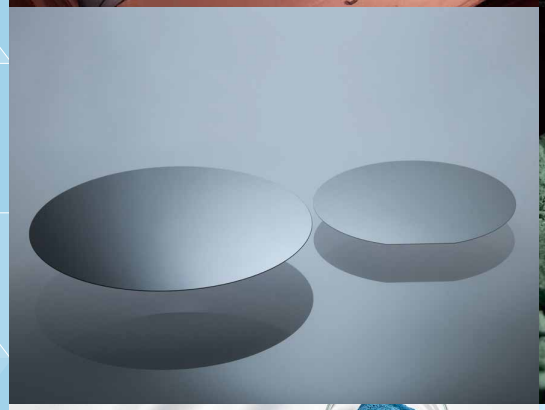
Medium- to Long-Term Strategy for Value Creation

In fiscal 2025, the Company launched the 3-Year Business Plan 2027 (3-Year Plan 27), which ends in fiscal 2027.
The 3-Year Plan 27 anticipates a challenging business environment, but seeks sustainable growth of corporate value based on a commitment to *MONOZUKURI* (manufacturing and operation).


Changes in the 3-Year Business Plan

We have been focusing on strengthening our corporate structure through selection and concentration since the Corporate Revitalization Plan (FY2000 to FY2001), which was created in the year after the JCO criticality accident in 1999, and the 2001 2-Year Business Plan (FY2002 to FY2003). Under the 2003 3-Year Business Plan (FY2004 to FY2006) and beyond, we have been turning toward growth strategies based on large-scale projects and reinforcing the competitiveness of our core business to achieve our Long-Term Vision.

There have been some projects that did not result in major successes, such as the participation in planning for the Sierra Gorda Copper Mine (transferred in 2022) and the feasibility study on the Indonesian Pomalaa Project (discontinued in 2022). The Cote Gold Project and the Quebrada Blanca 2 Project, in which we decided to participate during our 2015 3-Year Business Plan (FY2016 to FY2018), have been delayed from initial plans due to impacts from the COVID-19 pandemic and other factors, but started to contribute to our performance during the 2021 3-Year Business Plan (FY2022 to FY2024).

Going forward, as we put to use the results from our previous initiatives and experiences, we aim to further improve our corporate value and work to promote and monetize various projects.

2015 3-Year Business Plan (FY2016 to FY2018)

Long-Term Vision	**Become the world leader in the non-ferrous metals industry and an excellent company of Japan**
Results	**Mineral Resources** • Incurred a large impairment loss at the Sierra Gorda Copper Mine due to a production slump and increase in costs • Entered into the Cote Gold Project • Acquired interest in the Quebrada Blanca 2 • Transferred the Pogo Gold Mine interest **Smelting & Refining** • Completed 36-kt production structure at Taganito HPAL • Commercialized scandium and chromite recovery • Achieved 450-kt electrolytic copper production volume • Completed 49-kt nickel sulfate production structure • Began Pomalaa Project Definitive Feasibility Study (DFS) **Materials** • Completed 4,550-t/month battery material production structure • Completed increase of LT/LN production structure • Developed nickel oxide powder for fuel cell electrodes • Entered into silicon carbide (SiC) business • Withdrew from lead frame business • Increased number of outside directors, appointed female directors • Implemented International Financial Reporting Standards (IFRS), commenced integrated report publication
Issues	• Enhancing and improving site management capability manufacturing and operational capabilities and management capability • Creating new products and businesses • Securing and developing the human resources to support growth

2018 3-Year Business Plan (FY2019 to FY2021)

Long-Term Vision	**Become the world leader in the non-ferrous metals industry**
Results	**Strengthen the growth foundation of core businesses (Mineral Resources, Smelting & Refining, Materials)** **Mineral Resources** • 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 **Smelting & Refining** • Decided to discontinue feasibility study on the Indonesian Pomalaa Project in April 2022 **Materials** • Concluded a transfer contract with Sumitomo Osaka Cement Co., Ltd. to acquire their lithium iron phosphate (LFP) battery materials business on May 1, 2022 **Strengthen 3-business collaboration centered on cathode materials for batteries** • Decided to construct a new battery plant in 2021 (construction to be completed during the 21 3-Year Plan) • Established a new recycling process with the ability to recycle copper, nickel, cobalt, and lithium **Strengthen corporate functions** • Enhanced responsiveness to changes in the business environment through organizational restructuring • Rebuilt the organizational culture by renewing the Head Office • Enhanced SR (Shareholder Relations) activities for institutional investors
Issues	• Missed the 18 3-Year Plan safety-related initiative target of less than 5 occupational accidents in Japan (FY2021 recorded 20 accidents) • Accelerating the search for new nickel deposits and consideration of new projects in response to the discontinuation of feasibility study on the Indonesian Pomalaa Project • Strengthening the value chain of the 3-business collaboration (for Ni–batteries), including recycling

Changes in the 3-Year Business Plan

2021 3-Year Business Plan (FY2022 to FY2024)

Long-Term Vision

Become the world leader in the non-ferrous metals industry

Four challenges

Challenge 1 Increasing corporate value —Promotion of large-scale projects

- Expanding production capacity for battery cathode materials
- Quebrada Blanca(QB)2 project
- Cote gold mine development project
- Pomalaa Project (discontinued)

Challenge 2 Improving core business sustainability

- 3-business collaboration to strengthen the value chain for Ni-batteries
- Shifting Hishikari Mine to sustainability-oriented operation
- Enhancing competitiveness of copper-smelting business
- Strategy for advanced materials business expansion

Challenge 3 Adapting to changes in the social environment

- 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 4 Strengthening the foundation of business management

- Strengthening safety initiatives
- Reorganizing and enhancing sustainability promotion framework
- Corporate governance

Results and issues

Evaluation △

- Construction of the new battery materials plant proceeded as planned, and the startup of production on some lines was moved forward.
- Startup of both the QB2 and Cote gold mine development projects were delayed due to restrictions on movement imposed during COVID-19 and adverse weather conditions. In addition, costs were higher than planned due to global inflation. Full contribution to earnings was also delayed until the 3-Year Plan 27 period.

Evaluation △

- Decided to construct a recycling plant for lithium-ion secondary batteries.
- Completed new hot water treatment equipment at Hishikari Mine and started mining of the lower body. Continued exploration of nearby mines to acquire new ore reserves.
- Systematically expanded Toyo Smelter & Refinery facilities and implemented GHG reductions.
- Decided to build an SiC 8-inch mass production line.
- Developed new markets for near-infrared absorbing materials (launched the SOLAMENT™ material technology brand).

Evaluation ○

- Released roadmap for achieving carbon neutrality by 2050.
- Promoted energy-saving activities, LNG conversion, introduction of biomass fuels, and switch to electricity derived from renewable energy sources, etc.
- Formulated and created a DX infrastructure grand design for the next generation and deployed generative AI company-wide.
- Strengthened recruitment of new graduates and implemented strategic mid-career hire recruiting.
- Reviewed and revised the managerial track personnel system.
- Refined the human resource development program in line with managerial track personnel system revisions.

Evaluation ×

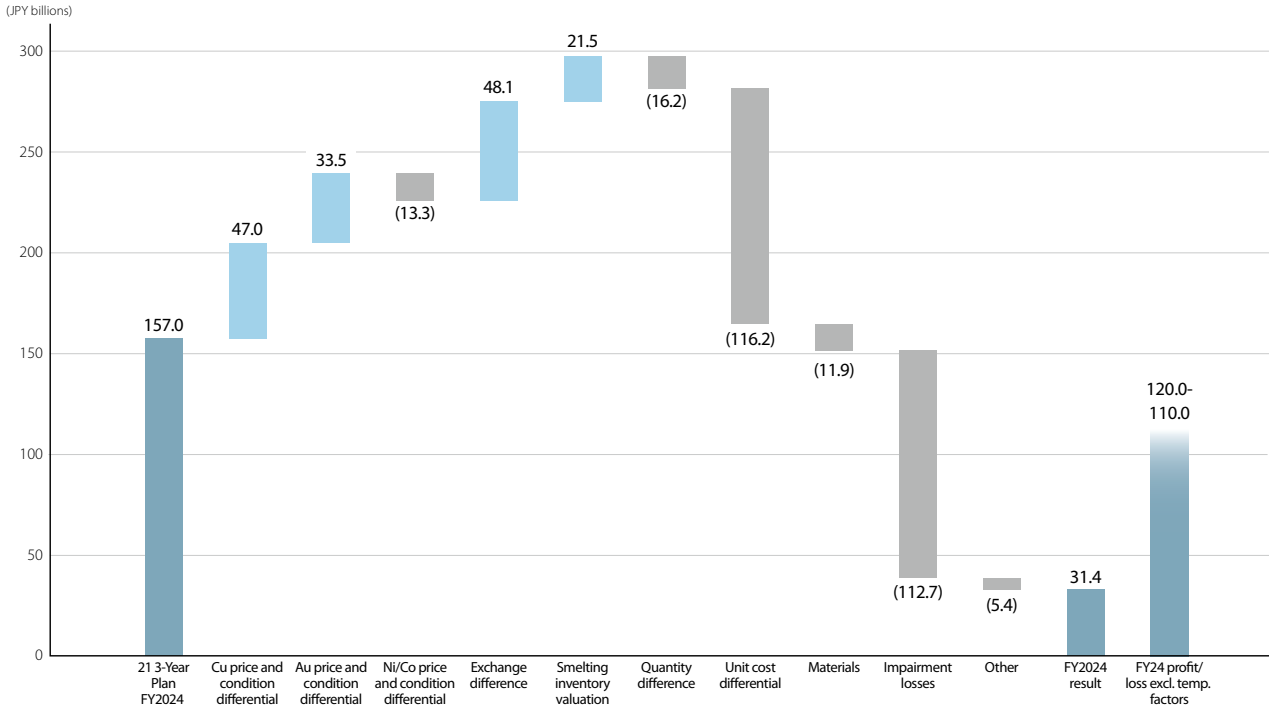
- Serious accidents are decreasing, but the target was not achieved.
- Began granting shares to members of the Employee Stock Ownership Association to increase sense of belonging with the Group and interest in its management.
- Reviewed material issues and Vision for 2030 (March 2025).
- Adopted return on capital employed (ROCE) as an indicator for business portfolio management and started its operation.
- PBR remained below 1.0x for a prolonged period of time.

Changes in the 3-Year Business Plan

Review of 21 3-Year Plan: Summary of Results

In FY2024, the final year of the 21 3-Year Plan, metal prices and exchange rates were better than anticipated in the plan, but profit before tax was substantially lower than the plan, due to rising costs, the recording of impairment losses in the Battery Materials Business and the Smelting & Refining Business as a result of impacts from changes in the business environment, and other factors. The Quebrada Blanca Copper Mine and Cote Gold Mine contributed to revenue, but both mines failed to meet their planned production volumes due to startup delays from the original schedules caused by effects from the COVID-19 pandemic and other factors. In addition, operational material and energy costs surged and cost unit prices increased, pushing down profit. As a result, profit excluding temporary factors did not reach the level anticipated at the time of formulation of the 21 3-Year Plan.

Profit before Tax Analysis (FY2024 result vs. 21 3-Year Plan FY2024)



Consolidated results

JPY billions

	FY2024 result	21 3-Year Plan FY2024	Change
Net sales	1,593.3	1,116.0	477.3
Profit before tax	31.4	157.0	(125.6)
Equity method profit/ loss	8.7	62.0	(53.3)
Net income attributable to owners of parent	16.5	118.0	(101.5)
Company-wide ROCE (%)	0.8%	6.6%	(5.8pt)

Metal prices and the exchange rate

	FY2024 result	21 3-Year Plan FY2024	Change
Copper ($/t)	9,370	8,000	1,370
Nickel ($/lb)	7.51	7.50	0.01
Gold ($/toz)	2,585	1,600	985
Exchange (JPY/$)	152.58	115.00	37.58

What Is Profit/Loss Excluding Temporary Factors?

Prices of non-ferrous metals (such as copper and nickel) which the Group deals in are determined in trading markets represented by London Metal Exchange (LME), and our profit and loss is characterized by the fact that they are significantly influenced by the market environment, including economic trends. Further, when prices of non-ferrous metals rise, the differences in timing of buying and selling causes profit to exceed standard levels, and likewise when prices decline profit to fall below standard levels.

Therefore, we show the profit/loss excluding temporary factors as the profit/loss excluding the impact of gains/losses arising from fluctuations in non-ferrous metal prices or foreign exchange rates, as well as the impact of special factors during the period concerned.

Changes in the 3-Year Business Plan

Review of 21 3-Year Plan: Segment Profit

Mineral Resources Business

Production volumes decreased at gold and copper mines and costs for operational materials, energy, and other expenses increased due to effects from inflation, but performance exceeded the 3-Year Plan due to rising copper and gold prices combined with weakening of the yen against the U.S. dollar.

Smelting & Refining Business

In addition to higher costs for operational materials, energy, and other expenses due to effects from inflation, nickel and cobalt prices fell more than expected. Also, factors such as the recording of impairment losses at a subsidiary (Coral Bay Nickel) caused the results to fall short of the 3-Year Plan figures.

Materials Business

Results for the Materials Business were below the plan values due to a slower than expected market recovery in the Advanced Materials Business, increased costs for the launch of a new plant in the Battery Materials Business, recording of impairment losses associated with future product type changeover, and other factors.

Segment Profit

JPY billions

	FY2024 result	21 3-Year Plan FY2024	Change
Mineral Resources	101.8	99.0	2.8
Smelting & Refining	(7.1)	48.0	(55.1)
Materials	(54.2)	15.0	(69.2)
Other and Procurement	(9.1)	(5.0)	(4.1)
Total	31.4	157.0	(125.6)

Review of 21 3-Year Plan: Business Portfolio Management

Starting with the 21 3-Year Plan, we conduct business portfolio management using return on capital employed (ROCE) as an indicator for each business unit (consolidated basis). If a business falls below the benchmark value during the plan period, it is designated as a "business requiring confirmation of continuation," and during the subsequent two years, we conduct business continuity verification, improvement, and transformation. In principle, the final decision is made the following year, with the Board of Directors periodically monitoring the status of the businesses.

The ROCE benchmark value for the 21 3-Year Plan period was set at 5.5%. The ferronickel business in the Smelting & Refining segment and the LT/LN business in the Materials segment failed to reach the benchmark value and were designated "businesses requiring transformation under the 3-Year Plan 27. For other businesses as well, there were increases in capital employed due to profit deterioration and rising construction costs for large-scale projects, resulting in significant remaining challenges in terms of capital efficiency.

3-Year Business Plan 2027

The three year period from FY2025 to FY2027 covered by the 3-Year Plan 27 comes at a critical juncture for realizing our Long-Term Vision to "Become the world leader in the non-ferrous metals industry," during which we will enhance our *MONOZUKURI-RYOKU* (manufacturing and operational capability) to regain profitability and rebuild a foundation to sustainably increase corporate value. Under the 3-Year Plan 27, we will also actively pursue initiatives to "sow the seeds" for future growth while simultaneously overcoming current issues, thereby aiming to realize our Vision for 2030 and our Long-Term Vision to "Become the world leader in the non-ferrous metals industry."

Basic approach

The business environment around SMM is facing changes on an unprecedented scale, with increasing uncertainty about future prospects

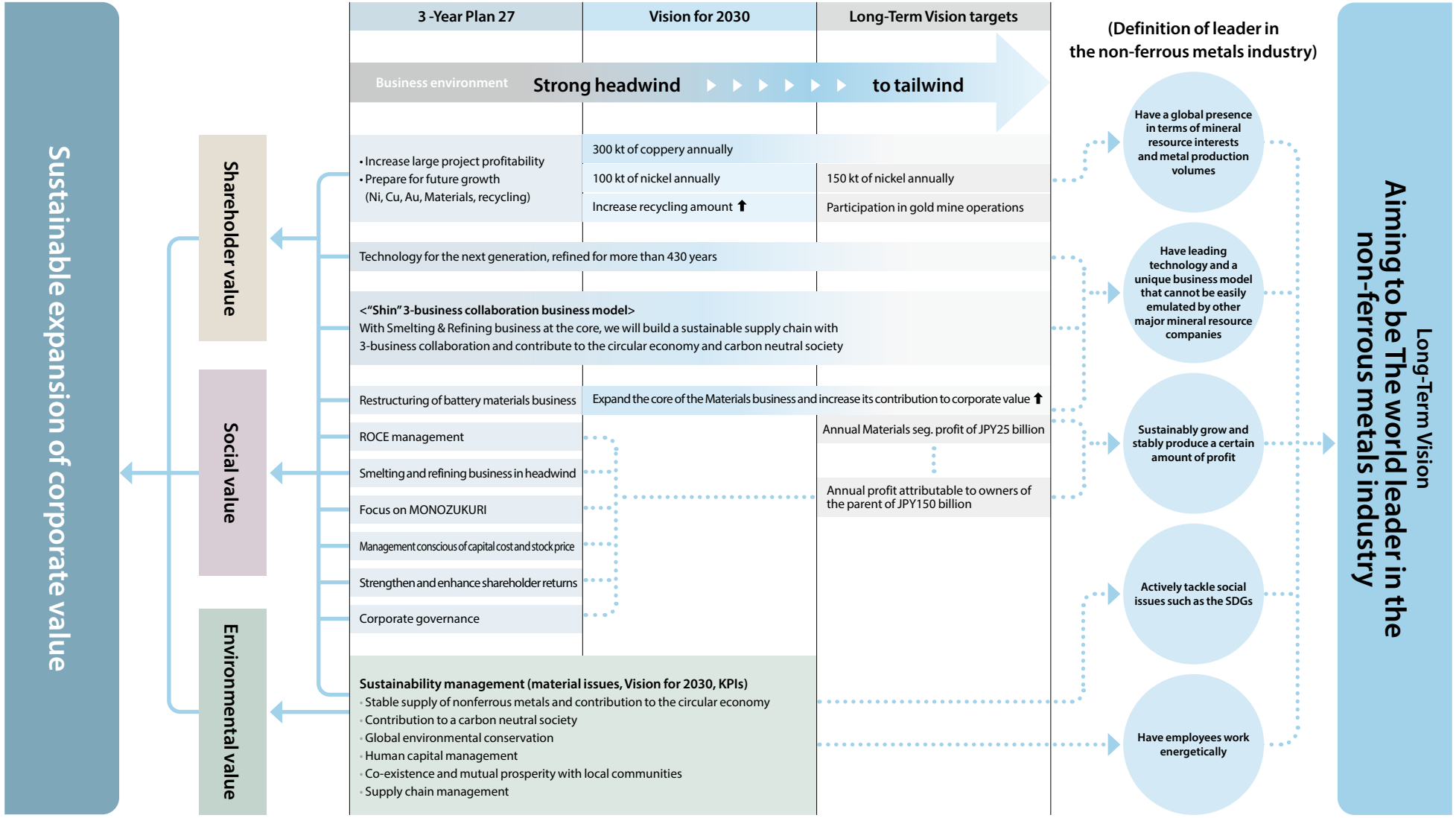
- Prolonged oversupply due to increased nickel production in Indonesia
- Slumping copper concentrate purchase terms (TC/RC) due to supply shortages and new copper smelter opens
- Drastic changes in the battery materials business environment
- Rising uncertainty in the global economic outlook
- Increases in capital expenditures and unit costs

