2．フェーズII協力要請に係る資料
FIRST DRAFT

APPLICATION FORM for PROJECT-TYPE TECHNICAL COOPERATION PROGRAM (PTTC) for JFY 2002

I. Official Title of the Project

CAPACITY-BUILDING PROJECT FOR ENVIRONMENTAL MANAGEMENT IN MINING (PHASE II)

II. Implementing Organization

1. Name of the Implementing Organization

Department of Environment and Natural Resources (DENR)
MINES AND GEOSCIENCES BUREAU (MGB)

2. Project Sites

Primary: **MGB Central Office**
Quezon City, Metro Manila, Philippines

Secondary: **MGB Regional Office No. VII**
Banilad, Mandaue City, Philippines

MGB Regional Office No. XI
(Davao City, Philippines)

MGB Cordillera Administrative Region (CAR)
Baguio City, Philippines

MGB Regional Office No. V
Legaspi City, Philippines

MGB Caraga Region
Surigao City, Philippines

3. Related Government Department/Agencies

- Department of Environment and Natural Resources (DENR)
- Environmental Management Bureau – Central Office

- Environmental Management Bureau, particularly in Regions V, VII, XI, CAR and CARAGA; and

- Selected Local Government Units, particularly the Provincial Mining Regulatory Board (PMRB)

4. Outline of the Implementing Organization

As shown in **Annex "A"**, the Mines and Geosciences Bureau (MGB) is a Line Bureau of the Department of Environment and Natural Resources (DENR). The MGB is the agency of the government responsible to manage, administer, and promote the sustainable exploration, development, utilization and conservation of the country's mineral lands and resources. Corollary to this mandate, the MGB undertakes geological, mining, metallurgical, mine environmental, mineral economics and other related research and development activities.

5. Organizational Set-up

The MGB consists of the Central Office and laboratories located in Diliman, Quezon City, Metro Manila, headed by the Director of Mines and Geosciences. It also maintains and operates fourteen (14) Regional Offices all over the country, headed by a Regional Director.

The MGB Central Office (**Annex "B"**) is composed of ten Divisions, three (3) of which pertains to administrative matters (Planning and Policy; Administrative Services; and Finance) and seven (7) are concerned on technical matters (Mining Environment and Safety; Mining Technology; Metallurgical Technology; Lands Geological Survey; Marine Geology; Mining Tenements and Mineral Economics). The Central Office is currently manned with a total complement of four hundred eleven (411) permanent personnel. Of the total personnel, more than half are geologist, engineers and chemists. Technical facilities include a sea-going research vessel (RPS Explorer); the Petrological, Mineralogical and Geochronological Services Laboratory (PETROLAB), the Metallurgical and Chemical Laboratory, and the new Mine Environmental Laboratory under the existing JICA – MGB Capacity Building Project for Environmental Management in Mining which is also located at the Petrolab. These are supplemented by some portable, field-type equipment within the various technical Divisions and the on-going JICA – MGB technical cooperation project.

The Regional Offices (**Annex 'C"**) are composed of four (4) Divisions: one (1) Administrative and Finance Division and three (3) Technical Divisions – a) Mine Management, b) Mine Environment and Safety, and c) Geosciences Divisions. The current level of personnel in all the Regional Offices is more than 1,100, the said figure is 25% more than the total personnel in the last three year. The main reason for the increase is due to the recent creation of a Mine Environment Division and an Administrative and Finance Division in all the Regional Offices. Of the total personnel of the Regional

Offices, more than half are Technical Personnel, usually composed of mining engineers, geologists, chemists and economist.

In the Central Office, the proposed main site of the Project, the Mining Environment and Safety Division is composed of 34 Technical Personnel; the Lands Geological Survey Division, which manages and operates the PETROLAB is composed of 96 Technical positions, and the Metallurgical Technology Division is composed of 54 personnel.

The Petrolab Building, which was constructed under the 1982 JICA Grant-in-Aid Project, consists of a two-storey main building with 2,303 sq. mts. Floor area, and a one-storey detached sample preparation building of 165 sq. mts. The Metallurgy and Chemistry Laboratory is also housed in a concrete building of more than 2,500 sq.mts.

The proposed horizontal development of the project is concentrated along the Regional Offices, particularly the Cordillera Administrative Region in Baguio City, Region V in Legaspi City, Region VII in Mandaue City, Region XI in Davao City and Caraga Region in Surigao City as shown in **Annex "D"**. The Office of the MGB Cordillera Administrative Region, previously the center of mining activities in the country, and where most abandoned and existing small scale mines are located is projected to be the laboratory center for Northern Luzon. The said area also covers MGB Regional Office Nos. I and II. MGB Region V where most of the abandoned mines and the operating small scale mines exist is projected to be the laboratory center for Bicol area. This area also covered MGB Regional Office No. VI. MGB Region No. VII, which is the center of mining and quarrying activities in the Visayan Region is projected to become the laboratory center for the said area. The area also covers MGB Region No. VIII. MGB Region No. XI where most small-scale mining exist and future mining activities are envisioned is projected to become the laboratory center for Mindanao. The area also covers MGB Region Nos. IX, and XII. The Caraga Region where most large-scale mining activities are presently concentrated and other abandoned mines are located is projected to be the laboratory center for Surigao. The said are also covers MGB Region X. The MGB Baguio Office has a complement of 84 personnel and has its own building with existing old laboratory and equipment. MGB office in Legaspi with a personnel complement of ???? personnel rented a two-storey building for its office and has no laboratory, equipment and facilities. The MGB Office in Mandaue City has its own three (3) storey building and complete complement of 79 personnel and some old laboratory equipment. The Davao Office is renting out two (2) 2-storey building with a complement of 75 personnel and laboratory facilities capable of some simple wet chemical analysis. The MGB Office in Surigao has its own 3-storey building and a personnel complement of ??? personnel and no existing laboratory and equipment.

