

Mineral Resources Business

Since acquiring equity at the Caserones Copper Mine in Chile in 2006, we have taken a central role in its development, with copper concentrate production beginning in May 2014. We have further invested in some of the world's largest copper mines, including Los Pelambres and Escondida, also in Chile. The amount of copper produced (total equity base) reached about 190,000 tons in fiscal 2021.



JX Nippon Mining & Metals Corporation
Executive Officer, General Manager Mineral Resources Division,
Senior Executive Staff, Metals & Recycling Division, Senior
Executive Staff, Technology Group
Masaki Nobuharu

Key Strategies

- Establish stable operation and enhance business value at the Caserones Copper Mine
- Seek and promote new projects (exploration, development, and operation) with a prospect of supplying raw materials to our midstream and downstream businesses

Review of Fiscal 2021

At the Caserones Copper Mine, we maintained an optimal operation with consideration given to controlling COVID-19 and water usage restrictions. In addition, we have worked to make improvements for even more stable and efficient operations with introducing automatic control through cross-functional activities by the promotion team. Not only that, but we worked to make our equipment maintenance and materials procurement more efficient. Although production declined due to the impact of a strike in August during mining union labor negotiations, we successfully earned higher year-on-year profits in fiscal 2021, mainly due to higher copper prices.

On the other hand, due to a decrease in precipitation, the Los Pelambres Copper mine operated under water usage restriction in the second half of the year, resulting in lower production year on year.

As for new mine development projects, in the interest of

securing stable raw materials for downstream businesses, we established a cross-divisional project team to evaluate and study specific projects, focusing on tantalum and titanium.

Outlook for Fiscal 2022

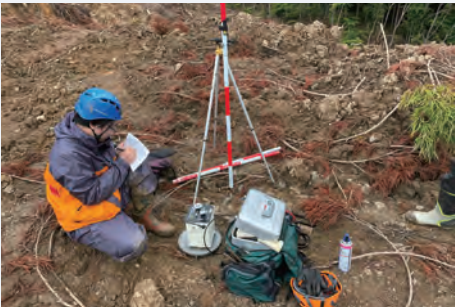
At the Caserones Copper Mine, while continuing with controls for COVID-19, we will further strengthen our profitability through improvement of operation and maintenance that could increase operation level and promote cost improvements.

Regarding the Los Pelambres Copper Mine, we will focus on the completion of the expansion plan started in fiscal 2019. Also, with a prospect of starting businesses, we will move forward with the investigation and survey of various minerals around the world including minor metals and silicified ore in order to achieve stable supply of raw materials based on future needs in our midstream and downstream businesses.

TOPICS

Exploration Around the Kasuga and Iwado Mines (Fiscal 2021)

Currently, the JX Nippon Mining & Metals Group operates the Kasuga and Iwado Mines in Makurazaki City, Kagoshima Prefecture, where it mines and supplies gold-bearing silicified ore to the Saganoseki Smelter & Refinery. Silicified ore is an auxiliary raw material which is added during the copper smelting process. Gold-bearing silicified ore contributes not only to the stable operation of copper smelters but also to maintaining profitability in our Base Businesses. The Mineral Resources Division has been promoting exploration activities since fiscal 2018 in the areas surrounding the Kasuga and Iwado mines in order to develop new gold-bearing silicified ore mines. In fiscal 2021, we conducted detailed geological, geochemical and geophysical surveys to determine ore volume and gold content in the prospective mining areas identified in the previous surveys, and to as well as the distribution of surface gold grades.



Geophysical exploration in progress

Metals & Recycling Business

We are able to efficiently use our smelting processes to take copper concentrate and recycled raw materials and supply high-quality metal products such as copper and precious and minor metals. These products are then offered through a stable supply in Japan and parts of Asia. Under the Green Hybrid Smelting process, which utilizes surplus heat from copper concentrate processing, we will work to build a sustainable recycling-oriented society with the goal of increasing the ratio of recycled raw materials (either in raw material input or in product content) to at least 50% by 2040. In our detoxification processing treatment of industrial waste materials, we also use incineration and melting technologies aiming for "zero emissions," which means no generation of secondary waste destined for disposal to landfills.



JX Nippon Mining & Metals Corporation
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Yasuda Yutaka

Key Strategies

- Pursue total maximization of the smelting and recycling businesses and promote productivity improvement
- Promote various measures to realize Green Hybrid Smelting

Review of Fiscal 2021

During fiscal 2021, we worked to increase the processing of copper concentrates from the Caserones Copper Mine and other mines in which we have equity, as well as to increase the processing of recycled raw materials that contribute to resource recycling, thereby strengthening the competitiveness of each of our manufacturing locations.

In the Recycling Business, in March 2021, we increased the processing capacity of the Changpin Recycle Center in Taiwan by 2.4 times and established the JX Metal Smelting Co., Ltd. Oita Recycling Logistics Center near the Saganoseki Smelter & Refinery. In addition, we expanded our pretreatment facilities, which began operations in April 2022. Efforts were also made to increase the recovery of minor metals. On the other hand, imports of recycled raw materials decreased due to reduced electrical and electronic waste discharged as a result of COVID-19, logistics disruptions, and rising freight fares, but efforts were made toward collection within Japan and neighboring regions to minimize impact.

In the Metals Business, the supply-demand balance for sulfuric acid tightened and export prices remained particularly high. Copper prices were high throughout the period. Purchase margins for raw material copper concentrates were low at the

beginning of the period, but gradually recovered against the backdrop of steady production ramp-ups at new mines and other factors.

Outlook for Fiscal 2022

We will continue safe and stable operations at all sites, including the Saganoseki Smelter & Refinery. On the other hand, with no improvement expected in margins for purchasing raw material copper concentrates, we will maximize earnings by pursuing total maximization of the smelting and recycling businesses and improving productivity. Specifically, we will increase investment in facilities at the Saganoseki Smelter & Refinery, which is working towards increased processing of recycled raw materials, coupled with efforts to increase procurement of these recycled raw materials, including through acquisition of Canadian recycler eCycle Solutions Inc., pursuing an increase in processing of high-margin materials and a feed mix optimal for earnings.

In addition, we will promote initiatives to achieve net zero CO₂ emissions, improve operations and promote cost reductions by streamlining logistics between locations with a bird's eye view of the supply chain, and otherwise work to further strengthen our business and realize the SDGs and ESG.

TOPICS

Initiatives to Increase Collection and Treatment of Recycled Raw Materials

In Japan, we have established the JX Metal Smelting Co., Ltd. Oita Recycling Logistics Center (Oita City, Oita Port, Ozai Nishi-ku), a new collection base for recycled raw materials. Operations there launched in October 2021. In addition, we expanded our kiln furnaces, which are pretreatment facilities for recycled materials, at the Saganoseki Smelter & Refinery. In January 2022, we began test runs of these facilities, successfully launching full-scale operations in the following April. Meanwhile, overseas, we will acquire eCycle in fiscal 2022 as mentioned above and are promoting the procurement of more recycled raw materials by utilizing our overseas locations. Through these efforts to further increase the volume of recycled raw materials handled, we will contribute to building a sustainable recycling-oriented society and strengthen the competitiveness of our businesses.



JX Metal Smelting Co., Ltd. Oita Recycling Logistics Center