While this challenging business environment, which could be characterized as a "strong headwind," will persist for some time, we anticipate that a "tailwind" will manifest in the medium to long-term

- Demand for non-ferrous metals (copper/nickel) will continue to grow; supply will also increase, but suppliers who cannot withstand the price level will be eliminated (anticipated balance after 2030)
- TC/RC will also return to a level where supply (production of smelters) can be maintained to meet demand (anticipated situation after 2030)
- Trends such as carbon neutrality, xEVs, hydrogen economy, and the use of AI will advance steadily, increasing uses for materials business products

3-Year Business Plan 2027

Overall Picture of Long-Term Plan



3-Year Business Plan 2027

Key measures

Measures	Initiatives	Refer to this page for more details
1. Addressing Changes in the Business Environment	**1. Realization of contributions by the Quebrada Blanca Copper Mine and Cote Gold Mine** • Working with joint venture partners to stabilize operations and further improve production efficiency	P.61
	2. Rebuilding the Battery Materials business • Switch to High-Ni cathode materials • Rebuilding the structure to match the business scale and focusing on thorough efficiency improvements and cost reductions	P.68-70
	3. Enhancing the competitiveness of the Smelting & Refining business • Ferronickel structural reform: New nickel matte production furnace. Production of nickel matte in addition to ferronickel to improve the capacity utilization of existing facilities • CBNC: Focus on reducing costs and further improving production efficiency. With the final stage of the CBNC project, cease of production is expected in 3-Year Plan 30 • Continuing copper smelting & refining operations at full capacity. Enhancing technological capabilities to strengthen competitiveness	P.63-66
	4. Business portfolio management (promoting ROCE management) • Actions to be taken for businesses that do not achieve the ROCE benchmark during the 21 3-Year Plan period Ferronickel business (Smelting & Refining): Operation of the nickel matte production furnace is scheduled to begin at the end of FY2027 LT/LN business (Advanced Materials): Improve production efficiency and reduce costs by consolidating production bases and utilizing proprietary production processes • Review of ROCE benchmark We will set the ROCE benchmark for the 3-Year Plan 27 period at 6.5% (5.5% during the 21 3-Year Plan period) based on current WACC conditions	P.31
2. Preparing for Future Growth Initiative themes	**1. Promotion of growth strategies** • Kalgoorlie Nickel Project Goongaree Hub (Australia) • Winu Copper-Gold Project (Australia) • Securing new ore sources (nickel, copper, gold)	P.59-62
	2. Lithium-ion secondary battery recycling • Promotion of recycling plant construction. Operation is planned to start in FY2026.	P.67
	3. Strengthening advanced materials business • SiCkrest® bonded SiC substrate • SOLAMENT® near-infrared absorbing material	P.71-73

3-Year Business Plan 2027

Key measures

Measures	Initiatives	Refer to this page for more details
3. Assets, Technology, and Human Resources to Support Sustainable Growth	**1. Focus on *MONOZUKURI*** • Refining *MONOZUKURI-RYOKU* (earning power) not only at manufacturing sites but also across all business activities Evolving and deepening business model, maintaining and strengthening relationships of trust with partners, procurement cost reduction, development of efficient manufacturing processes, acquisition of intellectual property rights, equipment/operation problem reduction, occupational accident reduction, X-MINING (an initiative to cocreate new value), brand power improvement, proper budget management, thorough risk management and compliance, fostering and instilling a free and open corporate culture, etc.	–
	2. Digital transformation (DX)	P.80-86
	3. Human capital management	P.88-94
4. Maintaining and Strengthening of the Management Base	**1. Sustainability Management**	P.33-40
	2. Carbon Neutrality	P.100-102
	3. Management with an Awareness of Capital Costs and Stock Prices	P.31.52
	4. Strengthen and Enhance Shareholder Returns	P.53
	5. Corporate Governance	P.112-125

3-Year Business Plan 2027

Key Management Indicators

Profit before tax

FY2027:

JPY 140.0 billion

- Realization of contributions by the Quebrada Blanca Copper Mine and Cote Gold Mine
- Establishment of a system for the Smelting & Refining business aimed at realizing a circular economy
- Battery Materials business undergoing structural reform
- Growth of the Advanced Materials business

Capital expenditures/ Investment and financing

3-Year Plan 27 aggregate:

JPY 437.0 billion

Future Investment*1: JPY46.0 billion

Growth investment: JPY150.0 billion

Investment in maintaining and updating facilities: JPY241.0 billion

Ensure steady execution for the next stage of growth

*1 Green innovation + DX investment

Strengthening and upgrading shareholder returns

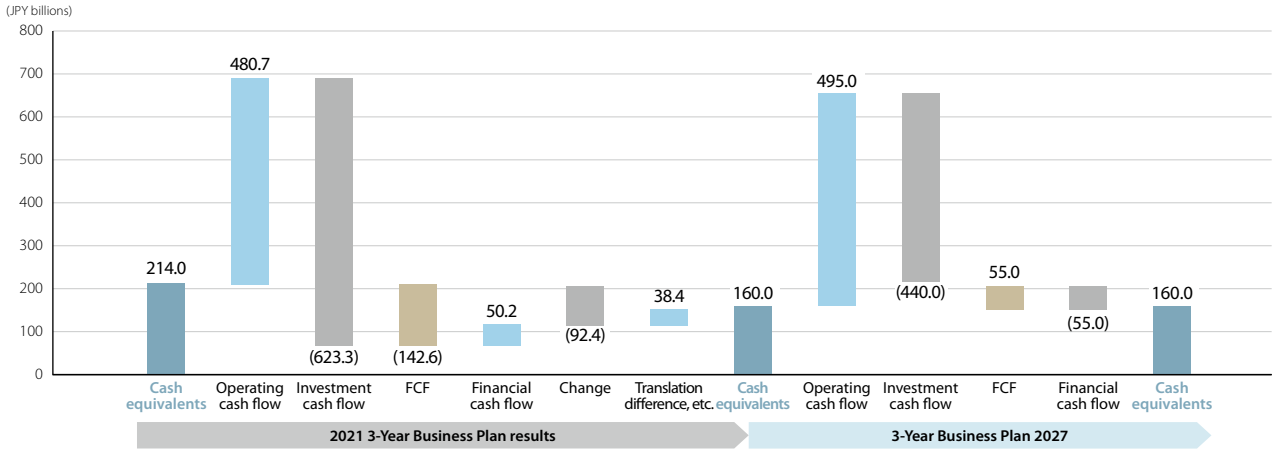
In principle, dividends from surplus shall be paid at a consolidated dividend payout ratio of 35% or more, with a lower limit indicator of

DOE2.5%.*2

*2 Annual total dividends ÷ (total equity attributable to owners of the parent at the end of the previous fiscal year - other components of equity at the end of the previous fiscal year)

Flexible purchase of treasury shares

Cash flow



Consolidated results

JPY billions

	3-Year Plan 27 FY2027	FY2024 result	Change
Net sales	1,380.0	1,593.3	(213.3)
Profit before tax	140.0	31.4	108.6
Equity method profit/loss	46.0	8.7	37.3
Net income attributable to owners of parent	98.0	16.5	81.5

Segment profit/loss

JPY billions

	3-Year Plan 27 FY2027	FY2024 result	Change
Mineral Resources	120.0	101.8	18.2
Smelting & Refining	4.0	(7.1)	11.1
Materials	13.0	(54.2)	67.2
Other and Adjustments	3.0	(9.1)	12.1
Total	140.0	31.4	108.6

Segment ROCE

	3-Year Plan 27 FY2027	FY2024 result (preliminary figures)	Change
Mineral Resources	8.1%	5.4%	2.7pt
Smelting & Refining	0.3%	–	–
Materials	2.9%	–	–
Company-wide basis	4.4%	0.8%	3.6pt

Assumptions for metal prices and exchange rates during 3-Year Plan 27 period

	3-Year Plan 27 FY2027	FY2024 result	Change
Copper ($/t)	9,400	9,370	30
Nickel ($/lb)	7.50	7.51	(0.01)
Gold ($/toz)	2,400	2,585	(185)
Exchange rates (JPY/$)	140.00	152.58	(12.58)

3-Year Business Plan 2027

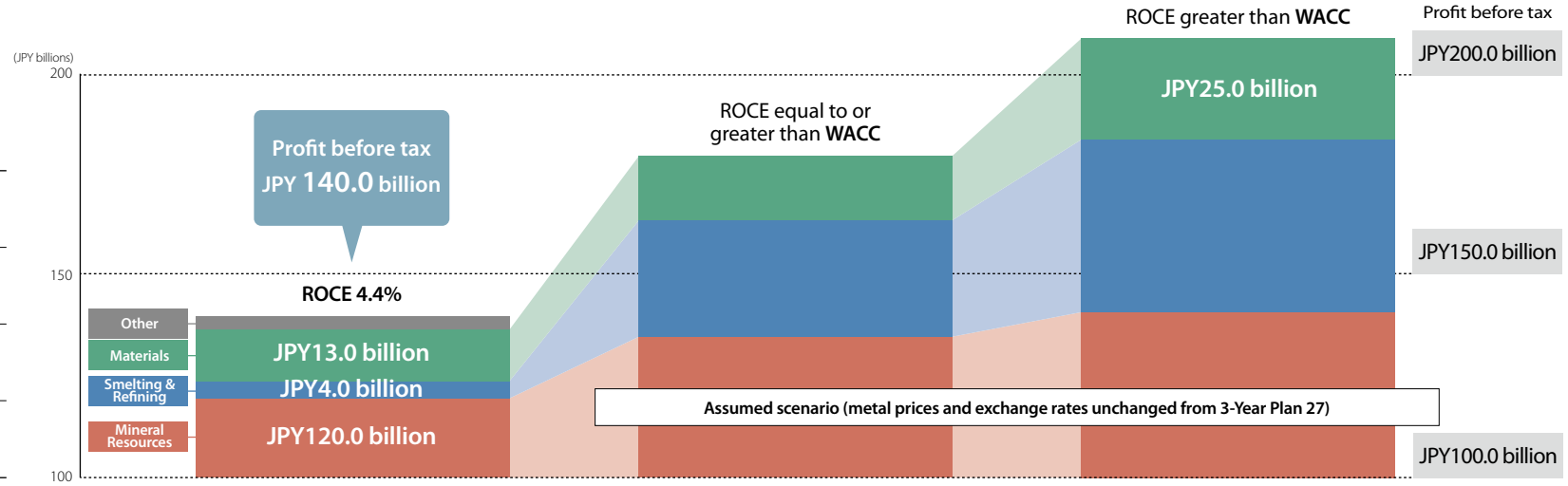
Future Vision: Vision for 2030/ Profit/loss at realization of Long-Term Vision

While we anticipate that the challenging business environment will persist throughout the 3-Year Plan 27, we also expect non-ferrous metal prices to recover and TC/RC to improve to appropriate levels in the medium to long term, alongside an improvement in the supply/demand balance. We have estimated the projected profit/loss scenario at achievement of the goals of our Vision for 2030 and our Long-Term Vision under this renewed "tailwind" business environment. We have based metal prices and exchange rates on the assumptions under the 3-Year Plan 27, reflecting an anticipated recovery of TC/RC.

	3-Year Plan 27/FY2027	Achievement of the Vision for 2030	Achievement of the long-term vision
Copper Interest Production	250 kt/year	300 kt/year	300 kt/year
Nickel Production	80 kt/year	100 kt/year	150 kt/year
Gold			Participation in new mine operations
Materials			Profit before tax: JPY25.0 billion/year

Assumption (=3-Year Plan 27)

Copper price ($/t)	9,400
Nickel price ($/lb)	7.50
Gold price ($/toz)	2,400
Exchange rate (JPY/$)	140.0



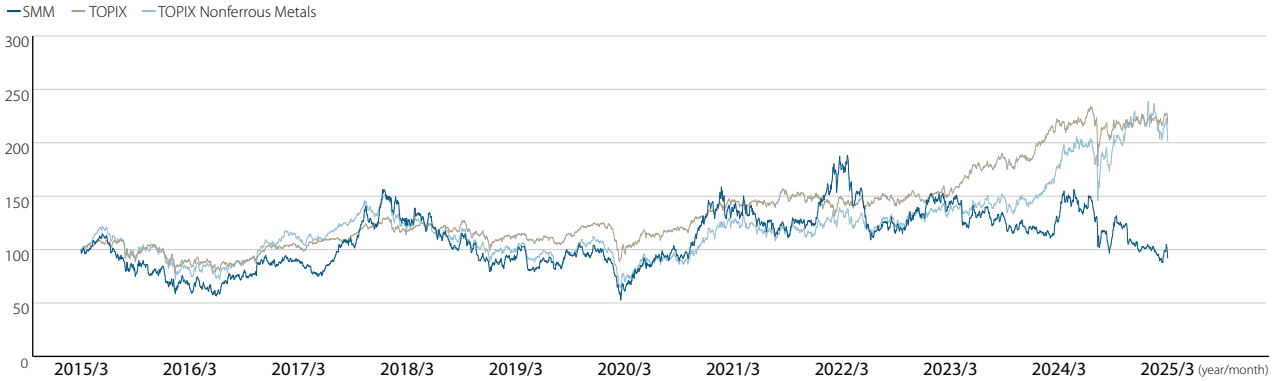
3-Year Business Plan 2027

Management Conscious of Capital Cost and Stock Price

SMM recognizes that the persistent decline in our PBR to below 1.0x stems is mainly from the following factors: first, the time required to reap the full benefits of strategic investments made under the 21 3-Year Plan; and second, the diminished valuation of our business model in the context of heightening uncertainty surrounding market conditions for non-ferrous metals and highly-advanced materials.

While we concentrated management resources on growth investments during the 21 3-Year Plan, we recognize that our growth strategy was in its early stages. Consequently, we were unable to adequately respond to market demands for enhanced shareholder returns and our attempts to account for this matter were insufficient.

Share Price (Share prices calculated with share price at the end of March 31, 2015 set to 100)



Share Price Performance (TSR)

Investment period	1 year	3 years		5 years		10 years	
	Cumulative and Annualized	Cumulative	Annualized	Cumulative	Annualized	Cumulative	Annualized
SMM	(27.0%)	(40.7%)	(16.0%)	83.7%	12.9%	25.4%	2.3%
TOPIX	(1.5%)	47.2%	13.8%	113.4%	16.4%	117.4%	8.1%
TOPIX Nonferrous Metals	11.8%	49.0%	14.2%	166.1%	21.6%	101.4%	7.3%

Source: Bloomberg

*1 TSR (Total Shareholder Return): Calculated using ([share price at the end of the fiscal year ended March 31, 2025] – [share price at the end of the fiscal year X years previous to the fiscal year ended March 31, 2025] + [total cash dividend per share for the relevant period]) ÷ [share price at the end of the fiscal year X years previous to the fiscal year ended March 31, 2025].

*2 TOPIX and TOPIX nonferrous metals use indices that include dividends, and accordingly, dividends are not added to the calculation

We are aware that WACC is currently around 6-7%, while shareholders' cost of capital is around 8-9%. Considering the challenging business environment projected for the period of the 3-Year Plan 27, ROCE and ROE for FY2027, the final year of the plan, are not expected to reach the cost of capital.

We will steadily execute the 3-Year Plan 27, the term of which we are positioning as a three-year period to overcome our most pressing challenges and lay the foundation to achieve our long-term vision. We are also committed to pursuing improved capital efficiency while maintaining a sound financial standing with an eye toward our next growth investments.

Furthermore, by building a sustainable supply chain through 3-business collaboration with Smelting & Refining business at the core, we will establish and strengthen the "Shin" 3-business collaboration business model that will contribute to the realization of a circular economy and carbon neutral society while strengthening and upgrading shareholder returns with consideration for our financial strategy and capital allocation.

Major Initiatives

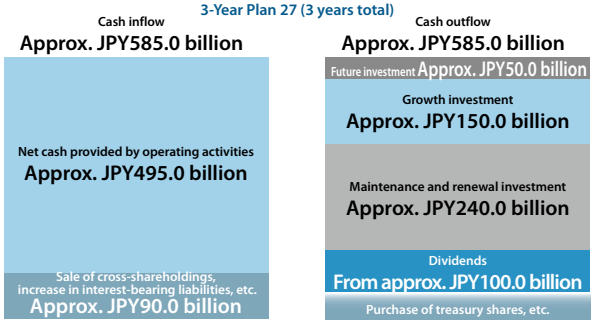
- Invest in growth areas while maintaining financial soundness
- Enhance *MONOZUKURI-RYOKU*, and thoroughly eliminate *Muri*, *Muda* and *Mura* (non-value adding, wasteful, and uneven production activities)
- Pursue capital efficiency, including streamlining inventory assets and reducing cross-shareholdings
- Improve capital efficiency by promoting ROCE management
- Revise our shareholder return policy
- Strengthen sustainability management to achieve our Vision for 2030
- Further enhance communication with the market, including improving disclosure of information on growth businesses

3-Year Business Plan 2027

Capital Allocation

Including the Quebrada Blanca 2 Copper Mine Development Project, which we acquired an interest in in FY2018 and began operation in 2024, and the Cote Gold Mine, which we commenced construction on in 2020 and began operating in 2024, we have had an ongoing series of large-scale investment and financing starting with our 18 3-Year Plan and continuing up through our 21 3-Year Plan, causing cash outflow to stay at a high level. However, with operations commencing at both mines, we will enter the phase when they will become substantial profit contributors during the 3-Year Plan 27. As for our next-phase growth investment projects, full-scale investment in both the Winu Copper-Gold Project, which is currently under consideration, and the Kalgoorlie Nickel Project is expected to commence during the 3-Year Plan 30 or thereafter. We will make sure to implement investments necessary for the future growth during our 3-Year Plan 27. However, considering circumstances such as these, we will raise our DOE lower limit for dividends to 2.5% to bolster shareholder returns. At the same time, following our implementation of a purchase of treasury shares from May to August 2025, we will continue to maintain flexibility in conducting further such purchases going forward.

