

The Current Situation of Mining and Smelting and the Mineral Policy of Japan

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1. The Current Situation

1.1 Mining

The mining industry of Japan had rapidly grown after the World War II with the economic growth. There existed more than 350 mines all over Japan in the 1960's. The mines however had been closed one after another under the influence of the world and domestic economic events such as the mining-related pollution in Japan after the middle of the 60's, the Oil Crises in 73 and 79 and the Strong Yen in 85 (Fig.1). Only five mines (one lead-zinc mine and four gold-silver mines) are in operation at present. It is only gold mines, including Hishikari, that are active in the present Japanese mining industry. The mine production of gold abruptly increased in the middle of the 80's by the discovery of the Hishikari deposit.

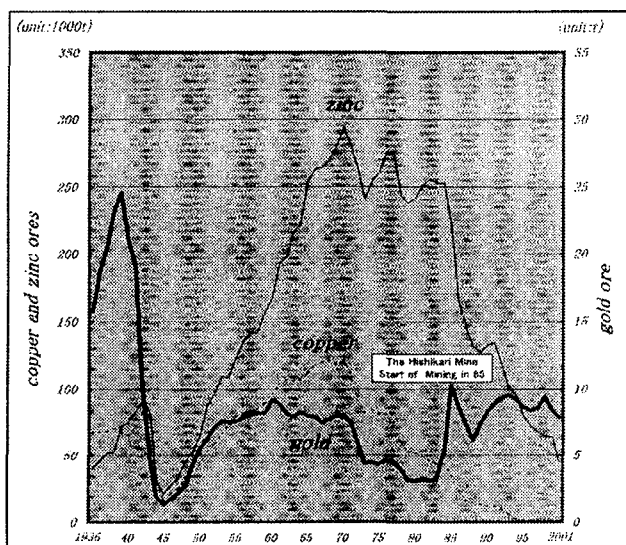


Fig. 1. The mine production of copper, zinc and gold in Japan (in metal content). This figure was drawn from the statistics of the Ministry of International Trade and Industry (1979-2000) and the Ministry of Economy, Trade and Industry (2001-2002).

1.2 Smelting

In Japan there are eight, six and seven operating smelters of copper, lead and zinc, respectively (Agency of Natural Resources and Energy, 1999). The Japanese smelting industry has been growing (Fig.2) in contrast with the decline of the mining industry. (The gold ores are used as flux in the copper smelting, and the gold is extracted finally in the electrolytical method.)

The production of the electrolytic gold has been increasing (Fig.2). The contribution of the domestic ores to the production is not so much (4.1% in 2001) although the gold mining is relatively active as mentioned above. It is the overseas ores that dominantly contribute to the production (72.7% in 2001). The scraps have advanced in significance as gold materials in recent years (5.7% in 2001).

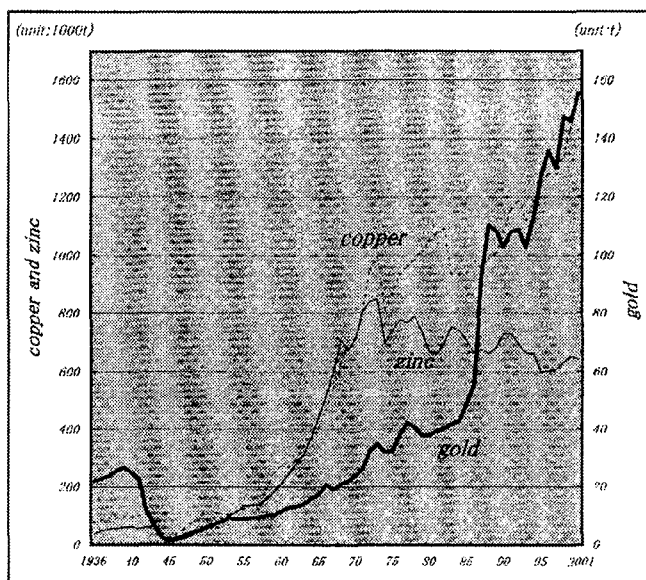


Fig. 2. The refined production of copper, zinc and gold in Japan (in total of metal produced from domestic ores, overseas ores, scraps and others). This figure was drawn from the same statistics as Fig.1.

2. The Mineral Policy

2.1 Organization

The mineral policies decided on by the Government and administered by the Ministry of Economy, Trade and Industry (METI) are carried out by the Metal Mining Agency of Japan (MMAJ). The actions like field survey and technological research are done by the Japanese private companies and, in the case of deep sea survey, a national policy company DORD entrusted from the MMAJ. The ODA projects concerning the exploration and exploitation of mineral resources take a different route, i.e., from the Ministry of Foreign Affairs (MFA) through the Japan International Cooperation Agency (JICA) to the

MMAJ and then to the companies.

2.2 Purpose and programs

The purpose of the mineral policies of Japan is a security of a stable supply of mineral resources, and the main programs which have been carried out by the MMAJ are as follows.