The Related Government Departments/Agencies

- **The Department of Environment and Natural Resources (DENR)** is the mother unit of the Mines and Geosciences Bureau.

- **The Environmental Management Bureau (EMB)**-Central Office is a line Bureau of the DENR that is responsible for the policy making, processing of Environmental Compliance Certificates (ECC), and provide some technical support to the various EMB Regional Offices. These offices are responsible for the implementation of the DENR/EMB's environmental protection and mitigation programs/activities, and the monitoring of ECC compliances of various industries and entities It should be noted, however, that these offices does not have enough personnel trained and experienced in dealing with mining related activities (e.g. geologists, mining engineers, metallurgists, etc.) within its staff.

- Under the Local Government Code of 1992, the local government units, thru their respective Provincial/City Mining Regulatory Boards (PMRB), are responsible for the management and administration of small-scale mining activities, both metallic and non-metallic. The PMRB rely mainly on the MGB Regional Offices for technical support on mining operations and mine environmental protection and site enhancement.

6. Outline of the Activities of the Mines and Geosciences Bureau (MGB)

The **MGB** is responsible for mineral resources management, policy formulation and implementation in the mining sector. Particularly since the enactment of the Mining Act, the Bureau has been mandated not only to undertake mine regulatory functions, but also to ensure environmental protection of mining areas. In particular, the units that are directly involved in mine environmental protection, monitoring and rehabilitation activities are the following;

Mining Environment and Safety Division – responsible for the evaluation and approval of mine environmental, health and safety programs of the various mining companies, auditing of environmental programs (i.e. Environmental Protection and Enhancement Programs (EPEP), Annual Environmental Protection and Enhancement Programs (AEPEP), Environmental Work Programs (EWP) for exploration projects) and compliance to conditionalities of the ECC, monitoring/assessment/investigations of other mining environment related concerns/issues, review of Environmental Impacts Statements (EIS), formulation of appropriate environmental standards and policies, conduct of training programs, and undertaking of related environmental Research and Development activities.

Lands Geological Survey Division – responsible for the conduct of geological, geo-chemical, and geophysical, geo-environmental, hydro-geological surveys, monitoring and research activities related to mineral exploration and mining operations. The **PETROLAB** is a special unit in the Division, which provides the necessary laboratory back-up for various geological, geo-chemical, geophysical and other geo-scientific research activities of the Division and the Bureau.

Metallurgical Division – responsible for studies of current ore beneficiation activities of various mining companies, and the conduct of R & D for technology improvements for enhancement of efficiency and environmental protection related to mineral processing. Its Chemical Laboratory Unit provides the necessary support facilities for such activities of the Division.

Mine Environmental Laboratory – the Mine Environmental Laboratory was established under the existing JICA-MGB Capacity Building Project for Environmental Management in Mining. At the moment, the said Laboratory is utilized by the Project for training the counterparts for environmental analytical analysis using the soil and water samples of the environmental monitoring counterparts. The project will end in June 2002 and the whole laboratory equipment will be finally turn over to MGB. During this time, the said laboratory will serve as the central environmental laboratory of the MGB catering the 14 MGB Regional Offices. It is also envisioned that the analysis of environmental samples, particularly, those from mining related activities and the multi-partite monitoring teams around the country will be undertaken in the laboratory.

The PETROLAB and the Chemical Laboratory Unit are operationally linked in terms of sharing of facilities, technical personnel and expertise, training programs, and the conduct of joint projects/activities. However, for purposes of efficiency and reduction of possible contamination, the former concentrates on exploration-level types of analysis, while the latter is more concerned with ore-grade level of samples.

The **laboratory facilities of the PETROLAB and the Chemical Laboratory Unit of the Metallurgy Division** serve as the central analytical laboratory for the 14 Regional Offices of the MGB. The facilities and services are also made available to other government agencies, as well as on a commercial basis, to the various mining companies and the general public.

The **Regional Office, particularly Mining Environment and Safety Division,** is responsible for the preliminary review of environmental programs (i.e. EPEP, AEPEP, EWP, etc.) committed by mining and exploration companies. They are also responsible to conduct river quality assessment and environmental investigations/assessment/monitoring of other mining environment related concerns and conducts quarterly environmental monitoring of the companies environmental programs and commitments through the Multi-Partite Monitoring Team (MMT) established in each mining operations.

To date, around fifty one (51) MMT's are established under the supervision of the MGB. The membership of the MMT's , headed by MGB, is composed of representatives from the concern company, affected community, LGU's, NGO's, EMB Regional Office and other concern stakeholders.

7. Annual Budget

The total approved budget of MGB for FY 1999 and 2000 are **PHP 394.9 million and 303.8 million**, respectively. Out of this budget, more than PHP 9.84 million each year is allocated as the MGB counterpart fund for the proposed project.

