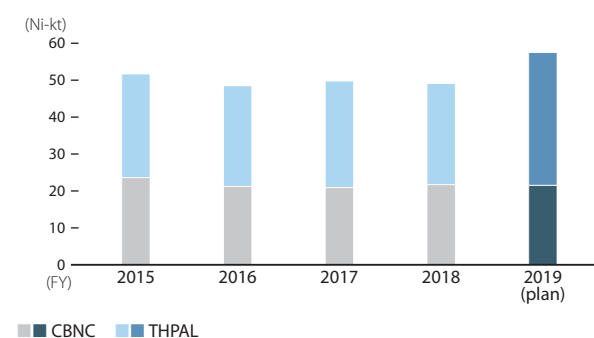
Located in Niihama, Ehime Prefecture, Niihama Nickel Refinery is the only plant in Japan producing electrolytic nickel and electrolytic cobalt, and is distinguished by its adoption of the extremely efficient production method called MCLE. Niihama Nickel Refinery produces electrolytic nickel, electrolytic cobalt, nickel sulfate, and other products using MS produced at CBNC and THPAL in the Philippines, and using the raw material called matte procured from locations including Indonesia. Nickel sulfate is produced at Harima Refinery in Hyogo Prefecture as well as Niihama Nickel Refinery. Because of the impact of lower production at THPAL, which produces the MS used as a raw material, production of electrolytic nickel in FY2018 fell short of the planned 65 kt at under 57 kt, and combined production of nickel sulfate at both plants was 68 kt, against planned production of 73 kt. Plans for FY2019 call for close to full production, with electrolytic nickel at 63 kt and nickel sulfate at 78 kt.

At both plants, we will move forward with further improvements in productivity and reductions in costs.

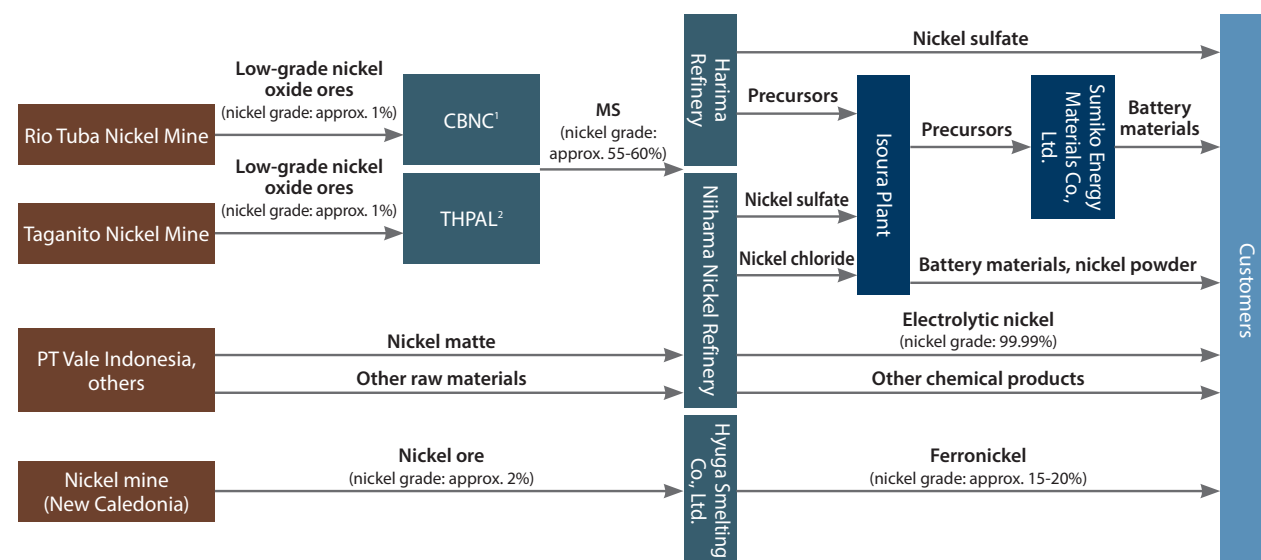
## Maximization of HPAL By-Product Recovery

The nickel ore used as a raw material at CBNC and THPAL contains trace amounts of scandium and chromite, which we are working to recover. Commercial production of scandium oxide began in January 2019. For chromite, we constructed a pilot plant at CBNC in September 2013 and carried out test operations, followed by sample production in September 2014. At present, we aim to begin commercial production in 2020 and are constructing a recovery plant at THPAL. Broad demand exists for chromite as a raw material in stainless steel and specialty steels. By efficiently recovering such by-products, the SMM Group is moving to enhance the value of our HPAL technology. We will also further enhance our company's presence by supplying new products for the stainless steel industry, the main purchaser of the products of our nickel business.

