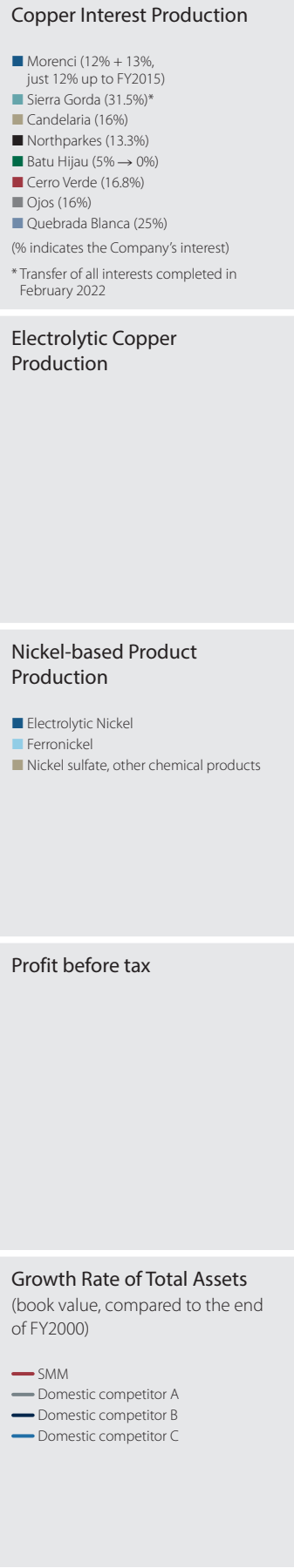


Review of Past 3-Year Business Plans

Passing through the business reforms conducted after the JCO criticality accident in 1999, SMM's business plans have continued up to the current growth strategies of the 2021 3-Year Business Plan (FY2022 to FY2024).

From the time of the Corporate Reform Plan (FY2000 to FY2001) that we formulated in 2000 following the accident, and through our 2001 2-Year Business Plan (FY2002 to FY2003), we implemented the selection and concentration of core businesses as a measure to reinforce corporate organization. From the 2003 3-Year Business Plan (FY2004 to FY2006) onward, we steered our course toward a growth strategy and realized long-term growth by expanding and strengthening core businesses, particularly large-scale projects. Following a degree of success in the 2015 3-Year Business Plan (FY2016 to FY2018), we tackled further growth upon a new stage under our 2018 3-Year Business Plan. (FY2019 to FY2021). (Please refer to pages 40–41 for the summary of the 2018 3-Year Business Plan).

	2015 3-Year Business Plan FY2016–FY2018	2018 3-Year Business Plan FY2019–FY2021
Long-Term Vision	Become the world leader in the non-ferrous metals industry and an excellent company of Japan	Become the world leader in the non-ferrous metals industry
Plan	<div>Mineral Resources<ul style="list-style-type: none">Full-scale production at the Sierra Gorda Copper MineAcquire new gold mine interests</div> <div>Smelting & Refining<ul style="list-style-type: none">Expand Taganito HPALAdvance growth strategies using HPAL peripheral technologiesEnhance competitiveness of copper smelting business</div> <div>Materials<ul style="list-style-type: none">Profit contribution from expanded battery material and LT/ LN productionContinuously create and adapt next-generation productsCorporate governance strengtheningGlobalization measures</div>	<div>1 Strengthen the growth foundation of core businesses (Mineral Resources, Smelting & Refining, Materials)<ul style="list-style-type: none">Steady promotion of growth strategy and swift realization of competitiveness: Aggressive investmentMinimization of lost profits and opportunity loss and consolidation of business base: Defensive investment</div> <div>2 Strengthen 3-business collaboration centered on cathode materials for batteries<ul style="list-style-type: none">Maximally leverage the integrated production structure and win through overall capabilities, including battery recycling</div> <div>3 Strengthen corporate functions<ul style="list-style-type: none">Stimulate communication with stakeholders both inside and outside the companyRebuild an open and vibrant organizational climate</div>
Results	<div>Mineral Resources<ul style="list-style-type: none">Incurring a large impairment loss at Sierra Gorda Copper Mine due to a production slump and increase in costs.Entered into Cote Gold ProjectAcquired interest in Quebrada Blanca 2Transferred Pogo Gold Mine interest</div> <div>Smelting & Refining<ul style="list-style-type: none">Completed 36-kt production structure at Taganito HPALCommercialized scandium and chromite recoveryAchieved 450-kt electrolytic copper production volumeCompleted 49-kt nickel sulfate production structureBegan Pomalaa Project Definitive Feasibility Study (DFS)</div> <div>Materials<ul style="list-style-type: none">Completed 4,550-t/month battery material production structureCompleted increase of LT/LN production structureDeveloped nickel oxide powder for fuel cell electrodesEntered into silicon carbide (SiC) businessWithdrew from lead frame businessIncreased number of outside directors, appointed female directorsImplemented International Financial Reporting Standards (IFRS), commenced integrated report publication</div>	<div>Strengthen the growth foundation of core businesses (Mineral Resources, Smelting & Refining, Materials)<div>Mineral Resources<ul style="list-style-type: none">Decided to sell all interests in the Sierra Gorda Copper Mine, which has established stable, full-scale production, as part of the Group-wide asset portfolio optimization and strategic asset replacement (transfer of all interests completed in February 2022)Had steady progress in FY2021 despite factors such as a temporary halt of construction of the Quebrada Blanca 2 Project due to COVID-19 and an increase in the initial start-up costs of the Cote Gold Project</div></div> <div>Smelting & Refining<ul style="list-style-type: none">Decided to discontinue feasibility study on the Indonesian Pomalaa Project in April 2022</div> <div>Materials<ul style="list-style-type: none">Concluded a transfer contract with Sumitomo Osaka Cement Co., Ltd. to acquire their lithium iron phosphate (LFP) battery materials business on May 1, 2022</div> <div>Strengthen 3-business collaboration centered on cathode materials for batteries<ul style="list-style-type: none">Decided to construct a new battery plant in 2021 (construction to be completed during the 2021 3-Year Business Plan)Established a new recycling process with the ability to recycle copper, nickel, cobalt, and lithium</div> <div>Strengthen corporate functions<ul style="list-style-type: none">Enhanced responsiveness to changes in the business environment through organizational restructuringRebuilt the organizational culture by renewing the Head OfficeEnhanced SR(Shareholder Relations) activities for institutional investors</div>



Summary of the 2018 3-Year Business Plan, FY2021 Results, 2022 Plan

Summary of the 2018 3-Year Business Plan

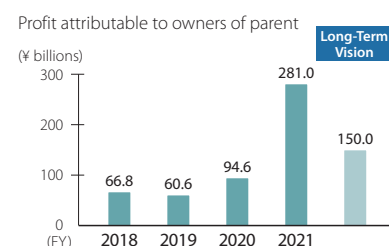
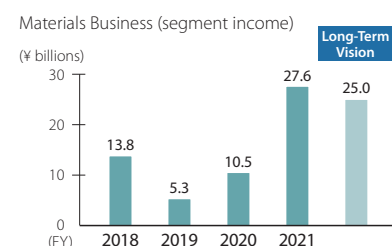
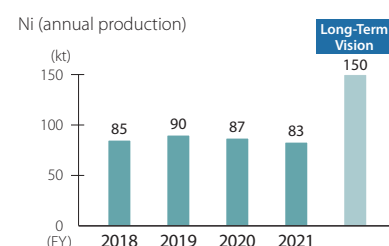
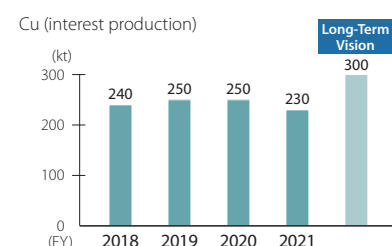
Spanning the three years between FY2019 and FY2021, the 2018 3-Year Business Plan has come to a conclusion, but not without the strong impact of COVID-19 affecting the execution of its strategies.

In the Quebrada Blanca 2 Project (QB2), which had been identified as one of the three major projects for promoting growth strategies in the 2018 3-Year Business Plan, however, the start of operations has been delayed due to a temporary interruption in construction because of the COVID-19 pandemic, and we expect construction costs will increase due to COVID-19 countermeasure costs. The Pomalaa Project (Indonesia) also experienced a delay in obtaining permits and, as a result, we discontinued the feasibility study due to inability to reach a resolution with our partners regarding the

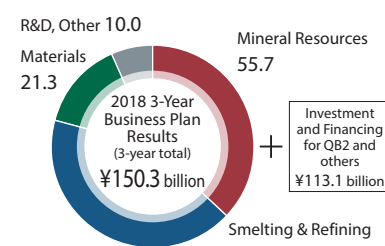
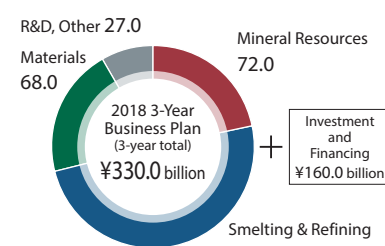
project timeline. On the other hand, as a first step toward achieving a monthly production of 10,000 tons of cathode materials for automobile secondary batteries during the period of the 2024 3-Year Business Plan, we have decided to invest in equipment required to increase the monthly production capacity by 2,000 tons from 5,000 tons to 7,000 tons, and construction is underway.

Although some projects have deviated from the 2018 3-Year Business Plan in terms of schedule and investment amounts, this does not mean that the essential value of our growth strategy, centering on the 3-business collaboration, has been lost. We will continue to steadily promote our growth strategy to achieve our long-term vision and Vision for 2030.

Review of the 2018 3-Year Business Plan, Progress toward Targets



Capital Expenditure / Investment and Financing

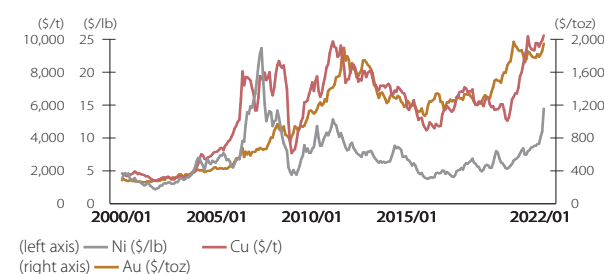


Review of FY2021 Results

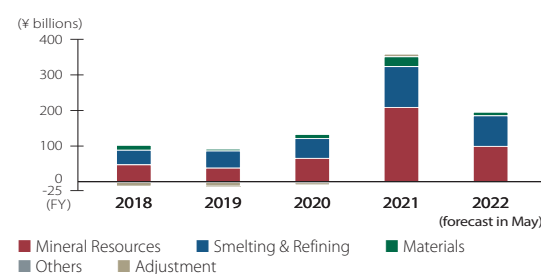
In the SMM Group's performance in FY2021, consolidated net sales increased year on year due to prices of copper and nickel

being higher than in the previous fiscal year, the depreciation of the yen, and increased sales of materials for automobile

Metal Prices



Segment Income (Loss)



batteries and powder materials, which are supported by strong demand. Consolidated profit before taxes also increased year on year, reaching a record high due to the increase in income, an upturn in share of profit (loss) of investments accounted for using the equity method, and the transfer of all interests in the Sierra Gorda Copper Mine (Chile).

Mineral Resources Segment

Segment income increased year on year due to copper prices being higher than in the previous fiscal year and a gain on the transfer of all interests in the Sierra Gorda Copper Mine, despite the impact of the COVID-19 pandemic.

Mining operations at the Hishikari Mine remained steady, with the sales volume of gold remaining nearly unchanged from the previous fiscal year at 6 tons.

Production volume at the Morenci Copper Mine (United States) (of which the Company holds a 25.0% interest, excluding non-controlling interest) declined year on year to 397,000 tons, due mainly to the implementation of measures to decrease the operating rates of some mills (ore crushers), due to the spread of COVID-19.

Production volume at the Cerro Verde Copper Mine (Peru) (of which the Company holds a 16.8% interest, excluding non-controlling interest) stood at 402,000 tons, an increase from the previous fiscal year, in which operations were temporarily transitioned to a care and maintenance status in response to the spread of COVID-19.

Smelting & Refining Segment

Segment income increased year on year, due mainly to an increase in non-ferrous metals prices and the depreciation of the yen.

Production and sales volumes of electrolytic copper decreased year on year, due mainly to scheduled furnace maintenance (large-scale shutdown) at the Toyo Smelter & Refinery. Production and sales volumes of electrolytic nickel also declined year on year, due mainly to a shortage of raw materials.

The production volume at Coral Bay Nickel Corporation (Philippines) decreased year on year, due mainly to a temporary decline in operating rates due to the effects of COVID-19. The production volume at Taganito HPAL Nickel Corporation (Philippines) fell from the previous fiscal year, due mainly to equipment issues and the effects of a typhoon.

Materials Segment

The segment income increased year on year, reaching a record high of ¥27.6 billion, due mainly to an increase in sales from battery materials due to increased demand against a backdrop of stronger demand for decarbonization than the previous fiscal year (when demand temporarily fell), as well as an increase in sales from powder materials, for which demand remained strong, including expansion in automotive and communication applications. As a result, we reached our long-term vision target of ¥25.0 billion in the segment income for the first time.

FY2022 Plan

Although the global economy is expected to expand to a certain extent due to countries' monetary and fiscal policies in response to the COVID-19 pandemic as well as progress in vaccination, rapid economic deterioration is a possibility, due to the resurgence of COVID-19 and prolongment of Russia's invasion of Ukraine.

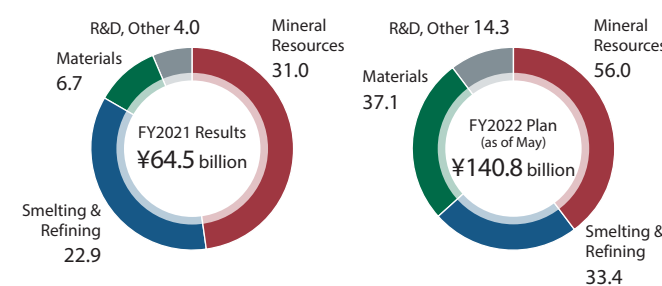
Regarding the prices of major non-ferrous metals, in addition to the inflow of funds into the market in anticipation of long-term demand growth, prices have remained at high levels due to concerns about supply chain disruptions and supply constraints caused by Russia's invasion of Ukraine, but the risk of a sharp decline is expected in the future.

In industries related to the Materials Business, although demand is expected to continue to grow due to accelerated efforts toward decarbonization and support for 5G and digital

transformation (DX), the situation remains unpredictable due mainly to the apparent impact of the lockdowns in China and the shortage of semiconductors for automobiles.

With regard to forecast for consolidated operating results for FY2022 (formulated in August), our forecast for major non-ferrous metals prices was set through consideration of levels at the time of plan formulation and prediction of future supply-demand balance. Production and sales volumes of major products were planned based on business results at the time of plan formulation. We expect net sales of ¥1,357.0 billion, profit before tax of ¥218.0 billion, and profit attributable to owners of parent of ¥162.0 billion on a consolidated basis.