2.2.1 Domestic exploration

The comprehensive geological, geochemical and geophysical surveys have been performed in more than 50 areas with the possibility of base metals since 1963 (Agency of Natural Resources and Energy, 1999) when the MMAJ was established. This program, a principal mineral policy of Japan, has contributed so much to the discovery of new deposits. The latest notable result of this program is the discovery of the Hishikari gold deposit in 1981 (Metal Mining Agency of Japan and Sumitomo Metal Mining Co., Ltd., 1987). In recent years, however, this program has been restricted to the exploration of gold, giving up the other metals.

2.2.2 Overseas exploration

The overseas exploration, a traditional program introduced in 1968, has been carried out by the Japanese private companies in more than 300 sites of the Southeast Asia and Central to South America. Some parts of the expenses required are financed by the Japanese Government. The ores and concentrates produced in the mines resultantly exploited are exported to Japan.

2.2.3 Deep sea exploration

It is said that there exist at least three kinds of mineral resources in the world ocean, manganese nodules, cobalt-rich crust and polymetallic hydrothermal deposit (Shiga, 2003). The manganese nodules and cobalt-rich crust are expected as resources of copper, nickel and cobalt while the hydrothermal deposit is as resources of copper, lead, zinc, gold and silver. The MMAJ has performed the survey of the manganese nodules in the waters of the Central Pacific near Hawaii where Japan can survey exclusively according to the provisions of the UN Convention on the Law of the Sea. The surveys of the cobalt-rich crust and hydrothermal deposit have been performed within the Japanese exclusive economic zone (EEZ).

2.2.4 Research of exploration technology

Since 1975 the development of mineral exploration technology on both land and deep sea has been carrying out as long-term projects. As to the land exploration, a remote sensing technology using LANDSAT and airborne imageries has been developed as well as geochemical and geophysical technology. As to the deep sea exploration, the MMAJ has developed a variety of equipments for navigation, survey and sampling loaded on the Japanese marine research vessel, Hakurei-Marun No.2. A

boring machine system recently developed demonstrates its ability to investigate deposits buried beneath submarine sediments (Okazaki et al., 2002).

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2.2.5 Prevention of mining-related pollution

Another vital activity is a technological development of preventing pollution caused in the mining areas. The protection of ocean environment from future deep sea mining also has been becoming an important subject.

2.2.6 Stockpile of rare metals

Rare metals are essential to the Japanese industries like iron and steel, electronics and others. Japan depends whole of them on import. Then the Government stockpiles seven kinds of rare metals (Ni, Cr, W, Co, Mo, Mn and V) for 60 days' domestic consumption against possible disturbances in supply in the future.

2.3 Other mineral policies

Many specific policies have been performing by other ministries and agencies, e.g., technological research on recovery of metals from wastes and scraps by the METI and NEDO, technical cooperation on mineral exploration to the developing countries by the MFA , JICA and MMAJ, and controlling of the customs tariff by the MFA.

2.3.1 Recovery

The Japanese mining companies have been making a research of new technology to recover metals and rare earth elements from recycled wastes and scraps. The recovered gold production is indeed increasing and exceeds the domestic mine production as mentioned above, demonstrating that the recovery is more effective to get mineral resources than the mining especially to the countries deficient in mineral resources like Japan.

2.3.2 Technical cooperation

The technical cooperation on mineral exploration has been conducted as a part of the Japanese ODA programs since 1970 in more than 160 sites of 42 developing countries. Nearly 20 projects are carried out every year. The requests from the socialist states of the Central and East Asia such as Kazakhstan, Kyrgyz and Mongolia have been increasing after 1990. The project generally includes satellite image analysis, geological, geochemical and geophysical survey, and, if necessary, drilling and tunneling. Many deposits were discovered and exploited as results of the cooperation, and the produced ores have been exported to the Japanese smelters.

2.3.3 Controlling of customs tariff

According to the Japanese customs system (Japan Tariff Association, 2001), generally the import tariffs are free or low for raw materials (e.g., free for gold ores and unwrought gold) and are high for the manufactured goods (e.g., 5.4% for ornaments of gold). This is attributed to the specific situation of Japan that Japan is deficient in raw materials and therefore needs to import them easily and, on the other hand, needs to protect the domestic manufactures. In this manner Japan is controlling the trade of mineral resources by the customs tariff.

3. How Does Japan Secure a Stable Supply of Mineral Resources ? - Diplomacy Rather Than Mining

Japan imports most of the required mineral resources from many countries and exports manufactured goods to the world. The first essential to the Japanese economy is therefore the economic circumstances of the world which enable Japan to trade freely with any country (Shiga, 2003). The immediately effective policy in a viewpoint of securing a stable supply of mineral resources is overseas investments by the Japanese mining companies and the ODA. It is desirable that Japan promotes friendships with many developing countries since Japan certainly continues to depend on them for mineral resources. The ODA, in this sense, is particularly important to Japan. The most reliable partners are the Asian and Oceanian countries close to Japan. Thus the economic diplomacy such as international trade and international cooperation, not but the mining, is considered to become hereafter a core of the Japanese mineral policy.

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