## MS Production Volume



## The Nickel Supply Chain



1. Coral Bay Nickel Corporation (CBNC): Shareholders: Sumitomo Metal Mining Co., Ltd. (54%); Mitsui & Co., Ltd. (18%); Sojitz Corp. (18%); Nickel Asia Corporation (10%). Head Office: Rio Tuba, Bataraza, Palawan Province, Philippines.  
 2. Taganito HPAL Nickel Corporation (THPAL): Shareholders: Sumitomo Metal Mining Co., Ltd. (75%); Mitsui & Co., Ltd. (15%); Nickel Asia Corporation (10%). Head Office: Taganito, Surigao del Norte Province, Philippines.

## ESG Case Study

## Utilizing Low-Grade Ore

The HPAL process adopted at CBNC and THPAL is able to recover metals such as nickel and cobalt from low-grade nickel oxide ore conventionally not subject to smelting and refining, and is noted for its effective utilization of unused resources. As demand for certain metals increases amid the shift to EVs, the ability to safely and stably secure these metals through our supply chain is a strength of the SMM Group.



Low-grade nickel oxide ore for THPAL

## Taganito HPAL Named as the Philippines' Largest Exporter (Mineral Sector)

THPAL was given the Top Exporter Award for Mineral Sector in 2017 at the National Export Congress of the Philippine Department of Trade and Industry. THPAL was also given the Hall of Fame Award for its status as the Top Export Performer in its sector for the past three consecutive years. The National Export Congress is held to raise the level of export industries in the Philippines and to promote development. Along with THPAL, 23 companies in the Philippines were commended for

their export performance in 2017. The award ceremony took place within the National Export Congress that was held at the Philippine International Convention Center on December 7, 2018.



Top Export Performer (Mineral Sector) trophy

## CBNC Wins Presidential Mineral Industry Environmental Award

CBNC was awarded the 2018 Presidential Mineral Industry Environmental Award (PMIEA) from the Philippine Department of Environment and Natural Resources (DENR), an award that the company has received for five consecutive years since 2014. The award was in the mineral processing category, and was determined based on a comprehensive evaluation of factors including environmental management, safety management, protection of the local environment, and contribution to local communities. Together with the PMIEA, CBNC was simultaneously given the Best Mining Forest Award and the Safest Mineral Processing - Extraction Award.

THPAL received the second-place award that follows the PMIEA.



CBNC: Commemorative photograph upon receipt of the PMIEA



## Materials Business Battery Materials Business



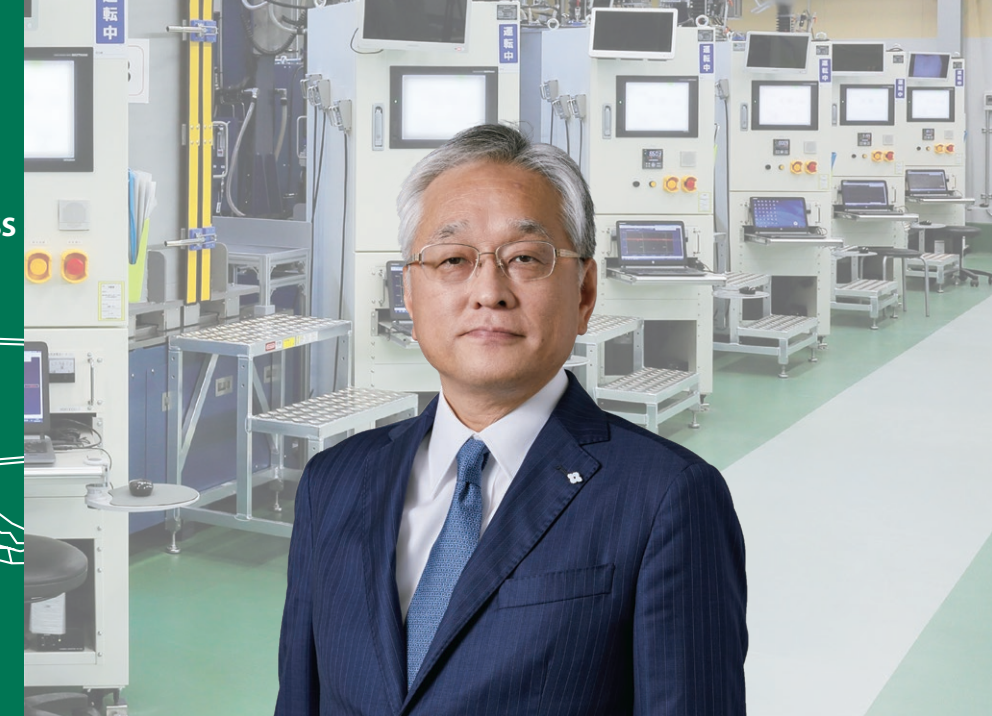
**Isao Abe**  
Executive Officer,  
General Manager of  
Battery Materials Division



