1．協議議事録（Minutes of Discussions）

# MINUTES OF DISCUSSIONS
# BETWEEN THE JAPANESE MANAGEMENT CONSULTATION TEAM
# AND THE AUTHORITIES CONCERNED OF THE GOVERNMENT
# OF THE KINGDOM OF MOROCCO
# ON THE JAPANESE TECHNICAL COOPERATION FOR THE PROJECT
# ON UPGRADING EXPLORATION TECHNOLOGY OF MINERAL RESOURCES

The Japanese Management Consultation Team (hereinafter referred to as "the Team") organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") visited the Kingdom of Morocco from May 23 to 31, 2000, for the purpose of reviewing the activities of the Project on Upgrading Exploration Technology of Mineral Resources (hereinafter referred to as "the Project").

During its stay in the Kingdom of Morocco, the Team had a series of discussions and exchanged views with the Moroccan authorities concerned (hereinafter referred to as "the Moroccan side") over the matters for the successful implementation of the Project.

As a result of the discussions, both sides agreed upon the matters referred to in the documents attached hereto.

Rabat, May 30, 2000

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| Japan | Kingdom of Morocco |

THE ATTACHED DOCUMENT

1. Joint Evaluation at Mid-term on the Project

The Team and the Moroccan side jointly reviewed and evaluated the achievements of the Project according to the Project Cycle Management method, and sum up the results as shown in Appendix 1.

2. Plan of the Third and the Fourth Year

2-1. Project Design Matrix

The Team proposed and the Moroccan side agreed to modify the Outputs and Activities of the Project Design Matrix (hereinafter referred to as "PDM") as shown in Appendix 2, in order to show the process of actual operations more explicitly.

2-2. Plan of Operations and Annual Plan of Operations

Both sides also agreed to modify the Plan of Operations (hereinafter referred to as "PO") of the whole period as shown in Appendix 3, adjusted to the above mentioned PDM.

Then both sides agreed to adopt the Annual Plan of Operations (hereinafter referred to as "APO") for the Third Year as shown in Appendix 4 which describes the actual operations as specifically as possible, based on the above mentioned PO.

2-3. Manual on Exploration Technology

Both sides reached agreement on the basic idea as to the Manual on exploration technology (hereinafter referred to as "the Manual") which is mentioned in Output 5 of the PDM, as follows:

(1) Basic conception

The Manual consists of the following three components.

A. Data Compilation

-While the planning and compilation method is transferred by Japanese experts during the cooperation period, the actual operations for compilation should be conducted by the Moroccan side. The operations for compilation will not be completed during the

cooperation period of the Project, and is to be continued by the Moroccan side after the cooperation period.

-The data of the surveys that the Moroccan side has implemented, as well as the data acquired through the survey in the model areas, are the targets of this part. Therefore, the inventory map is to cover not only the model areas but also all the areas of Morocco.

B. Exploration Strategy and Tactics

-The survey reports of the model areas are included in this part as the example of the exploration strategy and tactics. Therefore, the major target of the part is Volcanogenic Massive Sulphide (VMS) type deposit, Vein type deposit, and Mississippi Valley type (MVT) deposit.

-These reports are drawn up by the Moroccan counterpart personnel (hereinafter referred to as "C/P") under the guidance of the Japanese experts.

-Guidelines for exploration strategy and tactics on the deposit types are extracted from the reports.

C. Exploration methods

-Moroccan C/P draw out this part, based on the reports and other materials made by the Japanese short-term experts.

(2) Measures to be taken by both sides

(Moroccan side)

-Assign the responsible person for the whole of the Manual

-Assign the responsible person for each part.

-Allocate the personnel for input data for "A. Data Compilation".

-In case the Moroccan C/P make the draft of the Manual in French, translate the draft into English, in order that the Japanese experts can grasp the contents and give guidance to the Moroccan C/P.

(Japanese side)

-Dispatch the new long-term expert for guidance and assistance for making the Manual.

-Dispatch the short-term expert who guides planning of data compilation and the method of data arrangement.

-Dispatch the short-term expert who guides planning of "B. Exploration Strategy and Tactics".

2-4. Plan of the Inputs in the Third and the Fourth Year

On the basis of the above mentioned discussions, both sides confirmed the plan of the inputs as shown in Appendix 5.

3. Monitoring / Evaluation Level of Indicators

The Japanese experts and the Moroccan C/P drafted the monitoring / evaluation level which explains the implication of the several indicators in the PDM so that monitoring of these indicators may be implemented based on the same recognition among the people concerned.

After examination and revision of the draft between the Team and the Japanese experts, The Team proposed and the Moroccan side agreed to adopt the monitoring / evaluation level, which is shown in Appendix 6, for periodical monitoring.

4. Joint Coordinating Committee for the Project

The Joint Coordinating Committee for the Project was held on May 30, 2000 and the contents of these Minutes of Discussions were reviewed.

5. Attendance at the Discussions

The attendance at the discussions is as shown in Appendix 7.

## LIST OF APPENDIXES

Appendix 1

# JOINT EVALUATION REPORT
# AT MID-TERM ON
# THE PROJECT ON UPGRADING EXPLORATION TECHNOLOGY OF MINERAL RESOURCES

Rabat, May 30, 2000

## I. The Project Design Matrix for Mid-term Evaluation

Both sides agreed to evaluate based on the Project Design Matrix (hereinafter referred to as "PDM") for Mid-term Evaluation shown in Annex 1.

## II. Tendency of indicators in the PDM

See Annex 2.

## III. Five Evaluation Components

### 1. Effectiveness

| | Achievement | Contributing Factors | Restricting Factors | Reference |
|---|---|---|---|---|
| Output<br>0. The Organization of Exploration Direction of BPRM will be improved and operated efficiently. | • Regular weekly meeting attended by Japanese experts and Moroccan counterparts(C/P) have been held to discuss project activities.<br>• In accordance with R/D, local project costs, totaling approximately ten million DH, have been sufficiently secured. | | | Annex 2<br>Annex 3<br>Annex 4<br>Annex 5 |
| 1. Equipment will be efficiently operated and properly maintained. | • Results of the questionnaire and interviews with counterparts and experts have confirmed that ICP has been appropriately operated and maintained, ever since its installation.<br>• POSAM will be installed in May 2000 and will have a short-term operation-and-maintenance technology expert.<br>• Fluid-inclusion equipment(which BRPM purchased from the French company) had not been fully utilized. But it is working at present as Japanese short-term expert prepared manuals and accessories and operation maintenance technology have been transferred to C/P.<br>• Other donated equipment are appropriately utilized and maintained. | | | Annex 2<br>Annex 6 |
| 2. Planning method on efficiend exploration will be acquired. | • Methods for formulating exploration plans have been taught by long- and short-term experts in seminars, and by on-the-job training (hereinafter OJT) in the office and field.<br>• Monitoring the competence of exploration | | • OJT just started this in October 1999, due to the delay in the model area selection.) | Annex 2 |

| | | | | |
|---|---|---|---|---|
| | plans will be discussed and assessed during the preparation of an exploration manual, as they are highly related. | | | |
| 3. Practical technology on geological and geochemical survey will be acquired. | • Practical technology on geological survey has been transferred through pre-investigation and area selection from April 1999.<br>• Practical technology on geochemical survey has been transferred through OJT in the model area.<br>• Based on the monitoring level, there are two kinds of evaluation: self-evaluation by Staff Section member vote; and the results of a focus group of counterparts and experts<br>(1) Average value of self-evaluation was 3.8.<br>(2) Results of focus group were between level 4 and level 5. | • Monitoring level of the inventory map was established in March 2000, as seen in Annex 15. | | Annex 2<br>Annex 7 |
| 4. Practical technology on geophysical survey will be acquired. | • Technology transfer of this type has been conducted from the time of the mini-project and the individual dispatch of the expert. Counterparts had already acquired technology related to the operation of geophysical survey equipment. However, during the project two short-term experts transferred a higher level of technology, specifically the exploration of blind deposits.<br>• Based on the monitoring level, there are two kinds of evaluation: self-evaluation by Staff Section member vote; and the results of a focus group of counterparts and experts<br>(1) Average value of self-evaluation was 3.8.<br>(2) Results of focus group were between level 4 and level 5. | • A monitoring level for model maps was established in March 2000, as seen in Annex 15. | | Annex 2<br>Annex 7 |

| | | | | |
|---|---|---|---|---|
| 5. Comprehensive exploration technology will be acquired. | • Based on the monitoring level, there are two kinds of evaluation: self-evaluation by Staff Section member vote (6 geologists, 3 geochemists, 2 geophysists and 2 laboratory researchers) and the results of a focus group of counterparts and experts<br>(1) Average values of self-evaluation were as follows.<br>Geologists: 4.1<br>Geochemists: 3.1<br>Geophysists: 3.5<br>Microscopic study: 3.1<br>(2) Results of the focus group were as follows.<br>Geologists: between level 3 and level 4<br>Geochemists: between level 4 and 5<br>Geophysists: between level 4 and 5<br>Microscopic study: between level 4 and 5<br>• Based on these results, both counterparts and experts agreed to discuss and decide what would be an appropriate method for monitoring in near future. | • A monitoring level for the technology of counterparts' was established in April 2000, as seen in Annex 15. In the monitoring description, the wording of "counterparts" and "experts" was defined as follows. Both counterparts and experts agreed following definition for this monitoring and evaluation.<br>(1) Counterparts: those members who are expected to be the core of internal technology transfer, i.e. members of the Staff Section, except the Division Chief and Director.<br>(2) Experts: those members who are expected to act as supervisor, i.e. Japanese experts, Division Chief and Director. | | Annex 2 |
| 6. Manuals on exploration technology will be ready for use. | • As for the specification of the manual , an examination has been done with the experts and C/P.<br>• The plane proposed by short-term experts in March 2000 (See Annex 16) as content of the manual. | | | Annex 2 |
| 7. A system of transferring exploration technology will be established in BRPM. | • A Staff Section has been organized in the Exploration Department as the hub of internal technology transfer, as seen in Annex 11. The nominated members of | | | Annex 2<br>Annex 8 |

| | | | | |
|---|---|---|---|---|
| | Staff Section are highly motivated to attend seminars.(Almost all of the members staying in Rabat have attended.)<br>• Exploration and interpretation technologies have been demonstrated in seminars (36 times) and OJT both in the office and in the field.<br>• The seminar by C/P has been carried out six times. | | | |
| Project Purpose<br>BRPM will be able to continuously carry out the systematical exploration. | • Based on the monitoring level, there are two kinds of evaluation: self-evaluation by Staff Section member vote; and the results of a focus group of counterparts and experts<br>(1) Average value of self-evaluation was 3.7.<br>(2) Result of focus group was between level 4 and level 5.<br>• Knowledge and ideas which are transferred from Japanese experts through OJT and seminars have influenced the consciousness of engineers of BRPM (such as intention for scientific thinking blind deposits exploration).<br>• However, because only half year have passed since the survey in the model areas began, appropriate ability and know-how for building of working hypothesis and decision of exploration policy have not been acquired by C/P. It is expected to be accomplished during the rest of the cooperation period. | • A monitoring level for the quality of systematic and practical exploration was established in March 2000, as seen in Annex 15.<br>• Based on organizational reform of BRPM from June 1 1999, the Exploration Department added a section. It was connected with the activation of the project as this result. | | Annex 2<br>Annex 9<br>Annex 10 |

