

**REPORT
ON
GEOLOGICAL SURVEY
IN
THE CENTRAL NORTH AREA
MONGOLIA**

PHASE I

MARCH 2000

**JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN**

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PREFACE

In response to the request of the Mongolian Government, the Japanese Government decided to conduct mineral exploration including satellite image analyses and geological surveys to identify the possibility of existence of nonferrous mineral resources in the northern central area and entrusted the survey to Japanese International Cooperation Agency (JICA). In view of the fact that professional fields of geology and mineral resources would be involved in the survey, JICA appointed Metal Mining Agency of Japan (MMAJ) to be engaged in the actual activities of the survey.

In FY 1999 as the initial year of the survey, MMAJ organized a mission consisting of four members and dispatched the mission to the site of the survey for the period from June 30 to September 3, 1999. The field survey was completed as scheduled thanks to cooperation of the Mongolian government offices including Mineral Resources Authority of Mongolia (MRAM).

This report summarizes the results of surveys conducted in the initial year which constitutes a part of the final report.

We would like to express our sincere gratitude to the Mongolian government and its associated organizations. We are also grateful to persons of the Ministry of Foreign Affairs of Japan, the Ministry of International Trade and Industry of Japan, and the Japanese Embassy to Mongolia who have been involved and cooperated with the project.