Capital Expenditure Results and Plans



Main projects

- Cote Gold Project: ¥34.3 billion (total US\$536 million)
- Increase production of cathode materials for automobile batteries (Besshi District + Harima Refinery): ¥13.5 billion (total ¥47.0 billion)
- Expansion and improvement of Battery Research Laboratories: ¥1.1 billion (total ¥1.6 billion)
- Besshi-Niihama District Div. new company dormitory: ¥4.6 billion (total ¥4.7 billion)
- Development of lower orebodies at Hishikari Mine (construction of new hot spring water extraction room): ¥0.4 billion (total ¥3.7 billion)
- Switch to LNG boilers*: ¥0.4 billion (total ¥0.8 billion)

* Project subject to internal carbon pricing

Overview of the 2021 3-Year Business Plan

Renewed Challenge for Change

In February 2022, SMM announced its 2021 3-Year Business Plan. While continuing to work toward achieving our long-term vision, targets, and Vision for 2030, a milestone for the long-term vision, under the theme of renewed challenge for change, we have organized our initiatives for continuing to take on the challenge of appropriately responding to changes in the social environment, such as the accelerating trend toward carbon neutrality and digital transformation (DX), into 4 Challenges. As expectations and demand for non-ferrous metals grow throughout the world, we will transform SMM into the world leader in the non-ferrous metals industry by promoting these 4 Challenges.

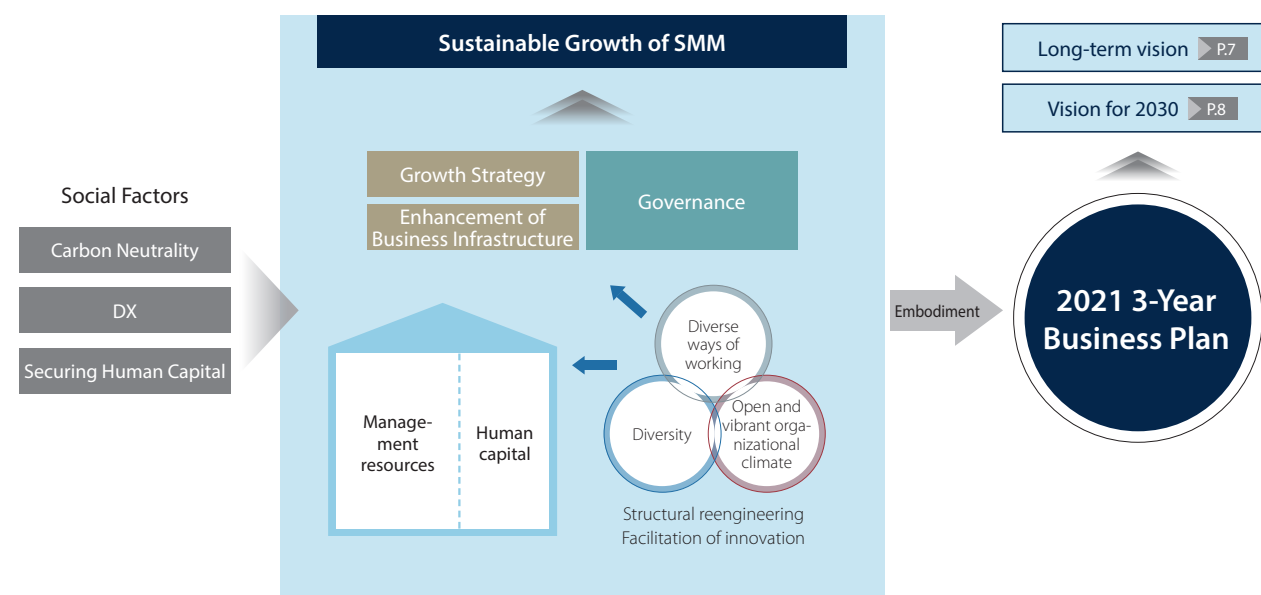
Perceptions of the Business Environment

The global economy is projected to achieve a certain degree of growth as a result of more and more people receiving the COVID-19 vaccine and other developments, but there is also increasing uncertainty on account of numerous downside risks, such as rising energy prices due to Russia's invasion of Ukraine, growing inflation on account of the accompanying high resource prices and logistics costs, shortages of semi-conductors and other industrial materials and goods, the effect of lock-downs in China, and concerns about a resurgence of COVID-19 infections.

Demand for non-ferrous metals (copper and nickel) is expected to soften temporarily as supply increases, but in the medium to long term, we expect demand will increase because of the construction of a renewable energy supply network and electrification of automobiles. In addition, tech-

nical innovation and market growth in various fields due to accelerated efforts to achieve carbon neutrality and DX offer good opportunities for the Materials Business to expand. On the other hand, the business environment for resource development and smelting and refining is growing harsher for several reasons, including stronger resource nationalism, greater difficulty in mine development, and stricter environmental regulation, and this is making it more important to build good relations with various stakeholders.

In the 2021 3-Year Business Plan, the three issues of "carbon neutrality," "DX," and "securing human capital" are given as material issues (social factors) necessary for SMM to achieve sustainable growth. We will leverage these material issues to transform ourselves and further expand measures to achieve additional growth.



4 Challenges in the 2021 3-Year Business Plan

In the 2021 3-Year Business Plan, we organize our main initiatives into "4 Challenges". Challenge 1 is "Promotion of large-scale projects," our growth strategy. Challenge 2 is "Improving core business sustainability," which entails strengthening collaboration among our 3-businesses, increasing the value of our existing businesses, and establishing new businesses.

Challenge 3 is "Adapting to changes in the social environment," which refers to initiatives related to carbon neutrality, DX, and securing human capital. Challenge 4 is "Strengthening the foundation of business management," which forms the base for tackling these challenges.

Challenge 1 Increasing corporate value - Promotion of large-scale projects* <ul style="list-style-type: none"> Expanding production capacity for battery cathode materials Quebrada Blanca 2 Project Cote gold mine development project 	Challenge 3 Adapting to changes in the social environment <ul style="list-style-type: none"> Reducing greenhouse gas (GHG) emissions Promoting the development of products, technologies, and processes that can help achieve carbon neutrality Adaptation to digital transformation (DX) Initiatives for securing, fostering, and utilizing human capital
Challenge 2 Improving core business sustainability <ul style="list-style-type: none"> 3-business collaboration to strengthen the value chain for Ni-batteries Shifting Hishikari Mine to a sustainability-oriented operation Enhancing competitive edge in copper-smelting and refining business Strategy for advanced materials business expansion 	Challenge 4 Strengthening the foundation of business management <ul style="list-style-type: none"> Strengthening safety initiatives Reorganizing and enhancing sustainability promotion framework Corporate governance

* In April 2022, we decided to discontinue consideration of the Pomalaa Project, which was being planned when the 2021 3-Year Business Plan was announced. We will continue searching for new nickel deposits.

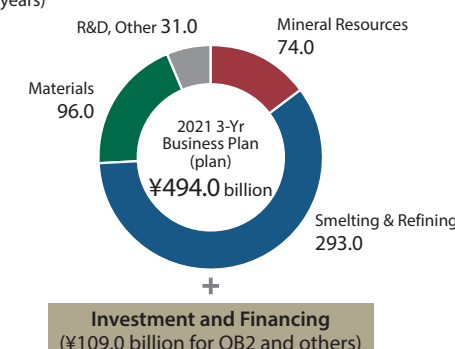
2021 3-Year Business Plan Goals

Of the various large-scale projects currently moving forward, the Quebrada Blanca 2 (QB2) Project and Cote Gold Project will start full operations during the 2021 3-Year Business Plan, but we will not see expanded battery material (cathode material) production capacity (+2,000 tons/month) until the next 3-year business plan (2024 3-Year Business Plan).

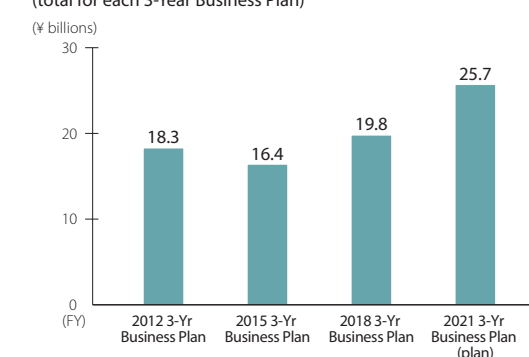
In the 2021 3-Year Business Plan we are planning on ¥494.0 billion in capital expenditures, which includes the accumulated amount for other projects planned for the previous 3-year business plan (2018 3-Year Business Plan) that were unused due to delays and other developments. In April 2022, we decided to discontinue the feasibility study of the Pomalaa

Project, which was being considered when the 2021 3-Year Business Plan was announced, and the number of capital expenditures that were expected to be allocated to that project will be redirected to other nickel deposit searches that will be considered and new projects. Furthermore, we will move forward with not only the development of new technologies and processes to achieve carbon neutrality but also R&D for innovations in operations for the production divisions and R&D divisions through digitalization. R&D expenses during the 2021 3-Year Business Plan are expected to total about ¥26.0 billion, a 30% increase compared to the 2018 3-Year Business Plan.

Capital Expenditure Plan (total for 3 years)



Research and Development Expenses (total for each 3-Year Business Plan)

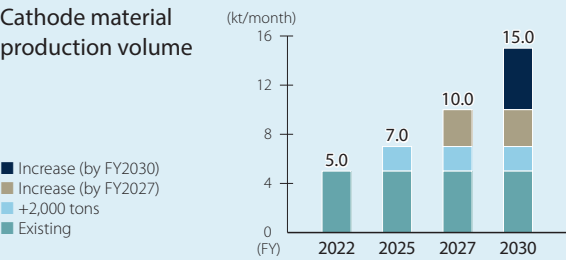


1 Increasing corporate value - Promotion of large-scale projects

Expanding production capacity for battery cathode materials

Demand for automobile secondary batteries is expected to continue to increase due to the electrification of automobiles, and SMM is increasing its secondary battery cathode material production capacity. We will precisely meet market demand and maintain one of the largest shares of the nickel-based cathode market by building a production structure that can produce more and more as time goes on—7,000 tons/month in FY2025, 10,000 tons/month in FY2027, and 15,000 tons/month in FY2030.

In addition, to further increase cost competitiveness, we will introduce into each business site the Toyota Production System, which has already been introduced at some manufacturing sites. As for the new plant where equipment installation will be completed and will launch operation in FY2024, we will position it as a model plant for promoting DX and work to increase productivity and quality through DX. During the 2021 3-Year Business Plan, we will take the lead in recruiting and developing staff for the new plant and ensure the launch of operations at the plant.



Quebrada Blanca 2 Project

Copper is used extensively in EVs and renewable energy so it is being focused on as a “green metal,” and demand for it is growing rapidly. Production at the Quebrada Blanca 2 Project (Chile) (QB2: SMM interest of 25%) is expected to start in the second half of 2022, and with this contribution we expect to have a total interest production volume for copper of 270,000 tons annually in FY2024, the final year of the 2021 3-Year Business Plan. In addition to this project being cost competitive, confirmation of mineral resource estimates through test boring is proceeding, and there is the growing possibility of planned expansion in the future.



Construction of a mineral processing facility

Cote Gold Project

The Cote Gold Project (Canada) (SMM interest of 27.75%) is underway, and we plan to launch production in 2023. Our interest production volume for the final year of the 2021 3-Year Business Plan (FY2024) is expected to be 4 tons. Also, we have confirmed new mineral resources through exploration in areas around the mine, and expect the project's value to increase through future new development.



State of construction

2 Improving core business sustainability

3-business collaboration to strengthen the value chain for Ni-batteries

One of the SMM Group's major strengths is that it possesses an in-house nickel value chain of 3-businesses collaborating—the Mineral Resources Business, the Smelting & Refining Business, and the Materials Business. Furthermore, to increase in-house raw material supply along with battery cathode material production capacity increases, we are moving forward with not only measures to secure a supply of ore from the existing Coral Bay Nickel Corporation (CBNC) and Taganito HPAL Nickel Corporation (THPAL) located in the Philippines, but also searching for new deposits to replace the Pomalaa Project.

We have created a battery-to-battery recycling process that takes pre-processed used EV batteries, recovers the included nickel, cobalt, copper, and lithium, and then re-supplies those metals as battery materials. During the 2021 3-Year Business Plan, we will move forward with a test at a processing plant aiming to achieve a processing capacity of 10,000 tons per year by the end of 2024 3-Year Plan period (FY2025 to FY2027) [P.67](#)

Hishikari Mine (shifting to a sustainability-oriented operation)

The Hishikari Mine is the largest gold mine in Japan and even globally is a very high grade mine. During the 2018 3-Year Business Plan, the mine produced 6 tons of gold annually, but it will be switched to a sustainable operation of 4.4 tons annually using average-grade ore mining to extend the life of the mine. During the 2021 3-Year Business Plan, in addition to completing construction of new dewatering facilities and acquiring a new supply of ore by moving forward with tunnelling to explore deep underground ore bodies, we will reduce costs by restructuring the operational framework through the use of the latest technology, such as DX.

Enhancing competitive edge in copper smelting and refining

In our copper smelting and refining business, we are increasing annual electrolytic copper production capacity by 10,000 tons annually and will create a production structure with an annual capacity of 460,000 tons by improving the various facilities at the Toyo Smelter & Refinery, which launched an operation in 1971, and working to increase the efficiency of internal logistics by investing in improvements in infrastructure. In addition to expanding production capacity, we are also considering GHG reduction measures, such as switching the fuel we use, as we work to improve competitiveness by accelerating initiatives to decarbonize.



Toyo Smelter & Refinery

Strategy for advanced materials business expansion

The electronic components industry, which requires various types of products handled by the advanced materials business, is forecast to experience faster growth on account of the progress in the electrification of vehicles and other developments, such as 5G and DX. We aim to generate growth that exceeds market growth by always updating and maintaining an optimal product portfolio through measures such as introducing new products and technologies, developing new uses, creating and utilizing innovative production processes, and new sales strategies.



Nickle paste

3 Adapting to changes in the social environment

Carbon neutrality

The 2021 3-Year Business Plan includes plans to establish an in-house committee to promote carbon neutrality to keep our GHG emissions below the FY2013 level, develop a plan for reaching net zero GHG emissions no later than 2050, and implement various necessary measures. We will also move forward with individual responses, future plans, and discussions related to issues such as creating a path to become net zero by 2050 and setting Scope 3 targets in line with the commitment of ICMM and other industry groups. In addition to ¥12.0 billion for capital expenditures and testing and research, we will tackle issues such as developing both advanced materials that contribute to carbon neutrality and new technologies and processes to reduce GHG emitted in existing processes, and contribute to lessening our carbon footprint through new businesses, such as battery recycling and the development of cathode materials for solid-state batteries.

Investments to reduce GHG emissions

During the 2021 3-Year Business Plan Total ¥12.0 billion	• ¥5.0 billion in capital expenditures, including adoption of an internal carbon pricing (ICP) system (boiler fuel conversion, solar power, etc.) • ¥7.0 billion in testing and research related to reduction of GHG emissions, including up to Scope 3
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Digital transformation (DX)

We created a DX Promotion Committee in April 2022 and a Digital Transformation Department in July as a body dedicated to executing DX-related

measures. With these, we are accelerating our Group-wide DX. During the 2021 3-Year Business Plan, DX-related initiatives undertaken at the various business department will be integrated Group-wide, and we will strengthen competitiveness by building a Group-wide DX foundation to achieve our vision of leveraging DX to enhance our competitiveness and create new businesses. With investment plans that include ¥15.0 billion in DX-related investments, we are aiming to transform business, improve management efficiency and the data literacy of employees, and develop human resources for DX. [P.68-71](#)

Securing, fostering, and utilizing human capital

As birthrates dwindle, the population ages, and the labor market grows more fluid, securing outstanding human capital has grown more difficult, making it an important issue for the survival of companies. We have divided our human capital management activities into the three categories of the securing, fostering, and utilizing of human capital, and will implement responses through intangible measures. In regard to “securing,” we will increase points of contact with candidates by expanding long-term internships, improving branding to increase SMM name recognition, and taking other steps; turning to “fostering” and “utilizing,” we will move forward with several initiatives, such as enriching OJT and training, revising remuneration and performance evaluation systems, and various allowances. We will also actively invest in human capital by expanding training programs and reskilling and recurrent education to foster the next generation of management.