With the full implementation of the provisions of the new Mining Act/Implementing Rules, the MGB is mandated to implement, more rigorous and strict monitoring and audit of all mining operations in the country, and the consequent increase in demand for laboratory analysis are required. Thus, the MGB expects an increasing level of responsibility, as well as increasing demands for its technical support and laboratory analytical services.

The said laboratory services and analysis are expected to be supported by the Monitoring Trust Funds (MTF), which all mining companies are mandated by the Mining Act and their mining contracts. In the longer term, the MTF are expected to augment the current limited government budgets, and for the long-term sustainability of the Project.

III. Project Proposal

1. Background Information

The Philippine mining industry was once the regional leader and a substantial world producer of several mineral commodities. The country has one of the world's richest endowments (known mineral deposits per unit area) of metallic minerals particularly gold, currently ranked 3rd in the world, 4th in copper, 5th in nickel, and 6th in chromite. In 1996, mining of these metallic minerals generated about PHP 5.4 Billion (in 1985 prices). In addition, stone quarrying and other non-metallic mining generated PHP 5.1 Billion. The total output values amount to 10.5 Billion. The industry generated some 120,000 jobs in formal mining and an estimated 300,000 jobs in the informal mining sector (small-scale mining) as of 1996.

The industry's performance, however, has been declining after the peak in the early 1980's. The contribution of the mining and quarrying to the GDP declined from 2 percent in 1985 to just 1.1 percent by 1997. Also, the mining share in the total export revenue declined from 20 percent in 1980 to just about 3 percent by 1997. These developments can be attributed mainly to the country's political and economic instability of the late 70's to the 80's, growing production costs, and world wide depressed metal prices. During this period, investments for mineral exploration and mine development virtually stood still.

The Philippine government has been adopting a series of policies to revitalize the mining sector such that this would again contribute to the country's economy and overall development. However, the public acceptance of the mining sector has been deteriorating due to inadequate environmental management in the various mining operations. Building environment management capacity in the Philippine mining industry has, therefore, become a key element to enable the sustenance and development of the mining sector.

In response to the demand of the time and the public, the government has established and has been updating legal and regulatory framework in mine environmental management. But such efforts still need to establish an enforcement capability, backed by a solid technical base, which should cover systematic and efficient monitoring and management of mining operations. These would require adequate laboratory analytical facilities and expertise, formulation of necessary industry standards, technology improvements, institution of preventive and mitigating measures against mining pollution, and the training of technical personnel in adequate quality and number not only within the Central Office of which the current JICA – MGB project is involved but also of the Regional Offices technical personnel.

Within this context, the Bureau has started since 1997 the full implementation of the various environmental provisions of the new Mining Act, in conjunction with existing Environmental Impact Assessment (EIA) laws. This include the setting up and operationalization of a Multi-Partite Monitoring Team (MMT), the establishment of a Contingent Liability and Rehabilitation Fund (CLRF) in all companies, and the mandatory setting up of a Mine Environmental and Safety Office in all mining operations. The CLRF, which is fully funded by the concerned companies, include a Monitoring Trust Fund and a Mine Rehabilitation Fund, the latter being mainly focused for post-mining rehabilitation.

In 1998, the MGB has entered into a Memorandum of Agreement (MOA) with the Environmental Management Bureau (EMB), which provides for higher levels of responsibility to the former in terms of mine environmental regulation and monitoring. The MOA was undertaken in consideration of the manpower lack of EMB, and in recognition of the technical training and expertise of the MGB and its staffs.

Currently, the MGB Central Office through the existing MGB-JICA Project has new environmental laboratory equipment and facilities. However, its Regional Offices, if nothing at all, have more or less obsolete laboratory and equipment, which is still available for mineral exploration and other geological applications. The equipment and facilities within the Regional Office, if exists, are not designed for very stringent levels of analysis required for environmental monitoring purposes and has to be upgraded and/or replaced by new ones. The laboratory and facilities of the Central Office has been upgraded by the current JICA – MGB Capacity Building Project, however, additional equipment is required to further conduct higher levels of environmental analysis.

2. Objectives of the Project

The main objective of the proposed Project is to enhance the mine environmental management, monitoring, and laboratory analytical capabilities of the MGB Central and Regional Offices in order to ensure the sustainable development of the country's mineral resources and growth in the Philippine mining sector. Such capability enhancement are envisioned to include the following aspects:

- Horizontal development of the transferred technology on environmental management, monitoring and analytical chemical analysis techniques of mining related activities to MGB Central Office to the Regional Offices;
- Institutional strengthening of MGB Central Office on mine environmental monitoring systems, mine environmental management capabilities; applications of advance technology for mine environmental chemical analysis and the systems of information technologies;
- Institutionalization of MGB Mine Environmental Laboratory through the extension of the MGB Petrolab and renovations of existing laboratory of the Regional Office; and
- Institutionalization of training programs for mine environmental management, monitoring, protection, rehabilitation and access to mine environmental related information.

3. Project Content and Activities

Horizontal development of transferred technology to MGB Central Office to the Regional Offices

- Upgrading of laboratory facilities and equipment to enable the MGB Regional Office to analyze various types of environmental samples (e.g. soil, rocks, minerals, fresh water, seawater, and biological tissues);

- Training in the maintenance and operation of various laboratory facilities and equipment (e.g. AAS, Hg analyzers, and various wet chemical analytical methods);

- Training in the analysis of heavy metals (e.g. lead, cadmium, copper, iron, etc.) and other toxic substances (e.g. Hg, CN, As, etc.) in various sample media;

- Conduct of training and technology transfer on mine environmental monitoring particularly on sample collection methods for rocks, water and other types of environmental samples and the on-site/laboratory analysis for various MGB and EMB Regional Offices, including some selected Local Government Units;

- Conduct of training and technology transfer on mine environmental management strategies and techniques to various MGB and EMB Regional Offices, including some selected Local Government Units;

- Conduct of training and technology transfer on mine environmental chemical analysis techniques and laboratory equipment maintenance and operation to various MGB and EMB Regional Offices; and

- Conduct of training and technology transfer on information technologies to various MGB and EMB Regional Offices.