Cash Inflow/Cash Outflow



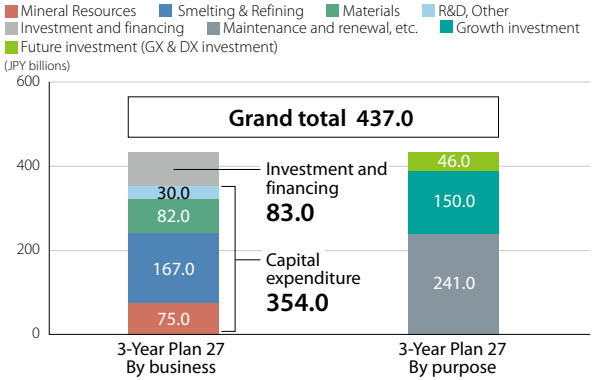
Cross-shareholdings

We will continue to sell shares positioned as cross-shareholdings as we move forward, with the aim of reducing the ratio of cross-shareholdings to 10% or less of consolidated net assets, excluding PT Vale Indonesia (PTVI), by the end of March 2028. After that, we will aim to maintain the ratio at 10% or less, even with the inclusion of PTVI shares. We expect that interest-bearing liabilities will rise due to procurement and debt exceeding repayment obligations. P.125

Capital expenditures/Investment and financing

We are planning capital expenditures and investments and financing totaling JPY437.0 billion during the 3-Year Plan 27. We have also scheduled major growth investments for the Winu Copper-Gold Project and the Kalgoorlie Nickel Project (both in Australia), the construction of a nickel matte production furnace at Hyuga Smelting Co., Ltd., as well as investments related to the switch from existing Lithium Nickel-Cobalt-Aluminum Oxide (NCA) to High-Ni NMC in the Battery Materials Business. In addition to these projects, we intend to implement systematic investment to maintain and update facilities, as well as future investment such as that in Green Transformation (GX) and Digital Transformation (DX).

Capital Expenditure/Investment and Financing (By Business and Purpose)



Return to Shareholders

For shareholder returns, we have previously adhered to the principle of maintaining a dividend payout ratio of 35% or more. However, starting from FY2023, during the 21 3-Year Plan, we set the lower limit of our DOE to 1.5% or more.

During the term of the 3-Year Plan 27, in addition to maintaining our dividend payout ratio at 35% or more, we will raise the lower limit of our DOE to 2.5% or more, commencing with the dividend for the year ended March 31, 2026 (FY2025). We have also elected to calculate DOE as 2.5% of the difference of equity attributable to owners of the parent at the end of the previous fiscal year and other components of equity in order to mitigate forex and other factors causing temporary fluctuations in market conditions. Consequently, we have forecast the dividend for FY2025 (May) at JPY131 per share.

Financial Strategy

Basic Policy

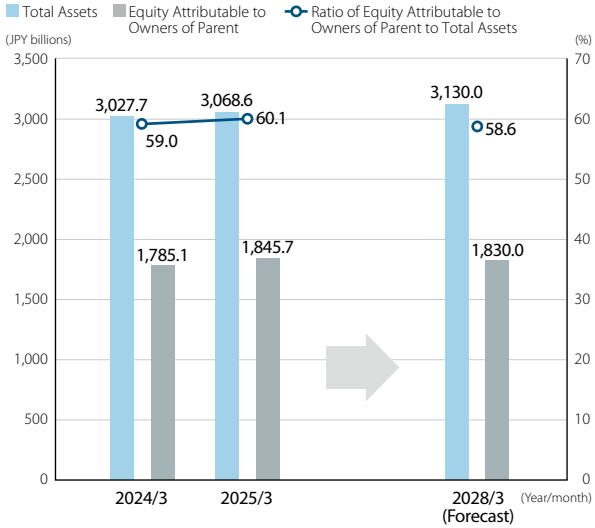
As the non-ferrous metals that the SMM Group deals in are resources that can become depleted, we must constantly think about acquiring new resource interests and be prepared to participate in large-scale development projects or carry out M&As. Mineral resources and smelting & refining development projects, including the construction of new smelters and refineries, involve relatively long periods of time between execution and recovery of investment. In addition, the development of new resources is becoming increasingly difficult due to higher altitudes and greater depths, and in recent years, costs for material, labor, and so on have risen, causing investment amounts to soar. Accordingly, given the nature of our businesses, 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.

Forecast as of March 31, 2028

At the end of March 2028, the final year of our 3-Year Plan 27, we anticipate that our consolidated equity ratio will fall by 1.5 points from the end of March 2025, the final year of our 21 3-Year Plan, due to our efforts to bolster shareholder returns and our forex assumption that the yen will gain in strength.

For the sake of preparing for the various projects that we are reviewing for our 3-Year Plan 30 and beyond and for other new projects, we will continue maintaining a consolidated equity ratio of 50% or more as our basic policy. Once we have ensured that sound financial position has been preserved, we will also endeavor to bolster shareholder returns.

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



Outside Directors' Tripartite Discussion

Deepening discourse to enhance corporate value and envisioning the ideal form of the Board of Directors

Taeko Ishii
Outside Director (center)

Ms. Ishii registered as a lawyer in 1986 and is a member of the Dai-Ichi Tokyo Bar Association. She is particularly knowledgeable about legal practice concerning labor issues and has written many published works. She has served as an outside director of SMM since 2018, making proposals mainly about compliance and the empowerment of women.

Manabu Kinoshita
Outside Director (right)

Mr. Kinoshita has served in various positions, including senior executive vice president of NEC Corporation. He has been an outside director of SMM since 2020, making proposals that capitalize on his knowledge of the digital field and experience in the development of solutions through joint creation with other industries.

Koji Takeuchi
Outside Director (left)

Mr. Takeuchi played a leading role in the electronic materials business of Ajinomoto Co., Inc. and its group companies. He has been an outside director of SMM since 2024, utilizing his rich knowledge and experience in the field of electronic materials and making proposals relating to R&D and the Materials Business.

Outside Directors' Tripartite Discussion

The individual thoughts of the outside directors concerning FY2024 results and issues

Kinoshita: In a nutshell, FY2024 was a year of much soul-searching. Being the final year of the 2021 3-Year Business Plan [21 3-Year Plan; FY 2022–24], it was an important year for questioning our plans. Unfortunately several of our goals were not achieved, and our share price continued to stagnate. There were various background reasons for this sluggish share price: for example, the schedule delays in our overseas mine development projects, and our tardy response to environmental changes as symbolized by impairment loss of the battery materials business. At the end of the day, however, I think the main reason is that we failed to get the capital market and investors to understand SMM's growth strategy. As a member of the Board of Directors, I feel responsible in this respect.

Ishii: As Mr. Kinoshita said, owing to the delays in overseas projects and other factors, a sense of future uncertainty has continued over the past few years. But my impression is that things have calmed down since the end of last year, and at last we have emerged from what has been a long tunnel. I hope that it will be harvesting time soon. At the same time, though, the immediate business environment is severe, so I think we must continue to be on our guard.

Takeuchi: I joined the Board of Directors in June of last year. As my honest impression of the Board of Directors, I feel that there should be more opportunity for discussions about specific businesses. Although I worked for a food product company previously, I was engaged in the electronic materials business, a domain that differed from its main business, and I think my experience has plenty in common with SMM's Materials Business. Therefore, I think I can make effective proposals as an outside director.

What role did outside directors play in the process of compiling the new 3-Year Business Plan?

Kinoshita: Regarding Mr. Takeuchi's comment about the need for more discussions, we have broadcast this matter in the evaluation of the effectiveness of the Board of Directors and so on. As a result, in the process of compiling the 3-Year Business Plan 2027 [3-Year Plan 27; FY 2025–27], we were able to have discussions from wide-ranging perspectives, including issues and reflections on the 21 3-Year Plan. I think that point deserves praise. For example, regarding the PBR below 1.0x, we held repeated discussions about a management perspective that takes account of capital cost and share price, debating such matters as the present state of capital cost, and those discussions led to compilation of the 3-Year Plan 27.

Ishii: My impression also was that it was an extremely thoughtful compilation process. The supply of information was mindful from the stage of preparing for discussions, and the opportunities for discussions and time provided were plentiful. I think the results are evident in the output.

Kinoshita: I think three points were given particular emphasis in the compilation: First, as shown by recent comments about the importance of human capital management, the growth of employees leads to growth of the Company. Second, the business portfolio must be optimized through ROCE [return on capital employed] management. Finally, work reform involving DX [digital transformation] is essential to make our employees

nimbler. What do you two think?

Ishii: I devoted a lot of attention to human capital management too. During the 21 3-Year Plan we did tackle revision of the personnel system for managerial track employees. But SMM is a company with a long history, so reform is difficult. And attitudes differ on how to take in a new system. Continued discussions are needed to come up with a system that pleases everyone.

Kinoshita: In practice it is our employees who implement the policies outlined in the business plan, so we need to explain things carefully so that every employee is convinced of the content and its significance and see themselves as stakeholders.

Takeuchi: I was particularly interested in the Materials Business. To use some harsh language, it seems to me that employees in this business have an attitude of concentrating too much on the

Outside Directors' Tripartite Discussion

work immediately before them. Especially in R&D, you need to have a stance of foreseeing trends and developing the required technologies ahead of society. In addition, it is necessary to look at the industry as a whole, be aware of our differences compared with rival companies, and focus on areas in which we can display a competitive advantage.

Ishii: Mr. Takeuchi has many years of experience in steering R&D on the ground, so that comment comes straight from the horse's mouth! Whether or not they have such a stance greatly influences employees' motivation, doesn't it?

Takeuchi: Motivation is not going to rise with research that just tries to catch up with the leading technology of other companies. If you want to become the foremost presence in some field, it is necessary, ahead of other companies, to get a hold on information about needs that have not yet surfaced in society and respond. If they set about their work with an attitude of capitalizing on their strengths to create things that do not yet exist in the world, the morale of the R&D team should increase naturally. I want to demonstrate the experience I had in my previous job to provide support in this respect.

What is the ideal form of the Board of Directors to contribute to enhanced corporate value?

Kinoshita: The non-ferrous metal resources handled by SMM are essential for the solution of social issues. But resources are finite, and looking from a global perspective, securing them is going to become increasingly difficult from now on. As stated in the 3-Year Plan 27, continuing to fulfill our mission as a social infrastructure company while emphasizing the perspectives of a circular economy and carbon neutrality will lead to the enhancement of our corporate value.

Ishii: That said, as shown by our share price recently, the fact is that SMM's corporate value is not being properly appraised by the capital market. We have tried to enhance shareholder returns in recent years, but my impression is that our efforts have been rather textbookish and have not resonated very much in the market. Indeed, the market has a grim view of future trends in the battery materials business and so on.

Kinoshita: The enhancement shareholder returns is important, of course, but I don't think that is the essence. Naturally, how much you can earn from your main business is the top priority. In addition to polishing our MONOZUKURI-RYOKU [manufacturing and operational capabilities] and building a setup that constantly yields a profit, the important thing is to make investors feel that this company has a bright future. In this sense, I think the ideal form of the Board of Directors is being questioned.

SMM adopts a management model in which the Board of Directors is the decision-making body. Because the Board of Directors engages in repeated discussions and makes decisions in the name of everyone, it tends to be unclear where responsibility lies, and the speed of management can slow down. I think we should change to a setup in which authority is delegated to executives who are required to make decisions speedily on the ground and the Board of Directors takes care of larger policies and strategies.

Ishii: I agree that the present management model has reached its limits. SMM's businesses all require expert knowledge and experience on the ground, so, to be honest, it is difficult to have practical discussions in the Board of Directors. As Mr. Kinoshita says, we should move in the direction of entrusting management to worksites and emphasizing monitoring in the Board of Directors.

Kinoshita: Since entrusting actual business to the executive side is the only way forward, we are moving in the direction of discussing in the Board of Directors how to respond to requests from stakeholders.

I think the biggest issue in the present Board of Directors is its tardiness in responding to change. Compared with the Mineral Resources Business and the Smelting & Refining Business, the Materials Business in particular faces a volatile market, so a mechanism is required in which authority is delegated to people on the ground to raise the speed of management, and risk management is firmly in place too.

Takeuchi: Absolutely. In the Mineral Resources Business and Smelting & Refining Business the products that are handled, such

Outside Directors' Tripartite Discussion

as copper and nickel, are decided, and we compete over quality, price, and so on. But in the Materials Business, by contrast, the starting line for our thinking is the question of what products are required. The business models are essentially quite different, so naturally a mechanism is needed in which authority is delegated in each business and decision making is carried out on the ground by each one.

Kinoshita: To be even sterner, I would say that SMM's sales at present are no more than just waiting for customers to make requests. Listening to the requirements of customers is important, of course. But particularly in the Materials Business, an approach of creating value ourselves that is useful to customers and making proposals accordingly is needed. For this purpose, as I have said time and time again, it is necessary to increase customer contact points and to have diverse customer contact points, including overseas. By repeating a creative dialogue with customers, including dialogue involving top management, and strengthening proposal activities, we should be able to build win-win relations with them.

Ishii: While we want the Mineral Resources Business to take a broad view, as the two of you have pointed out, we want the Materials Business to speed things up. That's the tricky part. I think we must give even more thoughtful explanations so that the capital market understands these unique business characteristics at SMM.

The role that each outside director can play toward future growth

Kinoshita: Although I said some harsh things, I do think that SMM is an extremely good company. The employees are serious and honest. Perhaps because it is a company with traditions, though, they also tend to be on the conservative side, which can lead to a wait-for-instructions attitude. On this point, as a measure for human capital management, the 3-Year Plan 27 includes activities to improve engagement. I welcome this as a big step forward. Engagement is closely associated with an open and vibrant organizational climate. I hope that this engagement will foster a challenging organizational culture that encourages employees to think for themselves and implement ideas with responsibility. Capitalizing on the experience I gained in my previous work, I want to contribute to a reform of attitudes so that our employees see work as something that is "tough but enjoyable."

Takeuchi: I always say that work must be enjoyable. Innovation does not come from instructed tasks. If employees engage in their work with the idea that "If I change my work like this, I can change the world like this," then work naturally becomes enjoyable. SMM has always had talented employees, so if the number of employees engaging in their work with this kind of attitude increases, they are sure to grow even more.

Personally speaking, in my previous job I was involved mainly in areas that differed from the company's main business, and never once was I told what to do by the company. Recently I had the opportunity to talk to young employees about my experience, and they took it very positively. I think it is necessary to increase such opportunities to hear talks not only by us outside directors but also by more people from outside the Company.

Ishii: I also have been given the opportunity to talk to young female managerial staff, and I felt that many of them had an extremely forward-looking drive. In this day and age, I think "sustained growth" is synonymous with "reform" and "challenge," so we need to have more broad-mindedness to tolerate challenges by young employees, including failures. Reform is maybe difficult, because SMM is a company with a long history. But nevertheless, we must change what should be changed. In particular, I want to offer support so that the young generation can be adventurous.

Mineral Resources Business

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

Hideyuki Okamoto,
Managing Executive Officer,
General Manager of Mineral Resources Div.

Competitive Advantages in the Mineral Resources Business

- A portfolio made up of highly cost competitive assets (Large-scale deposits with abundant resources, good locations, advanced facilities, and good relationships with local communities)
- Advanced technological capabilities that enable effective operations under restrictive conditions
- Long-term relationships of trust and partnership with major mineral resource companies
- Organized and systematic development of human resources and cultivation of talented mining engineers with experience in domestic operating mines

Overview of FY2024

Looking back on FY2024, we see this as a year focused on expanding our portfolio and strengthening our partnerships with major resource companies. This included moving ahead with the ramp-up toward full production at the large-scale projects under the 21 3-Year Plan, namely, the Quebrada Blanca 2 Project (Chile) and the Cote Gold Development Project (Canada). We also engaged in initiatives for participation in the Winu Copper-Gold Project (Australia) to expand our copper interests.

For the Quebrada Blanca 2 Project, molybdenum concentrate production commenced in March 2024, with the first shipment of copper concentrate arriving at the Toyo Smelter & Refinery in May. A ceremony to mark the inaugural shipment was held with management from our partner, Teck Resources Limited, in attendance. Subsequently, the project achieved the completion conditions stipulated in the project finance agreement formulated for this initiative, culminating in the release of SMM's guarantee of obligation. We are currently working toward the early stabilization of operations, with the aim of establishing full-scale production capacity.

We commenced production at the Cote Gold Development Project at the end of March 2024, and by August the average mineral processing volume over 30 consecutive days exceeded 60% of the design capacity, marking the transition to commercial production. During this period, in May, an opening ceremony was held at the mine site, at which, together with our partner IAMGOLD Corporation, we welcomed the Ambassador of Japan to Canada and representatives of the local community. Work is also underway in this project for the early stabilization of operations, with the aim of establishing full-scale production capacity. At the Hishikari Mine, we produced and sold 4.0 tons of gold as planned.

Among our major overseas operating mines, production declined at the Morenci Copper Mine (United States) due to continued lower material mined. However, this was offset by stable higher production at the Cerro Verde Copper Mine (Peru).

As part of our business development initiatives, we concluded a term sheet with the major multinational mineral resources company Rio Tinto PLC for SMM to acquire a 30% interest in the Winu Copper-Gold Project, which is held by Rio Tinto PLC, and initiated exclusive negotiations in December 2024. Additionally, we signed a letter of intent with Rio Tinto PLC with the aim of exploring broader strategic partnerships, specifically those involving the identification of commercial, technical, and strategic opportunities in base metals such as copper and lithium.

Mineral Resources Business

SMM's Understanding of the Business Environment for the 3-Year Plan 27

For new mine development, the obstacles to be overcome continue to rise, while competition for the acquisition of resources is intensifying. Obstacles include the rising difficulty posed by deposits occurring in increasingly remote and high-altitude locations, as well as increasingly lower ore grades; the soaring costs of development and construction; the imposing of export restrictions on unprocessed minerals and the increasing prevalence of high-value-added policies driven by resource nationalism; and difficulty obtaining operating licenses due to diversifying stakeholder values.

In addition, with critical minerals such as battery metals and rare earths gaining prominence as new strategic resources due to the rapid advancement of digitalization and decarbonization, supply risks attributable to strengthened export controls of some countries and efforts to corral critical minerals for the development of domestic industries are becoming apparent.

In response to these developments, nations are strengthening cooperation with other countries to secure critical minerals. Multilateral frameworks such as the Minerals Security Partnership (MSP) initiated and led by the United States as well as bilateral or multilateral agreements on mineral security between Japan, the United States, Australia, India, and EU nations are advancing, and we can anticipate that these efforts will intensify further going forward.

Meanwhile, reporting on the imposition by the United States of blanket tariffs on trading partners and import duties on metals such as steel, aluminum, and copper has caused temporary turmoil in commodity markets and introduced uncertainty into global markets. This heightened uncertainty will create imbalances which are not reflective of the dynamics of market supply and demand, increasing the volatility of resource prices.

Given this state of affairs, the major resource companies which represent this industry have begun to review their portfolios in anticipation of changes such as those accompanying energy transition and now change their focus from the traditional business fields such as iron ore and various base metals toward copper businesses and battery minerals including lithium.

These circumstances mean that we will be required to secure resources stably over the long term, and to achieve this, SMM considers it imperative that we earn the trust of major resource companies as a business partner and collaborate globally to acquire resources.