## Advanced Materials Business



**Fumikazu Oshita**  
Executive Officer,  
General Manager of  
Advanced Materials Division



Effective April 1, 2019, we split up our Materials Division, establishing a Battery Materials Division as an organization capable of promptly and flexibly responding to the rapid expansion of the battery business, and an Advanced Materials Division as an organization to achieve sustainable growth in advanced materials sectors, particularly energy, environment, and information and communications.

### ■ The Business Environment and a Review of the 2015 3-Year Business Plan

The digitization of society is progressing rapidly, particularly the advance of IoT, the shift to CASE in automobiles, and the increasing speed of communications as seen in 5G. Backed by these trends, non-ferrous metal materials, from basic materials such as copper and nickel to rare metals, will play increasingly active roles.

The main tide in the world of automobiles is the shift to electric power, from the engine-based automobiles of the past to hybrid and electric vehicles. This is a major business opportunity for the cathode materials that we handle, yet it also means that many competitors will appear. We must maximize our advantage as the first mover and, to survive under competition, must speedily develop strategies. The Battery Materials Division, launched this year as an organization covering only battery cathode materials, will enhance our sensitivity to changes in this business area and will take action with agility.

The Advanced Materials Division handles materials that are indispensable in the shift to electric and digital in fields including communications. However, these fields are undergoing rapid change. While working to maximize our existing profits, we will achieve sustainable growth by nurturing our next businesses and by creating and incubating new businesses. During our 2015 3-Year Business Plan, we greatly increased production of NCAs, a battery cathode material for automobiles, and at the end of FY2018, the last year of the plan, completed a production structure of 4,550 t/month. We are continuing full production in line with expansion of the market, and believe that we have achieved a scale that exerts a presence in the market.

In the field of crystal materials, although we made additional investments in LT/LN for SAW filters, these have not contributed to profits due to weak demand.

### ■ Progress and Issues in Our Top Priorities

	FY2015	FY2016	FY2017	FY2018	FY2019 and later
Battery materials		NCA 1,850-t structure	NCA 3,550-t structure	NCA 4,550-t structure	
Crystal materials (LT/LN)	Decision on production increase	300-k piece production structure		(400-k piece production structure)	

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

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

**Complete 4,550 t/month NCA production structure**  
**Increase LT/LN production structure (partially postponed)**

- No contribution to profits yet due to continued fall in demand

- Develop nickel oxide powder for fuel cell electrodes
- Acquire shares of silicon carbide (SiC) development company
- Withdraw from lead frame business

### ■ Technical Strengths of the Materials Business

“Seeds” and “needs” are important to our Materials Business. The technological “seeds” of our Group are what allow us to meet the demands of markets and customers. We believe that our Materials Business has strengths in pulverization technology and crystallization technology, primarily in metals. While maintaining a backbone of such technology, we are strengthening initiatives by which our sales managers clarify the needs of customers through communication, after which we engage in development. Through collaboration, our

Group’s three businesses of Mineral Resources, Smelting & Refining, and Materials will share information about markets and prioritize the assessment of customer activity. While coordinating closely within the company, the Materials Business will build relationships of trust with customers that purchase materials, will assess trends, and will discern the timing for investments in new products and production increases.