Institutional strengthening of MGB Central Office on environmental management, monitoring, chemical analysis and information technologies

- Conduct of technology transfer on mine environmental management, monitoring, chemical analysis techniques, and information technologies to various selected MGB personnel;

- Establishment and application/technology transfer of existing technologies on mine environmental monitoring systems for acid mine drainage (AMD), mercury, cyanide, other environmental toxic elements (e.g. NO_x, SO_x, PCB, PAH, etc.) and selected biological indicators;

- Establishment and application/technology transfer of existing technologies on mine environmental monitoring systems for abandoned/inactive and decommissioned mines;

- Establishment and application/technology transfer of existing technologies on the chemical analysis techniques of mercury, cyanide, arsenic, other toxic elements and selected biological samples as well as the analysis and determination of acid mine drainage (AMD) generation potential of rock samples;

- Establishment and standardization of mine environmental management systems for operating, abandoned/inactive and decommissioned mines and the application of existing technologies on mine environmental risk assessment;

- Establishment and standardization of environmental chemical analysis techniques and the methods of sample collection required for environmental monitoring; and

- Establishment and application of existing technologies on mine environmental audit and life cycle assessment on mining related activities.

Institutionalization of MGB Mine Environmental Laboratory

- Establishment of additional environmental laboratory rooms by extending the MGB Petrolab to cater the additional rooms required for the additional laboratory equipment and the necessary lecture rooms and offices for the experts and counterparts;

- Establishment of the required facilities for Acid Mine Drainage (AMD) determination of rock samples from mining operations;

- Unification and strengthening of MGB Mine Environmental Laboratory equipment and facilities; and

- Renovation/construction of mine environmental laboratory in the selected regional office.

Institutionalization of Training Programs for Mine Environmental Management, Monitoring, Chemical Analysis and information Technologies

- Conduct of local and international training programs and courses for mine environmental monitoring, management, chemical analysis and information technologies;

- Formulation of program designs and strategies for the improvement and effectiveness of mine monitoring, management, chemical analysis and information technology activities.

Implementing Strategy

The implementing strategy will consist basically of five (5) major activities:

- Designation of MGB counterparts within the Central and Regional Offices. Procurement, acquisition and installation of various laboratory equipment and facilities to be set up mainly in the MGB Central Office, and to the projected MGB Regional Environmental Labotatory Centers;

- Construction of the Petrolab extension, unification of various environmental laboratory equipment and facilities. Laboratory renovation/construction and preparation of the selected Regional Offices. Procurement, installation and maintenance of various laboratory and field equipment as shown in **Annex "E"**;

- Training of MGB Central and selected Regional Offices personnel, including those from EMB. Representatives from the LGU will be invited to attend.

- Field visits to some mining operations and discussions with the technical personnel of the mining companies concerned; and

- Short-term training courses/seminars/workshops will be conducted at the PETROLAB with the participation of technical personnel from the MGB, EMB,, LGUs, and some private mining companies. These short-term courses will be handled by Japanese experts for the duration of two to three weeks, with at least 40 participants per course/seminar/workshop.

The proposed schedule of activities for the project is given in **Annex "F"**.

4. Expected Beneficiaries

Recipient of the Technical Assistance:

- The MGB, more particularly its Central Office PETROLAB, Mine Environment and Safety Division, and the Metallurgical Technology Division;
- The MGB Regional Offices particularly Regional Office No. V, VII, XI, CAR and Caraga;
- Staff and personnel of the Environmental Management Bureau (EMB); and
- Members of the Multi-partite Monitoring Teams, representatives from selected mining companies and local government units (LGU's)

Indirect of Beneficiaries

- The DENR organization as a whole;
- The Philippine mining industry as a whole;
- Local communities potentially affected by mining operations

5. Expected JICA Experts and Areas of Expertise

The proposed number, designation, area of activity, qualification and duration of stay in the Philippines of the JICA experts are tabulated below. Details on the proposed tenure of these experts in terms of man-months are in **Annex "G"**.

No.	Designation	Area of Activity	Duration	Qualification
1	Chief Advisor	Over-all project supervision	4 years	Expert on Mine Environmental Management Projects
1	Coordinator	Over-all project coordination	4 years	Expert on Mine Environmental Management and information technologies
3	Technical Experts	Technical training of counterpart personnel	4 years	1-Expert on Environmental Chemical Analysis 1-Expert on Mine Environmental Monitoring 1-Expert on Mine Environmental Management Technologies
6 (as need arises)	Technical Experts	Technical training of counterpart personnel	One (1) month to two (2) months per year	1-Expert on Environmental Risk Assessment 1-Expert on Life Cycle Assessment 1-Expert on Acid Mine Drainage determination

				1-Expert on Environmental Management systems. 1-Expert on Mine Environmental Audit 1-Expert on information technology