## 2. Impact

| | Impact | Reference |
|---|---|---|
| Direct・Indirect Impact | • The system for transferring exploration technology inside BRPM has been activated by the execution of this project.<br>• Exploration activities in the model area proceed more efficiently. | |

### 3. Efficiency

| | Efficiency | Reference |
|---|---|---|
| 1. Timing of Inputs | • Results of the questionnaire and interviews with counterparts and experts have confirmed that the number, timing and specialties of experts dispatched have been appropriate.<br>• The results of the questionnaire and interview show that the technical level of long- and short-term experts is sufficiently high. The activities conducted by short-term experts were highly rated.<br>• Long- or short-term experts who can guide the design of the manual are much needed in order to ensure the efficiency of preparation for the manual.<br>• Results of the questionnaires and interviews with counterparts and experts have confirmed that the equipment provided by Japan was appropriate and well utilized.<br>• Local operation expenses for the project have been appropriately dispensed.<br>• Number of trainees in Japan during the project is three, but many others have trained in Japan prior to the project. Most participants are satisfied with the training. | Annex 3<br>Annex 4<br>Annex 5<br>Annex 6<br>Annex 7<br>Annex 11 |
| 2. Relationship between Inputs and Outputs | • Some content of the role of Japanese experts, such as their role in technology transfer and clarification of the manual, was not clearly defined during the preparatory phase of the project. Some misunderstanding has been observed. However, with the efforts of both sides, such misunderstandings have been alleviated at the present. | |
| 3. Linkages with other ODA | • BRPM has a partnership with domestic and multi-national private companies, but JICA is a bilateral development agency only.<br>• It is making use of the equipment supplied on the edge of ODA(in such cases as the individual dispatch of the expert)for many years before the project starts even at present.<br>• Liaisons with research institutes have been consistently maintained by having conventions, through joint research and conferences.<br>• | |
| 4. Supporting system for the Project | • The Joint Coordinating Committee is held once a year. It has functioned as a meeting where progress and problems of the project are reported, and future plans are authorized.<br>• The Steering Committee is held on December 9, 1998.<br>• These Committees contribute to the development of the project activities. | |
| 5 Others | • No significant change in "Important assumptions" to influence efficiency of the project has been observed. | |

## 4. Relevance

| | Relevance | Reference |
|---|---|---|
| 1 Relevancy of Overall Goal | • According to the National Program of Mineral Resources (1999-2003), mining in Morocco is always a high priority. Facing a pressing need for reconstruction and enhancement of competitiveness in the mining industry, upgrading of exploration technology for new deposits is considered to be an important goal. | PDM |
| 2 Relevancy of Project Purpose | • Five-year plan of BRPM (2000-2004) said that top priority would be granted to upgrading of research technology, equipment and human resources. The importance of upgrading exploration technology is expected to be a top priority for BRPM. | PDM |
| 3 Relevancy of planning of interrelations between the Overall Goal, Project Purpose, Outputs, and Inputs | • Some part of the PDM, particularly the contents and criteria of the manual, has not been defined clearly. Clarification of the plan was necessary as for the following part.<br>(1) Establishment of criteria and activities to achieve the indicator for improvement of "exploration planning", "inventory map", "model map" and "technical level of counterpart".<br>(2) Definition of counterparts to be a target group of Technology improvement.<br>(3) Content of manual to be clarified during the project and responsible personnel for each activity in creating the manual. | PDM |

## 5. Sustainability

| | Sustainability | Reference |
|---|---|---|
| 1 Institutional and organizational aspects | • BRPM needs to enhance their knowledge management. Concrete ideas on knowledge management should be tested using this Project's Staff Section.<br>• Although there is a shortage of human resources, results of the questionnaire and interviews with counterparts and experts indicate that the Exploration Department is functioning well.<br>• The seminars by C/P have been carried out for six times.<br>• BRPM thinks that it is certain that technology transfer from Staff Section to other staff continues automatically, after technology has been transferred towards Staff Section and the manual on exploration technology has been made as achievements of this Project. | |
| 2 Financial aspects | • The Financial condition of BRPM is stable, with 2/3 of the budget from Ministry of Energy and Mines.<br>• Independent revenue is primarily based on portfolio income. According to the Annual Report of BRPM, portfolio income has been increasing in recent years. However, it is very sensitive with international price of raw materials, particularly copper, lead, zinc, silver, and gold. | |
| 3 Technical aspects | • The stability of personnel is quite high in the Exploration Department. Therefore, if knowledge management in the department is improved, technologies transferred by the project will be disseminated and consolidated.<br>• BRPM is taking the initiative in operation and maintenance of equipment, and no significant problem has been observed. This equipment is supposed to be utilized after the project. However, the dispatch of short-term experts will sometimes be necessary for its installation, as well as other needs. | |

## IV. Recommendation

1. A draft on the level of monitoring on technology quality indicators (i.e. exploration planning, inventory map, technical level of counterparts) has been drawn up through the joint efforts of Japanese experts and their counterparts because they were not clearly defined at the time of planning. During the mid-term evaluation, this monitoring level was tested twice, i.e. through self-evaluation by Staff Section votes and through the results of a focus group of each specialty. As a result of discussions on evaluation, a common understanding of the feasible level to be attained during the Project was clarified and shared amongst the counterparts and experts. Monitoring using this level is to be continued. However, at the same time it will be necessary to hold further discussions on what should be done to attain level 5 of the monitoring level.

2. The manual contents and the required level remained vague until a short-term expert proposed a concrete concept in March 2000. Both counterparts and Japanese experts agreed to use the proposed contents as priority issues to be elaborated during the Project period. It is hoped that discussions will continue to determine the details of the issues and personnel to be held responsible for each task. The BRPM is also expected to systematically tackle the task of elaborating on the manual, in accordance with the principle of internal technology transfer of the BRPM. Finally, in order to ensure efficiency of the Project, the dispatch of short and long term experts from Japan is considered necessary to guide the process of manual elaboration.

3. In order to activate the internal transfer of technology in the BRPM, the BRPM is expected to implement systematic and concrete counter measures to strengthen information exchange and increase motivation for internal technology transfer, such as including the time for technology transfer as routine work. Japanese experts and engineers in Staff Section are also expected to increase opportunities to exchange information mutually. Examples of new plan were as follows;
   (1) Strengthening on-the-job training in the field, e.g. mutual visit of exploration sites.
   (2) Organizing small committees to study specific themes.
   (3) Improving the method of seminars, through e.g. panel discussions, sub-committee meetings, etc.
   (4) Knowledge management using the Internet.
   (5) Strengthening informal exchange of knowledge, e.g. utilization of coffee break.

LIST OF ANNEXES

PROJECT DESIGN MATRIX FOR MID-TERM EVALUATION (1/2)

Rev. : 2000.4.28

| PROJECT SUMMARY | OBJECTIVELY VERIFIABLE INDICATAORS | Result of first period (from April to September of 1999) to second period (from October 1999 to April 2000) | IMPORTANT ASSUMPTIONS |
|---|---|---|---|
| (SUPER GOAL)<br>The mining industry will be developed in Morocco. | 1. (1) Quantities and (2) amount of mineral production, (3) Production ratio of mineral industry in total industry will be increased<br>2. (4) Quantities and (5) amount of mineral export, (6) Export ratio of mineral export in total industrial export will be increased. | See Annex 2. | a. Governmental policy on development of mining industry will not change.<br>b. Overseas demand and international market price of mineral resources will not decrease rapidly. |
| (OVERALL GOAL)<br>New mineral resources will be found in Morocco. | 1. No. of mineral resources newly found after commencement of this project. | See Annex 2. | a. Economy situation will not get worse rapidly<br>b. Necessary investment for development of mineral resources will be done.<br>c. Labor cost will not increase rapidly. |
| (PROJECT PURPOSE)<br>BRPM will be able to continuously carry out the systematical and practical exploration. | 1. (1) No. of exploration and (2) level of exploration technique (attainability of the evaluation level 5 on attached sheet No.1) | See Annex 2. | a. Importance on the role and function of the governmental policy on development of mineral resources will not change. |
| (OUTPUTS)<br>0. The Organization of Exploration Department of BRPM will be improved and it will be operated efficiently.<br>1. Equipment will be efficiently operated and properly maintained<br>2. Planning method on efficient exploration will be acquired.<br>3. Practical technology on geological and geochemical survey will be acquired.<br>4. Practical technology on geophysical survey will be acquired.<br>5. Comprehensive exploration technology will be acquired.<br>6. Manuals on exploration technology will be ready for use.<br>7. A system of transferring exploration technology will be established in BRPM. | 0. (1) No. of staff, (2) Budget, (3) Results of activities<br>1. (4) Result of operation and maintenance on analytical equipment,(5) No. of analysis on samples maintenance management and maintenance.<br>2. (6) No. of exploration plans and (7) level (attainability of the evaluation level 5 on attached sheet No.2)<br>3. (8) No. of surveys and interpretation of the analyzed data, (9) No. of survey reports, (10) No. and (11)quality of inventory maps. (attainability of the evaluation level on attached sheet No.3)<br>4. (12) No. of surveys and (13) interpretation of analyzed data, (14)No. of survey reports, (15) No. and (16) quality of model maps (attainability of the evaluation level on attached sheet No.4)<br>5. (17) No. of reports on comprehensive exploration technology, (18) Technical level of counterparts (attainability of the evaluation level 5 on attached sheet No.5)<br>6. (19) No. of manuals on exploration technology and interpreting technology<br>7. (20) No. of internal seminars and (21) practical training | See Annex 2. | a. BRPM will support the activities for internal seminars and practical training.<br>b. Counterparts will continue to work at BRPM. |