Our Business Strategy Under the 3-Year Plan 27

We consider ensuring tangible contributions from the Quebrada Blanca Copper Mine and the Cote Gold Mine as the foremost priority of our business strategy under the 3-Year Plan 27. We will steadily execute the next phase of establishing a stable full-scale production system at both mines. We will furthermore proceed with debottlenecking to eliminate any impediments in capacity increase to achieve optimal production and steps toward achieving subsequent expansion.

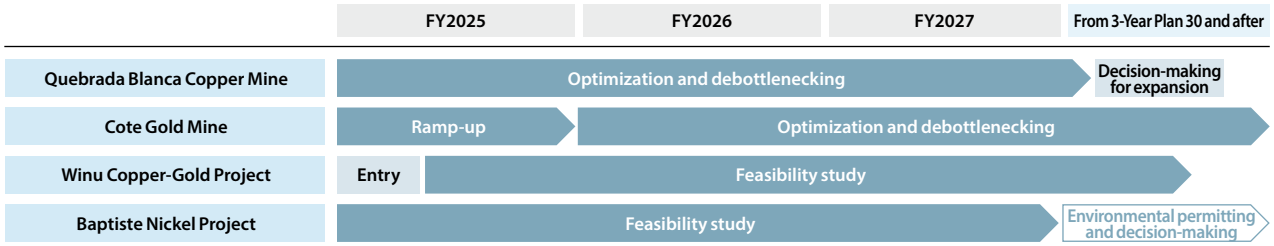
At our major overseas operating mines, we will enhance collaboration with our business partners to achieve stable operations and production, with an initial focus on improving operations at the Morenci Copper Mine, which has recently experienced persistently lower material mined.

At the Hishikari Mine, we will fully commit to efforts to expedite the transition to sustainability-oriented operations. We will promote the consolidation of infrastructure development to achieve long-term operations, while undertaking initiatives to secure mineral reserves for the maintenance of stable production, as an offset for declining ore grades, as part of our aim to achieve a "100-year mine life" at the mine.

We will also promote our ongoing exploration projects, lay the groundwork for future hands-on development and operations, and actively bolster the expansion project for the Quebrada Blanca Copper Mine and our contributions to the Winu Copper-Gold Project.

Furthermore, to secure nickel deposits, we will hasten the transition to the feasibility study stage for the Baptiste Nickel Project which we are furthering alongside Canada's FPX Nickel Corp., and actively set our sights on new participation opportunities in other sulfide exploration projects in Canada and Australia.

Timeline for Key Projects



Mineral Resources Business

Key Initiatives During the 3-Year Plan 27 Period

Early Stabilization of Contributions from Two New Mines

Quebrada Blanca Copper Mine

Ore throughput have exceeded design capacity for the first time since the commencement in November 2024 of operations at the Quebrada Blanca Copper Mine. All conditions for financial completion—including production indicators and costs stipulated in the project finance agreement formulated for this project—are met in 2025. Going forward, we will continue to engage in initiatives to address remaining operational challenges while striving for the early establishment of stable full-scale operations.

This mine is notable for its lengthy anticipated mine life of approximately 27 years of continuous operations, with copper production projected to range from 230,000 to 310,000 tons annually over the next four years.

We also plan to gradually increase processing capacities and are currently furthering studies toward achieving optimization of plant operations and debottlenecking to eliminate factors impeding efficient operations.

Cote Gold Mine

While the ramp-up of Cote Gold Mine is making progress, with the average ore throughput over 30 consecutive days achieving the design capacity of 36,000 tons/day in June 2025, we will aim to achieve our target of establishing stable full-scale production by the end of 2025.

In tandem with these efforts, work is underway to install additional crushers to increase crushing capabilities, which would constitute a bottleneck, with the aim of increasing processing volumes to exceed design capacities. We completed detailed design for another crusher in May 2025 and have now commenced foundation work for the new facility. Extension work is scheduled for completion in October 2025. We are also exploring the extension of ancillary facilities with a view to potential future increases in ore throughput.

We will continue to actively proceed with further study for the Gosselin deposit neighboring the Cote Gold Mine as we could confirm certain degree of economic viability as a result of a preliminary survey conducted to evaluate optimal development methods and economic viability for deposit.

Promotion of New Projects

We began to engage in exclusive negotiations with Rio Tinto PLC regarding the acquisition of a 30% interest in its Winu Copper-Gold Project in December 2024, which culminated in mutual agreement on a definitive agreement in May 2025.

As of the end of 2024, Winu Copper-Gold Project, the estimated indicated and inferred resources total 741 million tons, with a grade of 0.40% copper and 0.33 grams per tonne gold, containing approximately 3 million tons of copper and 250 tons of gold.

Rio Tinto plc has commenced environmental permitting process in parallel with preliminary study, for development at an annual ore processing capacity of 10 million tons.

We set out the target of an annual copper production volume from our copper interests of 300,000 tons in our long-term vision, and anticipate that the addition of the Winu Copper-Gold Project to our portfolio, alongside the Quebrada Blanca Copper Mine, Morenci Copper Mine, and Cerro Verde Copper Mine will expand the copper production capacity of our copper interests.

We also anticipate an increase in gold production from our interests, driven by the addition of gold from the Winu Copper-Gold Project to that from the ongoing operations at the Hishikari Mine and Cote Gold Mine.

Winu Copper-Gold Project (photograph courtesy of Rio Tinto plc)

Mineral Resources Business

Assets Supporting Sustainable Growth

Hishikari Mine's Emphasis on Sustainability

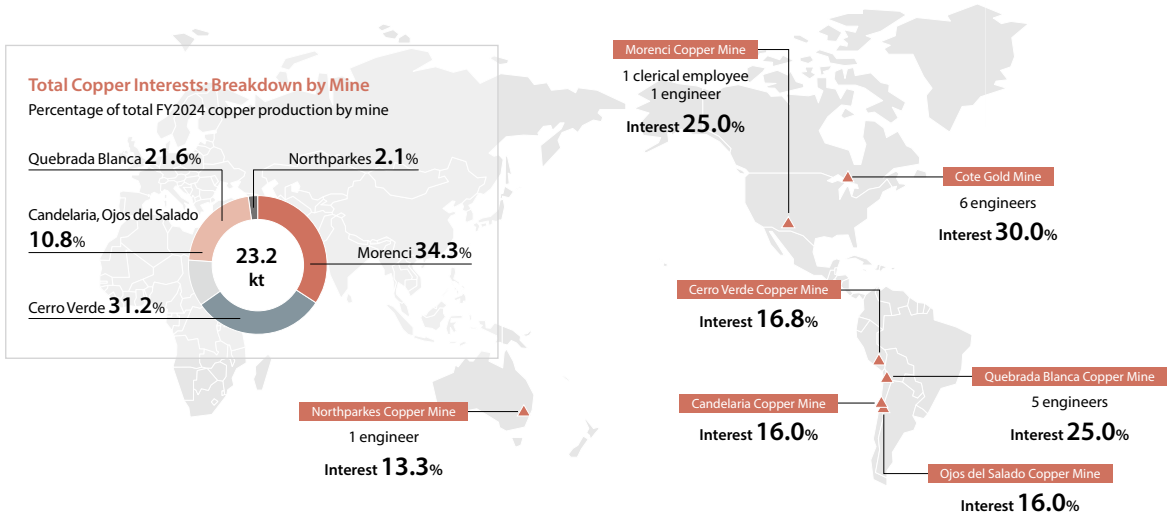
Since it started operations in 1985, the Hishikari Mine (Kagoshima Prefecture) has produced approximately 273 tons of gold as of the end of March 2025. Worldwide, the amount of gold contained in gold ore (grade) is said to be 3–5 grams per ton on average. However, the Hishikari Mine is characterized by its high grade with 20 grams of gold per ton, or about five times the global average.

Hishikari Mine's annual gold production target for FY2025 is 3.5 tons. While a decrease in production and sales volumes compared to the 21 3-Year Plan is projected under the 3-Year Plan 27, this reflects our sustainability-oriented operations based on mining at the average recoverable gold grade, and this approach enables effective utilization without wasteful leftovers for valuable resources.

Meanwhile, with approximately 40 years having passed since Hishikari Mine's opening in 1985, critical facilities are deteriorating. We are intensively promoting the replacement of facilities while actively implementing cost reduction measures including introducing DX-related facilities, such as autonomous heavy equipment.

Our goals at the Hishikari Mine are both to maintain long-term operations and become a world-class mine, and to continue serving as a training ground for the development of human resources, namely at our "Mining School", where geologists, mining engineers and metallurgists hone the skills necessary for mine operations.

Overseas Mines and Staff Dispatched to Mines (As of August 1, 2025)



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

High-quality Mines in which SMM Holds Interests

To achieve one of our long-term vision targets of 300 thousand tons of annual copper production from our copper interests, we will focus on maintaining stable production at the copper mines in which we hold interest by investigating and bringing to light challenges and enhancing our countermeasures against such challenges.

Low production volume and other matters at the Morenci Copper Mine (United States) and other mine are issues. We will address these challenges by establishing a shared awareness of issues as well as sharing their solutions with our business partners, strengthening monitoring, and consistently dispatching engineers and continuously proposing improvements.

We will continue to strive to reliably achieve planned production targets while maintaining stable operations.

Each of these copper mines is notable for the abundant potential they possess for further exploration, and we are committed to pursuing efforts to secure additional reserves to achieve extended mine life.

Smelting & Refining Business

Using our advanced technological capabilities to provide a stable supply of metal materials that support society

Masaru Takebayashi
Director,
Managing Executive Officer
General Manager of
Non-Ferrous Metals Div.

Competitive Advantages in the Smelting and Refining Business

- Technological capabilities, including HPAL technology, which we were first in the world to successfully put into practical use
- Production of high-purity nickel using a combination of HPAL technology and MCLE technology
- Stable procurement of raw materials based on SMM's superior mine interests overseas and relationships of trust with our partners
- High production capacity, and continuous expansion of those capacity, at the Toyo Smelter & Refinery

Overview of FY2024

In FY2024, we continued full-scale production as was the case in FY2023. However, production volumes of major products fell below planned levels due to facilities issues and raw material shortages. With the shortfall in planned production volumes, sales volumes also fell below planned values.

Below is an outline of three of our key topics for FY2024.

1. We commenced a definitive feasibility study (DFS) for the Kalgoorlie Nickel Project in Australia in May 2024, as a measure to secure raw materials for the establishment of a nickel business structure of 150 kt-Ni at a future point in time.
2. The spot market for treatment charges and refining charges (TC/RC), which are financing condition for copper concentrate purchases, recorded negative TC/RC (-4.3/-0.43) for the first time ever on April 20, 2024. This was caused by smelting and refining demand for copper concentrate remaining strong despite supply concerns for copper concentrate such as operations stoppages at copper mines and downward revisions to operations forecasts.

TC/RC signifies the processing fees received by smelting and refining companies and constitutes their major source of revenue. A negative (minus value) TC/RC is indicative of an anomalous situation in which smelting and refining companies are paying to engage in their smelting and refining operations. However, even under negative TC/RC conditions, the supply and demand environment for copper concentrate remained tight, falling to -40.2/-4.02 by the end of FY2024.

TC/RC also signifies the status of revenue-sharing between mining companies and smelters. However, approximately 50-60% of the copper concentrate SMM utilizes is sourced from mines in which we hold interests, meaning that 50-60% of the impact of TC/RC is offset across the entire SMM Group. Meanwhile, SMM primarily procures copper concentrate based on long-term contracts, meaning that we are not directly impacted by TC/RC conditions in the spot market. However, the environment surrounding the copper-smelting business is becoming increasingly challenging.

3. In January 2025, we acquired shares in Coral Bay Nickel Corporation (CBNC) from Nickel Asia Corporation, to make CBNC a wholly owned subsidiary. Furthermore, following a comprehensive assessment of economic viability and considering the deteriorating business environment, including stagnating nickel and cobalt prices, rising production costs, and declining ore quality, we recorded an impairment loss of JPY51.2 billion for CBNC.

Smelting & Refining Business

SMM's Understanding of the Business Environment for the 3-Year Plan 27

Increased investment in EVs and renewable energy sources including wind and solar power is anticipated amid a decarbonization trend and significant growth in demand for copper, which is indispensable for the proliferation of associated technologies, such as power transmission cables, is anticipated over the medium to long term. To meet the rising demand for copper, smelters and refineries in China, Southeast Asia, and India are expected to come online in succession, with an accompanying expansion in copper metal production capacity anticipated. Conversely, it is increasingly difficult to develop new copper mines, limiting the number of copper mine development projects, with the current copper concentrate supply shortage expected to persist. Consequently, we assume that any recovery in TC/RC conditions will take some time.

A significant increase in demand over the medium to long term in the nickel is also anticipated, driven primarily by stainless steel and EV demand. However, in the short term, supply can be expected to maintain a surplus for the time being, due to increased supply in China and Indonesia, coupled with slowing adoption rates for EVs on the demand side. Accordingly, nickel prices will likely struggle to rise, and a recovery can be expected to take some time.

Our Business Strategy Under the 3-Year Plan 27

We will pursue improvements in our profit structure which will be essential to our survival in challenging business conditions.

In the nickel business, while deteriorating market conditions are anticipated to continue for some time, we will proceed with the securing of raw materials, improving of processes, and materializing of plans for expanded production. Additionally, we will focus efforts on development of new nickel ore sources in Australia (the Kalgoorlie Nickel Project) and manufacturing of nickel mattes using raw materials such as ferronickel at the Hyuga Smelting Co., Ltd. as alternative raw materials in addition to the existing intermediate mixed sulfide (MS) produced using High Pressure Acid Leach (HPAL) technology from the Philippines.

In the copper business, we will continue improvements of facilities for the establishment of a system to increase electrolytic copper production (from 450 thousand tons per year to 460 thousand tons per year). We will also enhance our *MONOZUKURI-RYOKU* (manufacturing and operational capability) and improve productivity to enhance our competitiveness.

Additionally, for the reduction of our GHG emissions we will focus efforts on measures such as switching to low-GHG-emission fuels at some plants, acquiring non-fossil certification for electricity, and increasing the amount of low-carbon footprint (CFP) raw materials we process. We will also proceed with the construction of a battery recycling plant which will use used lithium-ion secondary batteries (LIB) as raw materials, construction of which commenced in 2024, and develop our supply chains to contribute to the creation of a sustainable circular society through the realization of "battery to battery" horizontal recycling with partner companies in Japan and overseas.

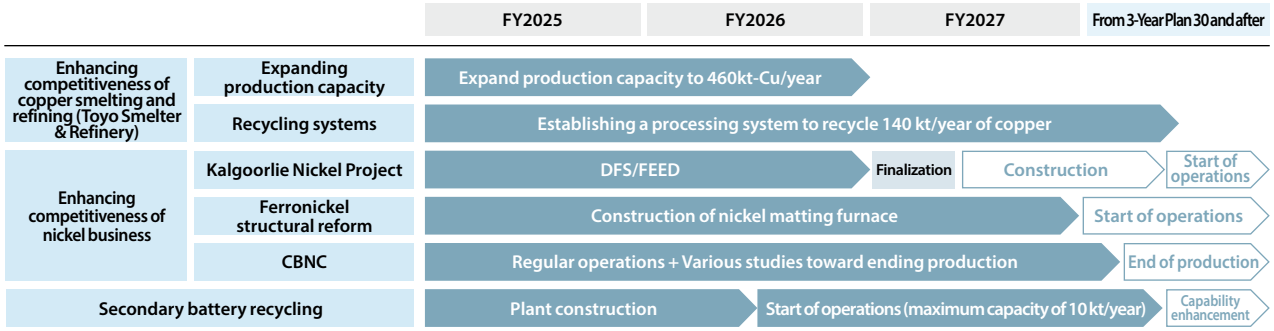
Key Initiatives During the 3-Year Plan 27 Period

Toward enhancing competitiveness

Nickel smelting and refining: Initiatives to secure raw materials

Since commencing commercial production in 2005, CBNC, the MS plant in the Philippines which serves as SMM's source of raw materials for nickel smelting, has achieved major outcomes, including the world-pioneering commercial recovery of nickel and cobalt from low-grade nickel oxide ores using HPAL technology. To date, we have continuously undertaken initiatives to reduce costs and improve productivity, positioning this facility as a key supplier of raw materials for our nickel business. However, CBNC will enter its final phase, having operated for over 20 years since the project commenced and we will advance preparations

Timeline for Key Projects

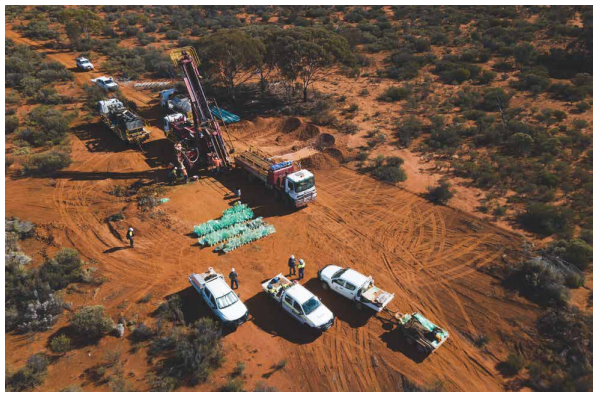


Smelting & Refining Business

in the run-up to the end of its operations during the 3-Year Plan 30 period.

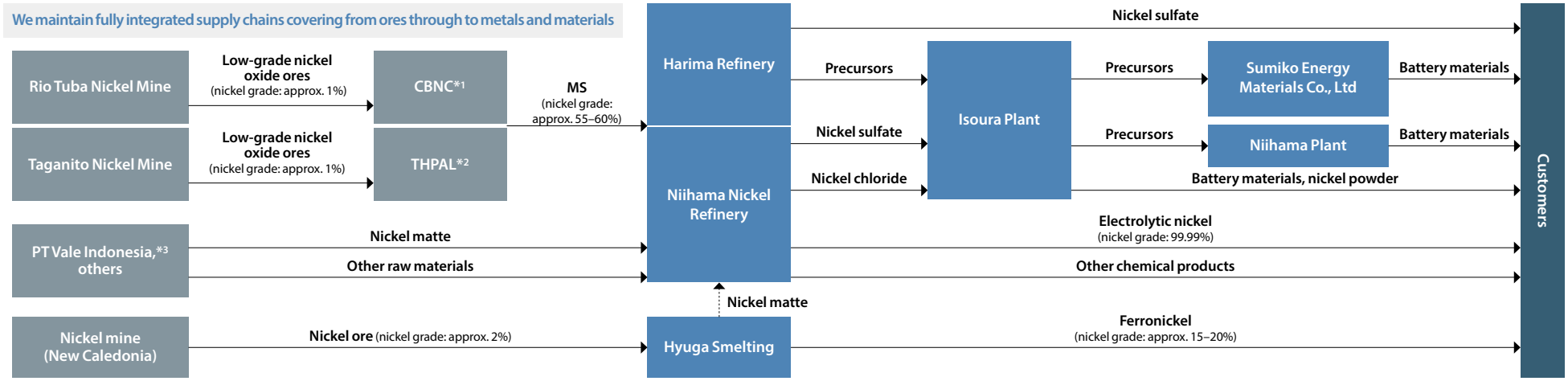
The new source of raw materials we are planning to use is nickel matte scheduled for production at Hyuga Smelting Co., Ltd. Construction of the production facilities for this is scheduled to commence in 2025, with completion set for FY2027. Hyuga Smelting Co., Ltd. currently produces ferronickel, which it primarily sells to stainless steel manufacturers. However, upon completion of this capital expenditure, it will also become newly capable of producing nickel mattes using its own ferronickel as the main raw material while maintaining its existing production and sales of ferronickel.

