JOGMEC’s Activities in Peru
- Focusing on Mineral Exploration -

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Japan Oil, Gas and Metals National Corporation
J OGM EC
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Establishment of JOGMEC

Since 1963
Metal Mining Agency of Japan (MMAJ)

Since 1967
Japan National oil Corporation (JNOC)

Lima Office
Since 1971
Japan Oil, Gas and Metals National Corporation (JOGMEC)

Established in February 2004

Its Principal Role is to seek a Stable Supply of Natural Resources for Japan
JOGMEC’s Scheme in Metals Section

**Exploration and Geological Survey**
- Early Stage
  - Grass Roots (High) → Risk → Late Stage
  - Feasibility Study (Low)

- JOGMEC’s Own Exploration
  - *Joint Basic Exploration Scheme (JBES)
    = JV survey=

- Facilitation of Private Companies’ Exploration
  - *Overseas Geological Survey (Partial cost sharing with Japanese Companies)
  - *Overseas Joint Geological Survey (Financial support for Japanese companies conducting joint exploration with foreign companies)

- Deep sea mineral resources exploration program

- Low interest loan for overseas exploration of Japanese company

**Development and Production**
- [R&D for Production Technology]
  - Development of hydrometallurgical treatment process for low-grade ore using bi-leaching technology
  - Technical Assistance for Actual Mining Business
  - Technical evaluation service for inexperienced companies including banks

- Technical assistance for the improvement of mining operation

**Recycling and Stockpiling**
- [R&D for Recycling Technology]
  - R&D for the recovery of Ni and other valuable metals from waste secondary battery of hybrid vehicles

- National Rare Metals Stock Piling Program for 7 metals of importance (Ni, Cr, T, Co, Mo, Mn, Va)

- Loan guarantee for overseas mine development of Japanese company

**Mining Pollution Control**
- [Pollution Control over Domestic Abandoned Mines]
  - R&D for the Mine Pollution Control Technologies
  - Survey Design, and On-site Technical Advise for Abandoned Mine Pollution Control Works by the contract with Local Government
  - Management of Water Treatment Plants

- Management of Reserve and Fund for Mine Pollution Control

**Research, Analysis and Information Dissemination Service about Minerals and Metals**

Japan Oil, Gas and Metals National Corporation
JOGMEC’s Scheme in Metals Section

**Supporting Secure Interest**
- JOGMEC’s Own Exploration
  - Joint Basic Exploration
- Facilitation of Private Companies’ Exploration
  - Overseas Geological Survey etc.

**Supply Risk Money**
- Low Interest Loan for Overseas Exploration of Japanese Company
- Loan Guarantee for Overseas Mine Development of Japanese Companies

**R&D for Recycling Technology**
- Rare Metals Stockpiling

**Pollution Control over Domestic Abandoned Mines**
- Management of Reserve and Fund For Mine Pollution Control

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Exploration (Early Stage) → Exploration (Late Stage) → Development → Production → Recycling / Stockpiling → Mining Pollution Control

Research and Development

Research, Analysis and Information Dissemination Service about Minerals and Metals
## Technical Cooperation (GG Projects)

<table>
<thead>
<tr>
<th>No.</th>
<th>Project Name</th>
<th>Target</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yauri</td>
<td>Cu</td>
<td>1971-73</td>
</tr>
<tr>
<td>2</td>
<td>Michiquillay</td>
<td>Cu</td>
<td>1973-74</td>
</tr>
<tr>
<td>3</td>
<td>Central</td>
<td>Cu, Pb, Zn</td>
<td>1975-78</td>
</tr>
<tr>
<td>4</td>
<td>Oyon</td>
<td>Ag, Zn, Pb, Cu</td>
<td>1979-81</td>
</tr>
<tr>
<td>5</td>
<td>Iscaycurz</td>
<td>Ag, Zn, Pb, Cu</td>
<td>1982-84</td>
</tr>
<tr>
<td>6</td>
<td>Cotahuasi</td>
<td>Au, Ag</td>
<td>1985-87</td>
</tr>
<tr>
<td>7</td>
<td>Pachapiriana</td>
<td>Au, Ag, Cu</td>
<td>1988-91</td>
</tr>
<tr>
<td>8</td>
<td>Cordillera Oriental</td>
<td>Various</td>
<td>1995-96</td>
</tr>
<tr>
<td>9</td>
<td>Urbamba River Inferior</td>
<td>Various</td>
<td>1998-99</td>
</tr>
<tr>
<td>10</td>
<td>South</td>
<td>Various</td>
<td>2000-01</td>
</tr>
<tr>
<td>11</td>
<td>Cajamarca</td>
<td>Cu, Au</td>
<td>1972-73</td>
</tr>
<tr>
<td>12</td>
<td>Cuzco South</td>
<td>Cu</td>
<td>1978-79</td>
</tr>
<tr>
<td>13</td>
<td>Iscaycurz</td>
<td>Ag, Pb, Zn, Cu</td>
<td>1985</td>
</tr>
</tbody>
</table>