PROJECT DESIGN MATRIX FOR MID-TERM EVALUATION (2/2)

Rev. : 2000.4.28

| (ACTIVITIES) | INPUT (Plan) | INPUT (Result) | |
|---|---|---|---|
| | Moroccan Side | Moroccan side / Japanese Side | |
| 0-1. Allocate appropriate personnel and facilities to the Staff Section. | 1. Building and facility | See Annex 3, 4, 5, 6, 7, 11 | a. Analytical equipment will be procured smoothly and necessary budget to operate and maintain the equipment will be allocated. |
| 0-2. Make an operational plan of Staff Section. | | | b. Counterparts will continue to work at BRPM. |
| 0-3. Operate the Staff Section appropriately on the basis of the operational plan. | 2. Allocation of counterpart and administrative personnel | | |
| 1-1. Procure and install analytical equipment. | | | |
| 1-2. Acquire operation method of equipment. | 3. Equipment and materials | | |
| 1-3. Acquire management and maintenance method of equipment. | | | |
| 1-4. Operate and maintain equipment appropriately. | 4. Appropriation of the necessary budget for the implementation of the Project | | |
| 2-1. Make a geological survey plan. | | | |
| 2-2. On the basis of the plan, select model areas and implement field survey. | Japanese Side | | (PREPOSITION) |
| 2-3. Collect and interpret existing data. | 1. Long-term experts (5 persons) | | a. Staff section is institutionalized in BRPM. |
| 3-1. Make a geological and geochemical survey plan. | • Chief Advisor | | b. Related information and data in BRPM are available. |
| 3-2. Implement survey on the basis of the plan. | • Coordinator | | |
| 3-3. Make maps of the geological and geochemical survey. | • Mineral Deposit Theory | | |
| | • Geological Survey | | |
| 3-4. Analyze samples by ICP, and interpret the data. | • Geochemical Survey | | |
| 3-5. Make inventory maps on the basis of the result of the interpretation. | | | |
| | 2. Short-term experts | | |
| 4-1. Interpret existing data on the past geophysical survey. | • Appropriate no. per year | | |
| 4-2. Make a geophysical survey plan. | | | |
| 4-3. Implement geophysical survey in the potential area, and interpret the obtained data. | 3. Counterpart training in Japan | | |
| | • 1 to 2 counterpart per year | | |
| 4-4. Make model maps on the basis of results of the interpretation. | | | |
| 5-1. Transfer comprehensive exploration technology on the basis of the results of each exploration. | 4. Machinery and equipment | | |
| | • ICP and optional materials | | |
| 5-2. Make reports on comprehensive exploration technology. | • 2 vehicles (4WD) | | |
| 6-1. Make manuals on exploration technology and interpreting technology. | | | |
| 6-2. Keep the manuals appropriately. | | | |
| 7-1. Organize internal seminars in BRPM by Japanese experts. | | | |
| 7-2. Organize internal seminars in BRPM so that counterparts can present the results of their works. | | | |
| 7-3. Transfer the technologies to other technical personnel in BRPM through practical training. | | | |

ANNEX 2 (1/4) ENTRY FORM OF PROJECT MONITORING AND EVALUATION PLAN Rev. 24/04/2000

| ITEM OF STUDY | | UNIT | DATE OF RECORD (CALENDAR YEAR) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1999 | 2000 | | 2001 | | 2002 |
| | | | October | April | October | April | October | April |
| Super Goal : The mining industry will be developed in Morocco | | | | | | | | |
| 1. Quantities and amount of mineral production, Production ratio of mineral industry in total industry | (1) Quantities of mineral production | Tons/year | $27.00 \times 10^6$ | | | | | |
| | (2) Amount of mineral production | DHs/year | — | | | | | |
| | (3) Production ratio of mineral industry in total industry | % | — | | | | | |
| 2. Quantities and amount of mineral export, Export ratio of mineral export in total industrial export | (1) Quantities of mineral export | Tons/year | $12.95 \times 10^6$ | | | | | |
| | (2) Amount of mineral export | DHs/year | $6.025 \times 10^9$ | | | | | |
| | (3) Export ratio of mineral industry in total industry | % | 12 | | | | | |
| Overall Goal : New mineral resources will be found in Morocco | | | | | | | | |
| 1. No. of mineral resources newly found | (1) No. of mineral resources newly found in Morocco | Number | 10 | | | | | |
| 2. Result on exploration of BRPM | (1) No. of mineral resources newly found in BRPM | Number | 8 | | | | | |
| Project Purpose : BRPM will be able to continuously carry out the systematical and practical exploration. | | | | | | | | |
| 1. Results on exploration | (1) No. of exploration project | Number | 31 | (RG=14,RCC=17) | | | | |
| 2. Level, Quality of exploration | (1) Level, Quality of exploration | Level | 3 | 3.7 | | | | |
| Output 0 : The Organization of Exploration Department of BRPM will be improved and it will be operated efficiently. | | | | | | | | |
| 1. No. of Counterparts | (1) Project Director | No. of Person | 1 | 1 | | | | |
| | (2) Project Manager | | 1 | 1 | | | | |
| | (3)-1. Geological Engineers | | 6 | 12 | | | | |
| | (3)-2. Geochemical Engineers | | 1 | 1 | | | | |
| | (3)-3. Geophysical Engineers | | 4 | 4 | | | | |
| | (3)-4. Chemical Engineers | | 2 | 5 | | | | |
| | (3)-5. Mineralogical Engineers | | 1 | 3 | | | | |

1. Attention to attn(1)~attn(4) in page (4/4)

| ITEM OF STUDY | | UNIT | DATE OF RECORD (CALENDAR YEAR) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1999 | 2000 | | 2001 | | 2002 |
| | | | October | April | October | April | October | April |
| | (3)-6. Remote sensing Engineers | | 1 | 1 | | | | |
| | (3)-7. Others | | | 2 | | | | |
| | (3)-8. Total No. of Counterparts | | 17 | 30 | | | | |
| 2. No. of Administrative Personnel | (1) Administrative Staff | No. of Person | 2 | 2 | | | | |
| | (2) Technical Supporting Staff | | 15 | 15 | | | | |
| | (3) Drivers | | 2 | 2 | | | | |
| | (4) Secretaries | | 1 | 1 | | | | |
| 3. Records of Local Cost | (1) Personnel Expenses | DHs / 6 months | 1,688,500 | 3908480 | | | | |
| | (2) Building and Facilities | | 20,000 | 20000 | | | | |
| | (3) Equipment Maintenance and Operation | | 22,500 | 30000 | | | | |
| | (4) Utilities, Communication And Others | | 12,500 | 15000 | | | | |
| | (5) Domestic Transportation, Handling, and Installation of Equipment | | 20,000 | 25000 | | | | |
| | (6) Others | | 4,250 | 7500 | | | | |
| | (7) Total amount of Local Costs (6 months) | | 1,767,750 | 4005980 | | | | |
| 4. Results of Activities | (1) No. of meeting (Project of JICA/BRPM) | Number | 25 | 22 | | | | |
| | (2) No. of meeting (Japanese experts) | | 27 | 24 | | | | |
| Output 1: Analytical equipment will be efficiently operated and properly maintained. | | | | | | | | |
| 1. Results of operation and maintenance | (1) Total amount of the default-Time of the ICP | Hours | 64 | 60 | | | | |
| 2. No. of samples analyzed by ICP | (1) BRPM | Number | 2,590 | 5000 | | | | |
| | (2) Project of JICA/BRPM | | 251 | 500 | | | | |
| 3. No. of determination(element) by ICP | (1) BRPM | Number | 62,358 | 130000 | | | | |
| | (2) Project of JICA/BRPM | | 3,836 | 8000 | | | | |

1. Attention to attn(1)~attn(4) in page (4/4)

ANNEX 2 (3/4) ENTRY FORM OF PROJECT MONITORING AND EVALUATION PLAN Rev. 24/04/2000

| ITEM OF STUDY | | UNIT | DATE OF RECORD (CALENDAR YEAR) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1999 | 2000 | | 2001 | | 2002 |
| | | | October | April | October | April | October | April |
| Output 2 : Planning method on efficient exploration will be acquired. | | | | | | | | |
| 1. No. of exploration plans | (1) No. of ore manifestation list | Number | 1 | 1 | | | | |
| | (2) No. of exploration plans | | 10 | 12 | | | | |
| Output 3 : Practical technology on geological and geochemical survey will be acquired. | | | | | | | | |
| 1. No. of survey | (1) No. of preliminary survey | Number | 11 | 10 | | | | |
| | (2) No. of reconnaissance survey | | 11 | 10 | | | | |
| | (3) No. of detail survey | | 0 | 6 | | | | |
| 2. No. of interpretation of analyzed data by ICP | (1) No. of interpretation of analyzed data | | 24 | 30 | | | | |
| 3. No. of survey reports | (1) No. of preliminary survey reports | | 11 | 8 | | | | |
| | (2) No. of reconnaissance survey reports | | 11 | 10 | | | | |
| | (3) No. of detail survey reports | | 0 | 2 | | | | |
| 4. No. of inventory maps | (1) No. of inventory maps | | 0 | 2 | | | | |
| 5. Quality of inventory maps | (1) Quality of inventory maps | Level | — | 3.8 | | | | |
| Output 4 : Practical technology on geophysical survey will be acquired. | | | | | | | | |
| 1. No. of survey | (1) No. of preliminary survey | Number | 0 | 4 | | | | |
| | (2) No. of reconnaissance survey | | 0 | 5 | | | | |
| | (3) No. of detail survey | | 2 | 2 | | | | |
| 2. No. of interpretation of obtained data | (1) No. of interpretation of obtained data | | 2 | 3 | | | | |
| 3. No. of survey reports | (1) No. of preliminary survey reports | | 0 | 2 | | | | |
| | (2) No. of reconnaissance survey reports | | 0 | 2 | | | | |
| | (3) No. of detail survey reports | | 1 | 1 | | | | |
| 4. No. of model maps | (1) No. of model maps | | 0 | 0 | | | | |
| 5. Quality of model maps | (1) Quality of model maps | Level | — | 3.8 | | | | |