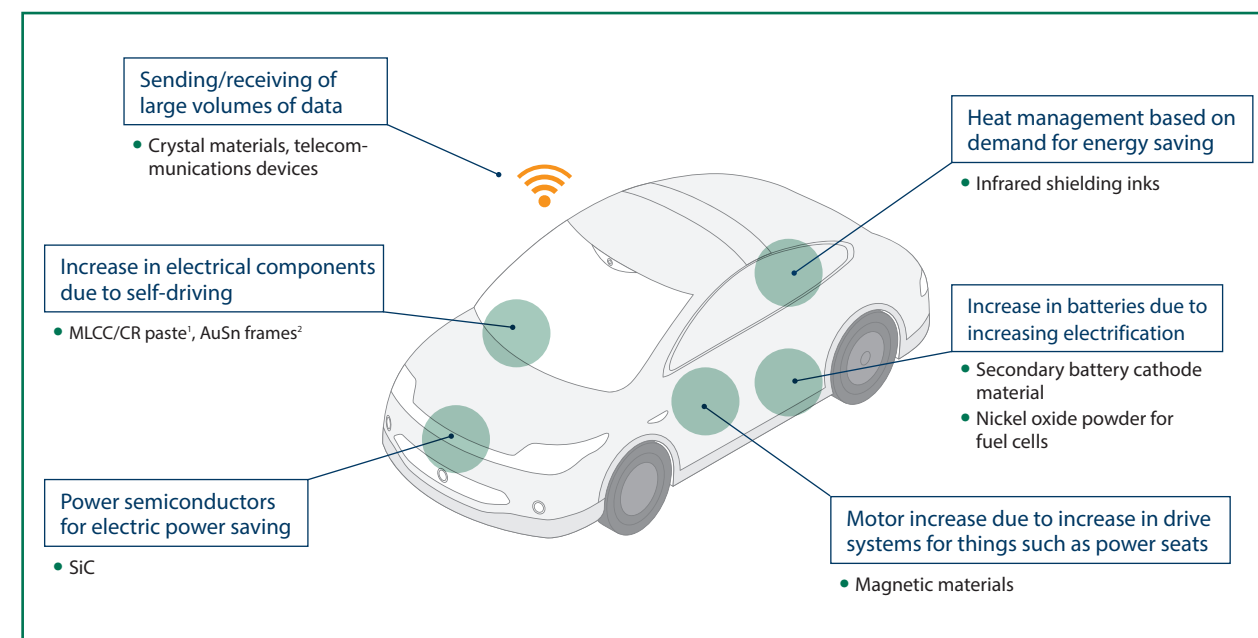
## Materials Business

### Strategic Topic

#### Expansion of Business Opportunities under the Advance of CASE

The progress of digital society has created opportunities for the growth of the SMM Group's products in the wide-ranging automobile industry. We will further increase points of contact with customers for various components so that we can highlight the technologies and materials of our Group. As the

business environment undergoes rapid change and materials that are demanded change every moment too, the SMM Group will continue to create new products in the domains of energy, environment, and information communications.

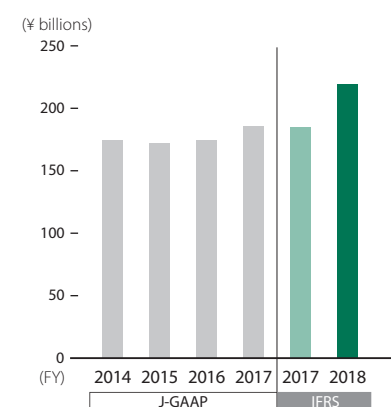


1. MLCC/CR paste: Paste for multilayer ceramic capacitors/chip resistors  
2. AuSn frame: Gold-tin alloy solder material

#### SMM Products in Daily Life

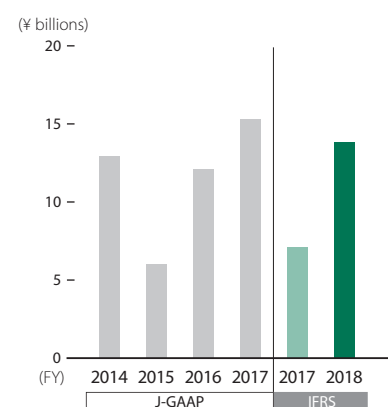


#### Segment Net Sales



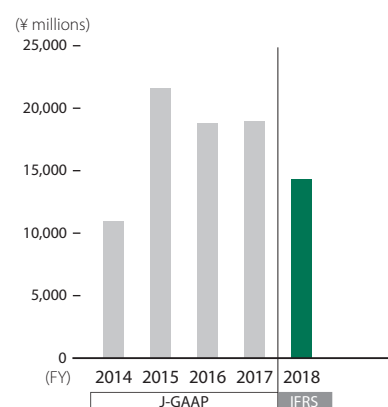
In sales of battery materials, we recorded all-time high shipment volumes against a background of robust demand.

#### Segment Income



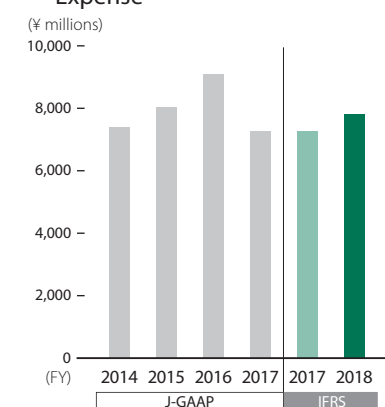
Despite ongoing inventory adjustments by customers in crystal materials, segment income grew from the previous fiscal year due to factors such as the lack of the impairment loss on property, plant and equipment that was recorded in the previous fiscal year.

