



# **JOGMEC's strategical support systems for metal mining activities**

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Japan Oil, Gas and Metals National Corporation

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# 1. Establishment of JOGMEC

Japan Oil, Gas and Metals National Corporation (JOGMEC) has been established on February 29, 2004, integrating Metal Mining Agency of Japan (MMAJ) and Japan National Oil Cooperation (JNOC), with the mission to ensure a stable supply of energy and nonferrous metals for Japan.

	MMAJ		JNOC
1963	· Establishment of the Metallic Exploration Financing Agency of Japan	1967	· Establishment of Japan Petroleum Development Corporation (JPDC)
1964	· Geological survey and Exploration activities started and the name changed to the Metallic Minerals Exploration Agency of Japan.	1972	· To improve the technology for exploration and production of oil and gas, Technology Research Center (TRC) was established in JPDC.
1973	· Mine pollution control activities started and the name changed to the Metal Mining Agency of Japan.	1978	· The national stockpiling program begun and the name changed to Japan National Oil Corporation (JNOC)
1983	· National Stockpiling of rare metals started.	2001	· The function expanded to add; funding facility for asset acquisition.
2004.2	Establishment of JOGMEC		

## 2. Metals Related Activities

### (1) Support for Exploration and Development

Information collection, analysis, and dissemination

Geological Surveys

Outline of the JBES

Finance, investment and loan guarantees

### (2) Support for mine pollution control in Japan

### (3) Research and Development

### (4) National Stockpiling of Rare Metals

## (1) Support for Exploration and Development

### Information collection, analysis, and dissemination

- JOGMEC collects information and materials on mining such as geology and mine data overseas, mineral exploration and development state, as well as mining policies, rules and regulations on mining, environmental problems of foreign countries and analyzes them for the promotion of mining activities by Japan in foreign countries.
- For this reason, JOGMEC has Branch offices in London, Almaty, Beijing, Bangkok, Canberra, Vancouver, Mexico City, Lima, Santiago in order to collect mining information and materials.
- The collected information and materials and their analyzed result are presented on the Internet or in the form of publications from the Mineral Resources Information Center of JOGMEC.

## Geological Surveys

- **Geological Survey Cooperated with a Japanese Company**

When Japanese companies have obtained a mining license overseas, JOGMEC conducts a geological survey by collecting the necessary expenses from the companies. The survey includes geology, geophysics, geochemistry, drilling, and tunneling, which clarify the geological conditions and possibility of mining by the private companies.

- **Financial Support for Joint Survey of Japanese and foreign companies.**

When Japanese companies conduct mineral exploration overseas in cooperation with foreign companies, JOGMEC subsidizes the survey costs of the Japanese companies. The subsidies cover the geological survey, geophysical survey, geochemical survey, drilling survey, and tunneling survey.