1. Attention to attn(1)～attn(4) in page (4/4)

ANNEX 2 (4/4) ENTRY FORM OF PROJECT MONITORING AND EVALUATION PLAN Rev. 24/04/2000

| ITEM OF STUDY | | UNIT | DATE OF RECORD (CALENDAR YEAR) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1999 | 2000 | | 2001 | | 2002 |
| | | | October | April | October | April | October | April |
| Output 5 : Comprehensive exploration technology will be acquired. | | | | | | | | |
| 1. No. of reports on comprehensive exploration | (1)No. of reports on comprehensive exploration | Number | 0 | | | | | |
| 2. Technical level of counterparts | (1)Technical level of counterparts | Level | — | 3.4 | | | | |
| Output 6 : Manuals on exploration technology will be ready for use. | | | | | | | | |
| 1. No. of Manuals on Comprehensive exploration technology | (1) No. of Manuals on Exploration technology | Number | 0 | | | | | |
| | (2) No. of Manuals on Interpreting methods | | 0 | | | | | |
| Output 7 : A system of transferring exploration technology will be established in BRPM. | | | | | | | | |
| 1. No. of internal seminars | (1) by Japanese expert | Number | 29 | 9 | | | | |
| | (2) by counterpart | | 2 | 2 | | | | |
| 2. No. of reports | (1) for internal seminars by Japanese expert | | 5 | 3 | | | | |
| | (2) for the others by Japanese expert | | 6 | 0 | | | | |
| | (3) for internal seminars by counterpart | | 0 | 2 | | | | |
| | (4) for the others by counterpart | | 1 | 4 | | | | |
| 3. No. of practical training | (1) No. of practical training (indoor) | | 4 | 4 | | | | |
| | (2) No. of practical training (outdoor) | | 20 | 3 | | | | |

attn(1) : Quality and level of UNIT are monitored by 5 levels (5:excellent, 4:good,3:acceptable, 2:insufficient,1:poor)
attn(2) : Fiscal year of BRPM starts 1st July and ends 30th June.
attn(3) : Data in the colums (October :1January～30 June, April :1 July～31Decembre)
**exception**: Data (Output 1～Output 7) in the colums of Oct 1999 are as of 1 april 1998 ～ 30 June1999
attn(4) : Difinition of Words Pertaining to"Geological and Geochemical Survey"
①Preliminary Survey : Initial field survey of the mineralizations and possible ones known on documentations.
②Reconnaissance Survey : Initial field survey of the mineralizations and their geological setting recognized in BRPM exploration permits and concessions.
③Detailed Survey : Detailed survey in MODEL FIELDS.

1. Attention to attn(1)～attn(4) in page (4/4)

ANNEX 3

RESULT AND PLAN OF BUDGET APPROPRIATION
BY THE MOROCCAN SIDE

(1,000,000 DH)

| FISCAL YEAR | | 1997 | 1998 | 1999 | 2000 | 2001 | Total |
|---|---|---|---|---|---|---|---|
| Personnel Expenses | Plan | 3.9 | 4.05 | 4.5 | 4.6 | 4.8 | 21.85 |
| | Result | 3.5 | 1.65 | 3.91 | | | |
| Building and Facilities | Plan | 0.40 | 0.45 | 0.45 | 0.45 | 0.45 | 2.2 |
| | Result | 0.41 | 0.02 | 0.02 | | | |
| Equipment Maintenance and Operation | Plan | 0.15 | 0.25 | 0.25 | 0.30 | 0.30 | 1.25 |
| | Result | 0.17 | 0.02 | 0.03 | | | |
| Utilities, Communication And Others | Plan | 0.15 | 0.15 | 0.20 | 0.25 | 0.25 | 1.00 |
| | Result | 0.14 | 0.01 | 0.02 | | | |
| Domestic Transportation, Handling, and Installation of Equipment | Plan | 0.17 | 0.18 | 0.20 | 0.20 | 0.20 | 0.95 |
| | Result | 0.20 | 0.02 | 0.02 | | | |
| Others | Plan | 0.23 | 0.32 | 0.40 | 0.40 | 0.40 | 1.75 |
| | Result | 0.16 | 0.00 | 0.00 | | | |
| Total Annual Local Costs | Plan | 5.0 | 5.40 | 6.00 | 6.20 | 6.40 | 29.00 |
| | Result | 4.58 | 1.76 | 4.00 | | | |

Note

1: Moroccan fiscal year starts in July and ends in June.

2: This plan is subject to review in accordance with the further development of the Projet.

ANNEX 4

RESULT AND PLAN OF ALLOCATION OF MOROCCAN COUNTERPART AND ADMINISTRATIVE PERSONNEL

| FISCAL YEAR | | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|
| Project Director | Plan | 1 | 1 | 1 | 1 | 1 |
| | Result | 1 | 1 | 1 | | |
| Project Manager | Plan | 1 | 1 | 1 | 1 | 1 |
| | Result | 1 | 1 | 1 | | |
| Technical Counterpart (Others)*:related to the Project | Plan | 13(15) | 13(15) | 13(15) | 13(15) | 13(15) |
| | Result | 15(15) | 16(15) | 28 | | |
| Total Number of Counterpart (Others)*:related to the Project | Plan | 15(15) | 15(15) | 15(15) | 15(15) | 15(15) |
| | Result | 17(15) | 18(15) | 30 | | |
| Administrative Staff | Plan | 1 | 1 | 1 | 1 | 1 |
| | Result | 1 | 1 | 2 | | |
| Technical Supporting Staff | Plan | 6 | 6 | 6 | 6 | 6 |
| | Result | 2 | 6 | 6 | | |
| Drivers** | Plan | 2 | 2 | 2 | 2 | 2 |
| | Result | 2 | 2 | 2 | | |
| Secretaries | Plan | 2 | 2 | 2 | 2 | 2 |
| | Result | 0 | 1 | 2 | | |
| Total Administrative Personnel | Plan | 11 | 11 | 11 | 11 | 11 |
| | Result | 5 | 10 | 11 | | |
| Total Number of Persnnel (Others)*:related to the Project | Plan | 26(15) | 26(15) | 26(15) | 26(15) | 26(15) |
| | Result | 22(15) | 28(15) | 41(15) | | |

Note:

1.Moroccan fiscal year starts in July and ends in June.

2.Results of fiscal year 1998 is as December 1st 1998.

3.The members of the administrative counterpart and the supporting personnel will dedicate time to the project according to its necessities.

* In case 15 Engineers are informed continuously on the results and in case of finding many objectives they will associate the technical counterpart.

**Number of driver will be improved if necessary.

ANNEX 5 ALLOCATION OF MOROCCAN COUNTERPART PERSONNEL

| | ASSIGNMENT | NAME | 19 98 | | | | | | | | | | | | 19 99 | | | | | | | | | | | | 20 00 | | | | | | | | | | | | 20 01 | | | | | | | | | | | | 20 02 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 |
| | Project Director | Mr. Assou LHATOUTE | ○ (Retired) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | Ms. Amina BENKHADRA | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Project Manager | Mr. El Bachir BARODI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Technical Counterpart | Mr. Abdelhamid BERKASMI | ○ | | | | | | | | | | | | | | ▶ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | Mr. Abdellah MOUTTAQI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | Mr. M'hamed ANNICH | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | Mr. Mohamed KRIAA | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | Mr. Mohamed BERRADA | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | Mr. Larbi LASRI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | Mr. Abdelkrim RHZIZA | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | Mr. Addi ZEHNI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | Mr. Ahmed AIT KASSI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | Mr. Mohamed HAOURIQUI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | Me. Hamid EL ABDOUNI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | Mr. Taieb MARGHICH | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | Mr. Bahia JERMOUNI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | Mr. Abdelaziz ZERDANE | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | Mr. Mohamed EL GADDARRI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | Mr. Mohamed BELBADAOUI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | Mr. Mohamed RAHHALI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | Mr. Abderrhim QALBI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | Mr. Abdelmalek EL HAKOUR | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | Mr. Ali EL OUAZZANI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | Mr. Ahmed FETTOUHI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | Mr. Lahcen HMAIDOUCH | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | | Mr. Said QASRI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | | Mr. Ahmed KORCHI | | | | | | | | | | | | | | | | | | | | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | | Mr. Abderrazzak HAMZAOUI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | | Mr. Abdellah OUJHAINI | ○ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ANNEX 5 ALLOCATION OF MOROCCAN COUNTERPART PERSONNEL

| | ASSIGNMENT | NAME | 19 98 | | | | | | | | 19 99 | | | | | | | | | | | | 20 00 | | | | | | | | | | | | 20 01 | | | | | | | | | | | | 20 02 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 |
| 28 | Mr. Hassan MEZNOUDI | Mr. Najib OUASSOU | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | | Ms. Ihtissam BENSALAH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | | Mr. Abderrahmane LAHKIM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | Administrative Staff | Mr. Hassan MEZNOUDI HOUARI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | | Mr. Rachid ALAOUI | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Technical Supporting Staff | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Drivers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Secretaries | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

ANNEX 6

## LIST OF MACHINERY AND EQUIPMENT PROVIDED BY THE JAPANESE SIDE IN JAPANESE FISCAL YEAR 1998～1999

1. LIST OF JAPANEASE FY 1998～1999

| | Name of equipment | Number of unit |
|---|---|---|
| 1) | ICP | 1 SET |
| 2) | Pajero 4x4 | 1 |
| 3) | Pajero 4x4 | 1 |
| 4) | ICP Option Material | 1 SET |
| 5) | Copy Machine | 1 |
| 6) | POSAM(Spectro-Adiometre Potable) | 1 SET |

ANNEX 6

## LIST OF MACHINERY AND EQUIPMENT PROVIDED BY THE JAPANESE SIDE IN JAPANESE FISCAL YEAR 1998～1999

### 1. LIST OF JAPANEASE FY 1998～1999

| | Name of equipment | Number of unit |
|---|---|---|
| 1) | Personal Computer | 1 |
| 2) | Personal Computer | 1 |
| 3) | Personal Computer | 1 |
| 4) | Camera | 1 |
| 5) | Personal Computer | 1 |
| 6) | Safe | 1 |
| 7) | Computer Desktop | 1 |
| 8) | Handy Arc Welder With Ttranformer | 1 |
| 9) | Personal Computer | 1 |
| 10) | GDP | 2 |
| 11) | Transceiver | 4 |