4 Strengthening the foundation of business management

Strengthening safety initiatives

We continue to not achieve our target for number of accidents even though we are implementing equipment safety measures. This is due to our failure to find dangerous locations and operations so there are numerous accidents similar to ones that have occurred in the past (reoccurring accidents). During the 2021 3-Year Business Plan, we will stress preventing serious accidents and focus on preventing reoccurring accidents. With the passing of the baton to the next generation and change in personnel in mind, we will increase hazard awareness by introducing and expanding more effective training and development through simulation training that employs VR and other technologies, and rebuild leadership of managers and supervisors to deeply instill and maintain safety awareness. We are also striving to improve the observation skills of managers and supervisors by adopting suggestions from outside consultants. Furthermore, during the 2022 spring labor-management meetings, we confirmed that in regards to safety we would make efforts to further reinforce the system of cooperation with labor unions. Labor and management will work together to tackle the issues faced by SMM.

Targets during the 2021 3-Year Business Plan period	Serious accidents of employees and business partners in Japan and overseas sites: None
	Employee accidents in Japan: 7 cases per year or less
	Employee accidents at overseas sites: 1 case per year or less

Reorganizing and enhancing sustainability promotion framework

To achieve our Vision for 2030, we are moving forward with reviewing our sustainability promotion framework. We previously promoted sustainability activities to contribute to the solution of social issues through business. However, we have broadened the meaning of sustainability and restructured the in-house framework, which included transforming the CSR Committee into the Sustainability Committee in April 2022. SMM has the following sustainability policy: The Sumitomo Metal Mining Group is engaging in the resolution of business issues that will contribute to the development of a sustainable society, and is working to improve both our sustainable growth as a business and our corporate value.

Corporate governance

SMM's corporate governance is a disciplinary framework both for maximizing corporate value and for ensuring sound management practices, so it is one of the most important management issues. To maximize corporate value, we have also set a basic business portfolio policy. We will manage our business portfolio using return on capital employed (ROCE) on a consolidated basis as an indicator for each business (2021 3-Year Business Plan ROCE target: 5.5%).

Through striving to enhance our corporate governance, we will conduct efficient and sound business activities, make positive contributions to society, and fulfill our responsibilities to our shareholders and all other stakeholders in order to realize our corporate philosophy. [P.118-129](#)

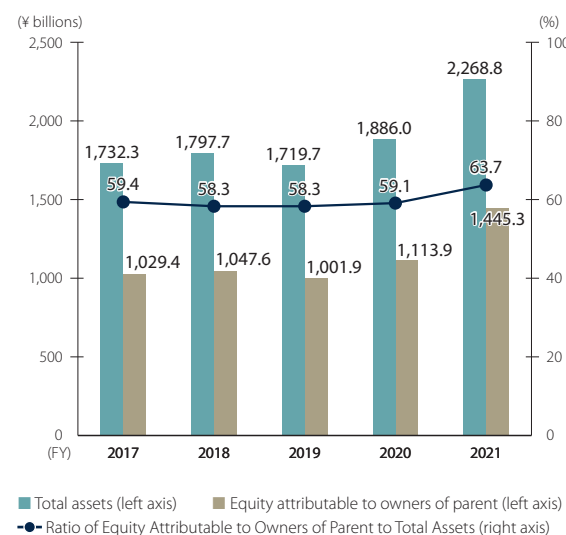
Financial Strategy

Basic Approach

Because the SMM Group deals in resources that become depleted, we must always prepare to participate in largescale projects in order to acquire new resource interests. Mineral Resources Business and Smelting & Refining Business development projects, including the construction of new smelters and refineries, involve relatively long periods of time between execution and recovery of investment. Accordingly, it is important to maintain a sound financial position that can withstand large temporary cash outflows. Based on this thinking, we set a consolidated equity ratio (ratio of equity attributable to owners of parent to total assets) of 50% or more as a foundation for our financial strategy.

As of the end of FY2021, our consolidated equity ratio (ratio of equity attributable to owners of parent to total assets) was 63.7%.

Total Assets, Equity Attributable to Owners of Parent, and Ratio of Equity Attributable to Owners of Parent to Total Assets

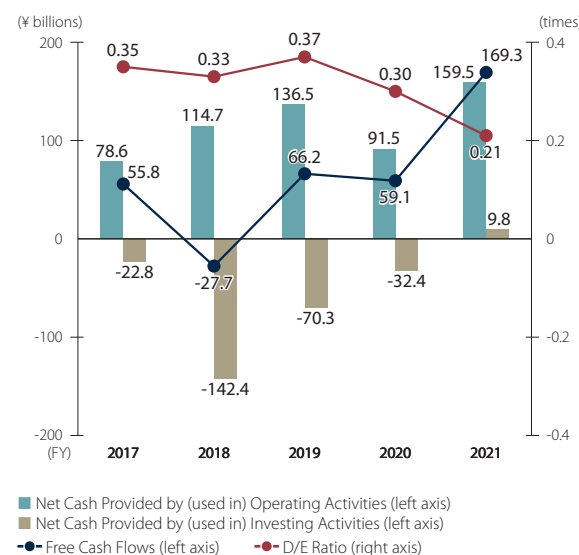


Funding

We believe it is necessary to maintain a certain amount of liquid funds on hand based on overall demand for funds such as for large-scale overseas projects in the Mineral Resources and Smelting & Refining businesses, or strategic expansions within the Materials Business. This is essential from the standpoint of management stabilization. Under that premise, we conduct funding in line with the use of the funds, while comprehensively considering the outlook for non-ferrous metal prices and currency exchange, conditions in interest rate markets, and other factors.

Net cash provided by (used in) investing activities turned positive in FY2021, mainly due to gains from the sale of our entire interest in the Sierra Gorda Copper Mine. In FY2021, based on the sale of our interest in the Sierra Gorda Copper Mine and the state of progress of large-scale projects, we refrained from long-term funding as much as possible and worked to reduce interest-bearing liabilities while curbing the accumulation of cash and cash equivalents. As a result, our interest-bearing liabilities in FY2021 decreased by ¥29.3 billion to ¥301.4 billion, resulting in a D/E ratio of 0.21.

Cash Flow, D/E Ratio



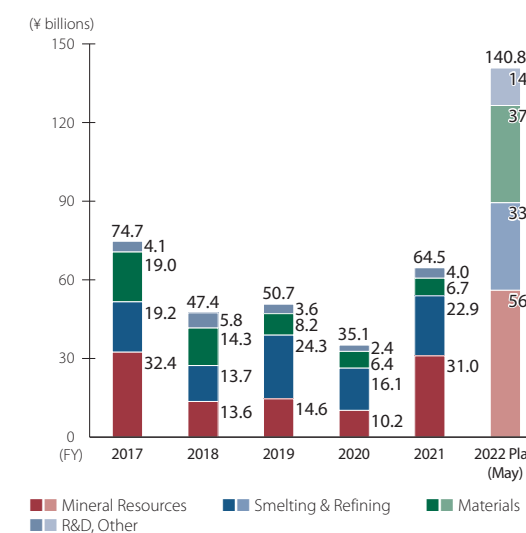
Investment

Raw material ores for non-ferrous metals are subject to sharp price fluctuations related to supply and demand, natural disasters, and other factors, and it is not always possible to secure necessary quantities of ores due to price levels. For this reason, we must secure stable sources of raw materials through the development of overseas mines and acquisition of interests. In mine development and acquisition of interests, and in large-scale overseas projects in the Smelting & Refining Business, we carry out investments by leveraging our extensive exploration experience, knowledge of mine valuation, and smelting and refining technologies, with country risk and local issues fully taken into account, to avoid additional investments or increases in costs arising from uncertainty. We also carefully select and execute capital investments other than large-scale projects, with full consideration of investment effect and efficiency (profitability).

Investment in FY2021 totaled ¥64.5 billion, falling with the scope of net cash provided by (used in) operating activities (¥159.5 billion).

In our 2018 3-Year Business Plan, we planned for a total of ¥490.0 billion in capital expenditure / investment and financing over the course of three years. However, the actual amount of capital expenditure / investment and financing during the 2018 3-Year Business Plan fell short at ¥263.4 billion, due mainly to the use of project finance in the Quebrada Blanca 2 Project, the halting of the Pomalaa Project, and delays in the construction of the new battery plant. We are planning for capital expenditure of ¥140.8 billion in FY2022.

Capital Expenditure



Return to Shareholders

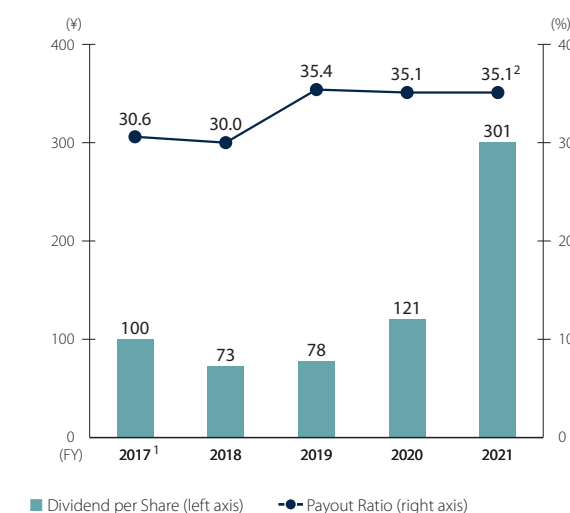
In our dividend policy, we decide on a balance of dividends and internal reserves through comprehensive consideration of our business performance, our dividend payout ratio, the business outlook, the soundness of our financial position, and other factors. As our financial strategy in the 2021 3-Year Business Plan, we will continue working to uphold the soundness of our financial position and will maintain a consolidated equity ratio of 50% or higher, with a consolidated dividend payout ratio of 35% or higher.

The annual dividend per share for FY2021 was a record ¥301, up ¥180 year on year, for a payout ratio of 35.1%.²

1. SMM consolidated its stocks on October 1, 2017.

2. The gain on sale associated with the transfer of all equity interest in the Sierra Gorda copper mine recorded in FY2021 includes an amount equal to a reversal of the allowance for bad debt for loans and other receivables for Sierra Gorda S.C.M., which was adjusted in the opening balance of retained earnings in FY2019 as a cumulative effect (Revised IAS 28 "Investments in Associates and Joint Ventures"). For this reason, effects on FY2021 results caused by the application of these accounting procedures and manifesting in accordance with the transfer of equity are omitted from the dividend calculation. Basic earnings per share, excluding the effects of this application of accounting procedures, were ¥857.47.

Dividend per Share, Payout Ratio



Mineral Resources Business



Aiming for mine development and operation adapted to changes in the social environment

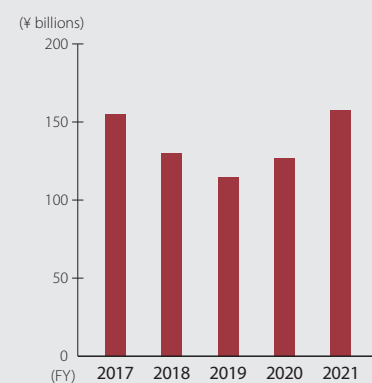
Fumio Mizuno

Senior Managing Executive Officer,
General Manager of Mineral Resources Division



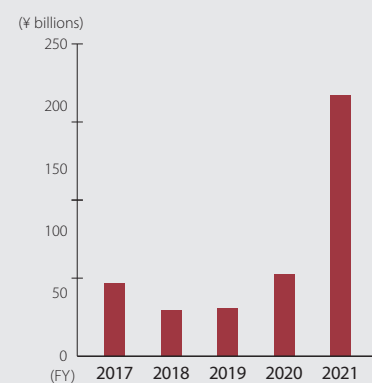
We are leveraging over 300 years of mine development and operational experience to advance new mine development projects and to make a shift to sustainability-focused operation at the Hishikari Mine, the largest gold mine in Japan. At the same time, we are participating in the development and operation of new superior mines to secure mineral resources.

Segment Net Sales



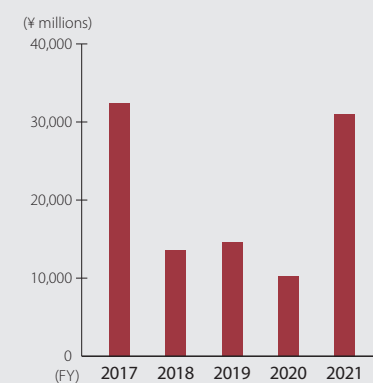
Net sales figures do not include results from affiliate companies accounted for using the equity method.

Segment Income



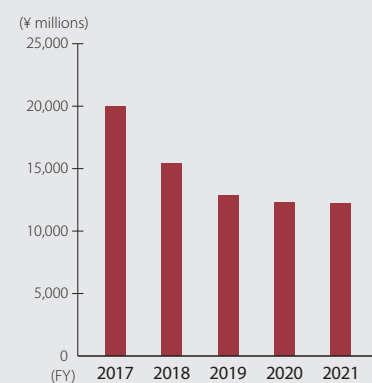
Segment income increased compared to the same period last fiscal year due to higher copper prices compared to the same period last fiscal year and a gain of ¥74.374 billion from the transfer of all interests in the Sierra Gorda copper mine, despite the impact of COVID-19. This income includes profit from investments accounted for using the equity method.

Capital Expenditure

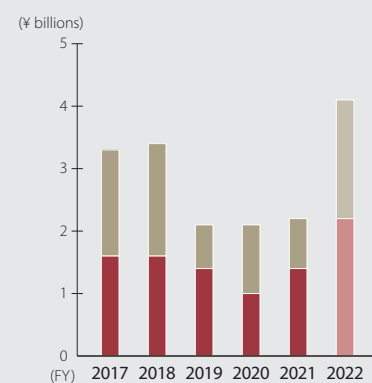


The SMM Group continued to carry out capital expenditure at Hishikari Mine, primarily focusing on exploration and development. We also invested capital to carry out construction in the Cote Gold Project and to support mining and production at overseas mines, including the Morenci Copper Mine.

Depreciation and Amortization Expense



Exploration Costs



■ New deposit exploration
■ Exploration around existing mines
In FY2021, efforts including exploration by the Frotet joint venture in North America and participation in a joint venture at Mt. Isa East in Australia resulted in a year-on-year increase of ¥340 million.

Recoverable Gold Reserves at the Hishikari Mine

(gold: tons)	2017	2018	2019	2020	2021
	169	167	163	159	157

Recoverable reserves of gold at the Hishikari Mine, calculated as of December 31, 2021, are 157 tons (down 2 tons from last fiscal year).

Review of FY2021 and the 2018 3-Year Business Plan

In FY2021, as the situation regarding the effects of the COVID-19 pandemic remained unclear, we continued anti-infection protocols (monitoring, prevention, and management planning) at each of our mines and projects to minimize impacts on operations. With regard to our major mines, mining operations at the Hishikari Mine remained steady, and the volume of gold produced was in line with the planned amount. Production levels at the Morenci Copper Mine (U.S.) declined year on year for reasons including the continuation of measures to decrease operating capacity. At the Cerro Verde Copper Mine (Peru), production levels increased from the previous fiscal year, during which operations had been tem-

porarily transitioned to a care and maintenance status in response to the COVID-19 pandemic. In February 2022, we transferred all the Company's interests in the Sierra Gorda Copper Mine (Chile).