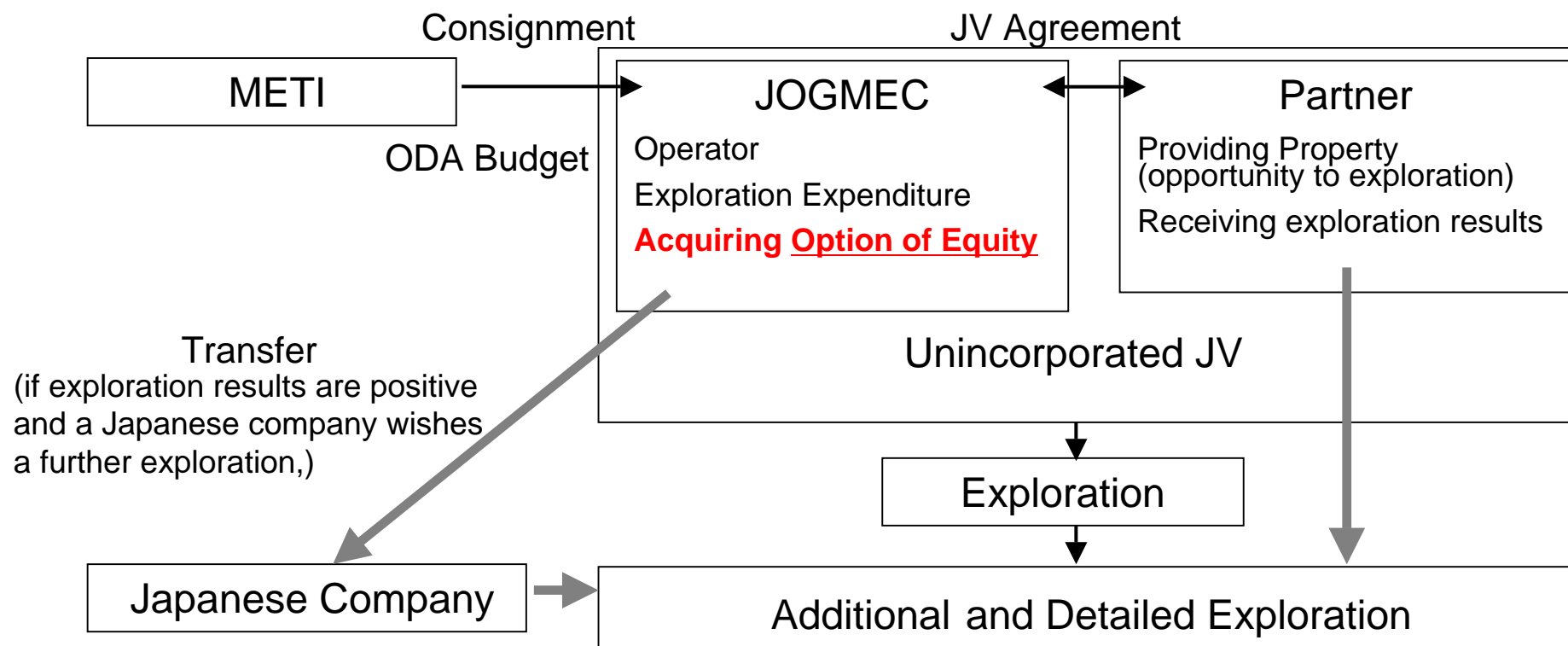
## Outline of the JBES

- Joint Basic Exploration Scheme (JBES) was implemented as a new mineral exploration program in 2003.
- JOGMEC conducts the JBES under a consignment contract with the Ministry of Economy, Trade and Industry (METI).
- Two Primary Objectives of the JBES
  - accelerating mineral production and resultant economic growth in developing countries, and
  - contributing to a stable supply of mineral resources to Japan.
- Major Target
  - Currently primary interest is placed on Copper projects especially in Asia and Latin America.

- JV Partner  
Governmental organizations or private companies which hold mineral properties in developing countries.
- JV Agreement
  - Ordinary joint venture exploration agreement (Farm-in agreement), i.e. JOGMEC acquires an option of equity interest of the Property expending exploration fee.
  - An option acquired by JOGMEC will be transferred to a Japanese company with the first priority, if exploration results are positive and a Japanese company wishes a further exploration.
- Budget  
A typical annual project budget between US\$100,000 to \$1million is envisaged, however this will be flexible depending on the project. Typical period will be 1 to 5 years.