Additionally, in 2024, SMM and Mitsubishi Corporation newly participated in the development of the Goongarrie Hub for the Kalgoorlie Nickel Project (Australia), which is wholly owned by Australian mining company Ardea Resources Limited. Assuming this project progresses according to plan, it is intended to proceed to the front-end engineering design (FEED) stage in FY2026 following the completion of DFS in FY2025, and to reach a final investment decision (FID) in 2027. Located in Western Australia, the Goongarrie Hub is a development project which possesses among the world's largest-scale natural nickel resources. There are expectations that it will produce approximately 30 thousand tons of nickel and 2 thousand tons of cobalt annually over a period exceeding 40 years.



Kalgoorlie Nickel Project (photograph courtesy of Kalgoorlie Nickel Pty Ltd.)

Supply Chains for Realizing a Stable Supply of Nickel



*1 Coral Bay Nickel Corporation (CBNC): Shareholders: Sumitomo Metal Mining Co., Ltd. (100%). 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 (33.9%); Sumitomo Metal Mining Co., Ltd. (11.5%); others (54.6%). As of July 2024

Smelting & Refining Business

Copper Smelting and Refining: Initiatives Under Low TC/RC Conditions

While we are obliged to operate under historically low levels of TC/RC, for our copper business as a whole, collaboration with our Mineral Resources Business will partially offset the impact of low TC/RC on our Smelting & Refining Business. Toyo Smelter & Refinery, which boasts advanced production efficiency, with a flash furnace with a world-leading production capacity using a single-furnace as well as an electrolytic plant operating with one of the highest current densities* in the world, is maintaining full-scale production and remains a vital linchpin of the copper business supply chain. To further enhance profitability, we will pursue high-efficiency, low-cost operations while focusing efforts on strengthening our ability to handle raw materials with high levels of impurities with favorable contracted sales terms.

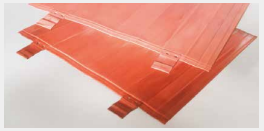
Furthermore, we have set the goal of processing 140,000 tons per year of secondary copper materials (recycled materials: copper scrap such as used copper and sludge containing copper) by 2030, which represents 30% of the ratio of secondary material processing to electrolytic copper production of 460,000 tons per year. We undertook this goal from the perspectives of reducing the carbon footprint of electrolytic copper through increasing the ratios of recycled materials and securing copper sources in response to declining grades in copper concentrate.

*A parameter expressing the current load during the electrolytic process to produce electrolytic copper

The recycled raw materials (secondary copper materials) to be utilized

SMM Group Refineries and Their Main Products

Toyo Smelter & Refinery



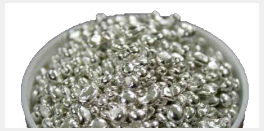
Electrolytic copper

Copper sulfate

Gold ingots

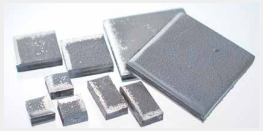
Slag sand

Gold shot



Silver shot

Niihama Nickel Refinery and Harima Refinery



Electrolytic nickel

Electrolytic cobalt

Nickel sulfate

Nickel chloride

Hyuga Smelting Co., Ltd.

Ferronickel shot

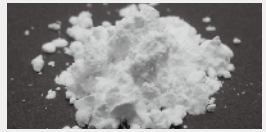
Green sand

Shisaka Smelting Co., Ltd.

Zinc oxide pellets

Coral Bay Nickel Corporation, Taganito HPAL Nickel Corporation

MS (Mixed Nickel-Cobalt Sulfides)



Scandium oxide

Chromite

Smelting & Refining Business

Circular Economy Initiatives

Resource Recovery Through Recycling of Lithium-ion Secondary Batteries

As automobiles undergo what is expected to be a rapid and long-term shift to electric drive and battery capacity becomes increasingly higher, demand is growing for the copper, nickel, cobalt, and lithium used in lithium-ion secondary batteries (LIBs) for electric vehicles, leading to calls for effective resource recycling.

Since 2017, SMM has been recovering and reusing the copper and nickel contained in LIBs through a process that combines the pyrometallurgical copper smelting processes of the Toyo Smelter & Refinery and the hydrometallurgical refining processes of the Niihama Nickel Refinery.

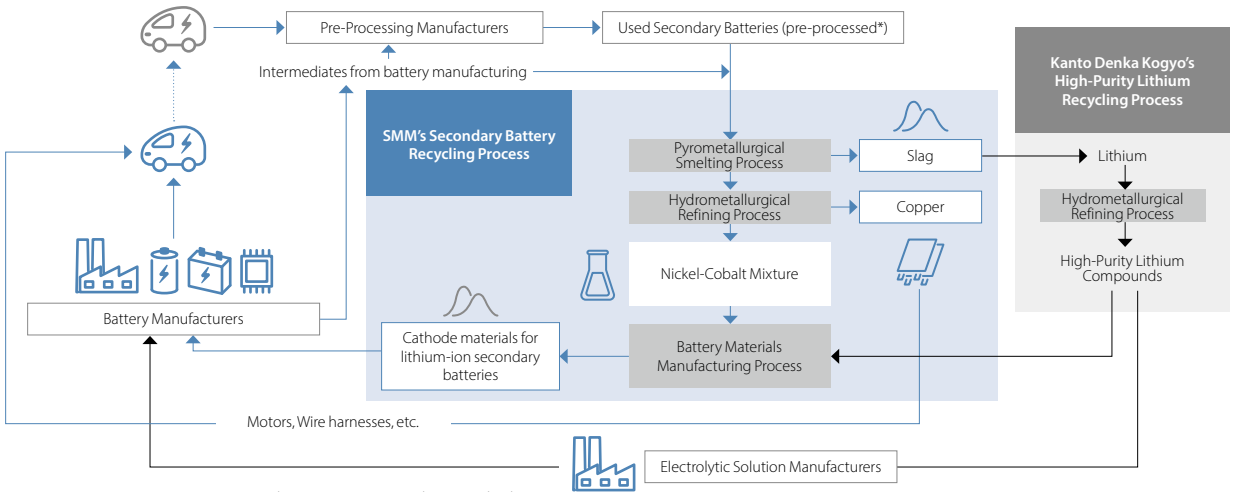
The recovered nickel is processed into a secondary battery cathode active material at the Isoura Plant, which has allowed us to realize Japan's first "battery to battery" horizontal recycling using materials recovered from used LIBs. SMM's LIB recycling process facilitates enables efficient processing of used LIBs with high impurity content by using our unique technologies that combining pyrometallurgical smelting and hydrometallurgical refining.

In 2022, through joint development with Kanto Denka Kogyo Co., Ltd., we established technology that recycles lithium from slag containing lithium into high-purity compounds, successfully developing a new process for horizontal recycling of copper, nickel, cobalt, and lithium.

Furthermore, in March 2024, we have decided to construct recycling plants to recover copper, nickel, cobalt, and lithium from used LIBs and other materials on the grounds of the Toyo Smelter & Refinery and the Niihama Nickel Refinery. Construction of the plants is scheduled to start in FY2024 (from April 2024 to March 2025) and be completed in June 2026. The capability of the facilities at the plants, which means the volume of raw material can be processed, is planned to be the equivalent of approximately 10,000 tons of LIB cells per year.

Their design takes into account handling the expecting future increase in used LIB and the metal recovery rate and recycled material inclusion rate defined in EU Battery Regulation in force since August 2023. The plants also incorporate the company's own technology for suppressing CO_2 emissions, and it shall undertake further technology development and optimization with the goal of reducing its carbon footprint. Additionally, in conjunction with the construction of the plants, we have signed partnership agreements with leading recycling companies to establish a supply chain for used LIB recycling. With this as a spur, it shall work together with the partners and accelerate its studies on a collection system for used LIB.

We shall continue with its initiatives towards establishing an LIB recycling system, and shall contribute to the achievement of a sustainable circular economy.



* Pre-processing: Heat treatment to eliminate toxins, crushing, and selection

Materials Business (Battery Materials)

Use accumulated technology to rebuild business

Munekazu Kawata
Executive Officer
General Manager of Battery Materials Div.

Competitive Advantages in the Battery Materials Business

- Our own integrated nickel supply chain from ore and smelting & refining to battery materials
- Strong ties with Japanese manufacturers of automotive LIBs
- Development capabilities for new products and processes leverage accumulated technology in the materials business

Overview of FY2024

The global market for automotive lithium-ion secondary batteries (LIBs) has grown rapidly to date, driven by policies such as government subsidies of various countries that promote the adoption of electric vehicles (EVs). The global share of EV in global automobile sales has trended upward over the past several years, reaching 15% in the fourth quarter of 2024.

As EV demand has been met to some degree recently, however, the pace of market growth is gradually slowing.

In particular, the pace of EV adoption has slowed in Europe and North America, and countries are moving to revise related policies. In the U.S., for example, a presidential order eliminating mandatory EV requirements was signed in January 2025, while in Europe, Germany suspended EV subsidies and France reduced the scope of subsidy eligibility. As a result of these developments, the growth rate of EVs is trending downward.

Meanwhile, in China, EV sales continue to trend upward, in part due to the introduction of new policies in mid-2024 intended to promote vehicle replacement. However, effects from the trade policies of various countries have created uncertainty regarding the outlook for the LIB market for xEVs. Reports indicate that China already possesses production capacity exceeding demand forecasts for several years ahead, clearly revealing a state of market oversupply. Consequently, both domestic and international players are revising their LIB-related investment plans.

Amidst this market environment, sales volumes of our battery materials (cathode materials) in FY2024 too were generally in line with the 21 3-Year Plan. To meet expected future growth in demand, we launched of a plant in Niihama, shipped certification samples in the summer of 2024, obtained customer plant certification in early 2025, and achieved mass production of 1,000 tons per month in the spring.

Going forward, we expect to shift our product types away from NCA (Aluminum cobalt lithium nickel oxide), our existing mainstay products, to high-nickel NMC products. In conjunction with this, we are proceeding with product development, establishment of mass production processes, and preparations for conversion construction work.

Also, LFP cathode materials have been expanding their market share in recent years due to their low raw material costs as well as advances in vehicle installation methods and fast charging technology. We are developing products and investigating mass production processes for LFP while conducting repeated discussions with multiple potential customers.

Materials Business (Battery Materials)

SMM's Understanding of the Business Environment for the 3-Year Plan 27

In 2024, global sales of new EVs were 10.96 million units. By OEMs share, Chinese manufacturers accounted for 55%, U.S. manufacturers 21%, European manufacturers 16%, and Japanese manufacturers 3%. By EV sales destination, China accounted for 66% (7.1 million units), followed by the U.S. at 11% (1.27 million units) and Europe at 10% (1.1 million units).

In response to expectations for EV market growth, companies primarily from China and South Korea have entered the battery materials business, with each actively pursuing investments to expand production capacity. However, as demand in the early stages of EV adoption has been largely satisfied, the EV market's growth rate has slowed, temporarily creating a state of overall production surplus.

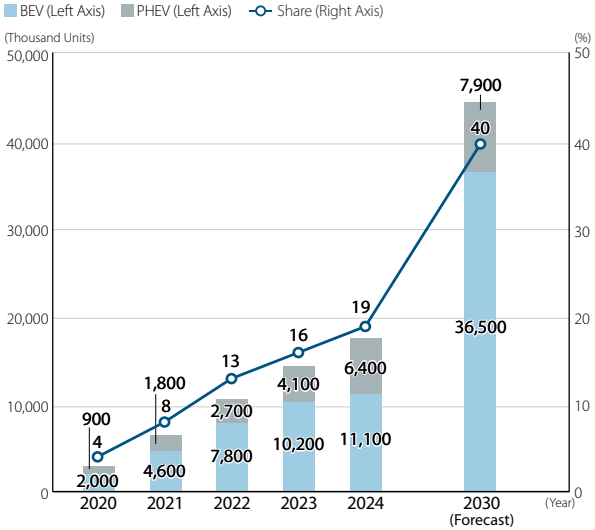
There is the view that the cathode material market is also in a temporary stagnation phase, but the electrification of vehicles is expected to progress over the medium to long term in an effort to achieve a carbon neutral society, and the automotive LIB market is expected to continue expanding.

During the period of the 21 3-Year Plan, We established a production system with annual capacity of 60,000 tons of NCA cathode material equivalent by utilizing external resources. We have also actively introduced labor-saving and other measures using DX, constructed a new plant at Niihama, which increased our cost competitiveness and secured additional annual production capacity of 24,000 tons of NCA equivalent, with operations commencing in early 2025.

However, we expect that in the future there will be a transition from NCA, which is our existing mainstay product, to high-nickel NMC cathode materials, and in conjunction with this change, production capacity is expected to decline. As a result, we recorded substantial impairment losses in the battery materials business at the end of FY2024.

In the cathode materials business, there are numerous obstacles to new market entry, including customer-specific development, mass production technology, and specialized production facilities, and as a result, new market entrants are limited. To restructure our battery cathode material business, we are steadily advancing the transition to next-generation nickel-based products, such as high-nickel NMC cathode materials, while planning facility modifications in line with these developments. Production capacity is expected to temporarily decline during the transition to next-generation products, but we aim to enhance cost competitiveness and production capacity through improvements in mass production technologies and changes to our production systems. Furthermore, in addition to developing nickel-based cathode materials, we are also conducting R&D on cathode materials for solid-state batteries as well as LFP cathode materials, with the objective of meeting diverse needs and driving future business expansion.

BEV and PHEV Sales Volume and Share of Total Vehicle Sales



* Created by our company based on data from IEA Global EV Outlook 2024 and Marklines

Timeline for Key Projects

	FY2025	FY2026	FY2027	From 3-Year Plan 30 and after
Transition to high-nickel NMC cathode materials	Preparation for mass production	Start of mass production/Productivity improvements and cost reductions		
Next-generation cathode materials for solid-state batteries	Capital investment/Preparation for mass production			Start of mass production

Materials Business (Battery Materials)

Key Initiatives During the 3-Year Plan 27 Period

Rebuilding the Battery Materials Business

- Responses to changes in product types
- Rebuilding systems in line with business scale
- Strengthening competitiveness and opening new routes by improving core technologies and using accumulated technologies
- Initiatives addressing next-generation technologies and continuous development of solid-state batteries and LFP cathode materials

Responses to Changes in Product Types

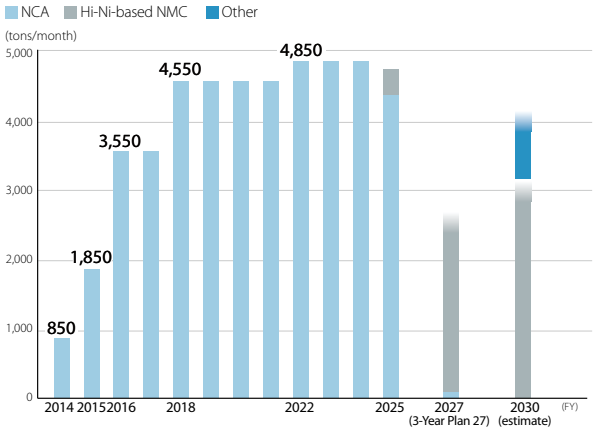
Regarding high-nickel NMC cathode materials, which are positioned as next-generation products, we plan to shift from the current continuous production method to a batch production method. The batch production method allows for more detailed adjustment of reaction times, enabling the production of products with more uniform particle size. Since it is necessary to reduce reaction speed, however, output per production cycle will decrease and overall production capacity is expected to temporarily decline. Going forward, we will advance the development of batch production technology with the objective of improving productivity.

With the transition to high-nickel NMC cathode materials and next-generation products, production volumes are expected to decline, but we will review our production systems to increase efficiency and make efforts to reduce lead times (delivery times) and cut costs. In addition, to develop cathode materials that meet diverse customer needs, we are strengthening our in-house prototyping and evaluation systems. By expanding the scope of prototype cells and raising evaluation criteria, we will seek to accelerate the development and evaluation cycle and enhance our ability to make proposals to customers.

Also, to reinforce our *MONOZUKURI-RYOKU* (manufacturing and operational capabilities), we have been advancing production innovation activities by introducing the Toyota Production System (TPS) and working to reduce inventory and shorten lead times. Going forward, we will use these prior initiatives as a foothold to expand measures to all sites and we will build autonomous inventory management systems in preparation for a more efficient pull-type production system.

We will also leverage the technologies developed in the Smelting & Refining Business to become the first in Japan to achieve "battery to battery" horizontal recycling from used secondary batteries. We are organically integrating the technologies and know-how of our three business segments to conduct R&D aimed at creating sustainable supply chains and achieving a circular economy. By fully utilizing these unique strengths, we hope to contribute to solving customer issues.

NCA, Hi-Ni-based NMC Production Capacity (including partner companies)



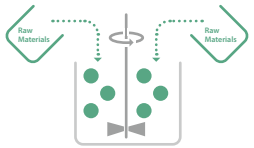
Initiatives for Next-Generation Technology

We are reinforcing the technological capabilities necessary for the development and mass production of cathode materials. Specifically, we seek to draw out the maximum performance of cathode materials by refining crystallization, firing, surface treatment, and other technologies and combining elemental technologies.

We will also make continuous efforts in improving mass production technologies and in research and development to raise our cost competitiveness. In addition, we will actively collaborate with outside companies that possess innovative technologies, such as Canada-based Nano One Materials Corporation, in which we invested in 2023, to increase the pace of technological development.