Constructing under anti-infection protocols, we made steady progress at the Quebrada Blanca 2 Project (Chile), one of the three major projects of the 2018 3-Year Business Plan. The Cote Gold Project (Canada) has been progressing according to plan since the decision to begin construction was made in July 2020. We are also continuously working to raise the value of the project through exploration activities in the surrounding area.

Business Environment and Outlook

Looking at copper supply, our production volume increased from 2020 amid the proliferation of COVID-19 vaccinations and anti-infection measures as well as enhanced production motivation under higher copper prices. However, the year also saw a number of factors leading to supply insecurity. Intensified strikes at mines and ports in resource-rich countries and protests by indigenous communities forced frequent temporary suspensions of operations, and European and American sanctions against Russia's invasion of Ukraine in February 2022 resulted in disruptions of global logistics.

Copper demand remained firm overall following the restart of economic activities as COVID-19 vaccinations spread. However, sanctions against Russia have resulted in soaring energy prices, and demand stagnation has emerged, particularly in Europe.

Copper has come under attention as a "green metal" widely applied in electric vehicles and renewable energy production, and demand is forecast to rise in the long term.

The price of copper rose sharply from around US\$7,000/ton at the end of February 2021 to a sustained high level of US\$9,300-10,200/ton in FY2021. In addition to the inflow of speculative funds associated with economic stimulus measures by major countries, reasons for this include tightness in the supply and demand balance due to low inventory volumes at metal exchanges, strikes at mines and ports in resource-rich countries, protest activities by indigenous communities, and electrical power shortages in China against a backdrop of environmental conservation measures. However, prices may trend lower in FY2022 than in FY2021 due to concerns over slowdown in demand under China's zero-COVID policies and interest rate hikes by the U.S. Federal Reserve Board.

Expectations for economic recovery have placed downward pressure on gold prices, however, the price remained relatively high at US\$1,700 to \$2,020/toz over the year, buoyed by numerous factors including concern over epi-

demics of new coronavirus variants, U.S. monetary policy, political instability in the Middle East, concern over default

by China's Evergrande Group, and soaring prices of crude oil and other fuels and resources.

Our Challenges under the 2021 3-Year Business Plan

Advancement of the Quebrada Blanca 2 Project

Under strong leadership by our partner Teck Resources Limited ("Teck"), full-scale construction began on the Quebrada Blanca 2 Project in January 2019. While enacting thorough COVID-19 prevention measures, we are moving steadily forward on the project. Going forward, we will continue to move the project forward in close cooperation with Teck , and realizing our Long-Term Vision target of copper production from interests of 300 kt/year.

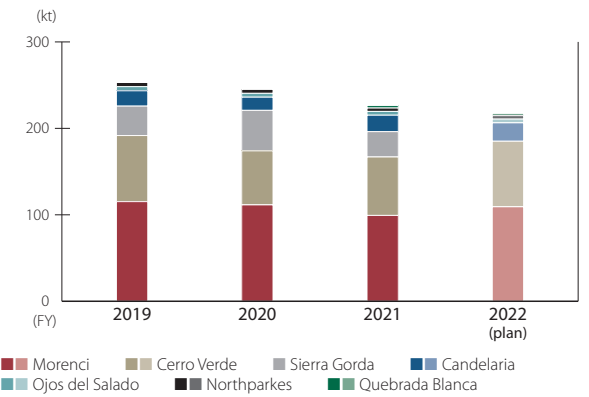


Processing plant construction at the Quebrada Blanca 2 Project

Overview of the Quebrada Blanca 2 Project

Equity interest	Teck 60%, SMM 25%, Sumitomo Corporation 5%, Other 10%
Planned investment	US\$7.5 billion (100% of the project, includes effects of inflation and the COVID-19 pandemic)
Average annual copper production volume	240 kt

Copper Production from Interests



Advancement of the Cote Gold Project

This is a gold mine development project being advanced together with Canadian gold producer IAMGOLD Corporation ("IMG"), and its construction began in July 2020. In 2021, under strict enforcement of infection prevention protocols, we steadily moved forward with foundation concrete construction and building construction primarily at the processing plant, as well as river rerouting work for the development of mining pits. In April 2022, progress toward the completion of construction reached 38%. We will continue working with IMG to advance the project to the start of production in 2023. Also, exploration activities in the Gosselin zone, located about



Construction at the Cote Gold Project (As of April 2022)

1.5 km to the northeast of the planned pit site, confirmed continuing gold mineralization. We will continue drilling activities for raising the future value of the project and will analyze information such as the continuity and grade of the orebody.

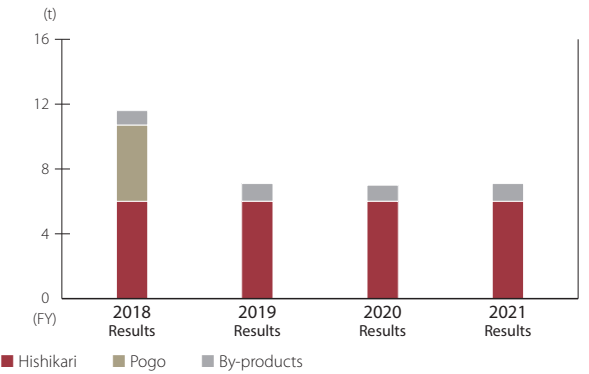
Hishikari Mine: Shift to Sustainability-Oriented Operation

The Hishikari Mine (Kagoshima Prefecture) has produced 260 tons of gold (as of the end of March 2022) since it opened in 1985. Worldwide, the amount of gold contained in gold ore is said to be 3~5 grams per ton. However, the Hishikari Mine is characterized by its high grade with 20 grams of gold per ton, or about 5 times the average. Production volume in FY2021 was 6 tons. As of the end of December 2021, the mine has recoverable reserves of 157 tons.

Gold production volume planned for FY2022 is 4.4 tons. While production volume decreased from FY2021, this was due to a shift to a sustainability-oriented operation based on mining at average reserve grade. We hope to further extend the life of the Hishikari Mine by reviewing its cost structure

through means including DX, as making the mine a place for human resource development where resource engineers can accumulate the skills and experience needed for mine operation. We are also working to develop the mine's lower ore-body, always keeping safety as the first priority.

Gold Production (SMM's interests)



Progress and Plans for Our Top Priorities

	FY2020	FY2021	FY2022	FY2023	FY2024 and later
Cu Morenci Copper Mine	● Consideration of cost reductions and investment postponements				
Cu Cerro Verde Copper Mine	● Temporary operation under care and maintenance → Restart		● Operational structure that can process 400 kt/day		● Operational structure that can process 420 kt/day
Cu Candelaria Copper Mine	● Operations halted due to strike → Restart		● Recovery from mining delay		
			● Mining delayed due to pit safety concerns		
Cu Quebrada Blanca 2 Project	● Temporary halt of construction → Restart		● Start of production scheduled		
Au Hishikari Mine	● Continuing lower orebody development		● Shift to sustainability-oriented operation		
Au Cote Gold Project	● September: Groundbreaking ceremony			● Start of production scheduled	
	● October: Start of construction				

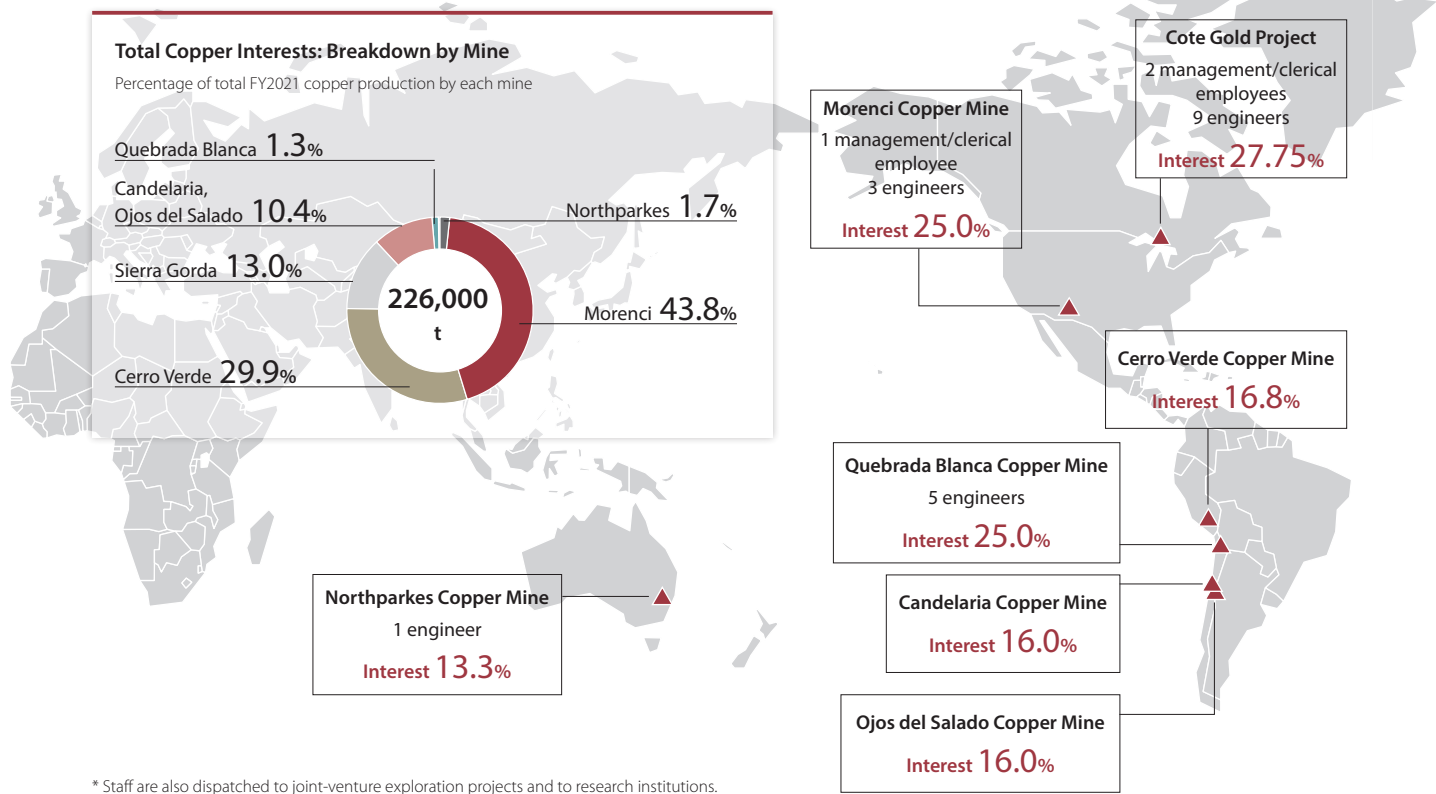
Strategies for the Mineral Resources Business in the 2021 3-Year Business Plan

1 Promotion of the Quebrada Blanca 2 Project

2 Promotion of the Cote Gold Project

3 Hishikari Mine: Establishment of a foundation for long-term stable operation

Overseas Mines and Staff Dispatched to Mines (As of June 1, 2022)



* Staff are also dispatched to joint-venture exploration projects and to research institutions.

Sustainability Topics

■ Developing Human Resources and Enabling Them to Work Actively in the Mineral Resources Business

Related: Vision for 2030, p. 108-109

In the Mineral Resources Business, we are leveraging the strengths possessed by the Hishikari Mine by using it as a Mining School where new employees specializing in resources who have been assigned to the Hishikari Mine or Niihama Research Laboratories can acquire specialist skills and skills related to overall operations through OJT within Japan. Once employees complete this training, we ensure they accumulate a variety of experiences, such as onsite development and operations experience at an overseas mine or project management experience at the Head Office, in order to cultivate technicians who can work actively around the world.

The COVID-19 pandemic has reduced opportunities for young workers to gain experience overseas. We plan to send people overseas with an eye toward providing education while actively carrying out onsite surveys of overseas projects to acquire superior new interests, with the aim of enhancing the experiences of everyone involved.

■ Information about the Cote Gold Project (collection of organisms at planned pit sites, addressing indigenous people's groups)

Related: Vision for 2030, p. 96-101

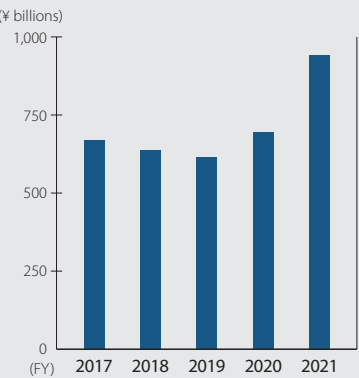
At the Cote Gold Project that we are conducting together with IAMGOLD, a lake existed at the planned mining pit site. We created a new lake with the same water surface area and also made efforts to maintain the biodiversity of the environment around the mine by collecting organisms from the original lake for release into the surrounding water area. We will continue advancing such initiatives aimed at achieving our Vision for 2030.



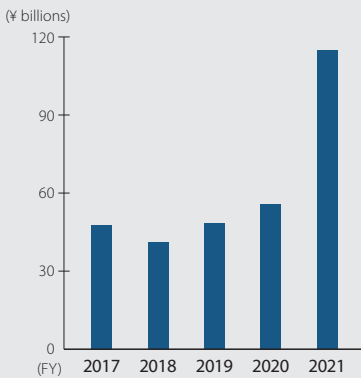
Smelting & Refining Business



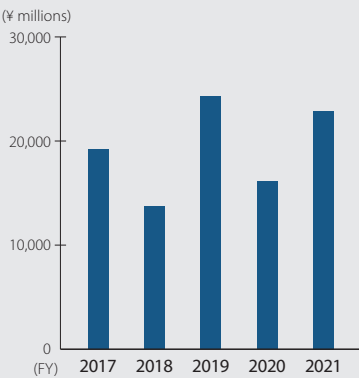
Segment Net Sales



Segment Income



Capital Expenditure



Depreciation and Amortization Expense



Production Volume of Nickel Sulfate



TC/RC (benchmark)



Using our advanced technological capabilities cultivated over many years to supply metal materials that support society

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



For over 400 years since the start of our copper smelting and refining business in 1590, we have stably supplied a variety of metal materials to a wide range of industries. We engage in business on the strength of our advanced smelting and refining technology, which was the first in the world to achieve the successful recovery of nickel from low-grade nickel oxide ore using the High Pressure Acid Leach (HPAL) process on a commercial basis.

Review of FY2021 and the 2018 3-Year Business Plan

In the 2018 3-Year Business Plan, we set (1) expansion of our nickel business and (2) reinforcement of production capabilities as two key material issues, and have advanced initiatives to achieve these goals.

In the expansion of the nickel business, we have positioned our Pomalaa Project in Indonesia as a centerpiece of our strategy and have conducted a definitive feasibility study (DFS) aimed at making a decision on investment. Due to the COVID-19 pandemic, however, the study period was prolonged, and our project partner PT Vale Indonesia Tbk chose to move ahead with a third party, SMM has concluded that it has no choice but to discontinue the study. On the other hand, we have advanced the development of our battery recycling process and have established new processes for the recycling of nickel, cobalt, and lithium as battery materials.