#### Capital Expenditure

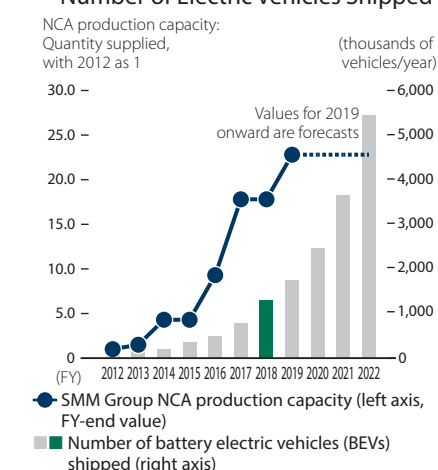


We are increasing the capacity of our battery material production equipment.

#### Depreciation and Amortization Expense



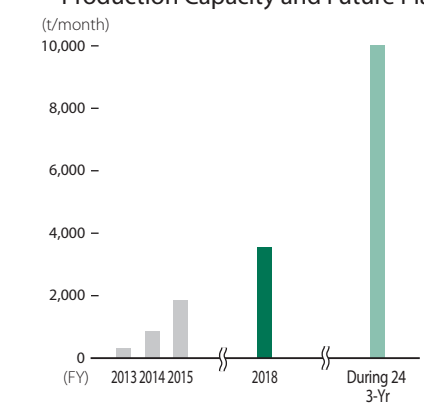
#### NCA Production Capacity and Number of Electric Vehicles Shipped



Demand for automobile batteries is forecast to continue to grow significantly. SMM is increasing production of NCA, a cathode material, in accordance with this growth.

Source of EV shipped units: B3 Report

#### Growth of Cathode Materials Production Capacity and Future Plans



## Materials Business

## Battery Materials Business

## ■ Investment in Growth

## Increasing Production Capacity of Automobile Secondary Battery Cathode Materials

During the 2015 3-Year Business Plan, our Battery Materials Business grew significantly. Our Group has a track record of continued stable and large-volume production of cathode materials with the high level of quality demanded for automobile secondary batteries. In addition to pricing that leverages economies of scale, it is important that we continue to hold competitive strengths in various aspects.

Demand for automobile secondary batteries is expanding rapidly with the advancing electrification of automobiles, and the business environment is becoming increasingly dynamic. In the fields of household appliances and tools, too, there is a growing trend toward high-capacity batteries. In response to expanding markets, we will boost production capacity with appropriate timing and with an eye on customer trends, and aim to establish a total 10 kt/month production system for cathode materials during the 2024 3-Year Business Plan.

## ■ Strategic Topic

## Development of a New Recycling Process for Used Lithium-Ion Batteries, and Start of Pilot Plant Operation

There is growing competition to acquire the nickel, cobalt, and other metal resources used in battery materials, and securing and providing stable supplies of these resources is becoming an issue. In July 2017, the SMM Group began recovering and recycling the copper and nickel contained in lithium-ion secondary batteries, leveraging processes at the Toyo Smelter & Refinery and Niihama Nickel Refinery. However, recovery of cobalt remained a problem.

We recently developed a new recycling process that recovers and recycles cobalt, along with copper and nickel, from used lithium-ion secondary batteries and from intermediate products generated in the battery manufacturing process.

Through a pyrometallurgical smelting process separate from existing processes, we perform batch removal of impurities contained in lithium-ion secondary batteries, and selectively recover nickel, cobalt, and copper as an alloy. We then dissolve and refine the alloy through a hydrometallurgical refining process, and recycle the nickel and cobalt as battery materials and the copper as electrolytic copper. We constructed a pilot plant with pyrometallurgical smelting and hydrometallurgical refining processes in Niihama, Ehime Prefecture to verify this new recycling process and scale up the process to actual equipment, and launched operation in March 2019.

## Advanced Materials Business

## ■ Investment in Growth

## Responding to Growing Demand for Crystal Materials (LT/LN) Aimed at the Expansion of 5G and the IoT

SAW filters, SAW duplexers, and other SAW devices are used in communications devices as filters that prevent noise and crosstalk in voice and data communications in smartphones

and other devices. Lithium tantalate (LT) and lithium niobate (LN) are used as materials in the SAW filters installed in these devices.

Although the crystal materials business strengthened its production capacity during the 2015 3-Year Business Plan, declines in both production and sales are forecast for FY2019 due to a global downswing in the smartphone market. In the medium to long term, we forecast an increase in LT/LN substrate demand due to expansion of SAW filter usage accompanying the advance of 5G from 2020 onward.