# Framework of JBES



# Finance, investment and loan guarantees



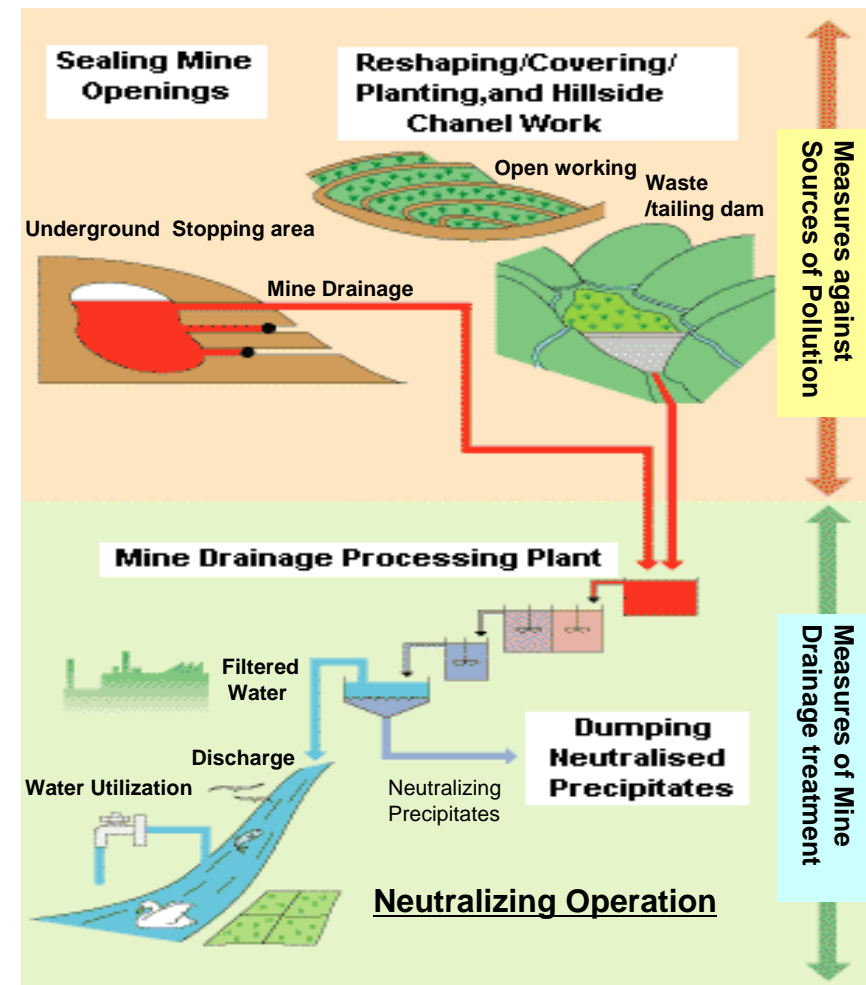
## Outline of Loan, Equity Investment and Loan Guarantee Schemes of JOGMEC (excluding oil and gas)

Scheme	Low Interest Loan	Equity Investment	Loan Guarantee
Eligible Company	Japanese Company or Foreign Company owned by Japanese Company (More Than 50% Shares)	Japanese Company	Japanese Company or Foreign Company owned by Japanese Company (More Than 50% Shares)
Eligible Business Category	Metal Mining Company which Engages in Mineral Exploration	Metal Mining Company which Engages in Mineral Exploration	Metal Mining Company which Engages in Exploitation, Dressing, Smelting and Refining
Project	Exploration Project outside Japan	Joint Major Exploration Project outside Japan	Mine Development outside Japan
Metal Mineral	Base Metal, Rare Metal, Rare Earth and Uranium	Base Metal, Rare Metal and Uranium	Base Metal, Rare Metal and Rare Earth
Maximum Coverage	within 50% or 70% of Project Cost depending on Metal Mineral	within 50% of Total Investment	within 80% of Each Bank Loan (within 50% of JBIC Loan)
Annual Rate	Interest: 1.6% (As of October, 2004)		Guarantee Fee Rate: 0.4%
Redemption Period	within 15 Years (Including Respite Period within 5 Years)		

## (2) Support for mine pollution control in Japan

JOGMEC support for Local Governments, which manage the mine pollution control after the mine closed and they had no mine owners.