In the reinforcement of our production capabilities, we undertook measures at our production bases to establish

stable production systems, enhance productivity, reduce costs, and improve recovery rates. In FY2021, the COVID-19 pandemic forced us to temporarily adjust operational loads at some sites. This, together with declines in operating rate due to troubles at facilities and bad weather, shortages, and declines in the grade of raw material inventories, and other factors, resulted in production volumes of major products falling below planned values across the board. On the other hand, we also achieved positive results. Taganito HPAL Nickel Corporation (THPAL) achieved nickel production of approximately 30,000 tons for two consecutive years in FY2019 and FY2020, and the Niihama Nickel Refinery and Harima Refinery contributed to the strengthening of business collaboration by maximizing the amount of nickel sulfate supply to our internal battery materials business. We also began commercial production of the scandium oxide and chromite by-products of HPAL in January 2019 and March 2021, respectively.

Business Environment and Outlook

The supply-demand balance for non-ferrous metals is projected to ease for both copper and nickel in the short term due to the development of new and expanded copper mine projects and increased production of nickel pig iron in Indonesia. However, resurgence of COVID-19, prolonging of Russia's invasion of Ukraine, and many other uncertainty factors make the outlook difficult to forecast, and we will continue to closely watch future movements. Trends including decarbonization, clean energy, and the shift to electric vehicles are expected to accelerate globally over the long term and provide a tailwind for non-ferrous metal demand. Against this backdrop, we expect non-ferrous metal prices

in general to remain firm over the long term. At the same time, soaring energy and material prices, marine transportation disruptions due to container shortages, shortages of semiconductors and other industrial materials and goods, and other risk factors may impede production and sales activities and lead to a downturn in revenue. To achieve our planned production and sales volumes and to maximize revenue despite these impacts, it is vital that we strengthen our competitiveness through various measures. In line with the growth of nickel demand for use in battery materials, projects for the development of technology

to process nickel pig iron into nickel sulfate and other products of use in battery materials, and new projects to turn the nickel-cobalt Mixed Hydroxide Precipitate (MHP) used

mainly in battery materials into final products, are underway in Indonesia and elsewhere. We are closely watching the movement of such projects.

Our Challenges under the 2021 3-Year Business Plan

3-Business Collaboration to Strengthen the Value Chain for Ni-Batteries

To further strengthen the unique value chain that we have in our nickel business, we will continue working to secure nickel resources and to strengthen our 3-business collaboration.

With the discontinuation of the Pomalaa Project, the search for the next project to secure nickel resources has become more urgent than ever. Leveraging our industry networks to explore the needs of undeveloped projects and studying the securing of raw materials through collaboration with existing projects, we will develop new projects through combinations of the HPAL process and the hydro-metallurgical and pyrometallurgical processing technologies that we have cultivated, and will otherwise proceed with the selection and execution of projects that make the most of our strengths.



THPAL Plant

SMM Group Refineries and Their Main Products

<div>Toyo Smelter & Refinery</div> <div> Electrolytic copper</div> <div> Copper sulfate</div> <div> Gold ingots</div> <div> Slag sand</div> <div> Gold shot</div> <div> Silver shot</div>	<div>Niihama Nickel Refinery and Harima Refinery</div> <div> Electrolytic nickel</div> <div> Electrolytic cobalt</div> <div> Nickel sulfate</div> <div> Nickel chloride</div> <div> MS (Mixed Nickel-Cobalt Sulfides)</div> <div> Scandium oxide</div> <div> Chromite</div>	<div>Hyuga Smelting Co., Ltd.</div> <div> Ferronickel shot</div> <div> Green sand</div>	<div>Shisaka Smelting Co., Ltd.</div> <div> Zinc oxide pellets</div>
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In 3-business collaboration, we will continue full-scale production of nickel and cobalt for our internal Materials Business. We will also undertake commercialization of a recycling business that recovers copper, nickel, cobalt, and lithium from used lithium-ion secondary batteries, and will study the development of new cobalt products.

Strengthening the Competitiveness of the Copper Smelting and Refining Business

At the Toyo Smelter & Refinery, we will continue stable operation of 450,000 tons of electrolytic copper production volume and establish a 460,000-ton production structure, while working to strengthen our logistics infrastructure.

To establish a structure for stable and increased production of electrolytic copper, we will work to secure raw material quantity and quality with a focus on shifting the main supply source of copper concentrates from Sierra Gorda, for which we completed the transfer of all of our interests in February 2022, to Quebrada Blanca 2, which is scheduled to start production in the second half of 2022. We will also systematically undertake the renewal of large-scale, aging equipment by taking advantage of the planned shutdown maintenance in FY2023, and will make facilities improvements to increase production capacity by another 10,000 tons. To strengthen our logistics infrastructure, we will undertake the optimization

of logistics within plant grounds in conjunction with environmental measures, as well as measures to address the storage of raw materials and intermediate products.

We also intend to advance initiatives including favorable and stable sales of ongoing products, strengthening of our capabilities for dealing with impurities, improvement of recovery rate, and cost reductions to strengthen the competitiveness of our copper smelting and refining business. To address changes in the market environment, we will promote the introduction of fuel conversion and energy-saving equipment as initiatives aimed at carbon neutrality.



Toyo Smelter & Refinery

Progress and Plans for Our Top Priorities

	FY2019	FY2020	FY2021	FY2022	FY2023 and later
Ni Securing nickel resources			● Implementation of Pomalaa Project DFS until FY2021	● Discontinuation of Pomalaa Project	● Strengthening of search for next project
Ni Taganito HPAL Nickel Corporation	● Achievement of at least 30-kt production volume	● Start of commercial production of chromite			
	● Start of commercial production of scandium oxide				
	Continuing measures to secure nickel ore supplies				
Ni Nickel sulfate Niihama Nickel Refinery and Harima Refinery		● Achievement of new record high production level (79.1 kt)			
	● Achievement of record high production level (75.1 kt)				
	Maximum production and output to meet cathode material demand				

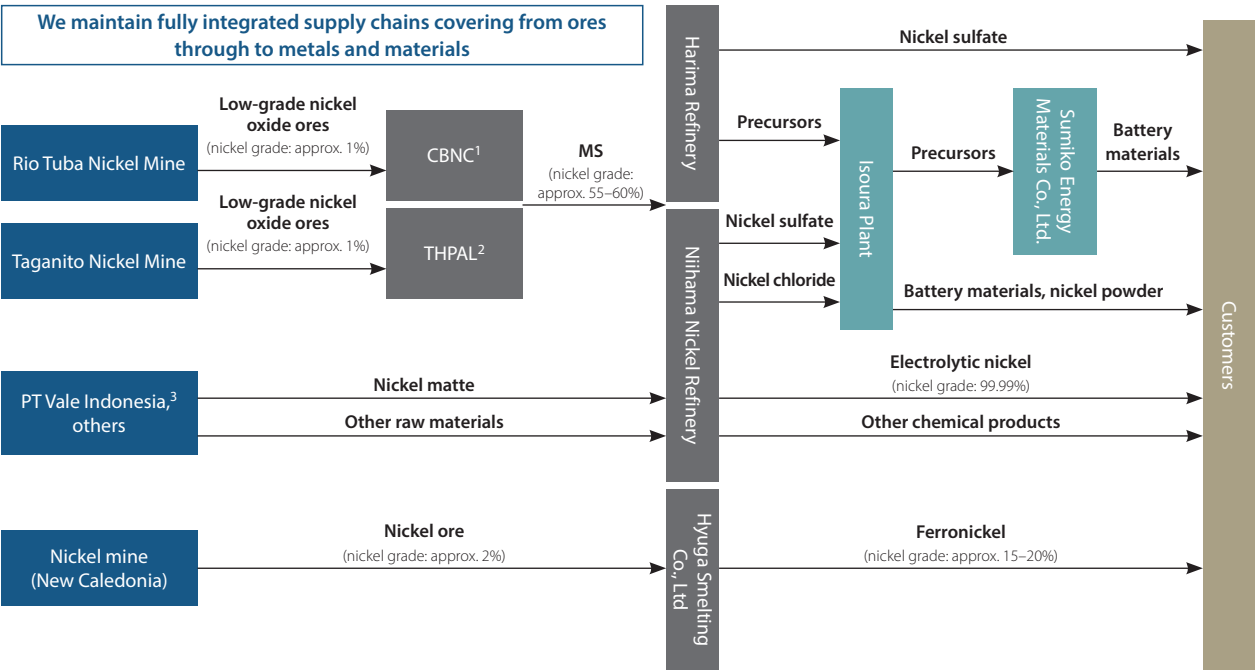
Strategies for the Smelting & Refining Business in the 2021 3-Year Business Plan

- 1 3-business collaboration to strengthen the value chain for Ni-batteries**

 - Searching for new nickel deposits
 - Securing the supply of ore for CBNC and THPAL
 - Strengthening of the internal supply of raw materials in line with increased production capacity for battery cathode materials
 - Study of new cobalt product development
 - Promotion of battery recycling business
- 2 Enhancement of competitive edge in the copper smelting and refining business**

 - Stable operation of 450 kt of electrolytic copper production and establishment of a 460 kt structure
 - Strengthening of logistics infrastructure

Supply Chains for Realizing a Stable Supply of Nickel



1. Coral Bay Nickel Corporation (CBNC): Shareholders: Sumitomo Metal Mining Co., Ltd. (90%); 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.
3. PT Vale Indonesia Tbk: Shareholders: Vale Canada Limited (44.3%); Sumitomo Metal Mining Co., Ltd. (15%); others (40.7%).

Sustainability Topics

Utilizing Low-Grade Nickel Ore Through HPAL Technology

Related: Vision for 2030, p. 90

The HPAL process adopted at Coral Bay Nickel Corporation (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, meaning it has huge significance in terms of effectively utilizing unused resources. Our supply chains also enable the stable production of nickel and cobalt, which face growing demand for use in secondary batteries, and this has become a strength of the Group's nickel business.

Smelting & Refining University

Related: Vision for 2030, p. 108–109

Since 2017, we have offered the Smelting & Refining University for young technical employees who have built up some experience in their assigned departments. The training aims to let employees learn the theories behind onsite production processes and develop problem-solving skills.

The Smelting & Refining University is conducted by lecturers who include researchers from SMM research laboratories and section managers from plants. It provides participants with a valuable opportunity to acquire specialized knowledge and to learn how to approach problems as a smelting and refining engineer. We will continue holding the Smelting & Refining University program, focusing on training the smelting and refining engineers who will take over the skills and technologies developed by the Group.

Materials Business

Battery Materials Business

Contributing to society through the development and supply of highly advanced materials by making effective use of non-ferrous metal resources

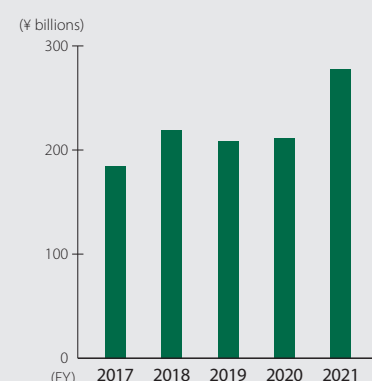
Katsuya Tanaka

Executive Officer, General Manager of Battery Materials Division

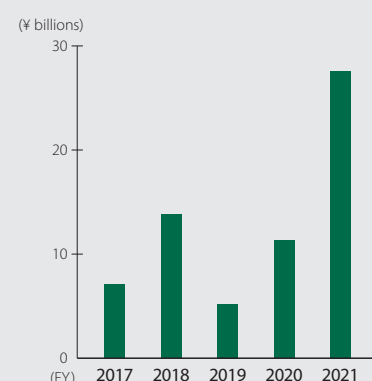


Through resource recycling and the development and manufacturing of cathode materials for automobile batteries, we will reduce greenhouse gas (GHG) emissions and contribute to the achievement of a sustainable society, while maintaining a worldwide leading share in nickel-based cathode materials.

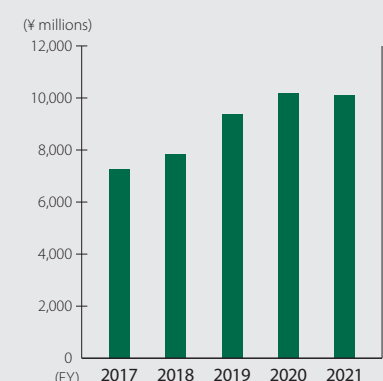
Segment Net Sales



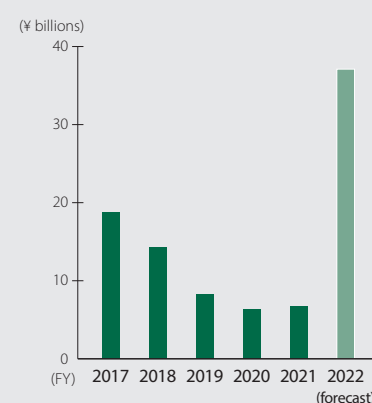
Segment Income



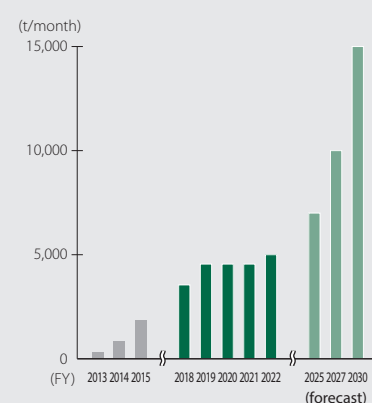
Depreciation and Amortization Expense



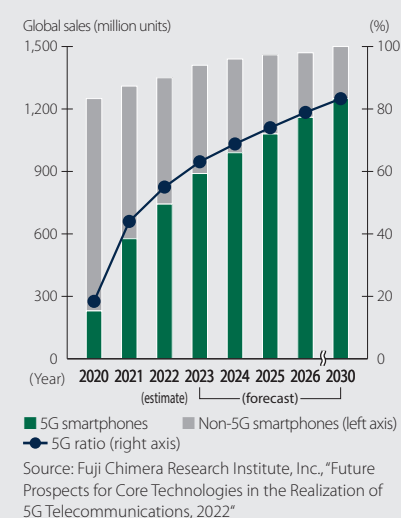
Capital Expenditure



Growth of Cathode Materials Production Capacity and Future Plans



Smartphone Sales Volume and 5G Ratio Forecast



Review of FY2021 and the 2018 3-Year Business Plan

During the period of the 2018 3-Year Business Plan, the global electric vehicle (EV) market expanded as countries, particularly European countries and China, stepped up measures to combat global warming and as movements toward carbon neutrality through automobile electrification accelerated. Production and sales of automobiles stagnated from 2019 under the COVID-19 pandemic, yet even under these circumstances, the EV market grew significantly. Worldwide EV sales in 2021 increased 2.2-fold from 2020 to 6.6 million units. In response to the growth of the EV market, the automobile lithium-ion battery market has expanded to a scale exceeding demand forecasts based on countries' regulations, and is thought to have reached 195 GWh in 2021. We are expanding our production capacity to meet the increased demand for cathode materials associated with the growth of the autom-

bile lithium-ion battery market. We made the decision to increase monthly production of lithium nickel-cobalt-aluminum oxide (NCA) from 4,550 tons to 4,850 tons in September 2020 and subsequently we decided to increase monthly production of nickel-based cathode materials by 2,000 tons in July 2021. Our investment to increase production to 4,850 tons gradually started contributing to production from the second half of FY2021, the final year of our 2018 3-Year Business Plan, with the result of record NCA production volume for the fiscal year. Our investment to increase production by 2,000 tons has been selected as a target project for the Ministry of Economy, Trade and Industry's Program for Promoting Investment in Japan to Strengthen Supply Chains. We are moving forward with the investment, aiming to launch commercial production in FY2025.