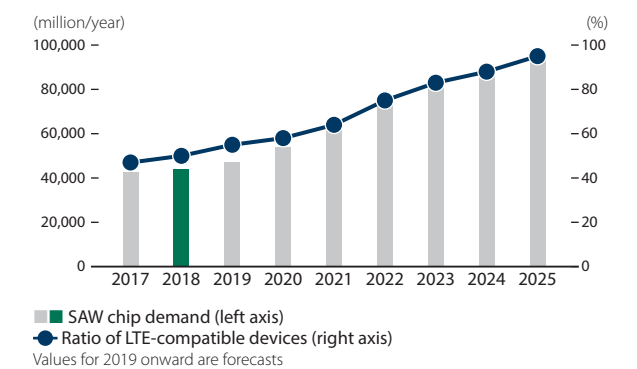
## ■ Strategic Topic

## Bringing Silicon Carbide (SiC) for Automobiles to Market

SiC is a next-generation semiconductor material used in products including power semiconductors that govern electric power. Compared to the silicon material that mainly used today, the use of SiC enables a reduction in energy loss and significant miniaturization. This has led to its use in wide-ranging fields including electric vehicles, trains, power transmission equipment, solar power conditioners, manufacturing equipment, servers, and more, with demand expected to further grow significantly.

In October 2017, we acquired 51% of SICOXS CORPORATION, a developer of SiC substrates. The company's bonding technology significantly reduces the high cost that

## ■ SAW Chip Demand and Ratio of LTE-Compatible Devices



is an issue in SiC substrate manufacturing. We are moving forward with development for mass production, aiming for consumer markets in 2020 and automobiles in 2025.



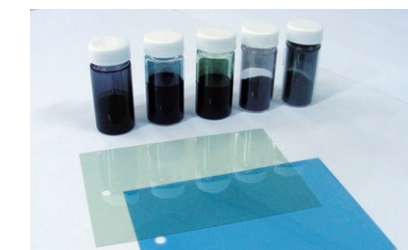
Silicon carbide wafers

## ■ ESG Case Study

## Near-Infrared Ray Shielding Materials (Functional Inks)

The near-infrared ray shielding materials handled by our Group combine both high transmittance of visible light and a strong absorption capacity for near-infrared rays. Used as window materials, the materials effectively cut the energy of the near-infrared rays in sunlight, retaining brightness while significantly suppressing rise in interior temperature and thereby exhibiting a high energy conservation effect. The materials have a high heat-shielding ability compared with conventional products from our Group and deliver an equivalent thermal shielding effect with a smaller amount being added, yielding a strong cost advantage. Through blending with polycarbonate and other plastic materials, and as surface coatings for glass and PET films, the materials confer superior heat shield properties to base materials while retaining high transparency. Our product lineup consists of a dispersion liquid for coating applications such as thermal barrier window

films for automobiles and construction materials (a nanoparticle dispersion in liquid form), and a dispersion powder for kneading applications mixed with resins such as thermal barrier resin sheets (a compound of nanoparticles and resin in powder form). We will move ahead with development to achieve even higher functionality.



Functional inks

## Research & Development



### ■ Recognition of the Business Environment and a Review of the 2015 3-Year Business Plan

While the current business environment is an unclear one, given the advance of CASE in the automobile industry and the adoption of 5G in the communications industry, it is certain that the SMM Group's business will grow in the medium to long term. Robust growth is also projected for non-ferrous base metals as the global economy advances, but ore grades are declining and processing is becoming more difficult, making the development of new mineral processing technologies and recycling technologies a pressing matter.

In our 2015 3-Year Business Plan, we focused resources on technological development in business divisions that contribute to our Group's growth strategies. Our Group refers to the commercialization by business divisions of technology developed by the Technology Division as "transfer." Our transfer achievement rate (number of cases of transfer/total number of themes) was 70% in FY2017 and 100% in FY2018, which made a considerable contribution to our current business.

### ■ Research and Development Strategy and Structure

#### Core Technologies and Basic Technologies

The SMM Group advances research and development with the Technology Division at the core. Under the 2015 3-Year Business Plan, in the selection and concentration that we performed in our core businesses of Mineral Resources, Smelting & Refining, and Materials, we carried out priority allocation of research and development costs and positioned smelting and refining process technology, powder synthesis and surface treatment technology, crystal growth and processing technology, and exploration, mining, and mineral processing technology as core technologies. We have also set analysis technology, computer aided engineering and analysis technology, and information and communications technology (ICT) as fundamental technologies, and carried out focused development on clearly defined technology domains.