6. Requested Number of Counterpart Training and Fields

Field of Training	Duration	No.of Personnel	Qualification of Trainor
A. On-the-job Training (Philippines)			
1. Chemical Analysis	4	32	
2. Environmental Monitoring and Monitoring Systems	4	30	
3. Environmental Management and Management Systems	4	30	
4. Acid Mine Drainage	2	30	
5. Information Technology	4	30	
6. Environmental Risk Assessment	1	30	
7. Life Cycle Analsysis	1	30	
8. Environmental Audit	1	30	
9. Other Various Field Environmental Monitoring, Management and Chemical Analysis		30	
B. Seminar-Workshop (Philippines)			
1. Chemical Analysis		50	
2. Environmental Monitoring and Monitoring Systems		50	
3. Environmental Management and Management Systems		50	
4. Acid Mine Drainage		50	
5. Groundwater disturbance		50	
6. Information Technology		50	
7. Environmental Risk Assessment		50	
8. Life Cycle Analsysis		50	
9. Environmental Audit		50	
10.Other Various Field Environmental Monitoring, Management and Chemical Analysis		50	
C. Study tour (Japan)			
1. Chemical Analysis		32	
2. Environmental Monitoring and Monitoring Systems		30	
3. Environmental Management and Management Systems		30	
4. Other Various Field Environmental Monitoring, Management and Chemical Analysis		30	

7. Required Equipment

(Please see **Annex "E"**).

8. Any relation with Grant-Aid Proposal (in detail). (If there is any request for Grant-Aid, is it prerequisite for the implementation of the PTTC)

Not Applicable.

IV.Situation of Project Facilities

1. Existing Building and Equipment

The Mine Environmental Laboratory is part of the on-going JICA – MGB Capacity Building Project for Environmental Management in Mining, which commenced last July 1999. This facilities and equipment are located within the Petrolab Building and will be used by the proposed project.

PETROLAB was established in 1983 through the Japanese JICA Grant-Aid Program. The building has been well-maintained and all the laboratory facilities and rooms are well utilized. Emergency power generation is properly and adequately working.

The Metallurgical Division and its Chemical laboratory facilities are located in an adjacent building of its own and will also be utilized and linked with the project.

The Regional Offices mentioned in the proposed project has its own existing laboratory, however its analytical capability and facilities is limited only to simple analytical analysis. The existing laboratories were to be renovated once the proposed project has materialized.

2. Counterpart Personnel and Project Budget

To ensure that the project will be adequately and properly implemented, and manned, personnel from MGB, which was designated as project counterparts of the existing JICA – MGB Capacity Building Project will again be designated as the counterparts of the proposed project. These counterparts (**Annex "H"**) will assist the JICA experts in the technology transfer activities to the selected and designated Regional Office counterparts.

MGB Regional Office counterparts will also be designated to ensure that the horizontal development of transferred technology to MGB Central Office to the Regional Offices will be properly implemented and the laboratory equipment and facilities will be adequately manned and maintained.

The Project Management Team, created under the MGB counterparts will be primarily responsible for the over-all supervision and policy decisions in as far as the Project implementation is concerned. Regional Management Team will also be created to supervise and implement the designated plans and programs for the Regional Office technical counterparts. All the MGB Central and Regional counterparts will be responsible for the day-to-day implementation of the project, in coordination with the respective Japanese experts. These MGB Technical Counterparts and the support staff will be permanently assigned to the Project during its whole duration.

The cost of salaries and allowances of project personnel will be taken from MGB's regular budgetary allocation. The approved 2000 budget of MGB is PHP 303.8 million, out of which PhP 3.0 million is earmarked for the Project's maintenance and operating expenses and capital outlay.

MGB envisioned the full operationalization of the Monitoring Trust Funds in all operating mining companies this year. Thus, most of the operating expenses for field monitoring and laboratory analytical requirements will be subsidized by the concerned mining companies thru the Trust Fund.

The proposed budget for the project is given in **Annex "I"**.

V. Specific Plan of Action (To ensure project sustainability after Japanese assistance term)

1. Institutional Aspect

With the acquisition of an enhanced environmental laboratory analysis capability of MGB Central and Regional Office, the establishment of a distinct environmental unit for chemical analysis under the Mine Environment and Safety Division, both in the Central and Regional Offices shall be considered as a specific plan of action. The existing MGB Environmental Laboratory chemical analysis counterparts under the current JICA – MGB Project and those to be designated as Regional counterparts for chemical analysis for the proposed project is envisioned to serve as the main core for the proposed unit.

Another plan of action is the establishment and strengthening of the Mine Environment Management Section within the Mine Environment and Safety Division, both of the MGB Central and Regional Office concern. A specialized unit for EIA evaluation, monitoring, and policy/ standards formulation shall be established. These could now better serve the EMB in its final evaluation and approval of EIA proposals, as well as consultancy group to various mining companies.

Finally, it is envisioned that after the Project, the MGB as a whole could now serve as a training ground for the various agencies of government and sectors of the mining industry on mine environmental-related activities.

2. Financial Aspect

With the present government policy of putting premium on environmental considerations for all mining-related activities, it is guaranteed that the budgetary allocation for the Project will be given priority by the DENR-MGB. Moreover, the Monitoring Trust Fund of the CLRF (as provided for in the law, in all mining contracts, and as specific conditionality in all ECC issuances) will assure the budgetary requirements for the implementation of the Project and its long-term sustainability.