Business Environment and Outlook

The EV market is expected to continue expanding, and demand for cathode materials and other EV-related materials is expected to remain strong. At the same time, supply chains have undergone disruption under the COVID-19 pandemic and Russia's invasion of Ukraine. In addition, numerous variable factors affecting demand, such as rising prices for some raw materials, significant increases in international logistics costs, electricity costs, and tight supplies of materials under sharp increases in demand for EVs, especially in the Chinese market, are making the EV market uncertain in the short term. In the medium to long term, however, the EV market is expected to continue to expand as environmental regulations are strengthened around the world, and demand for automobile secondary batteries is expected to increase. The electrification of automobiles is accelerating, as seen in the

COP26 declaration aimed at transitioning to zero emission vehicles (ZEVs) for all new vehicles sold in major European markets by 2035 and globally by 2040. Demand for EVs is expected to grow in the North American market as well. Following Europe and China, the U.S. government has announced support for both promotion of demand and construction of supply chains in response to the increasing electrification of automobiles, so demand for EVs is expected to grow in the North American market as well. The electrification of automobiles is also expected to move forward in Japan.

We will strive to start operations as early as possible for the currently promoted production increase startups that are currently underway. Furthermore, we will keep abreast of the latest situation and consider further production increases at the appropriate time.

Our Challenges under the 2021 3-Year Business Plan

Under our 2021 3-Year Business Plan, we are working to expand our production capacity of cathode materials by 2,000 tons per month, with the aim of launching commercial production in FY2025 as planned. At the new plant under construction, we will actively introduce digital transformation (DX) to improve production efficiency and reduce labor. We also aim to achieve a production capacity of 10,000 tons per

month by FY2027, as planned in the 2021 3-Year Business Plan. We will continue aggressively expanding our production capacity to achieve 15,000 tons per month by FY2030. As demand trends are expected to vary by region in line with countries' policies, we will continue to consider a wide range of locations in Japan and overseas for our next plants.

Sustainability Topics

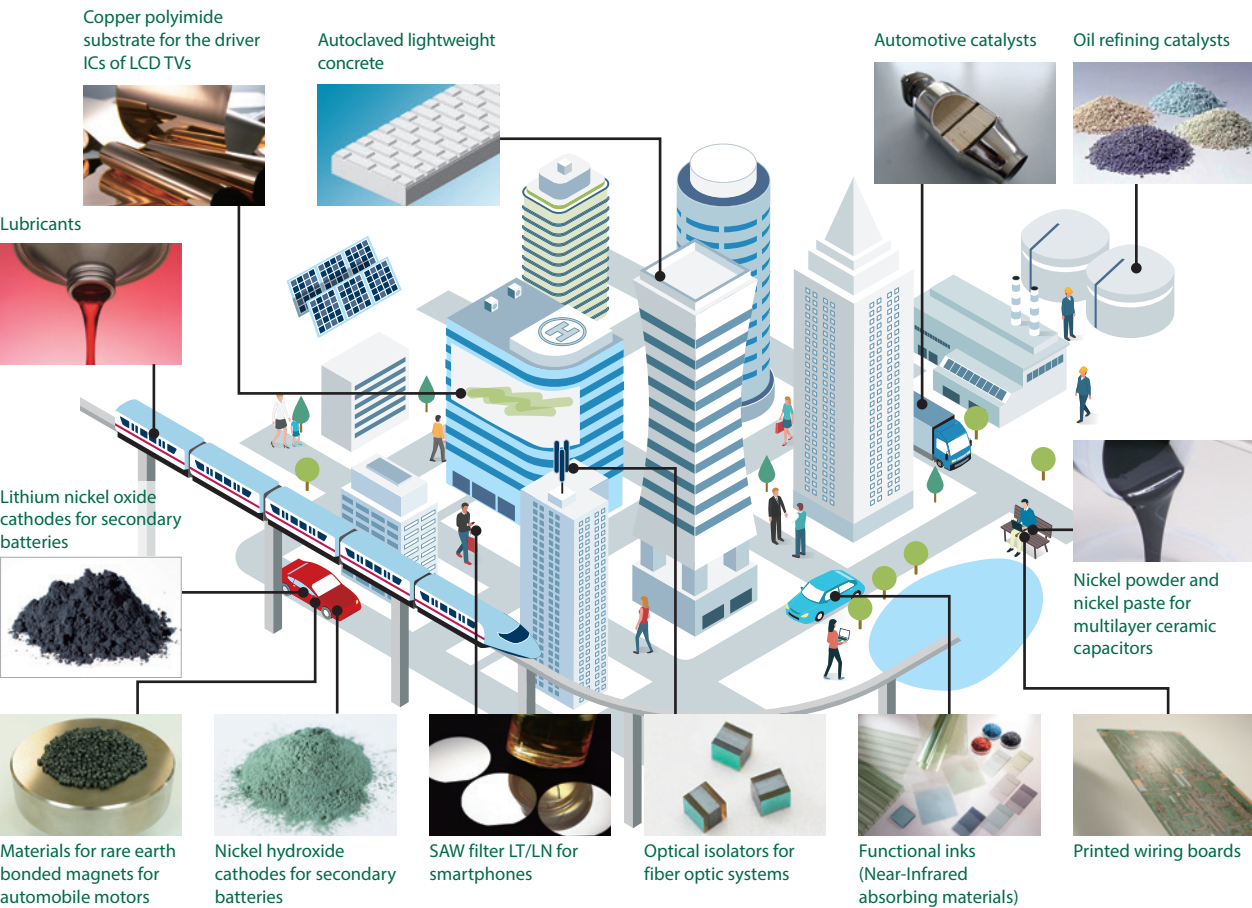
Speeding up Development of Lithium Iron Phosphate (LFP) Battery Materials

Related: Vision for 2030, p. 90

On February 22, 2022, we entered into a transfer agreement with Sumitomo Osaka Cement Co., Ltd., which was effective from May 1, 2022, regarding the lithium iron phosphate (LFP) battery materials business, for which demand is

forecasted to expand under the adoption of the material in EVs and stationary storage batteries. In addition to existing nickel-based cathode materials, through the technology and know-how transferred to us, we intend to speed up the development of LFP battery materials, which are expected to open up new markets as the world shifts from ICE (Internal Combustion Engine) vehicles to EVs, and will expand our lineup to meet a wider range of customer needs.

SMM Products in Daily Life



Advanced Materials Business

Aiming to be the lead runner in the market by adapting quickly to technological innovation and changing needs

Hiroshi Yoshida
Managing Executive Officer,
General Manager of Advanced Materials Division



We produce advanced materials used in wide-ranging fields including automobiles, energy, the environment, communications and information, and home appliances, and develop and produce products that contribute to carbon neutrality.

Review of FY2021 and the 2018 3-Year Business Plan

In FY2021, COVID-19 continued its rampage from the previous fiscal year, seriously impacting industries connected to the advanced materials business. Sales of consumer products including smartphones, personal computers, TVs, and game consoles remained at a high level as 5G proliferated under the accelerated construction of digital social infrastructure and the growth of demand for at-home products. In the second half of the fiscal year, operating capacity and demand, particularly for smartphones, declined in Greater China due to China's electric power restrictions and zero-COVID policy. At the same time, there was also an increase in demand aimed at building up inventories ahead of semiconductor shortages, requiring us to make changes to production plans in some businesses. Amid these changes in economic conditions, we steadily adapted to changes in customer needs and con-

tinued to operate at full production capacity.

Under our 2018 3-Year Business Plan, we worked toward the continuous creation of new products and the maximization of revenue and profit. However, the degree to which we achieved business growth was varied amid a greatly fluctuating market environment. In FY2019, even as demand stagnated under the spread of COVID-19 and growing trade friction between the U.S. and China, we strengthened our manufacturing base and met recovering demand from the second half of FY2020 onward, yielding steady growth in results.

In the continuous creation of new products, we opened our X-MINING® website in 2020, with the aim of developing new applications for existing powder material products and adding values.

WEB <https://crossmining.smm.co.jp/en/>

Business Environment and Outlook

According to the IMF, the real economic growth rate in 2021 was +6.1%, and advanced materials-related markets recovered rapidly against the backdrop of 5G smartphone proliferation and the use of remote IT.

In FY2022, we anticipate increased investment in technological innovation aimed at carbon neutrality and in data centers and other digitalization of communication infrastructure through the proliferation of remote IT and 5G. Demand for semiconductors and electronic components is expected to continue expanding amid the ongoing shift to EVs and increased use of electric components for enhanced safety in automobiles, as well as increasing functionality in smartphones, personal computers, and

home appliances.

At the same time, the impacts of semiconductor shortages continue, and sales volume is predicted to stagnate under production restrictions on automobiles, smartphones, personal computers, and other products, leaving behind a sense of uncertainty. We also expect the growth rate of the electronic components market to weaken due to factors including a slowdown in COVID-19 pandemic demand for at-home products, effects of Russia's invasion of Ukraine, and impacts of lockdowns in China.

Our Challenges under the 2021 3-Year Business Plan

Our vision for the advanced materials business

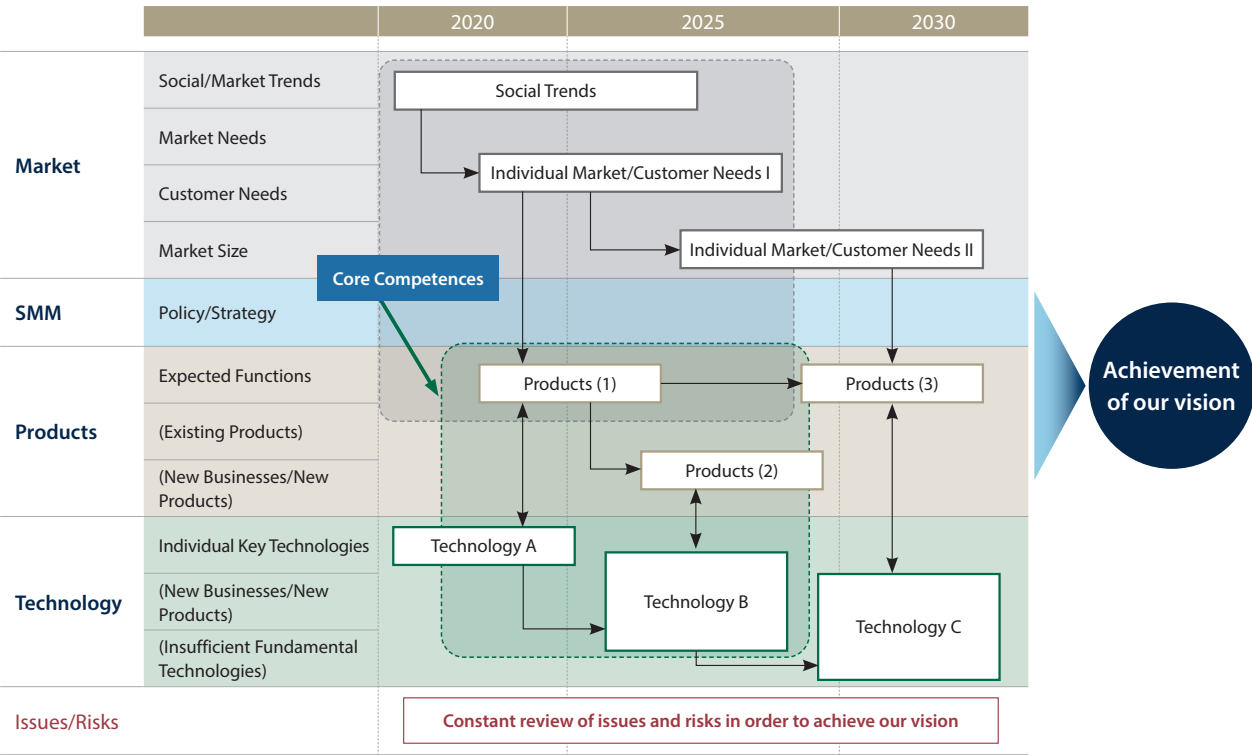
Be the lead runner in the markets for our products, continue to refine our material technology capabilities to meet the needs of every era, and secure high profitability and top-class market share

In our 2021 3-Year Business Plan, we set the embodiment of our vision as the primary goal of the advanced materials business, and further undertook a from-zero examination of the issues facing us in order to clarify the actions we should take and our goals. To adapt quickly to ever-changing market environments, we introduced roadmap-based management as a mechanism for linking and constantly improving the analysis of market needs, drafting of strategy, and product development. We will execute business strategies and specific measures in line with our roadmap, with the aim of making our vision a reality.

To improve the sustainability of our core businesses, we will undertake an expansion strategy in the advanced materials business and the development of products and new technologies that will contribute to carbon neutrality. As electrical products become lighter, thinner, smaller, and more efficient, we face demands for smaller and more uniform nickel pow-

der particle sizes. By deeply exploring the fundamental technologies of powder synthesis and dispersion and quickly establishing technologies, we will seek to become a major supplier. In functional inks (near-infrared absorbing materials), we will strengthen our R&D divisions and technical service structure, with the aim of expanding sales for window film applications. We will also strengthen our original light control technology and will work to develop markets for new applications including clothing, agriculture, and 3D printers. In silicon carbide (SiC), we will work to establish a manufacturing structure for bonded substrates, continue performing sample work to meet customer needs, and connect these to a production increase of 10,000 pieces per month in 2025. In communication devices, through expansion into special-purpose optical isolators and the construction of an increased production structure, we will establish a manufacturing and sales structure that unerringly captures market growth.

Our roadmap concept



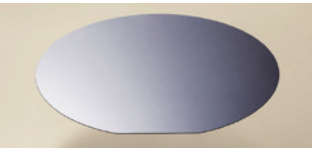
Sustainability Topics

Commercialization of Silicon Carbide (SiC) Substrates

Related: Vision for 2030, p. 91

SiC is a power semiconductor material used mainly in electric power control applications. As a material capable of reducing energy loss in high-capacity fields (high current and high voltage resistance) demanded for drive control devices, particularly in hybrid vehicles and electric vehicles, SiC faces high expectations for its mass production.

We are working to develop low-cost SiC substrate manufacturing using bonding technology, and have so far received positive evaluations of samples from multiple customers. We have begun sales of products certified by customers.



SiCrest* bonded silicon carbide (SiC) substrate

Thermal Management Using Near-Infrared Absorbing Materials

Related: Vision for 2030, p. 91

Our near-infrared absorbing material is able to selectively absorb the near-infrared energy of sunlight and convert this the absorbed energy to usable thermal energy, managing both transparency and heat-shielding performance at high levels. We are taking advantage of these unique material properties to pioneer new applications to clothing and agriculture in the field of life sciences, in addition to the positive creation of energy in the environmental field. This near-infrared absorbing material is expected to contribute to reduce of GHG emissions as a low carbon load product.



Greenhouse with a roof tent woven with fibers of dispersed near-infrared absorbing material of cesium tungsten oxide (CWO*)

Progress and Plans on Our Top Priorities in the Materials Business

	FY2019	FY2020	FY2021	FY2022	FY2024 and later
Battery materials	● Completion of 4,550 t/month production structure			● NCA ¹ : Increase in production to 4,850 t/month from mid-2022	● 10 kt/month cathode material production by FY2027 (NCA + NMC ² + nickel hydroxide) ● Increase in production of cathode materials to 15 kt/month by FY2030
Crystal materials			● SiC launch for consumer markets		● SiC launch for automotive markets

1. NCA: An acronym for a type of secondary battery cathode material composed primarily of N (nickel), C (cobalt), and A (aluminum).
2. NMC: An acronym for a type of secondary battery cathode material composed primarily of N (nickel), M (manganese), and C (cobalt).