- Research and Consultation for Local Government
- Engineering Service for Local Government
- Management of “Reserve for Mine Pollution Control Works” and “Mine Pollution Control Fund”
- International Environmental Cooperation

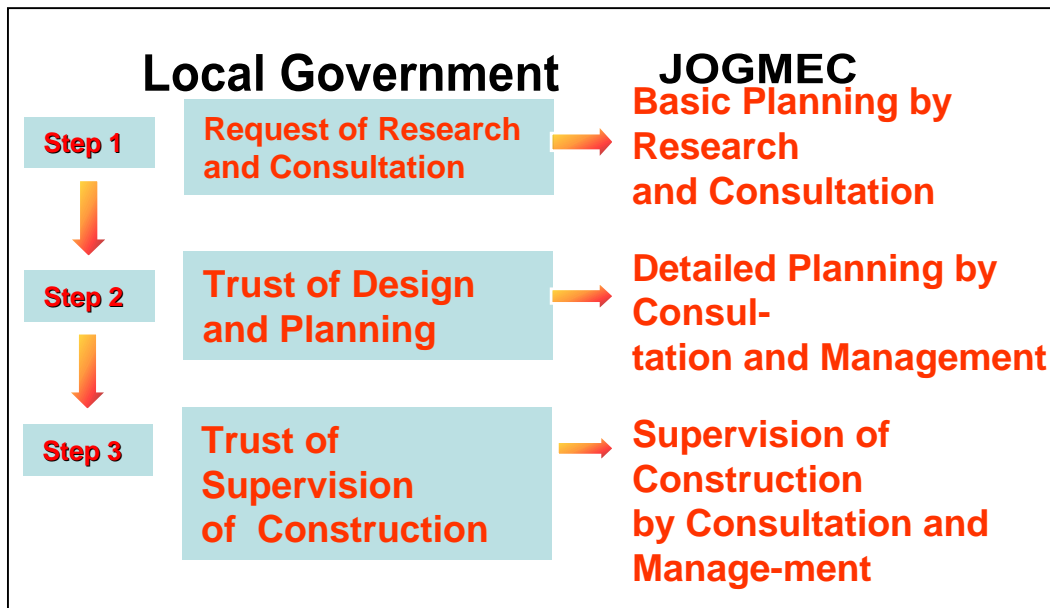


Outline of Mine Pollution Control

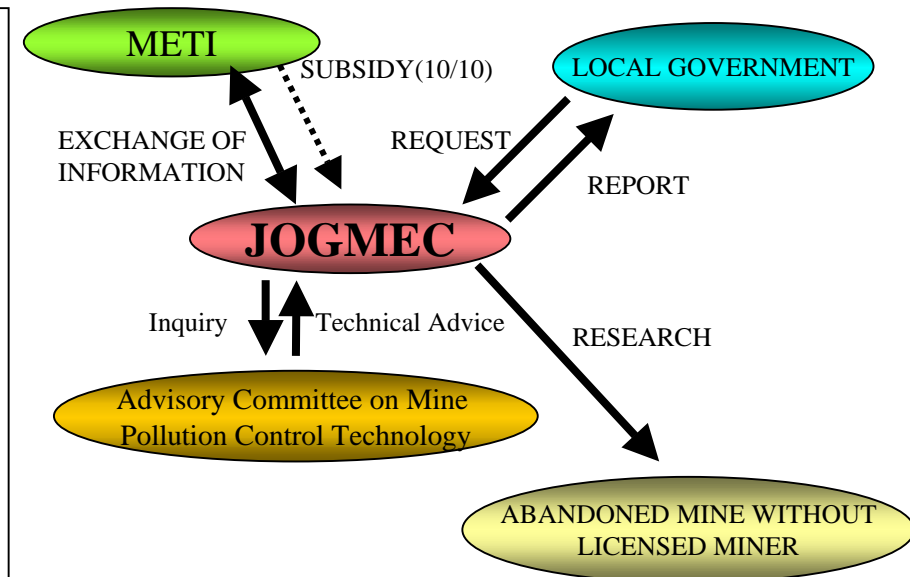
# Framework of Research and Consultation for mine pollution control