3. Technical Aspect

After the Project, it is planned to establish a set of published guidelines and standards, as well as Training Manuals, on mine environmental monitoring, management, laboratory analysis and information technologies. Such materials shall be adequately made available to the public, particularly the mining industry stakeholders, for appropriate information and reference materials.

VI.Other Pertinent Information

1. Relation with Other Japanese Cooperation

Proposed projects under the JICA Development Survey Program are the Application of an Integrated Strategy for Precious and Base Metal Mineralization in the Bicol Peninsula; and Modernization, Tectonic Character and Geologic significance of a Bi-Are Junction: The Central Cordillera-Northern Sierra Madre-Caraballo Mountain Juncture. Currently, a JICA long-term expert is posted (March 1998-March 2000) as Environmental Planning and Management Adviser to the Undersecretary for Environment and Programs Development, DENR. The Expert will support this proposed project in the aspects of environmental management and cooperation with EMB.

2. Relation with Any Assistance from Other Donor Countries

- A UNIDO Technical Assistance Project is on-going for mercury pollution control in the small scale mining;
- A research project by the PETROLAB and British Geological Survey (BGS) is on-going for application of Philippine bentonitic clays for possible liners in sanitary landfill sites; and
- Possible new project with BGS on the improvement of gold recovery in small scale mining thru low-cost gravity concentration.

3. Relation with the National Development Program of the Philippines.

There is no doubt that the project conforms with the national development program of the Philippines. In fact, the environmental strategies just laid down by the secretary of Environment and Natural Resources included due consideration to environmental protection before any mining will be allowed in the country.

CAPACITY BUILDING PROJECT FOR ENVIRONMENTAL MANAGEMENT IN MINING (PHASE II)

Draft of the Proposed Outline of the Cooperation Program

ACTIVITIES	FY 2002	FY 2003	FY 2004	FY 2005	REMARKS
I. Project Management					
1.0 Program preparation and development					Phase II equipment includes Phase I equipment
2.0 Personnel allocation					
3.0 Program implementation and monitoring					
4.0 Procurement/installation of equipment					
5.0 Calibration/maintenance of equipment					
II. Horizontal Development of Transferred Technology to MGB Regional Office					
1.0 Technology Transfer Program					by Regional Office
1.1 Program preparation and/or development					
1.2 Program Implementation					
2.0 Capacity Building of MGB Regional Office					
2.1 Personnel allocation					
2.2 Development of plans and activities					
2.3 Preparation of laboratory					
2.4 Technology Tranfer					
2.4.1 Mine Environmental Chemical Analysis					
2.4.2 Mine Environmental Monitoring					
2.4.3 Mine Environmental Management					
3.0 Procurement and Installation of Equipment					
4.0 Calibration/maintenance of equipment					
5.0 Report and Manuals					
III. Institutional Strengthening of MGB Central Office					
1.0 Mine Environmental Monitoring Systems					
1.1 Acid Mine Drainage (AMD)					
1.2 Enhancement of existing technology on monitoring (Hg, CN, As, Etc.)					
1.3 Other toxic elements/substances (CN, SOx, NOx, PCB, PAH, etc. and biological indicators					

CAPACITY BUILDING PROJECT FOR ENVIRONMENTAL MANAGEMENT IN MINING (PHASE II)

Draft of the Proposed Outline of the Cooperation Program

ACTIVITIES	FY 2002	FY 2003	FY 2004	FY 2005	REMARKS
1.4 Abandoned/Inactive Mines					
1.5 Decommissioned Mines					
1.6 Report and Manuals					
2.0 Applied Technology for Mine Environmental Chemical Analysis					
2.1 Enhancement of Existing Technology on Chemical Analysis (Hg, Cn, As, etc)					
2.2 Other toxic substances/elements (NOx, SOx, PCB, PAH, etc. and biological samples					
2.4 AMD sample analysis/determination					
2.5 Report and Manuals					
3.0 Mine Environmental Management Systems (EMS)					
3.1 General Mine EMS					
3.1.1 Operating Mines					
3.1.2 Abandoned/Inactive Mines					
3.1.3 Decommissioned Mines					
3.1.4 Mine Environmental Risk Assessment					
3.2 Standardization of chemical analysis techniques and sample collection for monitoring					
3.3 Mine Environmental Audit					
3.4 Life Cycle Assessment in Mining					
3.5 Report and Manuals					
4.0 Information Technology					
4.1 Networking of Mine Environmental Information					
4.2 Report and Manuals					
IV. Extension of MGB Petrolab for Mine Environmental Laboratory					
1.0 Bidding					
2.0 Construction and development					

APPLICATION FOR PROJECT TYPE TECHNICAL COOPERATION PROGRAM FOR JFY 2002

PROJECT TITLE

CAPACITY BUILDING PROJECT FOR ENVIRONMENTAL MANAGEMENT IN MINING (PHASE II)