Our Group has four research and development sites around the country, each of which performs specific roles. Niihama Research Laboratories is positioned as a smelting- and refining-related process laboratory that further raises the level of the smelting and refining technology that is the foun-

dation of our Group's technology. The Battery Research Laboratories, also located in the city of Niihama, performs development of high-performance cathode materials for lithium-ion secondary batteries. The Materials Laboratories performs research and development of crystal materials and paste materials. The Ichikawa Research Center is specialized in basic research that bears the function of sowing the seeds of the Group's materials development, centered on basic research into functional powders.

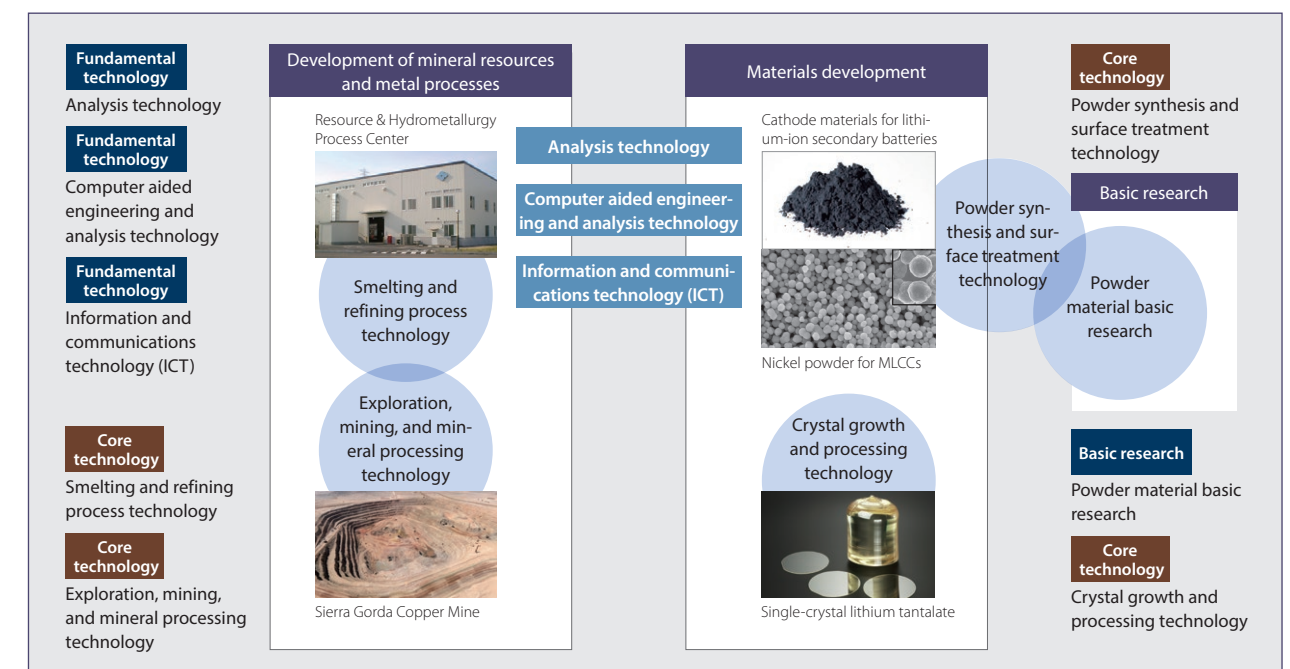
Our Group considers patents as an indicator of a company's technological capabilities, and at the same time holds expectations for the effect of patents as a barrier to entry. We hold over 2,000 such rights, including those for design. In the past we made applications for patents with number of patents as a goal, but as a patent strategy that contributes to our businesses under the 2018 3-Year Business Plan, we will work toward patents that contribute to new businesses and products, and toward the construction of a patent network to protect our existing business.

### Key Research Themes

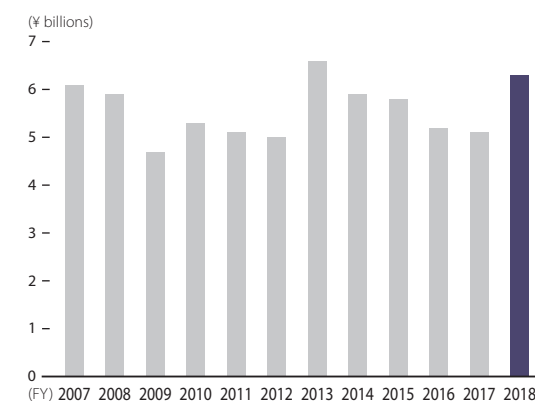
Under our 2018 3-Year Business Plan, we will increase the ratio of basic research expenses under medium- to long-term themes aimed at the creation of new businesses and new products. Our budget in FY2018 calls for 70% research expenditures that contribute to business divisions and 30% basic research expenses, but in FY2021, the final year of the plan, we plan to raise basic research expenses to about 50%.