Production Flow of Battery Materials

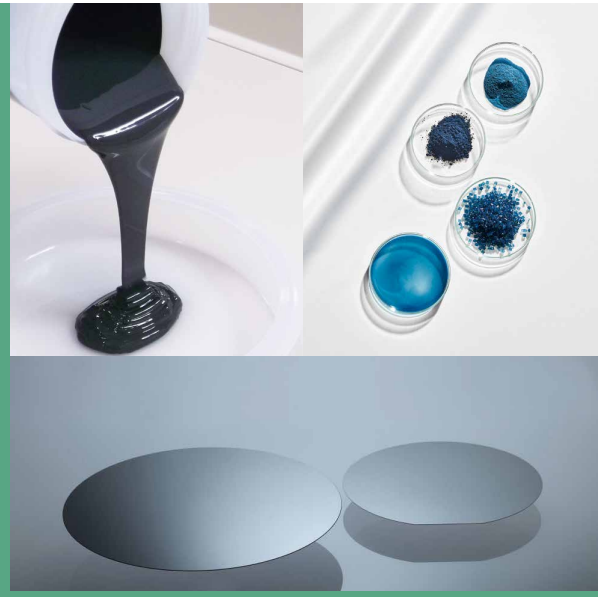
Crystallization
Mix raw materials to form particles



Calcination
Heat-treat particles

Ship as cathode material to customers

Materials Business (Advanced Materials)



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

Shinichi Sato
Managing Executive Officer
General Manager of
Advanced Materials Div.

Competitive Advantages in the Advanced Materials Business

- Provision of products by leveraging multiple core technologies (powder synthesis, surface treatment, and crystal growth and processing)
- Contributions to carbon neutrality through development and expanded sales of highly advanced materials
- Extensive lineup of products with potential for future growth

Overview of FY2024

In the electronic components industry surrounding our company during fiscal year 2024, adjustments to smartphone inventories built up during the COVID-19 pandemic response concluded, leading to increased shipment volumes and a robust demand environment. Additionally, demand for data center related applications, centered on generative AI servers, also increased.

Demand for automotive applications remained robust overall, as production volumes recovered with the easing of semiconductor shortages, despite a slowdown in the growth rate of EVs.

Under this business environment, we appropriately reviewed production plans in line with demand trends to avoid situations that could lead to reduced profits, such as missed opportunities and deteriorating asset efficiency due to inventory buildup.

While progress on some initiatives outlined in the 21 3-Year Plan has fallen behind schedule, we have steadily advanced measures related to new products and those with high growth potential.

Regarding Silicon Carbide (SiC), a key initiative, we advanced as planned toward building a mass production system with a target capacity of approximately 6,000 8-inch equivalent wafers per month in FY2025. Also, regarding CWO ™(near-infrared absorbing nanoparticles), we are developing the SOLAMENT™ brand for applications other than window films and cultivating new markets in apparel, agriculture, and other sectors.

Regarding Faraday rotators (FR) in the communications device business, we worked to address increased demand for use in data centers.

Measures to improve productivity using the Toyota Production System (TPS) in the thick film paste business (Ome District Division) and the crystal materials business (Sumiko Kunitomi Electronics Co., Ltd.), both of which we launched in FY2023, are making progress in optimizing production processes and improving and automating equipment. We expect to obtain customer certification and achieve full-scale production improvement effects in FY2025. We are also moving forward with deployment to other processes, products, and businesses.

In the advanced materials business, we seek to continuously enhance our technological capabilities in response to needs, create products that contribute to a sustainable society, and achieve high profitability by focusing our efforts on the development and increased sales of products that contribute to carbon neutrality and advanced information and communications.

Materials Business (Advanced Materials)

Understanding of the Business Environment and Business Strategies for the Terms of the 3-Year Plan 27

The electronic components market is expected to continue growing at a rapid pace driven by responses to CASE (Connected, Autonomous/Automated, Shared, Electric) and ADAS (Advanced Driver-Assistance Systems) in the automotive sector, the proliferation of smart home appliances, the full-scale adoption of 5G high-speed communications, expansion of data centers to support generative AI, and other factors. However, many businesses seek to enter the market or expand their business, and it is expected that the competitive environment will remain intense.

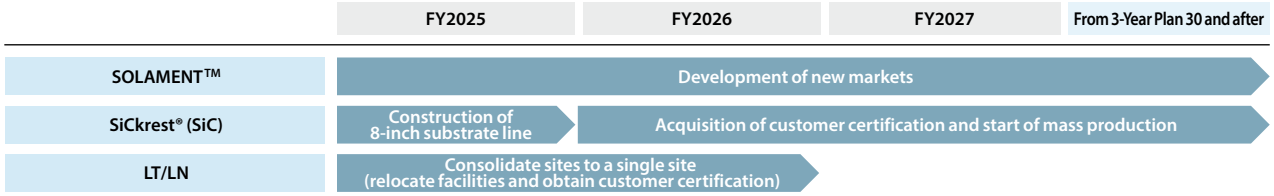
The Group's advanced materials business has been conducting business for many years on land where the Company previously operated the Mineral Resources Business and the Smelting & Refining Business, thereby contributing to mutual prosperity and development with local communities and helping to achieve a sustainable society.

Demand for the advanced materials that we handle is expected to increase even more in the future as we seek to achieve carbon neutrality and further development in the advanced information and communication sector, and as a result, these materials provide a stable revenue source unaffected by fluctuations in metal prices and exchange rates. Therefore, alongside our Mineral Resources Business and Smelting & Refining business, we will grow this business as a pillar of our operations.

Roles and Business Strategies of the Advanced Materials Business

1. Maximize profit in existing businesses	We will enhance competitiveness and profits by improving productivity through TPS and other means, cutting costs by investing in automation, and reinforcing core technologies.
2. Comprehensive portfolio management	We will clearly indicate whether to go on the "offensive" or "defensive" and execute business policies and business plans based on the business circumstances of each product in pursuit of an optimal portfolio. Offensive Businesses **Faraday rotators (advanced information and communication sector)** We will proceed with measures to address the increasing demand for use in data centers. **Optical functional materials (near-infrared absorbing nanoparticles) (carbon neutrality sector)** For heat-shielding films, we will develop the middle range market from the current upper range. For other applications, we will engage in branding (using the SOLAMENT™ brand) to develop the apparel and agricultural fields. Defensive Businesses **LT/LN (for SAW filters) (advanced information and communication sector)** We will increase profitability by consolidating two sites into one site. We will develop next-generation products.
3. Maximize profit through expansion strategies for new businesses (Carbon neutrality sector)	We will achieve mass production of 8-inch SiC (Silicon Carbide) substrates that are differentiated from competitors by bonding technology.
4. Increase the pace of new product development and achieve early market launch	We will expand the scope of products subject to the X-MINING information dissemination site to all products and develop new fields and new customers. We will conduct joint creation with competitors and other industries to bring products to market quickly without being constrained by self-sufficiency.
5. Development of management personnel and production and engineering managers	We will continue and intensify training for young engineers (to ensure transfers of technology and enhance career plans), continue marketing training for sales personnel, and implement other measures in an effort to develop the workforce needed for the advanced materials business.

Timeline for Key Projects



Materials Business (Advanced Materials)

Key Initiatives During the 3-Year Plan 27 Period

Faraday rotators

Faraday rotators (FRs) manufactured by GRANOPT Co., Ltd., a member company of our Group, are optical elements used in optical isolators that allow light to pass through in only one direction. Due to their characteristics, optical isolators have the function of preventing laser damage and noise effects from reflected light, making them indispensable for current optical communications. With the recent increase in global data traffic volume due to mobile communications and generative AI, new data centers are being established in various countries, leading to rapidly expanding demand for optical isolators that play the role of light source protection and noise reduction in optical communications.

To meet the strong demand for Faraday rotators, we will reliably supply high-quality FR to markets and contribute to the creation of global optical communication networks and the stabilization of optical communication quality.

SOLAMENT™ Sunlight Control Material

SOLAMENT™ is a material technology using near-infrared absorbing particles for which we hold patents both in Japan and overseas. Since it has the function of absorbing near-infrared rays that cause temperature increase while transmitting visible light, it has been used as material for window glass in automobiles and buildings to maintain brightness while creating a comfortable interior environment.

In recent years, we have leveraged these characteristics to expand applications in fields such as apparel and agriculture. For example, when fibers using SOLAMENT™ are used in shade cloths for agricultural greenhouses, they transmit light necessary for photosynthesis while suppressing the internal temperature increase, which is expected to promote crop growth, improve yield, and enhance working conditions. As a new initiative, we have launched the ReFarm by SOLAMENT™ project to explore methods of enriching agriculture and are conducting demonstration experiments of heat shielding effects using SOLAMENT™, our sunlight control material technology, with cooperation from multiple farmers extending from Hokkaido to Kyushu.

During the term of the 3-Year Plan 27, we plan to implement awareness-raising measures in the areas of textiles/apparel and agriculture while also focusing on acquiring specific projects to penetrate these markets.

Promotion of the Bonded SiC Business

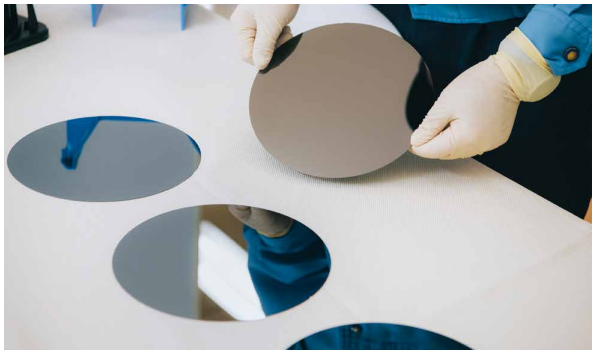
Silicon Carbide (SiC) is a power semiconductor material used in electric power control applications. Demand is expanding, primarily for electric vehicles, as an excellent material that can reduce energy loss. The market scale for SiC power devices is expected to exceed 4 trillion yen annually in 10 years, with the SiC wafer market expected to exceed 600 billion yen annually.

Our proprietary bonded "SiCkrest®" SiC substrates utilize our unique bonding technology. By bonding a thin, high-quality monocrystal onto a low-resistance polycrystal SiC substrate, the substrate achieves low overall resistance and high strength while maintaining the characteristics of monocrystal SiC. Furthermore, while manufacturing SiC monocrystal requires significant energy, this technology enables the production of over 50 bonded SiC substrates from just one monocrystal substrate. This reduces energy consumption during manufacturing while increasing supply capacity.

During the 3-Year Plan 27, we will move forward with expansion of the 8-inch production line introduced in FY2024, establishing a combined production capacity of approximately 6,000 wafers per month* for both 6-inch and 8-inch lines, and undertake sales expansion. Also, to accelerate market penetration for bonded substrates, we will expand licensing of bonding technologies and sales of polycrystalline support structures.

By deploying its bonding technology to the market in various forms, it is contributing to the efficient use of energy and reduction of greenhouse gas emissions.

* 8-inch conversion

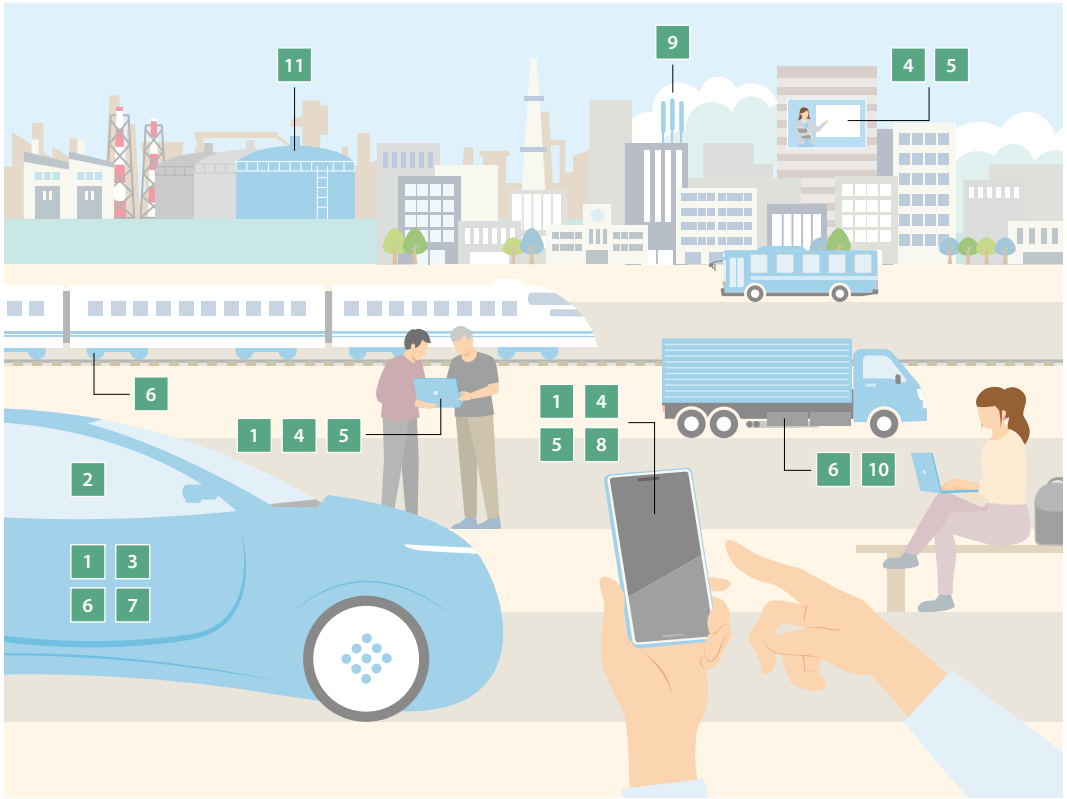


Silicon Carbide (SiC) substrates

Materials Business (Advanced Materials)

SMM Products in Daily Life

Highly advanced materials that provide metals with new functions are used in various products throughout the world, supporting social development and people's lives.



Battery Materials


1 Lithium nickel oxide cathodes for secondary batteries


1 Nickel hydroxide cathodes for secondary batteries

Powder materials

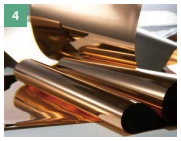

1 Nickel powder and nickel paste for multi-layer ceramic capacitors

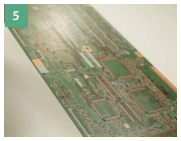

2 Heat-shielding material for windows Functional inks


3 Materials for rare earth bonded magnets for automobile motors

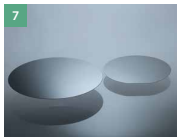

6 Lubricants

Packaging materials


4 Copper polyimide substrate for the driver ICs of LCD TVs


5 Printed wiring boards

Crystal materials


7 Direct Bonded SiC substrates SiCkrest®


8 SAW filter LT/LN for smartphones


9 Faraday rotators for communications devices

Other

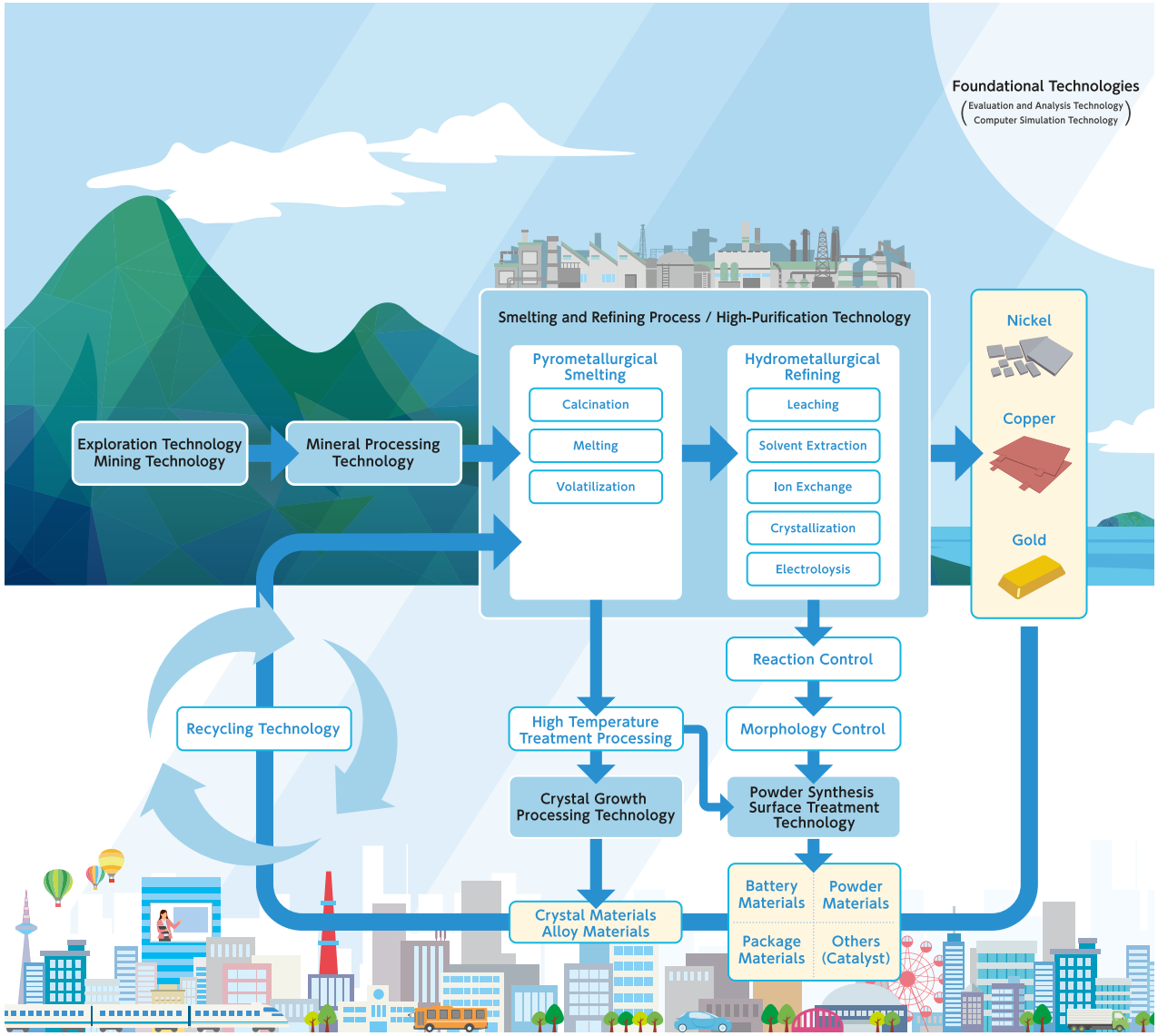

10 Auto exhaust catalysts


11 Oil refining catalysts

Research & Development

Technological Lineage of Sumitomo Metal Mining

The SMM Group started with refining technology known as "Nanban-buki," the first of its kind in Japan, developed by Soga Riemon around 1600. The technical capabilities that have been enhanced throughout the Group's history are now organically linked in our three businesses of Mineral Resources, Smelting & Refining, and Materials. The Company possesses core technologies including exploration and mining technology, mineral processing technology, smelting and refining process and high purification technology, crystal growth and processing technology, and powder synthesis and surface treatment technology as well as fundamental technologies that support these, including evaluation and analysis technology and computer simulation technology. We use exploration, mining, and mineral processing technologies in areas from searching for ore deposits to separation and concentration of valuable metals. In our smelting and refining processes, we recover high-purity nickel, copper, gold, and other metals by combining pyrometallurgy, which processes acquired ores and recycled materials at high temperature, with hydrometallurgy, which controls reactions. The application of these pyrometallurgical technologies has led to advances in crystal growth and processing technologies that are now used in the manufacture of current crystal materials and alloy materials. In addition, the chemical reaction control technologies developed through hydrometallurgical techniques have led to advanced powder synthesis and surface treatment technologies, and those are used in the manufacture of powder materials and battery materials. Furthermore, in recent years, we have leveraged the strengths of two types of metallurgy pyrometallurgy and hydrometallurgy to achieve the first in Japan "battery to battery" horizontal recycling, recovering metals from used secondary batteries. We are currently conducting research and development with the objective of building sustainable supply chains and achieving a circular economy.