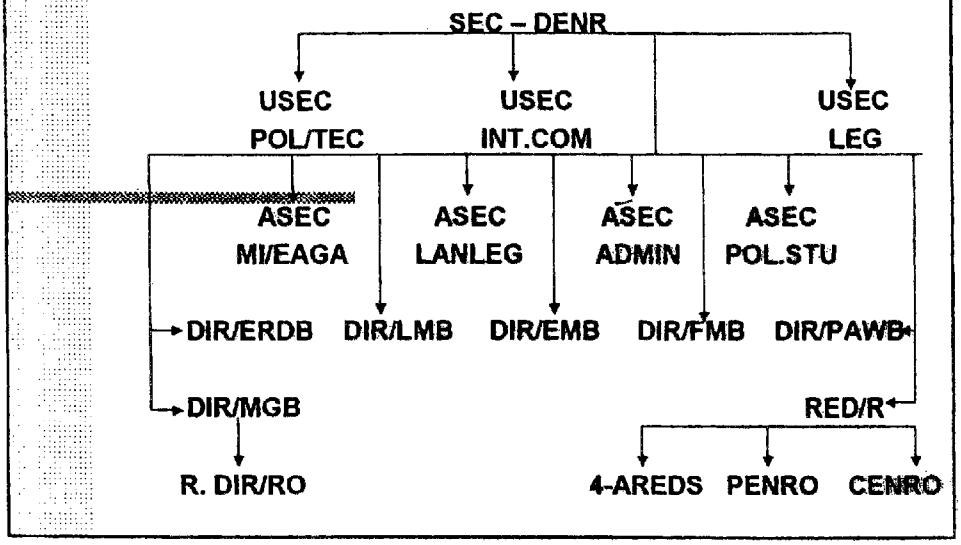
1

IMPLEMENTING ORGANIZATION

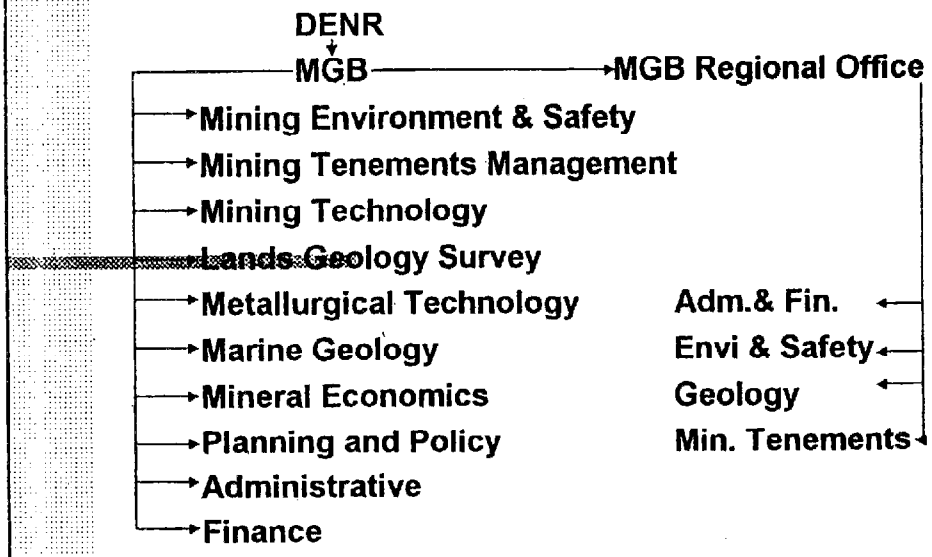
Department of Environment and Natural Resources

Mines and Geosciences Bureau

OUTLINE of the IMPLEMENTING ORGANIZATION (DENR/MGB)



MGB OUTLINE OF ORGANIZATION



PROJECT SITES

MGB Central Office

MGB-Cordillera Administrative Region

MGB – Region V

MGB – Region VII

MGB – Region XI

MGB – CARAGA Region

RELATED GOV'T AGENCIES

DENR

EMB Central Office

EMB Regional Offices in CAR, CARAGA, Regions V, VII and XI

MGB BACKGROUND ACTIVITIES

- mineral resources management, policy formulation and implementation in the mining sector;
- mandated not only to undertake mine regulatory functions, but also to ensure environmental protection of mining areas; and
- Mine environmental protection, monitoring and rehabilitation.

PROJECT RATIONALE

Our established & updated legal and regulatory framework in mine environmental management needs enforcement capability covered by systematic and efficient monitoring and management of mining operations. These requires adequate laboratory analytical facilities and expertise, formulation of necessary industry standards, technology improvements, institution of preventive and mitigating measures against mining pollution, and the training of technical personnel in adequate quality and number

PROJECT OBJECTIVES

Enhancement of mine environmental management, monitoring, and laboratory analytical capabilities of the MGB Central and Regional Offices to ensure sustainable development of mineral resources and growth in the Philippine mining sector

PROJECT CONTENTS AND ACTIVITIES

I. Horizontal development of R.O.'s

- Establishment of Mine Environmental Laboratory and upgrading of R.O's laboratory;
- Technology transfer on equipment operation and maintenance; and
- Technology transfer on environmental chemical analysis, mine management and monitoring and information technology.

PROJECT CONTENTS AND ACTIVITIES *(continuation)*

II. Strengthening of MGB – CO on environmental chemical analysis, management, monitoring and information technology

- Continued technology transfer on the above-cited items;
- Technology transfer on environmental monitoring systems on AMD, abandoned/inactive and decommissioned mines;

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PROJECT CONTENTS AND ACTIVITIES *(continuation)*

- Technology transfer on the chemical speciations of mercury, cyanide, arsenic, determinations of other toxic elements, analysis using biological samples and AMD determinations;
- Technology transfer on environmental management systems for abandoned/inactive and decommissioned mines and environmental risk assessment;

PROJECT CONTENTS AND ACTIVITIES *(continuation)*

- Standardization of environmental chemical analysis techniques and sample collection methods for environmental monitoring; and
- Technology transfer on mine environmental audit and life cycle assessment on mining related activities.

