1. Distribution of Mines

The number of mines in operation in Japan as of December 31, 1987 was 855, of which 210 mines had 25 employees or more. The breakdown of mines according to the number of workers is as follows: 112 mines (including 57 limestone mines) had 25 to 149 workers, 28 mines (including 14 limestone mines and 9 metal mines) had 150 to 499 workers, 4 mines had 500 to 999 workers and 7 mines had 1,000 workers or more (these last two categories contain only coal mines). Mines with 25 workers or more are divided into 4 categories based on the minerals mined, as follows: 24 metal mines, 140 nonmetal mines (including 105 limestone mines), 32 crude oil and natural gas fields and 14 coal mines.

The total number of mine workers as of 1987 was 34,008. These included 27,622 full-time workers (72.5% of them being engaged in production). There were 590 temporary workers and 5,796 contractors. Classified according to mining industries, 2,458 persons were engaged in the metal mining industry (7% of the total), 16,278 persons in the coal and lignite industry (48%), 2,479 persons in the crude oil and natural gas industry (7%) and 12,793 persons in the nonmetal mining industry (38%).

Mines and mining industry workers were greatly influenced by the two oil crises since 1970, the rapid increase in the value of the yen and a decline in the international metal market. These factors damaged the management system of the Japanese mining industry and in turn, facilitated the reduction and rationalization of production systems.

Many mines, such as metal deposits and coal and lignite fields in particular, have closed one after another, their number dropping to half that in 1970, while the number of employees dropped to 20% that of 1970.

[**Salient Points of the Legend and Map Compilation**]

This map shows mines with 25 workers or more in operation, as of December 31, 1987. The number of workers refers to workers registered as miners (including contractors) who come under the Mining Security Law.

2. Quantity of Production in Mining

The total quantity of production from mining in 1987 was worth ¥537,400 million.

Metal mining production was the lowest since 1964, at ¥39,100 million due to the closure of mines and reduction in production. Coal and lignite production has gradually decreased to ¥206,800 million since 1982, due to a reduction in the size of the production system caused by a structural depression and an increase in the demand for imported coal. Nonmetal production has also gradually decreased to ¥191,300 million since 1982, due to mismanagement and the closure of medium and small-scale mines.

The crude oil and natural gas industry altered its policy to reduce production since 1985 due to a decrease in the price of crude oil; production for 1987 was ¥100,200 million.

The quantity of production and value classified by types of ore mined are as follows: Gold accounted for 40% of the total production from metal mining for 1987, which was 8 tons and worth ¥15,200 million. The total quantity and value for 1986 was the highest since 1945, at 9.6 tons and ¥17,900 million.

In the case of zinc and silver, the total amount of the former was 163,000 tons worth ¥11,100 million, while that of the latter was 210 tons worth ¥5,460 million. These are the lowest figures in recent years.

The amount of coal produced was 13,030,000 tons, 1/4 that of the early 1960s, with a value of ¥204,490 million, the lowest since 1982.

Natural gas production was 2,151.1 million m³; it had dropped below 2,000 million m³ after 1980, but has been increasing again since 1985. However, the value has been decreasing since 1985, with that for 1987 standing at ¥87,380 million. Crude oil production decreased at the beginning of the 1970s, reaching its lowest level of 410,000 kl in 1982. It increased to 710,000 kl in 1986. The amount of production for 1987 was 671,000 kl, worth ¥11,650 million.

Limestone (both crude ore and processed ore), which was worth ¥115,590 million accounted for 60% of the total production from nonmetal mining. Silica stone production for 1987 was 13,015,000 tons, the highest so far, and the value was ¥11,790 million. This is because of an increase in the demand for silica for use in construction.

[**Salient Points of the Legend and Map Compilation**]

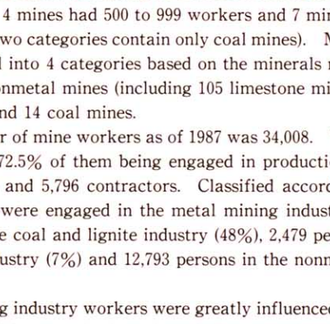
This map shows the quantity of mine production classified by ore types. Production is indicated by mineral contents in concentrate for metallic minerals and by mineral concentrate for nonmetallic minerals. Ores whose production was less than a certain level were omitted from this map.