ANNEX 7

## LIST OF JAPANESE EXPERTS

1. LONG-TERM EXPERT

| | |
|---|---|
| (1)Chief Advisor | |
| Mr. Mutsukazu ONO | 26 July, 1998 to 25 July, 2000 |
| (2) Coordinator | |
| Mr. Kunifusa WATANABE | 1 April, 1998 to 31 March, 2000 |
| Mr. Minoru KOGA | 12 March, 2000 to 11 March, 2002 |
| (2)Mineral Exploration | |
| Mr.Hiromu KIDO | 18 March, 1999 to 17March,2001 |
| (3)Geochemical Survey | |
| Mr. Eitaro SATO | 1 April, 1998 to 12 may, 1999 |
| Mr. Yoshihiro NAGUMO | 23 June, 1999 to 22 June, 2001 |
| (4)Mineral Deposit Theory | |
| Mr. Shigeru MATSUTOYA | 16 November, 1998 to 15 November, 1999 |

2. SHORT-TERM EXPERT

| | |
|---|---|
| (1)Geophysical Survey | |
| Mr. Akira SAITO | 1 October, 1998 to 29 October, 1998 |
| | 26 April, 1999 to 11 June, 1999 |
| (2)Exploration Theory | |
| Mr. Hiromu KIDO | 1 October, 1998 to 24 December, 1998 |
| (3)Mineral Deposit Theory | |
| Mr. Shunzou ISHIHARA | 1 February, 1999 to 19 February 1999 |
| (4)Microscope(Fluid Inclusion Study) | |
| Mr. Masakatu SASADA | 31 March, 1999 to 12 April, 1999 |
| (5)Microscope(Fluid Inclusion Study) | |
| Mr. Takayuki SAWAKI | 13 September, 1999 to 29 October 1999 |
| (6)Geochemical Survey | |
| Mr. Youichi SATOU | 15 November, 1999 to 25 December, 1999 |
| (7) Exploration Theory | |
| Mr. Kstsuji FUKUMOTO | 10 January, 2000 to 20 February, 2000 |
| (8)Mineral Deposit Theory | |
| Mr. Takeo SATOU | 20 February, 2000 to 4 March , 2000 |

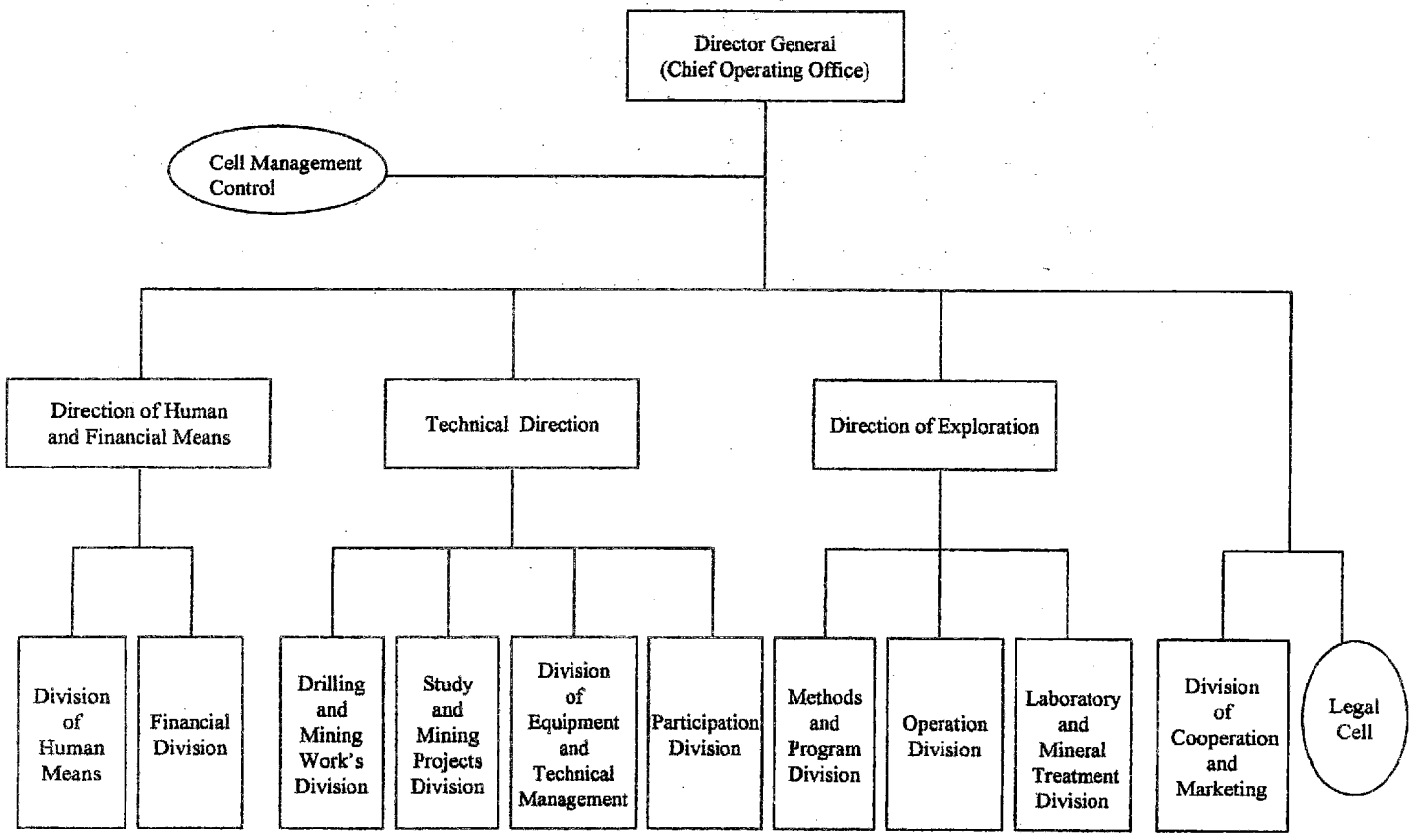
ANNEX 8

## *ORGANISATION OF STAFF SECTION*

| N° | NAME | SPECIALITY | SECTION (French) |
|---|---|---|---|
| 1 | Amina BENKHADRA | Geology | Director Général |
| 2 | El Bachir BARODI | Geology | Director de l'Exploration |
| 3 | Abdellah MOUTTAQI | Geology | Chef de Division Methodes et Programmes |
| 4 | M'hamed ANNICH | Geology | Chef de Division Opération |
| 5 | Mohamed KRIAA | Chemistry | Chef de Division Laboratoires |
| 6 | Mohamed BERRADA | Geophysics | Chef de Département Géophysique Télédétection |
| 7 | Larbi LASRI | Géochemistry | Chef de Département Géochimie |
| 8 | Abdelkrim RHZIZA | Computer | Chef de Département SIG Documentation Topographie |
| 9 | Addi ZEHNI | Geology | Chef de Département Zone Nord |
| 10 | Mohamed AIT KASSI | Geology | Chef de Département Zone Sud |
| 11 | Mohamed HAOURIQUI | OreDressing | Chef de Département Minéralurgie |
| 12 | Hamid EL ABDOUNI | Chemistry | Chef de Département Roches Industrielles |
| 13 | Taieb MARGHICH | Chemistry | Chef de Département Chimie |
| 14 | Bahia JERMOUNI | Mineralogy | Chef de Département Minéralogie |
| 15 | Abdelaziz ZERDANE | Geology | Département Programmes et Expert Thématique |
| 16 | Mohamed EL GADDARRI | Géology | Département Programmes et Expert Thématique |
| 17 | Mohamed BELBADAOUI | Geology | Département Programmes et Expert Thématique |
| 18 | Mohamed RAHHALI | Geology | Département Programmes et Expert Thématique |
| 19 | Abderrahim QALBI | Geology | Département Zone Centre |
| 20 | Abdelkhaleq EL HAKOUR | Geology | Département Zone Centre |
| 21 | Ali EL OUAZZANI | Geology | Département Zone Nord |
| 22 | Ahmed FETTOUHI | Geology | Département Zone Nord |
| 23 | Lahcen HMAIDDOUCH | Geophysics | Département Géophysique Télédétection |
| 24 | Said QASRI | Geophysics | Département Géophysique Télédétection |
| 25 | Ahmed KORCHI | Geophysics | Département Géophysique Télédétection |
| 26 | Abderrazak HAMZAOUI | Remote sensing | Département Géophysique Télédétection |
| 27 | Abdellah OUAJHAIN | Mineralogy | Département Minéralogy |
| 28 | Najib OUASSOU | Chemistry | Département Chimie |
| 29 | Ibtissam BENSALAH | Mineralogy | Département Minéralogie |
| 30 | Abderrahmane LAHKIM | Chemistry | Département Chimie |
| 31 | Hassan MEZNOUDI HOUARI | Administration | Chef de Division Coopération et Promotion Commerciale |
| 32 | Rachid ALAOUI | Administration | Chef de Département Moyen Généraux |