Strategies for the Materials Business in the 2024 3-Year Business Plan

Battery Materials Business

Increase in battery material (cathode) production capacity

- 2,000 t/month expansion
- Plant completion and production launch planned for FY2024
- Plant positioned as a model factory for DX promotion and hiring and training to be implemented in advance during the 2021 3-Year Business Plan to ensure a steady start-up
- Studying next capacity expansion: Looking into product portfolio, plant location, etc.
- Securing and developing human resources for business expansion
- Reducing GHG throughout the battery life cycle

Advanced Materials Business

1 Introduction of roadmap-based management

- Capture changes and needs from a top-down view of medium-to long-term market trends
- Predict the future
- Think about how we can respond to change and shape our business
- Seek a shared understanding of strategies and measures that the Advanced Materials Division should pursue in the medium to long term

2 Expansion strategy for the advanced materials business

- Establishment of a 10,000 wafers/month mass production structure for silicon carbide (SiC) in FY2025
- Expansion of sales of Ni powders (for use in paste for MLCCs) in high-end markets
- Expansion of sales of functional inks for window film applications and exploration of new markets
- Establishment of a manufacturing and sales structure that captures market growth in communication devices

Research & Development

Strengthening development of new products for the sustainable growth of the Company

Shuichi Ogasawara
Managing Executive Officer
General Manager of Technology Division



The SMM Group has four research and development sites and we are engaged in raising our competitiveness by evolving existing technologies while also advancing research and development into next-generation metal smelting and refining technologies and pioneering new materials.

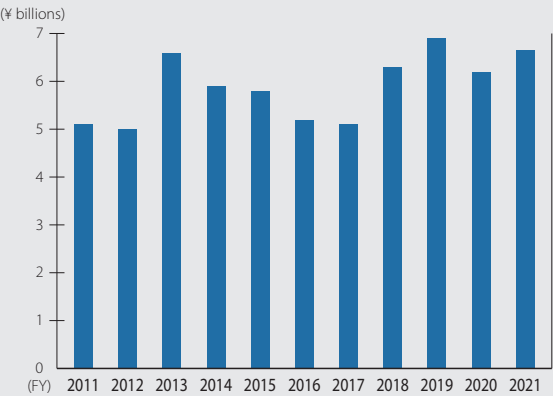
Review of FY2021 and the 2018 3-Year Business Plan

In our 2018 3-Year Business Plan, the three major themes for research and development were (1) create new businesses with a view to 10 years from now, (2) develop products that customers will prefer, and stay ahead of competitors, and (3) develop new processes that can differentiate us and support sustainable growth.

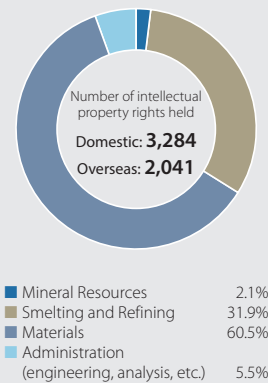
Looking back on the 2018 3-Year Business Plan, in (1) the creation of new businesses, we explored themes in the automotive, environment, energy, and communications fields that are expected to see continued growth, while also elucidating the functional expression mechanisms of new materials. In (2) the development of products that

customers will prefer, we continued to focus efforts on cathode materials for automobile secondary batteries, on larger-diameter lithium tantalate and lithium niobate single crystals used as SAW filters for communication devices, and on development that will contribute to enhancing productivity and other aspects of competitiveness. In (3) the development of new processes, to strengthen our 3-business collaboration value chain centered on nickel, we established a new recycling process equipped with the ability to recycle copper, nickel, cobalt, and lithium from used lithium-ion secondary batteries and other sources.

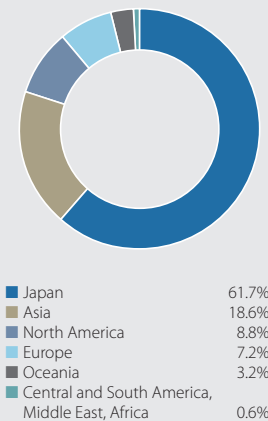
Research and Development Expenses



Number of intellectual property rights held, by business (Patents and Designs)



Number of intellectual property rights held, by region



Future Research and Development Strategy

Under the 2021 3-year Business Plan, we will promote R&D under the following three major themes. (1) Promotion of development of new technologies and processes to achieve carbon neutrality, (2) Business innovation in manufacturing and R&D divisions through DX (Digital Transformation), and (3) Activation of individuals and utilization of human resources.

In battery cathode materials, which we position as a growth market, in parallel with development aimed at improving performance we are developing materials for all-solid-state and other next-generation batteries, along with new processes that will contribute to enhanced productivity. We are expanding facilities at the Battery Research Laboratories with the completion of a new building in July 2022, as we aim to further strengthen our development capabilities and improve efficiency.

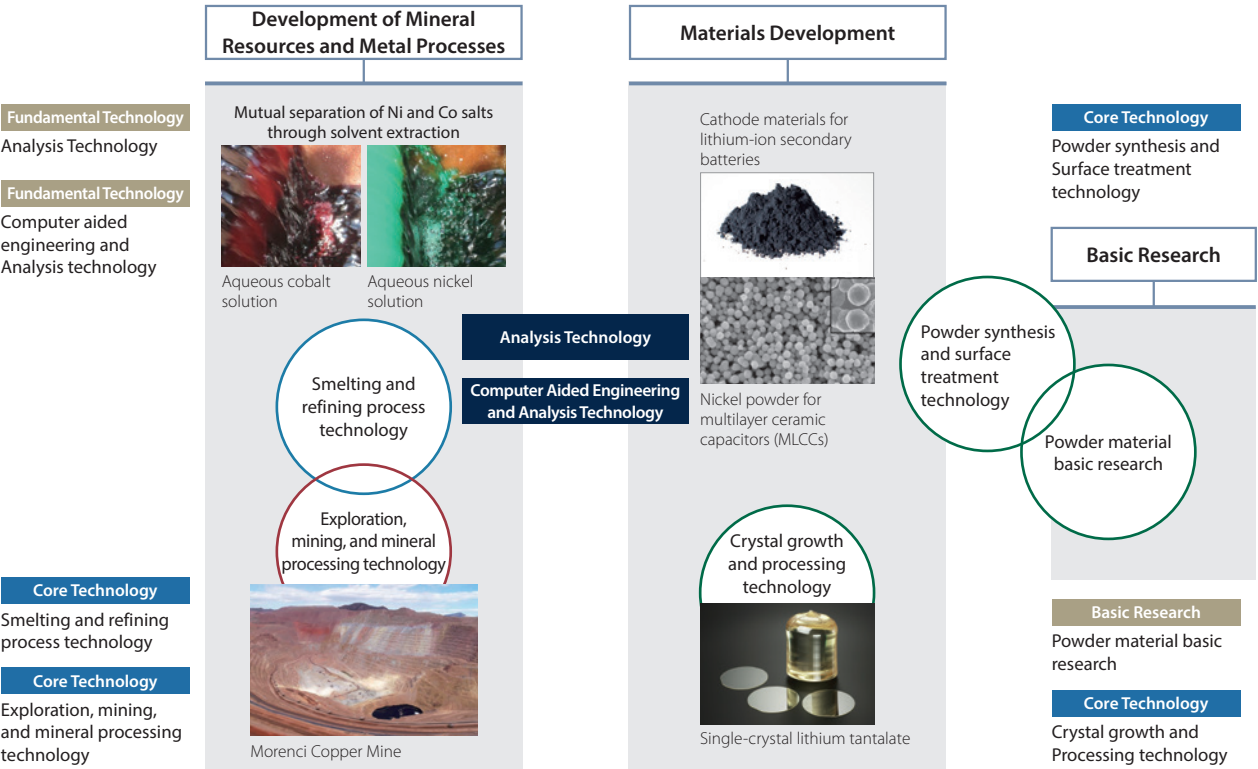
In the materials field, we will continue to focus on development related to functional powders and crystals. Our targets include nickel, copper, and other metallic powder pastes and inks for the functional diversification and miniaturization of electronic devices, and advanced crystal materials for next-generation communications and energy harvesting (using crystal materials). As basic research on powder materials, they also include optical control materials, and photocatalyst

materials for CO₂ reduction and the production of hydrogen through artificial photosynthesis.

In the smelting and refining field, we are advancing research and development on next-generation smelting and refining processes for nickel and on extraction and refining process for lithium to reduce GHG emissions. Moreover, while improving our mineral resource exploration, mining, and mineral processing technologies, we have begun exploring themes that will contribute to solving the social needs expressed in Vision for 2030.

We believed that a key point in formulating Vision for 2030 was ways to create materials that do not damage the global environment in the world of 2050 or 2100, as exemplified by carbon neutrality. In connection with that, we engaged in deliberations on a vision for the non-ferrous metal industry that will enable the achievement of such materials. We will keep a constant watch on how trends in the world will change and transform during the approximate 10 years until 2030 as a medium- to long-term outlook and will move forward with initiatives aimed at responding quickly to these changes and transformations and at achieving the effective use of non-ferrous metal resources.

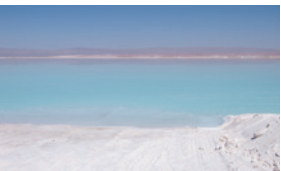
Research and Development by the SMM Group



Our Challenges under the 2021 3-Year Business Plan

Extraction of Lithium

Lithium is an essential raw material for the production of lithium-ion batteries, which contribute to carbon neutrality. The extraction process of lithium from lithium-containing salt lakes and ores normally results in large volumes of GHG emitted in the process of separating impurities. At Niihama Research Laboratories, we developed an adsorbent that is able to selectively extract only lithium while emitting close to



The lithium-rich lake Salar de Atacama (Photographed by an SMM employee)

no GHGs in the impurity separation process. We will confirm the reliability of the process and collect the information required for its industrialization in order to make this process a reality.

Development of Cathode Materials for All-Solid-State Batteries

Our Company's work on the development and demonstration of high-performance cathode materials for next-generation storage batteries has been adopted as a part of the Next-generation Storage Battery and Motor Development project under the Green Innovation Fund of the New Energy and Industrial Technology Development Organization (NEDO).

Through the further deployment of our cathode material products for storage batteries under this project, we will perform development and demonstration of GHG emission reduction processes and high-performance cathode materials that will enable the practical use of all-solid-solid state and other high-performance lithium-ion batteries.

Sustainability Topics

Research into Photocatalyst Materials for Artificial Photosynthesis

Related: Vision for 2030, p. 91

The Ichikawa Research Center, which conducts basic research in the field of powder materials, is working to create photocatalyst materials for use in artificial photosynthesis, including CO₂ reduction photocatalysts for carbon recycling and water-splitting photocatalysts for hydrogen production, as new materials that will contribute to carbon neutrality. In addition to conventional joint research, the Center will work toward the acquisition of new technologies and the development of human resources in the field of photocatalysis by establishing a joint industry-academia course at Kyoto University, where advanced research is underway.

Scanning transmission electron microscope (STEM) image of CO₂ reduction photocatalyst particles, with Ag nanoparticles (co-catalyst) carried on the surface of Ga₂O₃ particles (semiconductor photocatalyst)

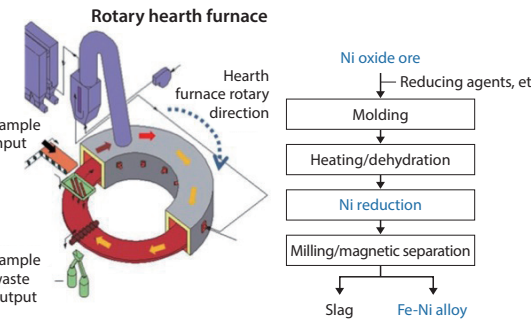
elementary reaction
 $2\text{CO}_2 + 4\text{H}^+ + 4\text{e}^- \rightarrow 2\text{CO} + 2\text{H}_2\text{O}$
complete reaction
 $2\text{CO}_2 \rightarrow 2\text{CO} + \text{O}_2$

CO₂ reduction mechanism using photocatalyst particles

Study of Next-Generation Nickel Smelting and Refining Processes, Hydrogen Reduction Technologies, etc.

Related: Vision for 2030, p. 91

To achieve carbon neutrality by 2050, we are studying new pyrometallurgical processes that will replace conventional, fossil fuel-based methods. One of these is a process for the efficient reduction of nickel using the reaction apparatus known as a rotary hearth furnace, depicted in the figure below. As this enables processing at a low temperature over a short time, it is expected to significantly reduce the GHG emissions and energy consumption of the reduction process. We are also exploring the feasibility of nickel oxide ore reduction using hydrogen, a technique that has been considered difficult, and are now working on development of the process.



Battery Recycling

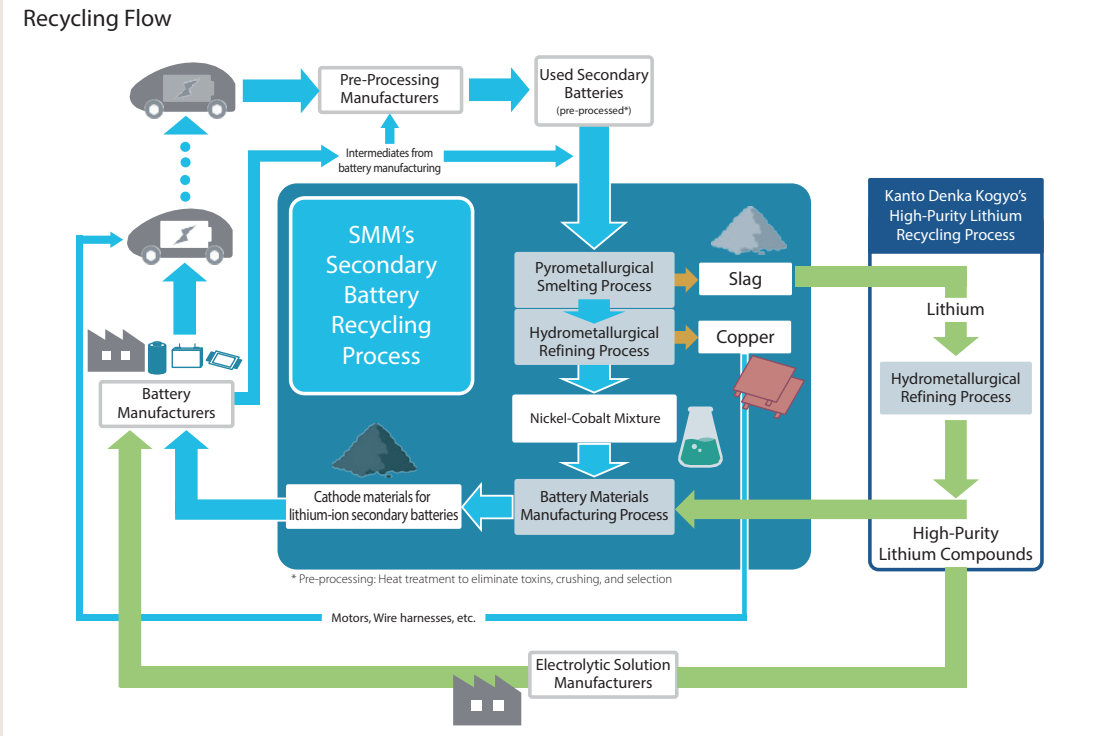
As automobiles undergo what is expected to be a rapid and long-term shift to electric drive, demand is growing for the nickel, cobalt, and lithium used in cathode materials for electric vehicle lithium-ion secondary batteries (LIBs), leading to calls for effective resource recycling.