[**Sources**]

1. Minister of International Trade and Industry, *Mine Roster*, 1988
2. Minister of International Trade and Industry, *Coal and Lignite Roster as of the End of December*, 1987
3. Minister of International Trade and Industry, *Mining Yearbook of Japan*, 1987
4. Data from the Minister of International Trade and Industry

VALUE OF PRODUCTION FOR DIFFERENT TYPES OF MINING (1987)

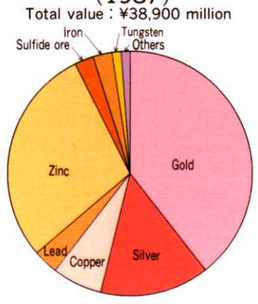
Total value : ¥528,900 million



(Compiled from *Mining Yearbook of Japan*)

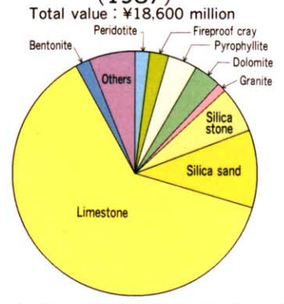
VALUE OF METAL PRODUCTION (1987)

Total value : ¥38,900 million



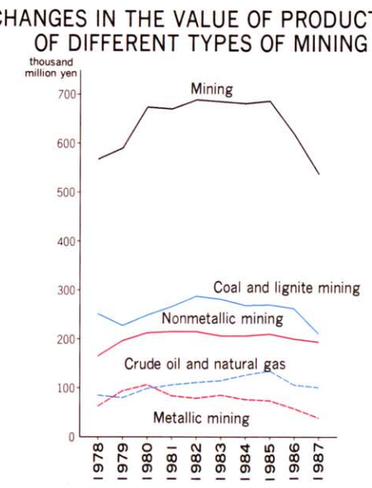
VALUE OF NONMETAL PRODUCTION (1987)

Total value : ¥18,600 million



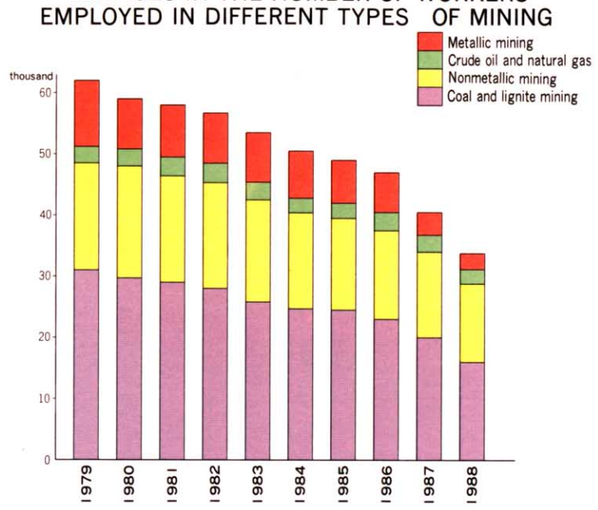
(Compiled from *Mining Yearbook of Japan*)

CHANGES IN THE VALUE OF PRODUCTION OF DIFFERENT TYPES OF MINING



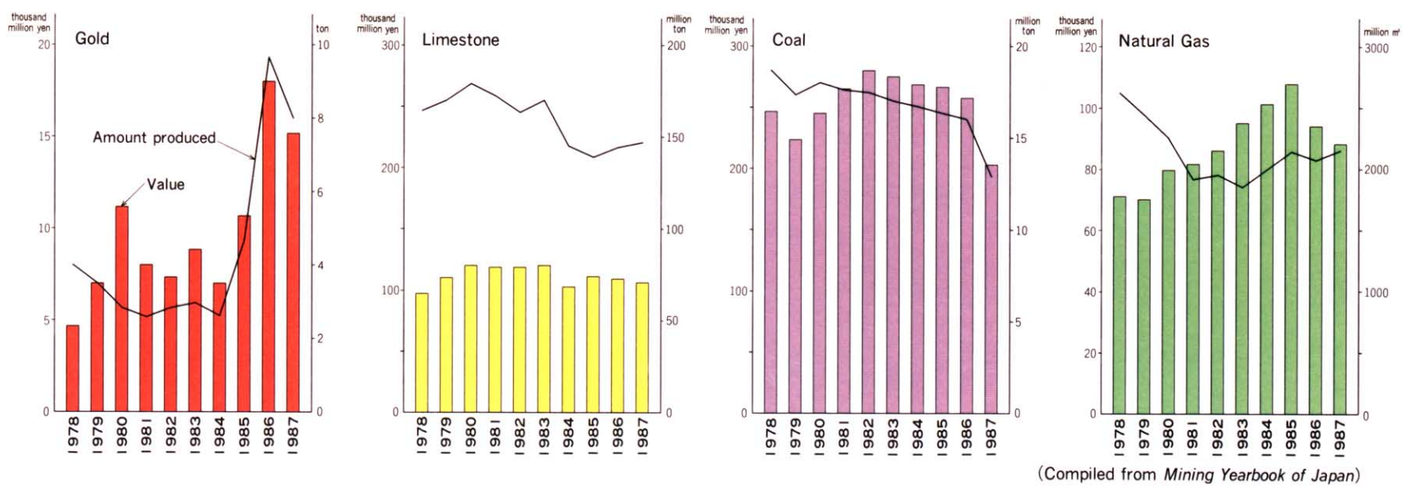
(Compiled from *Mining Yearbook of Japan*)

CHANGES IN THE NUMBER OF WORKERS EMPLOYED IN DIFFERENT TYPES OF MINING



(Compiled from *Mining Yearbook of Japan*)