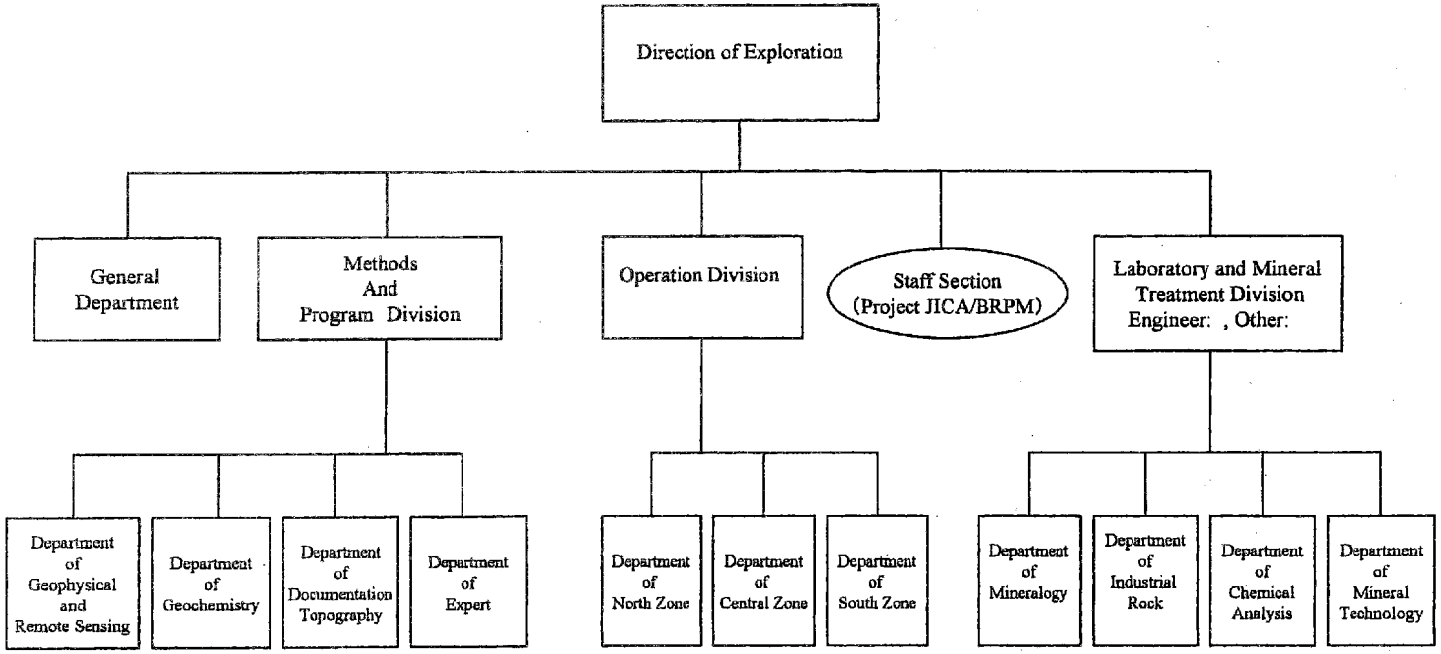
ANNEX 9

ORGANIZATION CHART OF BRPM



ANNEX 10

# ORGANIZATION CHART OF EXPLORATION DEPARTMENT, BRPM




List of Engineer
in Direction of Exploration

| | | |
|---|---|---|
| 26 | Geologist | 15 |
| 6 | Geophysicist | 4 |
| 1 | Remote Sensing | 1 |
| 3 | Geochemist | 1 |
| 1 | Geo-computer scientist | 1 |
| 5 | Metallurgist | |
| 4 | Chemist | 4 |
| 3 | Mineralogist | 3 |

ANNEX 11

## LIST OF MOROCCAN COUNTERPARTS TRAININED IN JAPAN

1.TRAINED IN JAPANESE FISCAL YEAR 1998

| NAME | AREA | TERM |
|---|---|---|
| Mr. Larbi LASRI | Geochemical Survey | 4 October, 1998 to 6 November, 1998 |

2.TRAINED IN JAPANESE FISCAL YEAR 1999

| NAME | AREA | TERM |
|---|---|---|
| Mr. Najib OUASSOU | Instrumental Analysis | 9 November, 1999 to 9 December 1999 |
| Mr. Abdelaziz ZERDANE | Exploration Theory | 9 November, 1999 to 9 December 1999 |

PROJECT DESIGN MATRIX (1/2) Rev. 2000.5.30

| PROJECT SUMMARY | OBJECTIVELY VERIFIABLE INDICATAORS | MEANS OF VERIFICATION | IMPORTANT ASSUMPTIONS |
|---|---|---|---|
| (SUPER GOAL)<br>The mining industry will be developed in Morocco. | 1. Quantities and amount of mineral production will be increased.<br>2. Quantities and amount of mineral export will be increased. | 1. Governmental statistics on mineral production<br>2. Governmental statistics on mineral export | a. Governmental policy on development of mining industry will not change.<br>b. Overseas demand and international market price of mineral resources will not decrease rapidly. |
| (OVERALL GOAL)<br>New mineral resources will be found in Morocco. | 1. Estimated amount of mineral resources will be increased. | 1. Governmental statistics on mineral resources<br>2. Annual report of BRPM | a. Economy situation will not get worse rapidly<br>b. Necessary investment for development of mineral resources will be done.<br>c. Labor cost will not increase rapidly. |
| (PROJECT PURPOSE)<br>BRPM will be able to continuously carry out the systematical and practical exploration. | 1. Level of exploration | 1. Monitoring/evaluation level No.1 | a. Importance on the role and function of the governmental policy on development of mineral resources will not change. |
| (OUTPUTS)<br>0. The Organization of Exploration Department of BRPM will be improved and it will be operated efficiently. | 0. No. of staff, Budget, Results of activities | 0. Personal record, Accounting record, Activities record | a. BRPM will support the activities for internal seminars and practical training.<br>b. Counterparts will continue to work at BRPM. |
| 1. Equipment will be efficiently operated and properly maintained. | 1. Result of operation and maintenance on equipment, No. of analysis on samples maintenance management and maintenance. | 1. Operation record, Maintenance record | |
| 2. Planning method on efficient exploration will be acquired. | 2. Results of exploration plans | 2. Record of exploration plans | |
| 3. Practical technology on exploration will be acquired. | 3. Results of selecting exploration targets | 3. Record of surveys, Record of interpretation, Survey reports | |
| 4. Comprehensive exploration technology will be acquired. | 4. Quality of integrated reports<br>Level of inventory (integrated) maps<br>Level of modelization<br>Level of technology of engineers | 4. Evaluation reports of exploration targets<br>Monitoring/evaluation level No.2<br>Monitoring/evaluation level No.3<br>Monitoring/evaluation level No.4 | |
| 5. Manual on exploration technology will be ready for use. | 5. Completion of manual on exploration technology | 5. Manual on exploration technology | |
| 6. A system of transferring exploration technology will be established in BRPM. | 6. No. of internal seminars<br>(Ref : Level of technology of engineers) | 6. Record of internal seminars<br>(Ref : monitoring/evaluation level No.4) | |

PROJECT DESIGN MATRIX (2/2)

Rev. 2000.5.30

| (ACTIVITIES) | INPUT | | |
|---|---|---|---|
| | Moroccan Side | Japanese Side | |
| 0-1. Allocate appropriate personnel and facilities to the Staff Section.<br>0-2. Make an operational plan of Staff Section on the basis of the operational plan.<br>0-3. Operate the Staff Section appropriately on the basis of the operational plan.<br>0-4. Procure and arrange vehicles for field survey<br>1-1. Procure and install equipment (ICP,POSAM).<br>1-2. Acquire operation method of equipment.<br>1-3. Acquire management and maintenance method of equipment.<br>1-4. Operate and maintain equipment appropriately.<br>2-1. Collect and interpret existing data to select prospective areas.<br>2-2. Make a geological survey plan.<br>2-3. Select model areas and implement field survey on the basis of the plan.<br>3-1. Make a geological and geochemical survey plan.<br>3-2. Implement survey on the basis of the plan and make interpretation.<br>3-3. Analyze samples by ICP, and interpret the data.<br>3-4. Make maps of geological and geochemical survey.<br>3-5. Make ore deposite model on the basis of the results of the interpretation.<br>3-6. Select gephysical survey target areas.<br>3-7. Make a geophysical survey plan.<br>3-8. Implement geophysical survey in the target areas, and interpret the data.<br>3-9. Revise the ore deposit model on the basis of results of the geophysical survey.<br>3-10. Select drilling targets.<br>4-1. Transfer comprehensive exploration technology on the basis of the results of geological, geochemical and geophysical exploration works.<br>4-2. Make comprehensive interpretation reports<br>5-1. Make manuals on exploration technology and interpreting technology.<br>5-2. Keep the manuals appropriately.<br>6-1. Organize internal seminars in BRPM by Japanese experts.<br>6-2. Organize internal seminars in BRPM so that counterparts can present the results of their works.<br>6-3. Transfer the technologies to other technical personnel in BRPM through practical training. | 1. Building and facility<br><br>2. Allocation of counterpart and administrative personnel<br><br>3. Equipment and materials<br><br>4. Appropriation of the necessary budget for the implementation of the Project | 1. Long-term experts<br>Chief Advisor<br>Coordinator<br>Mineral Deposit Theory<br>Geological Survey<br>Geochemical Survey<br>Data Compilation / Exploration Strategy<br><br>2. Short-term experts<br>Appropriate no. per year<br><br>3. Counterpart training in Japan<br>1 to 2 counterpart per year<br><br>4. Machinery and equipment<br>ICP and optional materials<br>2 vehicles (4WD)<br>POSAM | a. Analytical equipment will be procured smoothly and necessary budget to operate and maintain the equipment will be allocated.<br>b. Counterparts will continue to work at BRPM.<br><br>(PREPOSITION)<br>a. Staff section is institutionalized in BRPM.<br>b. Related information and data in BRPM are available. |

PLAN OF OPERATIONS FOR THE WHOLE PERIOD (PO)

Appendix 3

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year) 97 IV / 19 98 I II III IV / 19 99 I II III IV / 20 00 I II III IV / 20 01 I II III IV | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|
| 0-1 Allocate appropriate personnel and facilities to the Staff Section. | | | PD<br>CA | PM<br>PC | ●organization plan of Staff Section<br>●Record of meeting |
| 0-2 Make an operational plan of the Staff Section. on the basis of the operational plan. | | | | LE | ●Record of Local Cost<br>●Results of Activities |
| 0-3 Operate the Staff Section appropriately on the basis of the oparational plan. | | | | | |
| 0-4 Procure and arrange vehicles for field survey. | | | | | |
| 1-1 Procure and install equipment(ICP,POSAM). | | | | | ●Record of meeting |
| 1-2 Acquire operation method of the equipment. | | | | PM<br>PC | ●Report of installation<br>●Record of Operation |
| 1-3 Acquire management and maintenance method of the equipment. | | | | LE | ●Record of maintenance |
| 1-4 Operate and maintain equipment appropriately. | | | CA | PC | ●No. of analysis on samples |
| 2-1 Collect and interpret existing data to select prospective areas. | | | | | |
| 2-1-1 Compilation of geological and metallogenical data. | | | | | |
| 2-1-2 Analysis of documentation. | | | | | ●Materials of Seminar |
| 2-2 Make a geological survey plan. | | | | PM | ●Geological Survey plan |
| 2-2-1 Transfer all informations on maps. | | | | | |
| 2-2-2 Analysis of the maps. | | | | | |

Note: PD:Project Director PM:Project Manager C/P:Counterpart CA:Chief Adviser PC:Project Coordinator LE:Long-term Expert SE:Short-term Expert.