- No.01-07: Mineral Exploration
- No.08-10: Regional Geological Survey
- No.11-13: Pre Feasibility Study
Supporting Japanese Private Sector

**Overseas Geological Survey:** 9 Projects
- Geological surveys conducted as required by Japanese companies
- Conducted by partial cost sharing with Japanese companies

**Finance for Overseas Exploration:** 1 Project
- Low interest loan for overseas exploration by Japanese companies

**Finance for Overseas Mine Development:** 2 Projects
- Loan guarantee for overseas mine development by Japanese companies
**Successful Results**

**Iscaycruz Zinc Mine**
- JOGMEC carried out geological survey in Central Peru region from 1979 to 1985.
- Approx. 3 million tons with 48g/tAg, 18.99%Zn, 1.95%Pb, 0.13%Cu has calculated as a pre-feasibility study.
- Mine operation started in July 1996 by Glencore-Perubar –Mineropero JV.

**Pallca Zinc Mine**
- JOGMEC carried out geological survey in Central Peru region from 1994 to 2001.
- Subsequently, Mitsui Metal Mine has continued exploration and development. In April 2006, the mine has started operation.
- Approx. 15 thousand tons of Zinc concentrate (metal content) will be produced in full operation.
Flow chart

New Scheme - JV Mineral Exploration

1. **METI**
   - ODA budget, Consignment

2. **JOGMEC**
   - Exploration expenditure
   - Acquiring Option of Equity

3. **Partner**
   - Exploration license holder
   - including Japanese overseas subsidiary

4. **Unincorporated JV**
   - Budget: US$ 0.1 to 1 million/y
   - Period: 1 to 5 years

5. **Japanese Company**

6. **Additional and Detailed Exploration**

If exploration results are positive and a Japanese company wishes a further exploration.

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*Japan Oil, Gas and Metals National Corporation*
1. **Pashpap**
   - Type: Porphyry-Skarn Cu-Mo-Zn-Ag
   - Province: Ancash
   - JV Partner: NORCO (Canada)
   - Major Result: 199.5m@0.32% Cu, 0.03% Mo

2. **Atalaya**
   - Type: Skarn Zn-Ag
   - Province: Ancash
   - Major Result: 18.95m@12.7% Zn, 4.1% Pb, 111g/t Ag
   - Its' interest has been wholly transferred to the Japanese mining company

3. **Others**
   - Type: IOCG, Porphyry Cu
   - Province: Ica, Lima, Arequipa, Ayacucho etc.
Generating a New JV Project in Peru

<table>
<thead>
<tr>
<th>Project</th>
<th>Share</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quechua</td>
<td><strong>Pan Pacific Copper</strong> : 100.0 %</td>
<td>Pre F/S - F/S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mine</th>
<th>Share</th>
<th>2008 Production</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Huanzala</strong></td>
<td>Mitsui Mining &amp; Smelting : 70.0 % Mitsui &amp; Co. : 30.0 %</td>
<td>Zn: 30 kt Pb: 12 kt</td>
</tr>
<tr>
<td><strong>Pallca</strong></td>
<td>Mitsui Mining &amp; Smelting : 100.0 %</td>
<td>Zn: 12 kt Pb: 2 kt</td>
</tr>
<tr>
<td><strong>Antamina</strong></td>
<td>Mitsubishi Corporation : 10.00 % BHP-Billiton : 33.75 % Xstrata : 33.75 % Teck Cominco : 22.50 %</td>
<td>Cu: 358 kt Zn: 383 kt</td>
</tr>
<tr>
<td><strong>Cerro Verde</strong></td>
<td>Sumitomo Metal Mining : 16.8 % Sumitomo Corporation : 4.2 % Freeport McMoRan : 53.6 % Buenaventura : 18.2 % General stockholder : 7.2 %</td>
<td>Cu: 324 kt Incl. - Concentrate 236 kt - SX-EW 88 kt</td>
</tr>
</tbody>
</table>
Better Partnership into the Future

Festival

World Cup
Peru vs. Japan !?

Chocolatada

Drilling in Progress
Gracias por sus atenciones!

Photo: Cordillera Blanca from Pashpap Area