PROJECT CONTENTS AND ACTIVITIES *(continuation)*

III. Institutionalization of MGB Environmental Laboratory

- Extension of MGB Petrolab;
- Installation of AMD laboratory equipment;
- Unification and strengthening of MGB mine environmental laboratory and equipment; and
- Renovation/construction of mine environmental laboratory in the R.O.

PROJECT CONTENTS AND ACTIVITIES *(continuation)*

IV. Institutionalization of Training Programs on mine environmental management.

- Conduct of local and international training program on mine environmental management; and
- Formulation of program designs and strategies for the improvement and effectiveness of mine environmental management systems

PROJECT DURATION

4 YEARS

Implementing Strategy

1. Designation of MGB Central and Regional counterparts and procurement, acquisition and installation of various laboratory equipment and facilities;
2. Construction of Petrolab extension, renovation/construction of regional laboratory centers, unification of MGB Mine Environmental Laboratory;
3. Conduct of various technology transfer;

Implementing Strategy (cont'n)

4. Field visits to various mining sites and discussions to various mining personnel;
5. Conduct of short term training courses/ seminars/workshop participated by technical personnel from counterparts, EMB, private sectors, LGU's, NGO's and MMT members; and

Project Beneficiaries

- The MGB Central and Regional Offices;
- Staff and personnel of the Environmental Management Bureau (EMB);
- Members of the Multi-partite Monitoring Teams, representatives from selected mining companies and local government units (LGU's);
- DENR and the mining industry; and
- Communities within the mining operations.

JICA EXPERTS REQUIRED

- Project Chief Advisor – 1
- Project Coordinator - 1
- Mine Monitoring expert - 1
- Mine Management expert – 1
- Chemical Analysis expert – 1
- Other various field per year - 6

Counterparts Training and Field

- Mine Monitoring
- Mine Management
- Chemical Analysis
- Information Technology
- Maintenance and Operation of Laboratory Equipment
- Other various Field on Environmental Management (e.g. ARD, LCA, Environmental Audit, etc)

Proposed Major Equipment

- All Phase I equipment but excluding XRF (e.g. AAS, Mercury analyzer, Mercury Sniffer, Water Quality checker, vehicles, etc.);
- Sulfur Analyzer for AMD determination; and
- Other equipment necessary for chemical speciations of mercury, arsenic and cyanide.

Existing Building and Equipment

- Mine Environmental Laboratory
- PETROLAB
- Metallurgical Laboratory
- Regional Offices Laboratory

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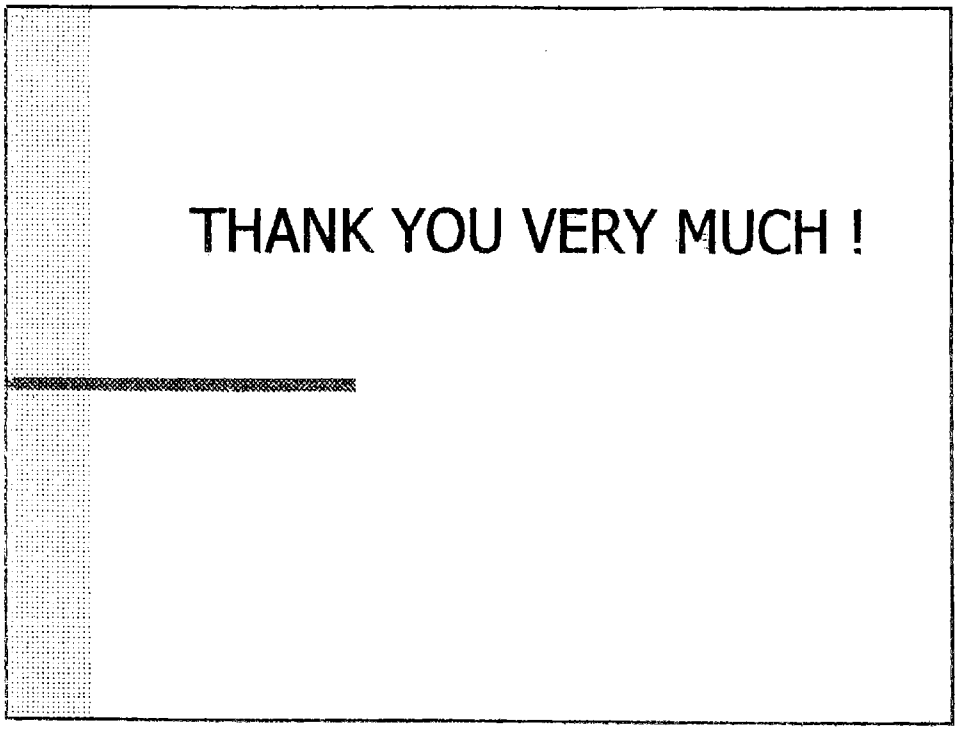
Counterparts Personnel and Budget

- Designation 40 personnel as MGB – CO counterparts
- Designation of 20 personnel each as MGB – RO counterparts
- Allocation of a total of Php 8 Million per year for operations and maintenance of the Project (salaries of counterparts not included)

Plan of Action

- Establishment of a distinct environmental unit for chemical analysis;
- Strengthening of the Mine Environment Management and Safety Division; and
- Training ground for the various agencies of government and sectors of the mining industry on mine environmental-related activities.



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