PLAN OF OPERATIONS FOR THE WHOLE PERIOD (PO)

Appendix 3

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year) 97 IV / 19 98 I II III IV / 19 99 I II III IV / 20 00 I II III IV / 20 01 I II III IV | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|
| 2-3 Select model areas and implement field survey on the basis of the plan. | | | | PC | ●Ore manifestation list |
| 2-3-1 Select promising areas. | VMS | | | | |
| 2-3-2 Visit promising areas and deposits (Hajjar, Qalaat Mgouna, Imiter, Beddiane; Nador) | popliyry-copper MVT | | | LE | |
| 3-1 Make a geological and geochemical survey plan. | | | | | |
| 3-1-1 Choose a scale of geological map. | Aguelmous | | KIDO | | ●Geological and geochemica |
| 3-1-2 Choose appropriate geochemical methods. | Pays des Horst | | NAGUMO | | |
| | EZZHILIGA | | KIDO | | |
| 3-2 Implement survey on the basis of the plan and make interpretation. | | | LASRI<br>OUAZZANI<br>ZERDANE | PM | ●survey plan |
| 3-3 Analyze samples by ICP, and interpret the data. | | | | | |
| 3-3-1 Acquisition of analytical data. | | | | | |
| 3-3-2 Statistical treatment by computer. | | | | | |
| 3-3-3 Geochemical maps of different elements | | | | | |
| 3-4 Make maps of geological and geochemical survey. | | | ZEHNI, ZERDANE | | |
| 3-4-1 Digitization of all geological data. | | | | | |
| 3-4-2 Draw geochemical maps. | | | OUAZZANI | PC | ●Analytical data by ICP |
| | | | OUAZZANI | LE | ●Inventory map |
| | | | LASRI | SE | ●Survey report |

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PLAN OF OPERATIONS FOR THE WHOLE PERIOD (PO)

Appendix 3

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year) 97 IV / 19 98 I II III IV / 19 99 I II III IV / 20 00 I II III IV / 20 01 I II III IV | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|
| 3-5 Make ore deposite model on the basis of the results of the interpretation. | | | KIDO<br>LASRI | | |
| 3-5-1 Transfer of all geological,geochemical and geophysical data on the same map. | Aguelemous | | OUAZZANI<br>ZEHNI | | |
| 3-5-2 Make a preliminary ore deposits model. | | | HMIDDOUCH | | |
| 3-6 Select geophysical survey target areas. | | | | PM | ●Geophysical survey plan<br>●Genetic model |
| 3-7 Make a geophysical survey plan. | | | | PC | ●Survey report |
| 3-7-1 Selection of methods. | | | | | |
| 3-7-2 Selection of scale and configuration. | | | | | |
| 3-7-3 Timing and team selection. | | | | | |
| 3-8 Implement geophysical survey in the target areas, and interpret the data. | | | | LE | |
| 3-8-1 IP (Aguelmous) | Vein type | | HMAIDOUCH | | |
| 3-8-2 Mag, Grav, EM (EZZHILIGA) | VMS | | WADA | SE | |
| 3-8-3 Sondage electrique (SE) CSAMT, IP (pays des Horst) | MVT | | QASRI<br>HMAIDOUCH | | |
| 3-9 Revise the ore deposit model on the basis of results of the geophysical survey. | | | | | |
| 3-10 Select drilling targets. | | | | | |
| 4-1 Transfer comprehensive exploration technology on the basis of the results of geological, geochemical and geophysical exploration works. | | | | PM<br>PC | ●Reports on comprehensive exploration |

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PLAN OF OPERATIONS FOR THE WHOLE PERIOD (PO)

Appendix 3

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year) 97 IV / 19 98 I II III IV / 19 99 I II III IV / 20 00 I II III IV / 20 01 I II III IV | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|
| 4-2 Make comprehensive interpretation reports. | | | | LE,SE | |
| 4-2-1 Select of favorable targets. | | | | | |
| 4-2-2 Recommendation for the next step. | | | | | |
| 4-2-3 Proposition of following work program. | | | PD CA | | |
| 5-1 Make manuals on exploration technology and interpreting technology. | | | | PM PC | ●Manuals on Exploration technology |
| 5-2 Keep the manuals appropriately. | | | | LE SE | ●Manuals on Interpreting methods |
| 6-1 Organize internal seminars in BRPM by Japanese Experts. | | | | | ●Materials of Seminar |
| 6-2 Organize internal seminars in BRPM. so that the counterparts can present the results of their works. | | | | PM PC | ●Materials of Seminar starting from Sep.1999 (Rev.30/06/1999) |
| 6-3 Transfer the technologies to other technical personnel in BRPM through practical training.. | | | | LE SE | |

Note: PD:Project Director PM:Project Manager C/P:Counterpart CA:Chief Adviser PC:Project Coordinator LE:Long-term Expert SE:Short-term Expert.

ANNUAL PLAN OF OPERATIONS (APO)

Appendix 4

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year 2000) 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-1 Allocate appropriate personnel and facilities to the Staff Section. | Allocation of the Staff | | | | | | | | | | | | | PD<br>CA | | |
| 0-1-1 Make a personnel allocation plan. | | | | | | | | | | | | | | | PM | |
| 0-1-2 Allocate the personnel | | | | | | | | | | | | | | | PC<br>LE | |
| 0-2 Make an operational plan of the Staff Section. on the basis of the operational plan. | Review every six months | | | | | | | | | | | | | | PM | |
| 0-2-1 Do intermediate review of the annual plan | | | | | | | | | | | | | | | PC | |
| 0-2-2 Organaize operational meeting | | | | | | | | | | | | | | | LE | |
| 0-2-3 Make a budgetary plan for fiscal year 2001 | | | | | | | | | | | | | | | | |
| 0-3 Operate the Staff Section appropriately on the basis of the oparational plan. | Review every six months | | | | | | | | | | | | | | PM<br>PC<br>LE | |
| 0-4 Procure and arrange vehicles for field survey. | | | | | | | | | | | | | | | | |
| 1-1 Procure and install equipment(ICP,POSAM). | | | | | | | | | | | | | | | PM | |
| 1-1-1 Decide installation place of the equipment. | | | | | | | | | | | | | | PD,CA | C/P | |
| 1-1-2 Install the equipment | | | | | | | | | | | | | | PM,CA | PC<br>LE | |
| 1-2 Acquire operation method of the equipment. | | | | | | | | | | | | | | CA | | |
| 1-3 Acquire management and maintenance method of the equipment. | | | | | | | | | | | | | | | LE | |

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ANNUAL PLAN OF OPERATIONS (APO)

Appendix 4

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year 2000) 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-4 Operate and maintain equipment appropriately. | | | | | | | | | | | | | | PM<br>CA | | |
| 2-1 Collect and interpret existing data to select prospective areas. | | | | | | | | | | | | | | | | finished |
| 2-1-1 Compilation of geological and metallogenical data. | | | | | | | | | | | | | | | | |
| 2-1-2 Analysis of documentation. | | | | | | | | | | | | | | | | |
| 2-2 Make a geological survey plan. | | | | | | | | | | | | | | PM,CA,LE | PM,CP | finished |
| 2-2-1 Transfer all informations on maps. | | | | | | | | | | | | | | PM,LE | PC,LE | |
| 2-2-2 Analysis of the maps. | | | | | | | | | | | | | | PM,LE | | |
| 2-3 Select model areas and implement field survey on the basis of the plan. | | | | | | | | | | | | | | | | |
| 2-3-1 Select promising areas. | VMS | | | | | | | | | | | | | | | |
| 2-3-2 Visit promising areas and deposits (Hajjar, Qalaat Mgouna, Imiter, Beddiane; Nador) | pophyry-copper<br>MVT | | | | | | | | | | | | | | | |
| 3-1 Make a geological and geochemical survey plan. | | | | | | | | | | | | | | | PC | |
| 3-1-1 Choose a scale of geological map. | Aguelmous | | | | | | | | | | | | | KIDO | LE | finished |
| 3-1-2 Choose appropriate geochemical methods. | Pays des Horst | | | | | | | | | | | | | NAGUMO | | |
| | EZZHILIGA | | | | | | | | | | | | | KIDO | | |
| 3-2 Implement survey on the basis of the plan and make interpretation. | | | | | | | | | | | | | | LASRI | | Analyze samples of reconnaissance survey |
| | | | | | | | | | | | | | | OUAZZANI | | |
| | | | | | | | | | | | | | | ZERDANE | | |

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ANNUAL PLAN OF OPERATIONS (APO)

Appendix 4

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year 2000) 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-3 Analyze samples by ICP, and interpret the data. | | | | | | | | | | | | | | | | |
| 3-3-1 Acquisition of analytical data. | | | | | | | | | | | | | | | | |
| 3-3-2 Statistical treatment by computer. | | | | | | | | | | | | | | | | |
| 3-3-3 Geochemical maps of different elements | | | | | | | | | | | | | | | | |
| 3-4 Make maps of geological and geochemical survey. | | | | | | | | | | | | | | ZEHNI, ZERDAN | PC | |
| 3-4-1 Digitization of all geological data. | | | | | | | | | | | | | | OUAZZANI | LE | |
| 3-4-2 Draw geochemical maps. | | | | | | | | | | | | | | LASRI | SE | |
| 3-5 Make ore deposite model on the basis. | | | | | | | | | | | | | | KIDO | | Starts in 2000 |
| of the results of the interpretation. | | | | | | | | | | | | | | LASRI | | |
| 3-5-1 Transfer of all geological,geochemical and | Aguelemous | | | | | | | | | | | | | OUAZZANI | | |
| geophysical data on the same map. | | | | | | | | | | | | | | ZEHNI | | |
| 3-5-2 Make a preliminary ore deposits model. | | | | | | | | | | | | | | HMIDDOUCH | | |
| 3-6 Select geophysical survey target areas. | | | | | | | | | | | | | | PM | | |
| | | | | | | | | | | | | | | | PM | |
| 3-7 Make a geophysical survey plan. | | | | | | | | | | | | | | C/P | C/P | |
| 3-7-1 Selection of methods. | | | | | | | | | | | | | | | PC | |
| 3-7-2 Selection of scale and configuration. | | | | | | | | | | | | | | | SE | |
| 3-7-3 Timing and team selection. | | | | | | | | | | | | | | | | |

Note: PD:Project Director PM:Project Manager C/P:Counterpart CA:Chief Adviser PC:Project Coordinator LE:Long-term Expert SE:Short-term Expert