- Assessment of Mine Pollution Preventive Measures
- Comprehensive Information System of Abandoned Mines
- Technical Training



Flow Chart of Mine Pollution Control Work at Abandoned Mine without Licensed Miner

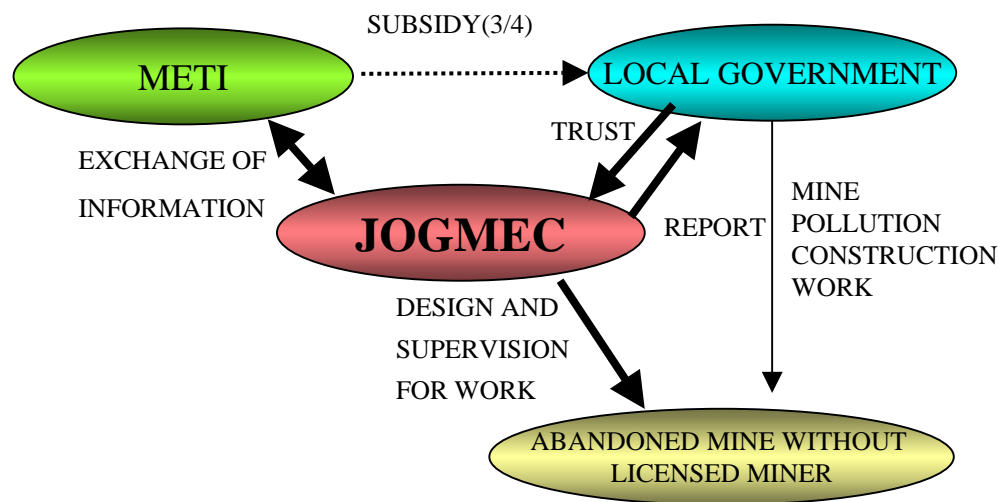


Outline of Research and Consultation

# Engineering Service for mine pollution control



- Design and Planning
- Supervision of Construction
- Management of Facilities



**Outline of Engineering Service**



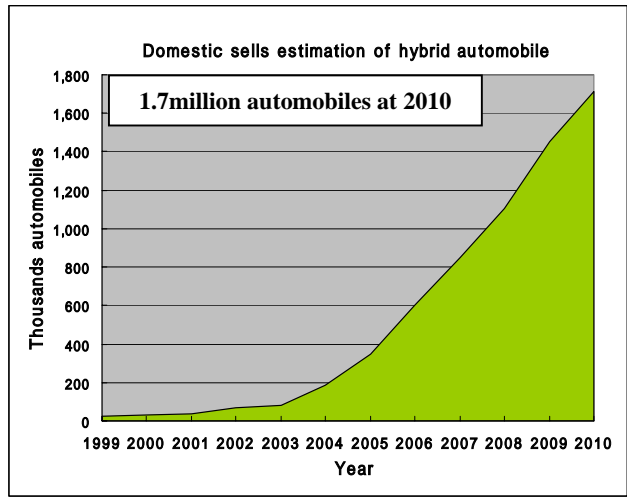
**The Matsuo Neutralization Plant**

### (3) Research and Development



## Energy use rationalization / Development of recycle -hybrid systems

#### Used secondary battery of hybrid automobile



Ni recovery as ferronickel  
Unutilization of Co, Discard of MM and high energy consumption



Ni-MH secondary battery for automobile use  
Including Ni,Co,MM and so on

#### Purpose of this project

Development of rear metal recovery technology  
(recycle of metal resources)

Basic study / Research of actual situation  
(theoretical research / Research for new technology)

Development of reusable slag making technology  
(Metal recovery / Utilization of slag as aggregates)

