

### 7.3 Institutional Reform

This part of the Plan focuses on three core actions: “Improvement of basic information on mineral resources”, “Clarifying mining policy” and “Preparation of a mining development plan”. Based on the results of the core actions, the other actions are carried out.

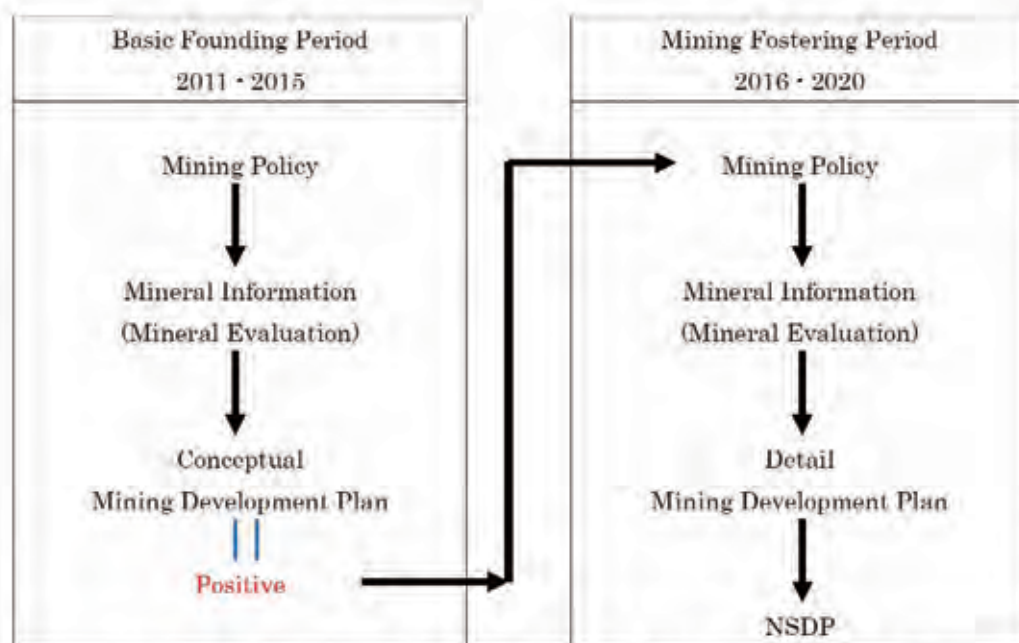


Figure 7.3.1 Main Flow of the Action Plan for Institutional Reformation

The purposes of this plan are to stimulate the GDMR’s geological activities, to identify the mineral resources and use the results of this work to prepare a mining development plan, as well as to increase the attractiveness of Cambodia for mining investors. The mining development plan will quantify mining’s socio-economic contributions to allow decision-making on whether or not mining development should be given priority in the NSDP. (The mining sector will be entering the next full-scale development phase as a key theme of the NSDP). The Conceptual Mining Development Plan (which includes the selection of some promising areas and/or minerals, and pre-feasibility studies) and the Detailed Mining Development Plan (assigning development priority to areas and/or mineral resources, and determining the role of the Government, based on evaluations of the socio-economic contributions of mining development) should be prepared in both the first and second stages.

The mining policy will play a leading role in the formulation of this plan, and will be reviewed after the completion of the mining development plan.

Each action is described below.

#### 7.3.1 The Action Plan for Institutional Reform

This section describes the contents of the Action Plan for Institutional Reform. The actions are subdivided into the detailed action plans shown in Table 7.3.3 (‘Detailed action plan for institutional reform’). The costs associated with time periods, manpower allocation, and

actions (excluding expenditures for international cooperation experts, salaries and wages for GDMR staff, and regular office expenses), are shown in Table 7.3.3.

### **(1) Improvement of basic information about mineral resources**

As the first step in mining investment promotion, the GDMR/MIME should publicize the rich potential for mineral resources in Cambodia in order to attract the interest of investors. Investors want to obtain detailed information on recent survey results, so the GDMR should update basic geological information, through field surveys and data collection of today's exploration areas as well as through historical data collection (Mapping and GIS Database). Numerical information that shows the potential for mineral resources and reserves is also important. At the same time, this information on mineral resources will be used to evaluate how much of a contribution is made through mining promotion (Mining Development Plan) which is the foundation of the Mining Policy. For these purposes, the GDMR carries out mineral evaluations (i.e., calculating mineral resources and reserves).