Research & Development

Technology Division, which consists of three research laboratories, one research center and five departments working together, conducts research and development on strengthening and developing existing businesses, improving their competitiveness, and exploring and developing new businesses.

Research and Development Structure

Research and development sites

Niihama Research Laboratories
Development of resource and smelting and refining technologies

As the Company's sole research facility dedicated to the R&D of resource and smelting technologies, Niihama Research Laboratories works on improvement of existing mineral processing technologies and smelting processes. It also engages in the development of new smelting processes such as LIB battery recycling and metal reduction methods using hydrogen that contribute to the realization of a sustainable society.

Battery Research Laboratories
Development of battery materials

The Battery Research Laboratories is a laboratory that engages in research and development of secondary battery cathode materials and production processes. By improving the performance of our main products, it aims to increase our market share among existing customers. It is also advancing the commercialization of new nickel-based lithium-ion battery cathode materials. Additionally, we are conducting fundamental research and establishing battery evaluation technologies for next-generation battery materials, thereby broadly advancing our research and development of cathode materials for secondary batteries.

Materials Laboratories
New materials research and development

The Materials Laboratories conducts research and development of new materials that add functions to non-ferrous metals by leveraging SMM's powder synthesis and surface treatment technologies and crystal growth and processing technologies, our core technologies. It also collaborates with the Computer Aided Engineering and Development Department and the Analytical Technology Department, which are located at the same Ome District Div. , to perform efficient searches for materials and elucidate the mechanisms behind functional expression to advance research and development of new materials with the aim of creating new business.

Ichikawa Research Center
Development of powder materials, battery materials, and catalyst materials

The Ichikawa Research Groups are conducting basic research on powder materials that exhibit new functions and innovative powder synthesis technologies, and work with the Analytical Technology Department, which is equipped with the latest advanced analytical equipment, to carry out efficient material development.

Planning & Administration Department

The Planning & Administration Department oversees each department in the Technology division, and promotes company-wide R&D by formulating technology strategies and R&D strategies, as well as discovering new R&D themes and also supports R&D conducted by business units.

Intellectual Property Department

The Intellectual Property Department provides support relating to intellectual property including development support through monitoring of patents related to research and development and analysis of patent information, supporting the creation of patent portfolio from the results of development, and providing advice on execution of technology contracts.

Computer Aided Engineering and Development Department

The Computer Aided Engineering and Development Department provides engineering support leveraging computer simulations, develops production management support technologies using AI and data analytics, and supports materials design through materials informatics and related approaches.

Analytical Technology Department

The Analytical Technology Department utilizes evaluation and analysis technology, a fundamental technology, to solve issues in R&D and business divisions, and continues to develop and introduce new analysis methods. The department is also responsible for guiding and promoting the improvement of QCDS (quality, cost, delivery, and service) in SMM's evaluation departments.

Energy and GX Promotion Department

The Energy and GX Promotion Department oversees the Group's energy management, proposes group-wide policies, targets, and plan for achieving carbon neutrality, and promotes measures to address important issues.

Research & Development

Strengthening development of new smelting and refining processes and new products for the sustainable growth of the SMM

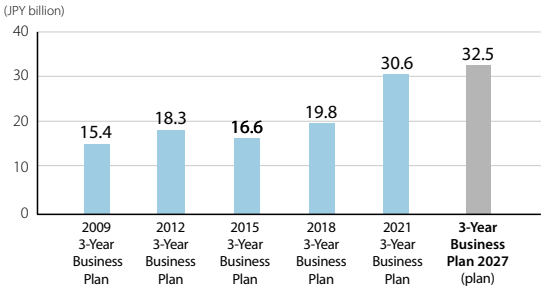
Toru Motoki
Managing Executive Officer, General Manager of Technology Div.

Overview of research and development under the 21 3-Year Business Plan

The three main research and development topics in the 2021 3-Year Business Plan were (1) development for achieving carbon neutrality, (2) DX utilization, and (3) human resource development.

Looking back on the plan, with respect to (1) development for achieving carbon neutrality, we worked on process development for battery recycling processes, selective lithium recovery from salt lakes, and hydrogen reduction technology for nickel oxide ore while also conducting material development for lithium-ion battery cathode materials, FeGa magnetostrictive alloy single crystals for vibration power generation, ultrafine nickel slurry, and photocatalyst for artificial photosynthesis. Also, with respect to (2) DX utilization, we promoted operational efficiency including developing operational support systems to optimize operating conditions based on quality predictions and conducting research and development and operational support using materials informatics and machine learning. Furthermore, with respect to (3) human resource development, we modified technical employee training programs and promoted the development of DX human resources who can perform simulations independently and contribute to improvement and development. We will continue conducting development while maintaining a medium- to long-term perspective and enhancing the sense of urgency.

Changes in R&D Expenditures



Environmental awareness and priority topics in the 3-Year Business Plan 2027

In light of the increasing prominence of emerging countries, the expansion of social demands concerning sustainability issues, and changes in the external environment including the rapid advance of AI, we will further enhance the Company's *MONOZUKURI-RYOKU* (earning power) from the perspective of research and development.

During the period of the 3-Year Business Plan 2027, we will tackle the challenges of developing the new low-carbon smelting and refining technologies and products that contribute to a low-carbon society needed by a sustainable society and collaborate with business divisions to contribute to improvements to existing products and processes. In addition, we will lead the enhancement of the Company's technological capabilities by introducing advanced analytical and evaluation technologies and computer-aided engineering techniques. Also, we will promote DX even more strongly.

Development of products that contribute to a low-carbon society

We are developing products that contribute to a low-carbon society in order to achieve a carbon neutral society by 2050. We are developing cathode materials for next-generation lithium-ion solid-state batteries used in EVs that can contribute to reducing greenhouse gas emissions as well as hydrogen production catalysts that are essential when manufacturing hydrogen in a hydrogen-based society and other materials.

Research & Development

Development of cathode materials for solid-state batteries

As EV markets grow in the medium to long term, demand for high-performance lithium-ion batteries (LIB) including solid-state batteries is steadily increasing. The Company is leveraging its development and mass production experience with cathode materials for high-capacity automotive batteries and non-ferrous metal smelting and refining technologies accumulated until now with the aim of achieving stable supplies of cathode materials for solid-state batteries. We are currently developing next-generation cathode materials, including cathode materials for high-performance and low-cost solid-state batteries, and conducting demonstration tests of manufacturing processes. In addition, with the objective of reinforcing research and development foundations, we are introducing pilot equipment and constructing a second development building at the Battery Research Laboratories where that equipment will be housed, with completion scheduled for December 2025. These facilities are receiving subsidies under the Green Innovation (GI) Fund Project of the Ministry of Economy, Trade and Industry.

Development of hydrogen production catalyst

There are high expectations for hydrogen as a clean energy source, and the realization of a hydrogen society will contribute to global warming countermeasures and improved energy self-sufficiency. To do this, high-performance catalysts that can produce and supply hydrogen efficiently and at low cost will be essential. The Company is developing nickel-based catalyst materials and is using core technologies, such as powder synthesis and surface treatment, with the objective of supplying high-performance, low-cost hydrotreating catalysts materials.

Development of low-carbon smelting technologies

Transitioning to innovative smelting processes that can enable drastic reductions in emissions in the smelting business, a major source of GHG emissions, will be necessary for achieving carbon neutrality. To this end, we are developing new low-carbon nickel smelting technologies using hydrogen, technologies for selective recovery of lithium from salt lakes, and other technologies.

Hydrogen smelting of nickel oxide ore

We are developing a method to recover nickel by reducing nickel oxide ore with hydrogen. By investigating the feasibility through fundamental testing, we achieved the nickel recovery target. We are currently developing the process as a whole, including investigation of equipment to achieve recovery and verification using a scaled up reduction furnace.

Selective lithium recovery

The conventional lithium recovery process used large volumes of chemicals such as slaked lime, which generates CO_2 during the manufacturing process. To address this, we developed a new direct lithium extraction (DLE) technology that uses smaller amounts of chemicals to selectively recover lithium using an adsorbent in an effort to reduce GHG emissions. We are currently verifying the process at a pilot plant installed in Chile, South America and improving the absorbent with the aim of completion by FY2030.

Approach to Intellectual Property

SMM protects and effectively uses intellectual property through the creation of a patent portfolio or tacit knowledge from the results of development, in accordance with its intellectual property strategy based on business and R&D strategies while respecting the intellectual property rights of others. The Intellectual Property Department focuses on implementing these initiatives in close collaboration with business divisions and R&D divisions. It also conducts employee training on the creation of intellectual property, responses to technical agreements, and other topics, raising awareness of intellectual property. Through these activities, we support the creation of new business and the sustainable growth of business from an intellectual property perspective.

Additionally, we have a system in place to pay incentive bonuses as an incentive for employee inventions. This payment applies not only to patent rights but also to know-how equivalent to patents. In addition to bonuses paid at the time of filing for employee inventions, we also pay performance-based bonuses equivalent to the profits generated by the relevant patent rights, thereby encouraging active research and development activities.

Quality Assurance

Basic Approach and Promotion Framework

The SMM Group has established and operates a business model based on 3-business collaboration between the Mineral Resources, Smelting & Refining, and Materials Businesses. Through this business model, we endeavor to continuously improve products and respond to changing customer needs in order to deliver quality that satisfies customers.

To provide quality that satisfies customers, the president has established a Company-Wide Quality Policy and sets Company-Wide Quality Objectives every year. Based on these standards, each business division sets forth and implements division-specific quality targets and conducts quality activities that are aligned across the entire SMM Group.

With the president bearing ultimate oversight responsibility, we have appointed an executive officer in charge of the Quality Assurance Dept. to drive quality assurance initiatives. Each business division develops and maintains their own quality assurance framework, while the Quality Assurance Dept. manages quality across the entire Group and ensures a Group-wide unified approach.

Additionally, not only does the Quality Assurance Working Group, which comes under the Sustainability Committee, deliberate key measures for promoting quality assurance activities, it also works to improve the Group's quality management systems (QMS) through the sharing of information on progress toward departmental targets and quality control status, including the reduction of the number of complaints against the Company.

Company-Wide Quality Policy

Provide quality to satisfy our customers through continual improvements of quality assurance and control systems.

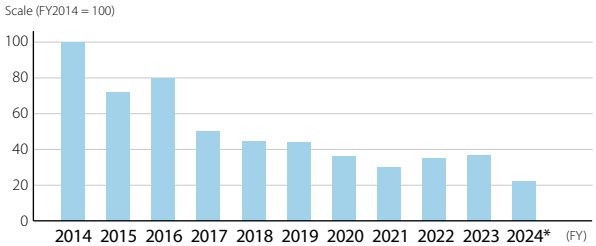
- Pursue quality levels that stand out from the trends of the time
- Abide by laws and rules and strive to create products incorporating safety and environmental considerations

FY2024 Results

The bar graph below illustrates trends in the number of quality complaints for the entire Group with FY2014 data set as 100. The number of quality complaints has decreased steadily since FY2014; in FY2024 there were about one-fifth of the number in FY2014.

In FY2024, the number of quality complaints decreased substantially from the previous fiscal year due to the transfer of business by some affiliated companies, but defects caused by human error occurred in some departments. Consequently, we will enhance our risk analysis, take measures to eliminate the true causes, and continue quality improvement activities in business divisions and at business sites in the same manner as until now.

Trends in Number of Quality Complaints



*The number of quality complaints received by Sumitomo Metal Mining Siporex Co., Ltd. decreased as a result of a business transfer.

Quality Improvement Initiatives

Quality trusted by customers can be achieved only when all employees align their goals and directions and actively engage in activities to achieve targets. To enable this, we clarify issues based on facts obtained through external and internal communication to set targets, and all employees proactively participate in quality improvement activities based on our SMM Quality Standards, which summarize the ideal form of QMS at our Company, in order to achieve our goals.

Please refer to our website for details about specific initiatives.

Quality Assurance
https://www.smm.co.jp/en/sustainability/management/quality/

FY2025 Company-Wide Quality Objectives

Drive QMS improvements and create a structure that earns customer trust.

- Zero major quality complaints; prevent quality complaints that could jeopardize our business foundations
- Zero occurrences of quality misconduct
- Achieve complaint goals within business divisions

Digital Transformation (DX)

The SMM Group, guided by the principle that the promotion of DX directly enhances corporate value, has established a DX promotion policy of: "business reform and creation of new businesses"; "human resource response in an age with declining birthrates"; and "improvement of management efficiency," and is systematically undertaking initiatives to uphold these principles in conformity with our roadmap. FY2025 marks a phase in which we will both deepen activities aligned with our KPIs for each priority area and further expedite the enhancement of our DX platforms such as those for the utilization of data, development of DX human resources, and utilization of AI. We will raise the overall level and sophistication of DX while aiming to further enhance competitiveness and achieve sustainable growth by enhancing these platforms and promoting individual measures.

DX Promotion Policy: Three Objectives and Strategies

Business reform and creation of new businesses

- Utilize DX in business reform and development of new products and processes, and accelerate the speed of these in order to respond flexibly to changes in the social environment that will become ever more intense.
- Create new businesses by leveraging digital technology and discovering new value to further strengthen the Group's competitive advantage.

FY2024 progress

Completed renewal of Group wide-area networks

Plan for FY2025

DMO* operational launch

* Data Management Office: An organization that promotes the management and utilization of digital data

Human resource response in an age with a declining birthrate

- Enable business continuity and development amid a declining birthrate by promoting automation and unmanned operations at manufacturing sites, and drastically streamlining indirect operations.
- Become a company that is attractive to workers through the creation of safe workplaces and the achievement of diverse work styles that consider work-life balance.

FY2024 progress

Determined the requirements for a Group-wide data utilization deployment platform

Plan for FY2025

Commence data utilization business operations

Improvement of management efficiency

- Promote digital transformation through data utilization to contribute to swift management decisions.
- Carry out operational streamlining and enhancement of labor productivity to improve competitiveness in all fields of business.
- Build a foundation for high-speed
- Respond to ever-changing and growing information security threats.

FY2024 progress

Set the DX human resource development training curriculum and started training
Promoted use of AI and increased operational efficiency

Plan for FY2025

Promote use of AI and increase operational efficiency

Digital Transformation (DX)

Group-Wide DX Strategy in the 3-Year Business Plan 2027

During the 21 3-Year Business Plan period, which marked the dawn of DX promotion within the Company, measures which would culminate in full transformation remained limited to certain areas. This can be attributed to our initial policy of first engaging with the task of digitization.

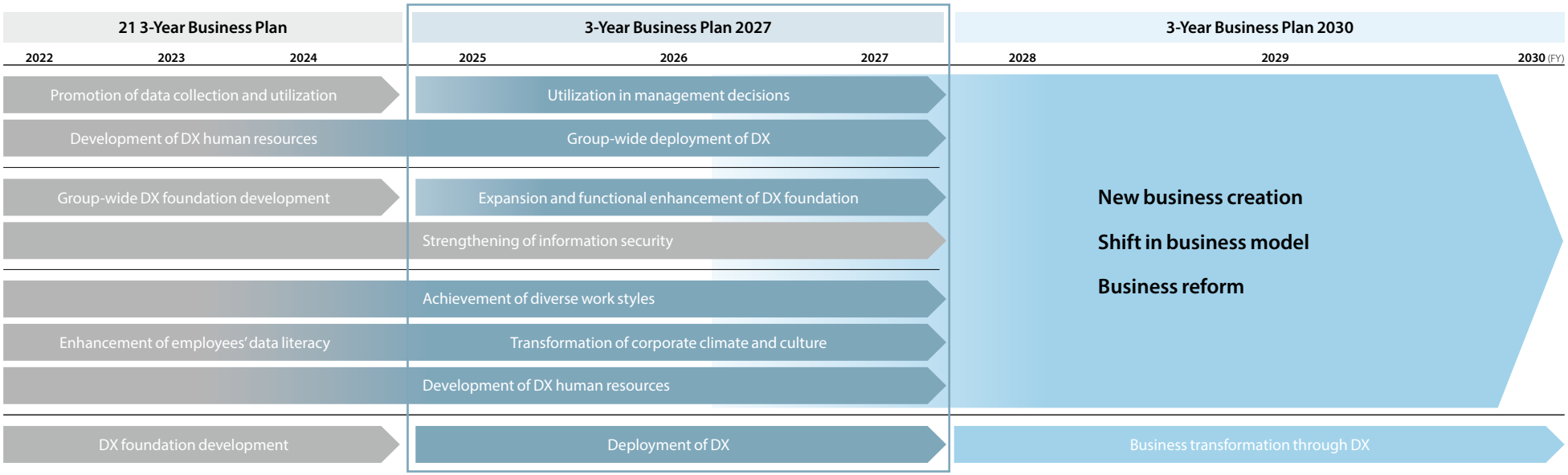
During the 3-Year Business Plan 2027 period, as our next step, we will transition to a more results-oriented strategy. We clearly articulate, through President messages as well as guidelines, the specific types of business outcomes we anticipate from DX. Based on these guidelines, we are currently reviewing initiatives and KPIs across priority areas. We will subsequently clarify the direction of our initiatives, allocate management resources in an efficient manner, and accelerate DX initiatives by setting commonly defined outcomes to be achieved through DX as well as quantitative targets for these outcomes. The key points of the specific associated guidelines, "DX Promotion Guidelines for the 3-Year Business Plan 2027 period," are as follows:

1. We define productivity improvement as our top priority and the ultimate objective of our businesses' DX initiatives during the 3-Year Business Plan 2027 period, with the equivalent Group-wide KPI target set at a "30% improvement in productivity."

2. We will maintain a strong awareness of transformation and boldly review actual processes without being constrained by the need to adhere to existing operations or procedures. When undertaking reviews, we will bear in mind the issues of standardization, automation, labor savings, error reductions, elimination of dependency on specific individuals, and creation of added value.

3. We will actively consider introducing new technologies which can be anticipated to yield advanced outcomes at a future point in time given the remarkable technological advancements in the DX field, even if clear outcomes are not immediately apparent at the time when these technologies are being considered. We will utilize agile methodologies to make swift decisions on selection and implementation when introducing such technologies.