#### Automobile shredder residue

Terminated automobile



(around 5million automobiles per year)  
ASR : One million ton per year  
Metal content : Cu3.3%,Zn0.97%,Pb0.4%

ASR generation by shredding  
(One million ton per year)

Lead battery  
(Pb recovery at lead smelters) Including Cu,Pb,Zn and so on



Body/Platform  
(steel scrap recovery)

Incineration to landfill  
Tightness of landfill space

## Treatment Technology for Exhaust Gas and Wastewater from Smelteries

- With recent rapid economic development, China is now facing serious pollution, especially that caused by exhaust gas and wastewater from smelteries.
- In order to improve the environment, the best suited technologies for treating such pollution are jointly researched by JOGMEC with China.

### Project implementation schedule

	1999	2000	2001	2002	2003	2004
Research in Japan	—————					
Pilot Plant						
Design		—————				
Manufacture & Installation			—————	—————		
Operation Study					—————	
Invitation of Researchers		—	—	—		
Follow up Project						—————



Pilot Plant

## (4) National Stockpiling of Rare Metals

### Establishment and Development of the Rare Metals Stockpiling Program

- The Rare Metals Stockpiling Program was established in 1983 in response to the experience of two oil crises. The crises revealed a vulnerability that lay in the economic foundation of resource scarce Japan.
- This government-private partnership was created as one of the rare metals integrated solutions, following a report by the Ministry of Economy, Trade and Industry/ the Industrial Structure Council in 1982, and with the view to achieve national economic security.

### Overview of the Release/ Sale of National Stockpiling

- In the event of war or internal unrest occurring in countries supplying principal rare metals to Japan, or if supplies from overseas fall short due to a strike or accident during transportation, JOGMEC sells national stockpile under emergency release.
- It also sells a portion of the stockpile when rare metal prices surge substantially (sales during rising).



# Rare Metals Stockpiling Program



Program	National stockpiling	Private stockpiling
Responsible Organizations	JOGMEC	Private stockpiling Supervised by Japan Rare Metals Stockpiling Association
Selected metals	<b>Nickel, Chromium, Tungsten, Cobalt, Molybdenum, Manganese, Vanadium</b>	
Objectives	To maintain smooth industrial activities and establish national economic security	Voluntary stockpiling that is in line with actual usage by businesses
Locations	Centrally managed in Takahagi stockpiling warehouses in Ibaraki prefecture	Individually held and managed at 50 different sites
Target stockpiling levels	<b>42</b> days of standard consumption in Japan (70% of target)	<b>18</b> days of standard consumption in Japan (30% of target)
	Total <b>60</b> days of standard consumption in Japan	

### 3. JOGMEC Branch Office



Office	Jurisdiction	E-mail
London (UK)	Europe, Africa, Middle East	kamura@jogmec.org.uk takahashi@jogmec.org.uk
Canberra (Australia)	Oceania	mkamiya@cyberone.com.au
Vancouver (Canada)	Canada, U.S.A.	nakatsuka@jogmec.ca tomura@jogmec.ca miyatake@jogmec.ca
Almaty (Kazakhstan)	Russia, New Independent States	jogmec@nursat.kz
Mexico (Mexico)	Central America	jogmec@prodigy.net.mx
Bangkok (Thailand)	SE Asia, SW Asia	ichihara@mozart.inet.co.th
Beijing (China)	China, Mongolia	osame@jogmec.cn
Lima (Peru)	Peru, Bolivia, Ecuador, Colombia, Venezuela	ommjlima@chavin.rcp.net.pe
Santiago (Chile)	Chile, Brazil, Argentine, etc.	nakayama-ken@entelchile.net feebrey@terra.cl

## 4. Conclusion

- (1) JOGMEC invite the Overseas Partner for Joint Venture Project of Exploration in JBES.
- (2) JOGMEC Branch office of 9 cities in the world are the Counter Point of Global Partners.
- (3) Please don't hesitate to contact our Branches.