Regarding the selection of themes, we are moving forward with a partnership with Tohoku University for the co-creation of a vision, and with the Foresight Project, which deliberates the future 10 to 30 years ahead to create innovative new businesses and products that are not an extension of the Group's past businesses.

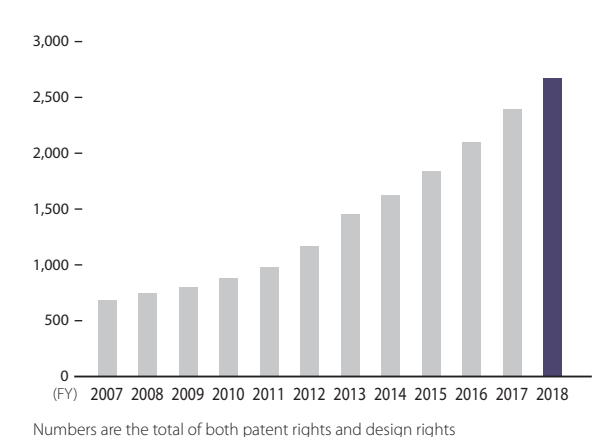
### ■ Research and Development by the SMM Group



### ■ Research and Development Expenses



### ■ Number of Patents Held by the SMM Group





## Research & Development

### ■ Investment in Growth

#### Going Far Beyond the 2015 3-Year Business Plan in Research and Development Expenses

In the 2018 3-Year Business Plan, our expenses for 3-year cumulative research and development will be 20% greater than under the 2015 3-Year Business Plan. While also covering areas close to our businesses, such as the improvement of resource mineral processing technologies, our research and development will allocate focused expenses on growth businesses and the creation of new businesses and products.

The growth businesses that we will target are cathode materials for automotive lithium-ion secondary batteries

(NMC, NCA), crystal materials for SAW filters (LT/LN), and substrate materials for power devices (SiC). In new businesses and new products, we will focus on fields including automotive, environment, energy, and communications. Three major themes that we will tackle in our research and development are (1) Creation of new businesses with a view toward 10 years ahead, (2) Development of products that customers will prefer and that will stay ahead of competitors, and (3) Development and proposal of new processes.

#### Progress in the Smelting & Refining Business (Development of Processes) and Materials Business (Development of Materials)

In the battery materials field under the 2015 3-Year Business Plan, the Materials Business (development of materials) advanced research and development of cathode materials for higher-performance lithium-ion secondary batteries and the development of cathode materials for solid-state lithium-ion batteries. In the crystal materials field, it undertook cost reductions ahead of commoditization, and achieved greater productivity by increasing crystal length and improving crystal growth and processing yield. In response to the needs of new users, the business established large-diameter LT crystal growth technology.

In the Smelting & Refining Business (development of processes), to secure battery raw materials (Ni/Co) the Materials Business established a chemical products manufacturing process specialized for battery materials that we use in-house. It also enabled the utilization of new nickel and cobalt raw materials and developed new processes for strengthening its ability to treat raw materials. Regarding lithium-ion battery recycling, we developed a process for cobalt recovery, which had been an issue, and migrated to pilot testing.

### ■ ESG Case Study

#### Open Innovation and Cultivating Personnel

For five years since April 2018, SMM has operated a joint research division within the Institute of Multidisciplinary Research for Advanced Materials at Tohoku University. Under a structure of industry-academia collaboration, we will engage in joint research and human resources development for the sustainable development of the domestic non-ferrous metal smelting and refining industry. Similarly, we are engaged in ongoing joint research and human resources development with Kyushu University. While contributing to greater international competitiveness of Japan's non-ferrous metal smelting and refining industry, we will develop human resources through opportunities for joint research, will highlight the appeal of the industry through seminars, plant tours,

and other activities in collaboration with other non-ferrous metal smelting and refining companies, and will work to develop and secure the human resources who will shoulder the next generation of the industry. Additionally, in the area of new materials development, we are establishing a framework for joint development with external institutions and cultivating a flexible environment through initiatives such as posting SMM researchers at university research labs. Going forward, we will continue to expand our collaboration with external partners in areas such as open innovation, and focus on personnel development with a medium- to long-term perspective.