Roadmap



Digital Transformation (DX)

Setting Key Measures and KPIs in Each Area

We undertake reviews of the progress of our KPIs for key measures in each priority area which were established and launched in the second half of FY2023 at meetings of the Digital Transformation Committee, which are held at least twice yearly. Doing so enables our Plan, Do, Check, Act (PDCA) cycle to operate more effectively. The key measures within activities in each priority area as well as their objectives, along with examples of the established KPIs, are outlined below.

		Examples of Key Measures	Objectives	Examples of KPIs
Business divisions	**Mineral Resources DX**	• Automate and remotely operate heavy machinery at the Hishikari Mine • Improve drilling accuracy (use image processing, etc.)	• Reduce dust and noise exposure • Raise productivity	• Load-Haul-Dump operations times with human intervention • Overcutting reduction rate
	Non-Ferrous Metals DX Innovation in Smelting and Refining—Taking on the Challenge of Non-Ferrous Metals DX P.85-86	• Increase operating rates through predictive maintenance • Forecast using data analysis	• Reduce loss of opportunity • Raise productivity and transfer skills	• Equipment downtime due to unforeseen failures/ malfunctions • Rate of reduction of applicable work hours
	Batteries DX	• Advance digitalization at the Niihama Plant • Introduce and optimize a new inventory management system	• Raise productivity	• Reduce management man-hours
	Advanced Materials DX	• Conduct regular evaluations and raise levels using DX implementation indicators on Customized IPA* Indicators • Create smart factories	• Raise DX literacy • Raise productivity	• Evaluation values based on customized IPA* indicators • Number of sites where measures to create smart factories are implemented
Cross-departmental and fundamental	**R&D DX**	• Effective use (quantification, etc.) of analytical data (SEM images, etc.) and integration with MI (Materials Informatics) • AI collaboration with R&D databases	• Increase the pace and efficiency of development	• Number of quantified technologies implemented • Number of AI searches per person
	Equipment DX	• Develop and utilize collaborative robots • Raise the level of maintenance operations • Analyze operational data	• Save labor • Reduce lost opportunities • Optimize operations	• Number of robots installed • Percentage of sites with equipment management systems installed • Rate of yields improvement
	Logistics DX	• Introduce DX in conjunction with updating of backbone systems	• Increase operational efficiency	• Reduce work times in relevant areas
	DX human resources and higher operational efficiency	• Develop in-house DX human resources • Promote digital work • Promote use of digital data	• Promote and advance of DX activities • Increase efficiency and raise levels of operations • Use data and raise management levels	• Number of human resources developed • Total reduction of hours • Number of actual operations and development of DMO

* IPA: Information-technology Promotion Agency, Japan

Digital Transformation (DX)

Reinforcing Digital Foundations

(1) Development of DX human resources

We believe that developing DX human resources will have a major impact on the speed and performance of measures to address management issues and will affect a wide range of factors in day-to-day work including improvement of operational efficiency, promoting innovation, improving adaptability to change, and reinforcing security. Our Group specifies its image for human resources by dividing into the literacy field, based on knowledge and mindsets, and the project field, based on the roles of DX approaches in projects and other initiatives. For both the literacy and project fields, we referred to the digital skill standards of the Information-technology Promotion Agency (IPA), an incorporated administrative agency, to specify our own skill sets and curricula and are currently working to train and develop DX human resources.

Literacy Field

Level of Mastery	Target Personnel	Summary of Requirements
Advanced	Day-to-day users of PCs and mobile devices Approx 3,500 personnel	Acquire digital tools skills that can be used in any business and knowledge in areas such as networks and data utilization
Basic		
Beginner	All employees	Acquire a risk hedging-centered mindset and basic knowledge

Human resource development in the literacy field

We classify the digital skill proficiency of employees on a three-level scale of beginner, basic, and advanced. All employees are required to reach the beginner level. The basic and advanced levels cover approximately 3,500 employees who use PCs and mobile devices in their day-to-day work.

Human resource development in the project field

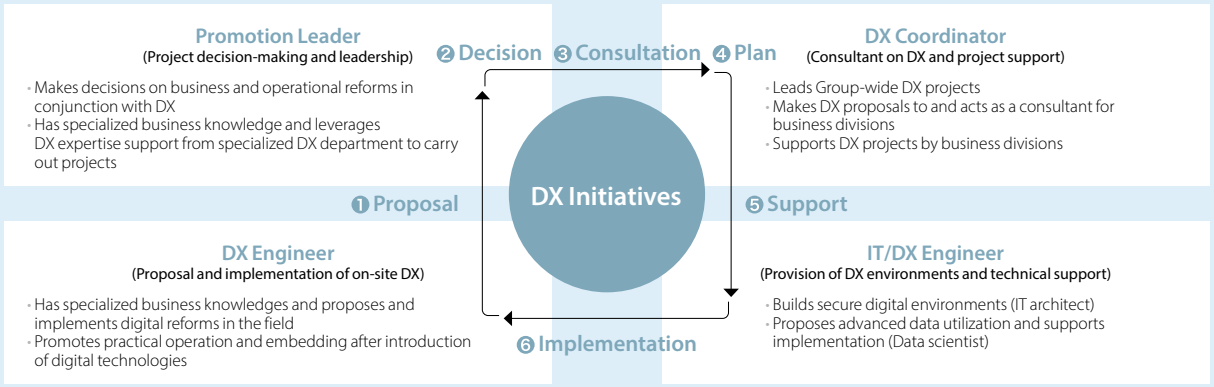
The roles of measures undertaken in project formats from a DX perspective are divided into four quadrants. Regarding this development, in addition to the skills needed to perform their roles, we are focused on practical education, such as learning of requirement defined methodologies through workshops and group discussions.

Both the literacy field and project field operate as certification programs, with qualified individuals awarded digital badges featuring unique designs of the SMM Group in the form of electronic credentials.

Examples of digital badges

Project Field

Human Resource Image



Targeted employees: DX-savvy human resources actively engaged in business development using DX technologies
Essential requirements overview: Knowledge, skills, and conduct to allow employees to thoroughly fulfill their roles within respective quadrants, including the acquisition of DX skills specific to each duty domain

Digital Transformation (DX)

(2) AI utilization

After establishing an environment to allow it to be used securely within our internal network, we began to make generative AI (ChatGPT) available to all employees across the SMM Group in November 2023. We actively promote the use of generative AI through prompt implementation of the latest functions and useful plugins, as well as giving overviews of functions internally, while also sharing usage scenarios via seminars and the management of communities. We have confirmed that the use of generative AI is becoming established in day-to-day work duties via the monitoring of metrics such as total monthly prompts and average daily unique users on weekdays, as well as through the results of regular questionnaires. Furthermore, there was an approximately 24-fold increase by June 2025 in the total time saved by using generative AI for tasks such as information gathering, language translation, programming, document creation, and data analysis compared to January 2024, with this metric continuing to grow.

In acknowledgement of the increasing utility of generative AI, our Group is currently formulating a generative AI vision, as well as a roadmap for the realization of this vision, focusing on the business value we anticipate will be created through its use.

(3) Data utilization

We are currently engaged in the construction of "data utilization platforms" which enable cross-departmental and multifaceted utilization of data which was previously dispersed across various divisions, thereby aiming to enhance the level and sophistication of Group-wide data utilization. In the current context of rapid fluctuations in metals prices and exchange rates, as well as heightening uncertainty in the international environment, we are promoting data-driven, objective discussions and decision-making to respond to the increasingly complex business environment. This is being undertaken with the aim of reducing the risks associated with relying on previous experiences and individual judgment. We will also enable all our employees to utilize AI and advanced data analytics in all work operations, to facilitate new insights and operational efficiency.

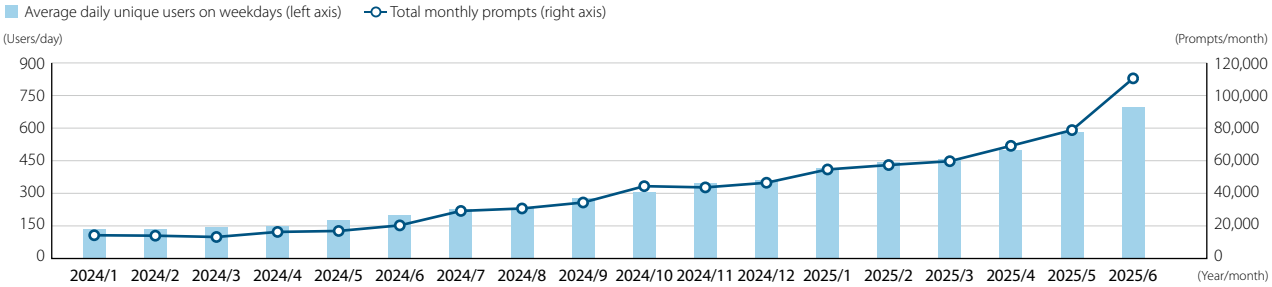
We plan to commence initial platform operations in August 2025 and to complete data integration with our major core systems by the end of FY2027. Furthermore, we have established the Data Management Office (DMO), a team specializing in data management and utilization support, to enhance our Group-wide data governance framework. This will enable us to consolidate data which was previously duplicated across systems or which contained inconsistencies, to achieve accurate and highly reliable data management.

In a trial for effectiveness verification conducted in FY2024 we were able to achieve near real-time monitoring of production statuses and significant streamlining and enhancement of operations, such as a reduction in the time needed to create monthly performance reports—which previously took half a day—to just a few minutes. Moving forward, we will further pursue integration with external data including market data and economic indicators, as well as AI, in aiming to achieve an even greater level and sophistication in operations.

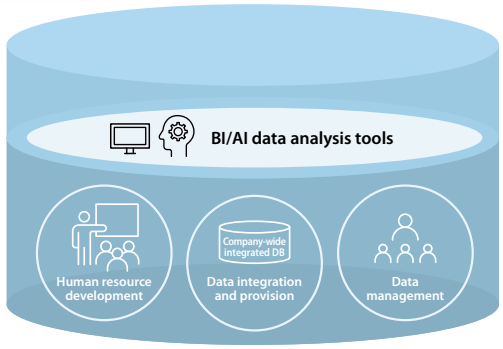
Furthermore, the establishment of these data utilization platforms is not limited to merely introducing IT systems but is also facilitating the enhancement of the data utilization skills of early career employees; the fostering of a corporate culture conducive to open information sharing; and the transition toward new business models which leverage digital technology.

We will continue to expand environments to allow every employee to utilize data through continuous improvements and employee education, thereby actively aiming to realize data-driven management across the entire Company.

ChatGPT Usage Trends



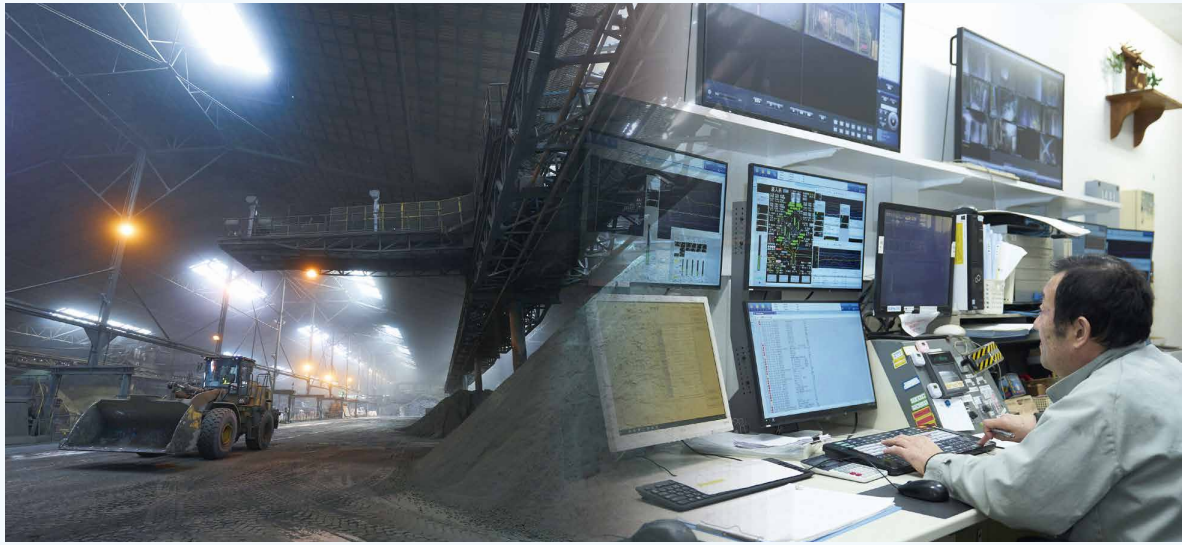
Data utilization platforms × Data utilization support



Digital Transformation (DX)

Innovation in Smelting and Refining— Close Up

Taking on the Challenge of Non-Ferrous Metals DX



The Group is undertaking initiatives to promote DX which aims to enhance corporate value in line with our DX promotion policy. This Close Up feature will introduce DX measures being undertaken by the Non-Ferrous Metals Div. The Non-Ferrous Metals Div. is implementing operational reform by addressing the challenges faced at actual business sites through DX, thereby striving to create an environment to facilitate workers in focusing on the "tasks and operations which create added value" and in which humans should be engaged.

Challenges facing the smelting and refining business

The two major challenges facing SMM's Non-Ferrous Metals Div. are: "fluctuations in deterioration of revenue due to price volatility of metals when metal prices decline" and "the difficulty securing of human resources due to the declining birthrate and other factors."

Non-ferrous metals such as nickel and copper are subject to significant price fluctuations influenced by the external environment and the supply to demand balance. It is essential to maintain low-cost, consistent production to ensure stable profits under such conditions. However, production volumes decrease if plant operations are subject to stoppage due to equipment failures or other issues, which has the potential to lead to significant negative impacts on profits.

In addition, for "the securing of human resources," factors such as Japan's declining birthrate and aging population, coupled with the nationwide reduction in academic programs to acquire specialized knowledge about smelting and refining, have made it difficult to secure engineers with the specialized knowledge required to work in smelters and refineries. Under these circumstances, there is an urgent need to establish workplace environments to enable efficient production with limited human resources and to create systems to allow all employees to achieve consistent results not beholden to their individual skill levels.

In acknowledgment of this situation, the Company established the Digital Transformation Committee in 2021, thereby establishing an SMM Group-wide framework to engage with DX initiatives. Within our smelting and refining business, we have adopted two key strategies, namely to: "increase operating rates through predictive maintenance" and "support operations with future forecasts," and are actively promoting DX to achieve sustainable business operations through stable operations and the efficient utilization of human resources.

Promoting digital technology utilization at business sites

At our Toyo Smelter & Refinery, which is the cornerstone of SMM's smelting and refining business, the high-temperature environment in which smelting and refining is implemented makes it difficult to introduce digital equipment and obtain sufficient data. Consequently, operators are obliged to make comprehensive judgments based on limited data as well as visual information which can be obtained on-site, leading to the challenge of variations in judgment among individual operators. In parallel with such challenges, a lack of resources and digitalization know-how at business sites has been a key factor which has hindered improvements achieved by utilizing digital equipment.

In response to these realities, starting in FY2023, we established a support system to address the shortage of "people, resources, and capital" at business sites and thereby promoted DX initiatives. This included utilizing external specialized companies to materialize on-site needs and providing personnel support from the Engineering Div.

In addition, we established a system to visualize early indications and predict the timing of failures or malfunctions at the Nickel Refinery and Harima Refinery as part of the initiative to increase operating rates through predictive maintenance. This system incorporates the experience cultivated by highly proficient employees; measurement data such as sound and vibration data from the respective equipment; and abnormal occurrences in equipment. As a result of this, outcomes have been realized for over half of the equipment, and this can be anticipated to help prevent reductions in operating rates due to sudden failures or malfunctions and optimize the frequency of parts replacements.

Digital Transformation (DX)

Commencement of trial introduction
(DX at Toyo Smelter & Refinery)

At the Toyo Smelter & Refinery, we produce electrolytic copper by smelting and refining mixed copper concentrates sourced from overseas mines.
We will now present a specific case of DX implementation at the Toyo Smelter & Refinery, which plays a central role in the Company's business models.

Copper smelting and refining process

1 Copper concentrate unloading and sampling

We unload copper concentrate sourced from overseas, conduct sampling to verify its composition, and then transport it to a copper concentrate storage house.

2 Copper concentrate blending

We blend approximately seven types of copper concentrates from a storage house to ensure that the blend grades fall within our operational management values.

3 Copper concentrates drying

We mix the blended copper concentrates with secondary raw materials and dry this mixture until it achieves an appropriate moisture content, and subsequently send it to a dried concentrate storage bin.

4 Copper concentrate melting and oxidation

We melt and oxidize the dried copper concentrates in a flash smelting furnace, then separate it into a copper-enriched matte and a slag composed primarily of iron and silica.

5 Crude copper production in a converter furnace

We further refine the matte produced from the flash smelting furnace in a converter furnace to produce crude copper with a copper grade of 98%.

6 Anode casting

We transfer the produced crude copper to an anode furnace, where it is recovered by blowing propane gas to cast anodes with a copper grade of 99%.

7 Electrolytic copper refining using electrolysis processing

We subject the cast anodes to electrolysis processing to produce electrolytic copper with a copper grade of 99.99% or higher.

Semi-automation of long-term blending plans

Concentrate blending in copper smelting and refining processes is a critical step that will determine reactivity in the flash smelting furnaces as well as subsequent quality in downstream processes. Until now, we manually formulated blending plans using spreadsheet software, with the frequent changes and revisions involved creating burdens for the personnel tasked with this work.

To address this challenge, we have now developed a system that automatically formulates blending plan proposals, thereby achieving a labor-saving reduction of 30 hours per month. Furthermore, doing so is eliminating individual variations among personnel, improving the precision of blending plans, and contributing to stable operations.

Combining and blending copper concentrates

Automated inventory measurement

Until now, we have confirmed the inventory levels of intakes of copper concentrate to be stored in a concentrate storage house using visual estimation. However, this was an error-prone method and created the risk of shortfalls in the planned concentrate as well as sudden blend changes.

We have now installed sensors on the distributor (machinery used to stack the concentrate) to achieve more accurate inventory tracking. We can thereby determine more precise inventory levels due to the ability to automatically measure the volume of the concentrate piles. This is improving the precision of blending plans and allowing for flexible responses to unforeseen changes.

Copper concentrate stored in a concentrate storage house

Improving the quality of anode casting

Surface "swelling" on anodes is a factor in reduced productivity and quality, among other negative impacts. Previously, we sampled a portion of anodes for visual inspection. However, we were faced with the challenge of slow response measures even when swelling was confirmed.

To address this, we commenced photographing all anodes with cameras to perform real-time image analysis. Doing so has enabled automatic detection of and countermeasures for swelling, even with changes in casting conditions, such as mold temperature. As a result, we are significantly reducing defect rates and improving the precision of quality control.

Anode casting