ANNUAL PLAN OF OPERATIONS (APO)



Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year 2000) 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-8 Implement geophysical survey in the target areas, and interpret the data. | | | | | | | | | | | | | | | LE | |
| 3-8-1 IP (Aguelmous) | Vein type | | | | | | | | | | | | | HMAIDOUCH | | |
| 3-8-2 Mag, Grav, EM (EZZHILIGA) | VMS | | | | | | | | | | | | | WADA | SE | |
| 3-8-3 Sondage electrique (SE) CSAMT, IP (pays des Horst) | MVT | | | | | | | | | | | | | QASRI<br>HMAIDOUCH | | |
| 3-9 Revise the ore deposit model on the basis of results of the geophysical survey. | | | | | | | | | | | | | | | | |
| 3-10 Select drilling targets. | | | | | | | | | | | | | | | | |
| 4-1 Transfer comprehensive exploration technology on the basis of the results of geological, geochemical and geophysical exploration works. | | | | | | | | | | | | | | | PM<br>PC | |
| 4-2 Make comprehensive interpretation reports. | | | | | | | | | | | | | | PM | PM | |
| 4-2-1 Select of favorable targets. | | | | | | | | | | | | | | LE | C/P | |
| 4-2-2 Recommendation for the next step. | | | | | | | | | | | | | | | PC | |
| 4-2-3 Proposition of following work program. | | | | | | | | | | | | | | | LE<br>SE | |

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ANNUAL PLAN OF OPERATIONS (APO)

Appendix 4

Rev.30.05.2000

| Activities | Target | Schedule (Fiscal Year 2000) | | | | | | | | | | | | Responsible Persons in Project Team | input* | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | | | |
| 5-1 Make manuals on exploration technology and interpreting technology. | | | | | | | | | | | | | | PM<br>LE | PM<br>C/P | |
| 5-2 Keep the manuals appropriately. | | | | | | | | | | | | | | | PC<br>LE<br>SE | |
| 6-1 Organize internal seminars in BRPM by Japanese Experts. | | | | | | | | | | | | | | PM<br>LE | PM<br>C/P | |
| 6-2 Organize internal seminars in BRPM. so that the counterparts can present the results of their works. | | | | | | | | | | | | | | | PC<br>LE | |
| 6-3 Transfer the technologies to other technical personnel in BRPM through practical training.. | | | | | | | | | | | | | | | SE | |

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Appendix 5

Plan of the Inputs in the Third and the Fourth year

Japanese side

1. Dispatch of Long-term Experts

Chief Advisor

Coordinator

Geological Survey

Geochemical Survey

Data Compilation / Exploration Strategy (to be dispatched in the end of 2000 or in the beginning of 2001)

2. Dispatch of Short-term Experts

(JFY 2000)

| | |
|---|---|
| Geology (exploration strategy) | from June, 2000 (1.5month) |
| Geochemical Survey (data compilation) | from October, 2000 (1 month) |
| Geology (geotechtonics) | from October, 2000 (1 month) |
| Mineral Deposit Theory (VMS type deposit) | from February, 2001 (1 month) |

(JFY 2001)

Geophysical Survey (gravity survey)

Data Base (when necessity arises)

3. Provision of Equipment

(JFY 2000)

Kappa meter

Theodolite (laser type)

Scanner (A3 size) and Software for image processing

4. Training of C/P in Japan

(JFY 2000)

Mineral Deposit Theory

Geophysical Survey

(JFY 2001)

Geology 2 persons (provisional)

Moroccan side

1. Purchase of Equipment

Software for adjusting (gravity survey)

2. Allocation of Local Costs

Expense for translation from French to English

(In case the Moroccan C/P make the draft of survey reports in French)

# Monitoring / Evaluation Level of Indicators

1. Level of Exploration : Indicator for Project Purpose

| Level | Explication | Indispensable technology, knowledge and capability ( from lower level to this level) | Means of verification |
|---|---|---|---|
| 5 | Geologists are able to continuously carry out by themselves the systematical and practical exploration using various exploration methods appropriately and efficiently. | Technology and capability to make timesaving and economical exploration plan, also to implement survey on the basis of the plan having the systematical and practical exploration. | Questionnaire and Interview Exploration reports |
| 4 | Geologists are able to continuously carry out the systematical and practical exploration using various exploration methods appropriately and efficiently with advice of experts. | Technology and capability to make timesaving and economical survey plan, also to implement survey on the basis of the plan having the systematical and practical exploration with advice of experts. | Questionnaire and Interview Exploration reports |
| 3 | Geologists are able to continuously carry out by themselves the exploration using various exploration methods. | Technology and capability to utilize geochemical and geophysical survey methods | Questionnaire and Interview Exploration reports |
| 2 | Geologists are able to continuously carry out the exploration using various exploration methods with advice of experts. | Technology and capability to utilize geochemical and geophysical survey methods with advice of experts | Questionnaire and Interview Exploration reports |
| 1 | Geologists are not able to continuously carry out the exploration using various exploration methods in spite of advice of experts. | | Questionnaire and Interview Exploration reports |

# Monitoring / Evaluation Level of Indicators

2. Level of Inventory Map (Integrated Map) : Indicator for Output 4

| Level | Explication | Indispensable technology, knowledge and capability ( from lower level to this level) | Means of verification |
|---|---|---|---|
| 5 | Inventory Map comprising overall information on geology and ore deposits that geologists can utilize practically for exploration. (e.g., can be utilized for geologists to select target areas.) | Overall information on geology and ore deposits | Questionnaire and Interview |
| 4 | Inventory Map of Level 3 provided with geochemical and geophysical information. | Geochemical and geophysical information | Questionnaire and Interview |
| 3 | Inventory Map of Level 2 provided with information on the type of ore deposits. | The type of ore deposits | Questionnaire and Interview |
| 2 | Inventory Map of Level 1 provided with geological information. | Geological information | Questionnaire and Interview |
| 1 | Inventory Map comprising only information on the topography and distribution of ore minerals. | | Questionnaire and Interview |

# Monitoring / Evaluation Level of Indicators

3. Level of Modelization : Indicator for Output 4

| Level | Explication | Indispensable technology, knowledge and capacity (from lower level to this level) | Means of verification |
|---|---|---|---|
| 5 | Working hypotheses coincide with survey results and are verified | Modelization is made on the basis of working hypotheses based upon results of integrated interpretation | Questionnaire and Interview |
| 4 | Working hypotheses are built up on the basis of results of interpretation based upon vertical and horizontal profiles | Working hypotheses are built up with results of geochemical and geophysical exploration being integrated | Questionnaire and Interview |
| 3 | Working hypotheses are built up on the basis of topographical and geological data | Working hypotheses are built up with mineralization type of the target area being identified | Questionnaire and Interview |
| 2 | General interpretation of survey results is made | Geological information and mineralization/alteration/anomalies are described | Questionnaire and Interview |
| 1 | Only survey results are comprised without interpretation | | Questionnaire and Interview |

Appendix 6

# Monitoring / Evaluation Level of Indicators

4. Level of Technology of Engineers : Indicator for Output 4 / Reference of Output 6

| Level | Explication | Indispensable technology, knowledge and capacity (from lower level to this level) | Means of verification |
|---|---|---|---|
| 5 | Counterparts can transfer exploration technology to the other engineers by themselves. | Ability to integrate survey and interpretation results of other fields and to make an inventory map, model map and exploration strategy | Questionnaire and Interview |
| 4 | Counterparts can transfer exploration technology to the other engineers with advice of experts. | Ability to integrate survey and interpretation results of other fields and to make an inventory map, model map and exploration strategy, with advice of experts | Questionnaire and Interview |
| 3 | Counterparts can carry out exploration by themselves. | Ability to make an exploration plan on the basis of inventory map and model map | Questionnaire and Interview |
| 2 | Counterparts can carry out exploration with advice of experts. | Ability to make an exploration plan on the basis of inventory map and model map, with advice of experts | Questionnaire and Interview |
| 1 | Counterparts can not carry out exploration in spite of advice of experts. | | Questionnaire and Interview |

Remarks : This criteria is applied to the following engineers as the indicator / as the reference for achievement of Output 3, 4 and 6.

(1) Geologists (C/P of long-term experts) : as the indicator for Output 4

(2) Geologists (other than the above) : as the reference for Output 6

(3) Engineers of other fields : as the reference for Output 6

Appendix 7

List of the Attendance at the Discussions

(Moroccan Side)

BRPM

| | |
|---|---|
| Ms. Amina Benkhadra | Director General |

Ministry of Energy and Mines

| | |
|---|---|
| Mr. Farid Hamouda | Chief of Division of Training and Cooperation |

Ministry of Foreign Affairs and Cooperation

Mr.

BRPM

| | |
|---|---|
| Mr. El Bachir Barodi | Director of Exploration, BRPM |
| Mr. Mohamed Benabdenbi | Director of Technique |
| Mr. Abdellah Mouttaqi | Chief of Methods and Program Division, Direction of Exploration |
| Mr. M'hamed Annich | Chief of Operation Division, Direction of Exploration |
| Mr. Mohamed Kriaa | Chief of Laboratory and Mineral Treatment Division, Direction of Exploration |
| Mr. Hassan Meznoudi Houari | Chief of Cooperation and Marketing Division |
| Mr. Bensatti Lahcen | Chief of Service of Cooperation and Marketing Division |

(Japanese Side)

Management Consultation Team

| | |
|---|---|
| Mr. Kojiro Matsumoto | Leader |
| Mr. Toshimi Takigawa | Member (Technical Cooperation Planning) |
| Mr. Tsunekazu Ajiki | Member (Technical Transfer Planning) |
| Mr. Hiroshi Hama | Member (Mineral Deposit Exploration) |
| Ms. Yukari Saito | Member (Project Management) |
| Mr. Toshiyuki Morita | Member (Interpreter) |

Long-term Expert

| | |
|---|---|
| Mr. Mutsukazu Ono | Chief Advisor |
| Mr. Minoru Koga | Coordinator |

| | |
|---|---|
| Mr. Hiromu Kido | Mineral Deposit Exploration |
| Mr. Yoshihiro Nagumo | Geochemical Survey |

JICA Morocco Office

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|---|---|
| Mr. Nobuyuki Yamaura | Resident Representative |
| Ms. Michiko Hatakenaka | Assistant Resident Representative |