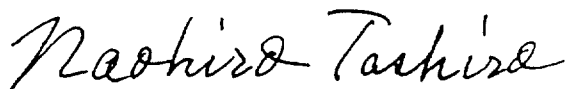
March, 2000



Kimio Fujita

President

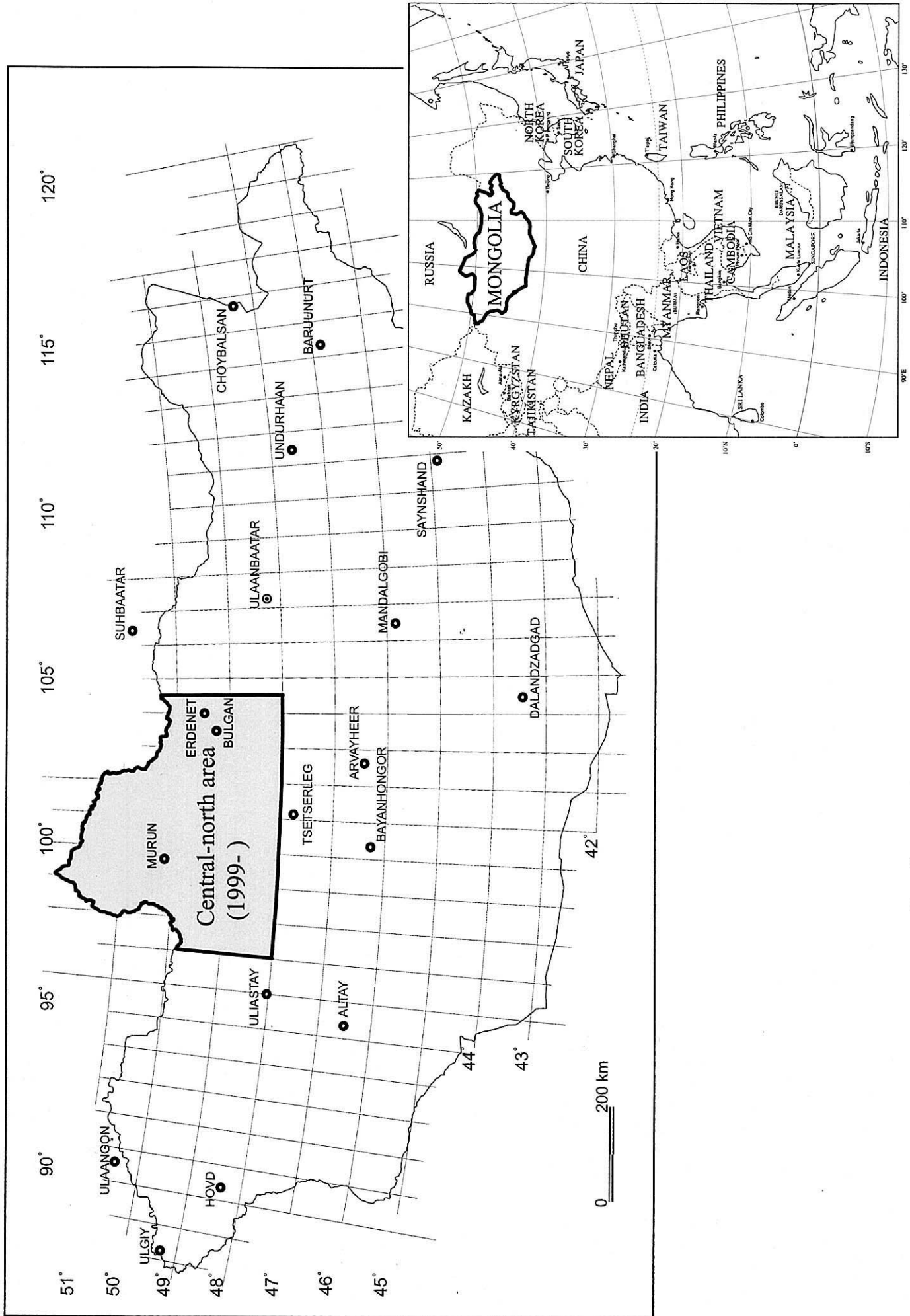
Japan International Cooperation Agency



Naohiro Tashiro

President

Metal Mining Agency of Japan



Location map of the central-north area, Mongolia

SUMMARY

This survey is to be enforced for a period of two years on nonferrous metallic minerals of an area ranging from the northern central part of Mongolia to the border between Mongolia and the Russian Federation, based on the Agreement on Practical Business Affairs of Survey (specifically, under the heading of Scope of Work) which was concluded on May 27, 1999 between the Mongolian and Japanese Governments. The purpose of the survey is to extract promising areas with respect to nonferrous metallic minerals taking into consideration on a possibility of the present survey being developed into a survey to be jointly executed by the two governments or a possibility of new project being developed by private companies in the area.

The area to be covered by the survey was divided into two parts, i.e. the eastern and western parts. In this fiscal year, that is the first year, analysis of the existing data, analysis of satellite images and ground truth were conducted on the eastern part of the area.

For analyzing the existing data, geology of the area, distribution and characteristics of ore/mineral deposits and prospects were acquired. For analyzing satellite images, lineaments were extracted from SAR images and their relations with the existing prospects were examined. Through the integrated analysis of these results, the prospects and points subject to the ground truth were extracted. On the ground truth, a porphyry copper deposit was selected as a type of the target ore/mineral deposit. Taking into account the present state of infrastructure of the survey area, a gold deposit was also selected as a target due to its high added values. Placing emphasis on the possibility of occurrence of a new porphyry copper deposit in the vicinity of Erdenet, on the potential of existence of ore/mineral deposit in the area to the east of Lake Khuvsgul, and on the central and southeastern parts of the area, the ground truth was performed at total of 13 districts, 80 prospects/points.

Geology of the central north area consists of multiple micro-continents and island arcs formed or accreted during Precambrian to early Mesozoic and affected by several orogenesis. Ore/mineral deposits were formed associated with igneous activity generated from late Paleozoic to Mesozoic.

With respect to mineralization, relations between lineaments in N-W and N-S trends are important. Intrusion of granites were mainly involved and the mineral showings of porphyry copper deposits, epithermal gold deposits and skarn lead/zinc deposits were identified.

Through examining results of the ground truth and laboratory test, a total of 17 promising prospects/points were extracted. Since the prospects and points concentrate in the Erdenet, Bulgan, and Bulgan West districts, it is concluded that these three districts have good potentials for ore/mineral deposits.

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