CHANGES IN THE AMOUNT AND VALUE OF PRODUCTION OF MAJOR MINERALS



(Compiled from *Mining Yearbook of Japan*)

28.1

DISTRIBUTION OF MINES

(1987)

NUMBER OF WORKERS

25～99　100～299　300～499　500～999　1000 persons and over

TYPE OF MINES

Metal　Coal

Nonmetal　Petroleum and natural gas

Status as of December 31, 1987

1:4,000,000

0　50　100　150　200km

SEA OF OKHOTSK

JAPAN SEA

NORTH PACIFIC OCEAN

Etorohu Tō
Rebun Tō
Risiri Tō
Kunasiri Tō
Sikotan Tō
HABOMAI SYOTŌ
Akabira
Asibetu
Sorati
Horonai
Minami-Ayūbari
Taiheiyō
Toyoha
Okusiri Tō
Siriya
Hatinohe
Hanaoka
Utinotai
Yabase
Kamaisi
Nagaiwa
Sinhosokura
SADO
Itaya
Minami-nagaoka
Higasi-kasiwazaki
Kubiki
Henezuru
Ōkaudi
Kamioka
Mihowa
Nittiu
Hikawa
Kori
Mobara
Take Sima
OKI
Ōmi
Kinsyōzan
Nakase
Ō Sima
Miyake Zima
IZU SYOTŌ
Hatizyō Zima
Aoga Sima
Asidati
Awazi Sima
TUSIMA
Syōhō
Isa
Higasitani
Kawara
Sekinoyama
Toriigatayama
Ōita
Tukumi
Onoda-tukumi
Miike
Ikezima
GOTŌ RETTŌ
Hisikari
Kusikino
KOSIKIZIMA RETTŌ
ŌSUMI SYOTŌ
Tanega Sima
Yaku Sima
TOKARA RETTŌ
Ō Sima
AMAMI SYOTŌ
Tokuno Sima
Okinoerabu Zima
OKINAWA SYOTŌ
Okinawa Zima
Kume Zima
RYŪKYŪ SYOTŌ
SENKAKU SYOTŌ
SAKISIMA SYOTŌ
Miyako Zima
Iriomote Zima
Isigaki Zima
Yonaguni Zima
DAITŌ SYOTŌ
Kita-Daitō Zima
Minami-Daitō Zima
KAZAN RETTŌ
Iō Zima
OGASAWARA GUNTŌ
Titi Zima
Haha Zima

QUANTITY OF PRODUCTION IN MINING

(1987)

KIND OF ORE — QUANTITY OF PRODUCTION

Au Ag Cu — 0.25 \ 1 \ 25 \ 100 \ 1,000 \ 5,000 \ 10,000 (t)

Pb Zn W Mn Cr — 1 \ 25 \ 100 \ 1,000 \ 10,000 \ 100,000 \ 500,000 (t)

1 \ 25 \ 100 \ 1,000 \ 10,000 \ 100,000 \ 500,000 (t)

ba asb tal fel ppl si pot cly dol — 5,000 \ 10,000 \ 50,000 \ 100,000 \ 500,000 \ 1,000,000 \ 5,000,000 (t)

lim — 500,000 \ 1,000,000 \ 2,500,000 \ 5,000,000 \ 10,000,000 (t)

col — 500,000 \ 1,000,000 \ 2,500,000 \ 5,000,000 (t)

pet — 25,000 \ 50,000 \ 100,000 \ 500,000 (kl)

gas — 25,000 \ 50,000 \ 100,000 \ 250,000 \ 500,000 (thousand m³)

SYMBOL OF ELEMENT, ETC.

Symbol of element	Kind of ore	Symbol of element	Kind of ore
Au	Gold	asb	Asbestos
Ag	Silver	tal	Talc
Cu	Copper	fel	Feldspar
Pb	Lead	ppl	Pyrophyllite
Zn	Zinc	si	Silica sand and stone
W	Tungsten	pot	Porcelain clay and stone
Mn	Manganese	cly	Clay
Cr	Chrome	dol	Dolomite
Fe	Iron	lim	Limestone
fes	Iron sand	col	Coal
sul	Sulfide ore	pet	Petroleum
ba	Barite	gas	Natural gas

1 : 4,000,000

0 50 100 150 200km

SEA OF OKHOTSK
Etorohu Tō
Rebun Tō
Risiri Tō
Kunasiri Tō
Sikotan Tō
HABOMAI SYOTŌ
Okusiri Tō
SADO
Take Sima
OKI
TUSIMA
Awazi Sima
Miyake Zima
IZU SYOTŌ
Hatizyō Zima
Aoga Sima
Ō Sima
Izu
Mobara
Gōdo-tiba
AMAMI SYOTŌ
Tokuno Sima
Okinoerabu Zima
OKINAWA SYOTŌ
Okinawa Zima
Kume Zima
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SENKAKU SYOTŌ
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