We are working to recover and reuse the copper and nickel contained in used LIBs through a process that combines the Toyo Smelter & Refinery's copper smelting and refining processes and the Niihama Nickel Refinery's nickel smelting and refining processes. The recovered nickel, in particular, is processed into a secondary battery cathode material at the Isoura Plant, realizing Japan's first "battery to battery" recycling using materials recovered from used LIBs.

As a result of our technological development, we have demonstrated the ability to recover nickel and cobalt from used LIBs, purify them to a high level, and reuse them as raw materials for LIB cathode materials. In addition, through our proprietary lithium recovery technology, the first such technology in the world, we have successfully established a new recycling process capable of recycling copper, nickel, cobalt, and lithium from used secondary batteries. Through joint development with Kanto Denka Kogyo Co., Ltd., we established the world's first technology that recycles lithium from used LIBs as high-purity compounds and horizontally recycles the compounds into battery materials.

We are currently studying the commercialization of battery recycling with the aim of launching operations at a pre-commercial plant under our 2021 3-Year Business Plan, followed by the establishment of a 10,000-ton/year processing structure under our 2024 3-Year Business Plan.

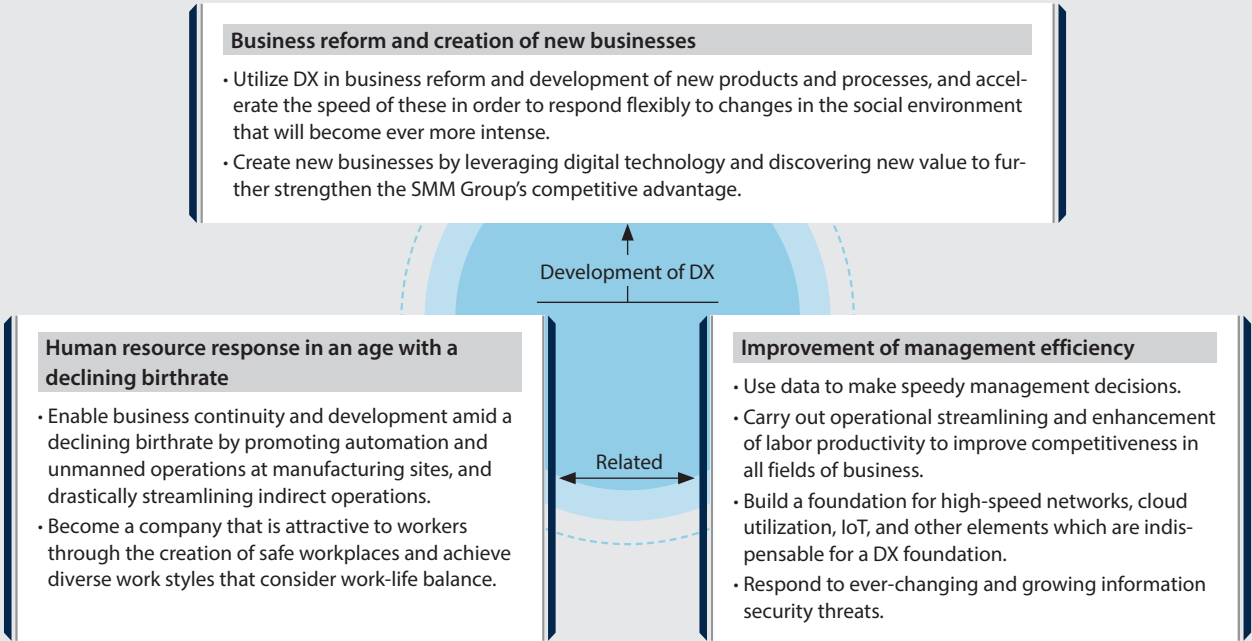
Looking ahead, we will continue to tackle the achievement of "battery to battery" recycling and will contribute to the formation of a sustainable circular economy and the strengthening of resource recycling to combat global resource depletion.



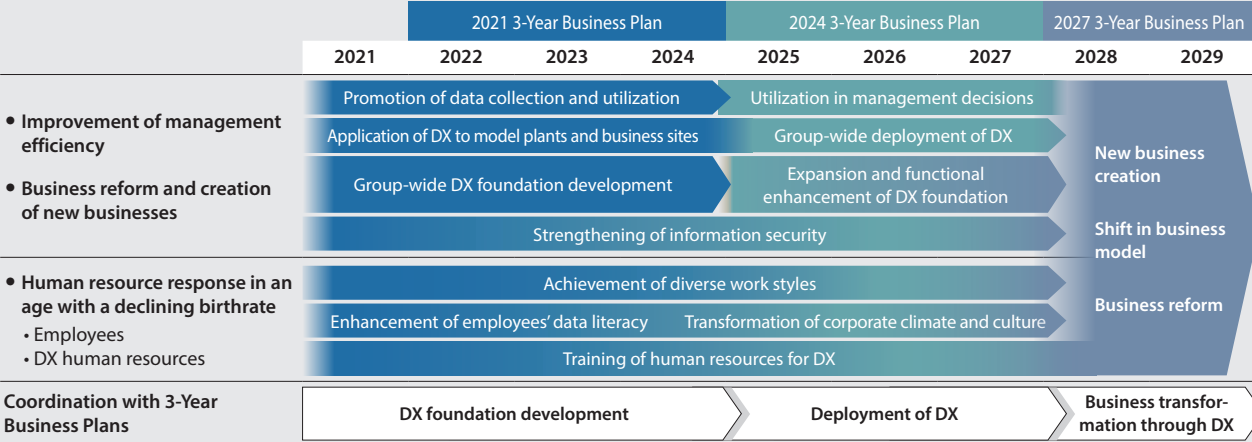
Special Feature Digital Transformation (DX) at the SMM Group

In FY2021, the SMM Group formulated DX Promotion Regulations and established the DX Promotion Committee to actively promote Group-wide DX activities. In July 2022, the Digital Transformation Department was established to actually carry out DX deployment.

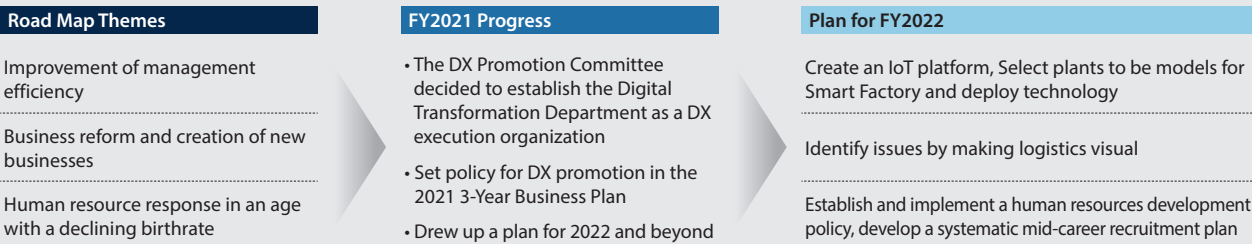
Specific Issues and Responses



Road Map and Progress



Progress



Role of the Digital Transformation Department

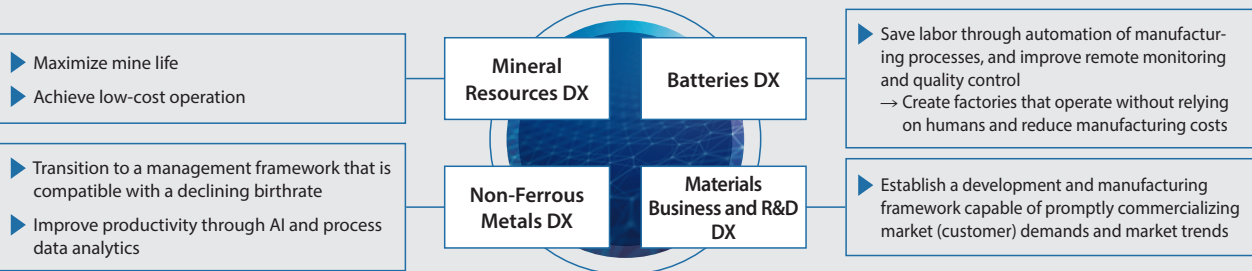
As a dedicated organization not only involved in DX planning and control, but also execution, the Digital Transformation Department will accelerate our digital transformation and promote our initiatives more powerfully.

Functions as the execution organization	Details of initiatives
(1) Policy, planning, and overall management	Formulation and updating of overall policy, vision, and focus areas, and overall plan formulation and progress management
(2) Individual project planning, technology verification, and guidance	Project planning, start-up support, technology verification, exploration for new technology, IT personnel assignment (dispatch), and technical guidance for each DX project
(3) Execution of individual DX projects	Setting of focus areas and goals, creation of execution plans, building of project structures, and execution of projects

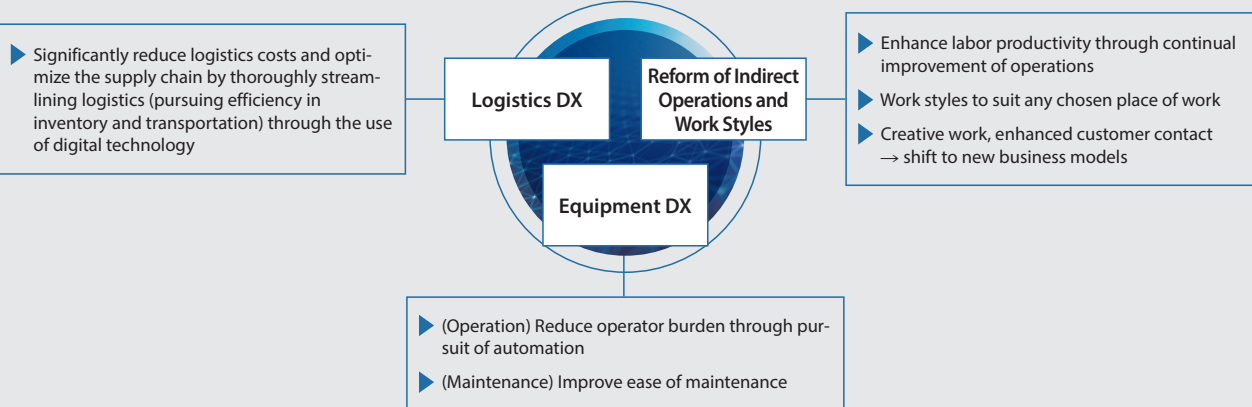
Priority Areas

In following the road map, when planning to resolve issues in accordance with our DX policy, we decided which areas of our company will undergo DX and why, and established seven items as priority areas. Specifically, we set goals for four business areas (including R&D) and three Group-wide work areas, and we are working to resolve their issues.

Four business areas (including R&D)



Three Group-wide work areas



Examples of Initiatives in the SMM Group

CASE-1

Automation and Remote Operation of Heavy Machinery (Hishikari Mine)

At the Hishikari Mine (Kagoshima Prefecture), we are aiming to extend mine life by shifting to operations that emphasize sustainability and reducing costs by restructuring the operational system to one that incorporates DX technology.

Heavy machinery (Load Haul Dump, LHD) used for loading ore and gangue are operated by remote control in some areas, but the majority of operations, including driving, are carried out by an operator on board. Automated and remote operation of heavy machinery allows one person to operate multiple units from a remote-control room, reducing the need to work in the dusty and hot environment of the mine. In addition, maintenance costs for heavy machinery are expected to be reduced through stable driving and operation.



Heavy machinery for testing automated and remote operation

CASE-2

Remote Operation from the City and Autonomous Trucks (Quebrada Blanca 2 Project)

The Quebrada Blanca 2 Project (Chile) incorporates a variety of technological solutions to further improve safety, sustainability, productivity, and cost reductions. For example, an Integrated Operations Centre (IOC) will be established in the remote location of Santiago, the capital, to consolidate all the resources and data needed for decision-making and to help achieve better operational performance.



Integrated Operations Centre (IOC)

We are currently piloting a mix of conventional and new autonomous trucks, but will eventually transition to operating solely with autonomous trucks. The main benefits of autonomous trucks are improved operational efficiency and utilization of the hauling fleet, as well as improved safety by eliminating human error through unmanned operation.



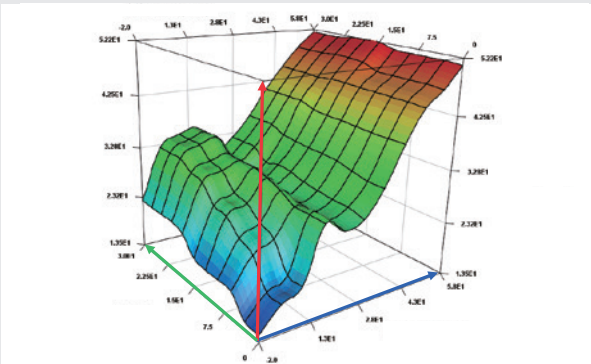
Autonomous truck

CASE-3

Operational Improvements through Data Analysis (Taganito HPAL Nickel Corporation, Toyo Smelter & Refinery)

The SMM Group is promoting the use of digital data analysis technology to support operations at our plants in the Smelting & Refining Business.

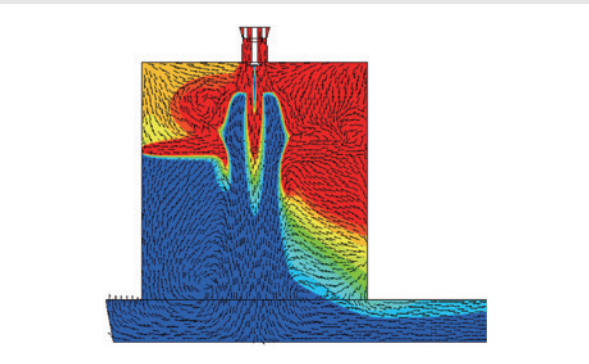
At THPAL, nickel raw materials and sulfuric acid are added into an autoclave, which is a pressure vessel, and made to react using high-temperature steam. We are analyzing multi-variable process data from the autoclave, developing numerical models to enable appropriate operational adjustments, and studying their application to operations.



Results of process data analysis

At the Toyo Smelter & Refinery, thermal analysis simulations are being conducted to improve the combustion efficiency of copper concentrates (raw materials) in the flash furnace, and are being used to develop a burner for copper concentrate reactions.

We are aiming to further enhance operational management technology by efficiently and intensively analyzing process data at each site using AI technology and other means at our business sites inside and outside Japan.



Thermal analysis simulation

CASE-4

Use of Remote Terminals in Maintenance Operations (Niihama Nickel Refinery)

The Niihama Nickel Refinery is equipped with a Wi-Fi service area that covers almost all areas of the refinery site, and is promoting the use of Wi-Fi to improve the efficiency of maintenance operations.

We are striving for higher quality maintenance work by having our maintenance staff carry tablets and smart phones to input inspection data and check maintenance records, procedure manuals, and other materials on site as needed. This is made possible by an application developed by the Research & Development Department of our Engineering Division. In addition, a Wi-Fi-compatible vibrometer has been installed to monitor abnormal vibration of the main electric motors, and the analysis results are used for predictive maintenance to help prevent unexpected problems.



Generator inspection