Information on mining activities in Cambodia that includes financial data is beneficial not only to investors to help them plan mine development, but also to the GDMR/MIME as a parameter for preparing the Mining Development Plan and examining the taxation system. These statistics are compiled and published by the GDMR in the Mining Yearbook.

Such information should be prepared by the GDMR/MIME and made available on the Internet. Furthermore, the GDMR/MIME has established an Information Service Center, where investors can freely and easily access information. It would be even more convenient for investors if they could apply for mining licenses at this center.

After considering the demand for GDMR mineral testing and analysis, a mineral laboratory should be established, if it is economically feasible.

If established, the Department of Geology will function as the center of mineral resource surveying, research, and information services.

The following are actions that should be taken on this subject.

#### **1) Collection of Geological Information**

This involves:

- Collecting and analyzing historical data
- Providing detailed information for geological reports required by the MOU and the Mineral Agreement
- Collecting and analyzing the data from the above reports
- Installing a Database System

(Points to Note)

##### Geological Technical Report

The objective of this plan is for the GDMR to carry out Geological Mapping and Mineral Evaluation (Calculation of Resources & Reserves). This requires original data on geology, geochemistry, exploration drilling (borehole logs, etc.) and their chemical and

physical analysis data, as well as the geological interpretation reports that are prepared by the license holders.

Generally speaking, license holders are unwilling to submit exploration data they have obtained with their own funds, and they tend to minimize the contents of their reports.

Therefore, the Mining Act will contain a provision to mandate the submission of geological technical reports, the details of which shall be given in the Mining Act Regulations. Moreover, the confidentiality of the report vis-a-vis third parties and its duration will also be provided for in the Laws and Regulations.

In the case of reports in British Columbia, Canada, Section 33 of the Mineral Tenure Act mandates its submission; Section 16 of the 'Mineral Tenure Act Regulation' provides for the outline of the report; and Schedule A, 'Guidelines for Reporting Exploration and Development Work' lays out in detail the requirements of the report. As the Law and associated Regulations are available through the B.C. website, it is recommended that the GDMR refer to them when it prepares the guidelines for geological technical reports.

## **2) Field Surveys**

- Mineral Exploration Training for the DoG staff
  - Training at domestic exploration sites
  - Study and Training at a foreign university or foreign geological survey
- Field Survey for geological mapping

(Points to Note)

This action will be carried out with the cooperation and/or support of foreign exploration companies, international organizations, and foreign governments.

The training in Cambodia shall be carried out at a site where a company is using advanced exploration technologies. This training will instruct staff in how to conduct geophysical, geological, and geochemical surveys and mineral evaluations (with the cooperation of an exploration company).

Regarding study and training in a foreign country, GDMR will dispatch staff members to a university (geological department and/or mining engineering department) or geological survey in an advanced mining country for study and training in mining geology and geophysical exploration.

Also, staff members investigate the information services of geological surveys and other government organizations related to mining in advanced mining countries (with the support of international organizations and/or foreign governments).

## **3) Mapping**

- Compilation of 1:500,000 geological tectonic maps of the entire territory of Cambodia
- Upgrading of 1:200,000 geological maps of eastern Cambodia (Rottanakiri and Mondulokiri)

- Compilation of 1:100,000 geological and geochemical maps for promising areas (4 sheets)

(Points to Note)

This action shall be carried out in collaboration with a foreign expert dispatched to the GDMR. Tentative plans call for 1:100,000 to be made of the western part of Cambodia; however the final decision will be made based on the study results obtained up to the starting time.

#### **4) Updating the GIS Database**

- Updating the GIS Database

(Points to Note)

As mapping and exploration progress, the GIS Database in the GDMR shall be updated to add this information.

#### **5) Evaluation of Resources & Reserves**

- Evaluation of Resources & Reserves

(Points to Note)

##### Mineral Evaluation (Evaluation of Resources & Reserves)

To carry out the Mineral Evaluation, as well as select calculation methods (ex. cross section, polygon, inverse square distance, geostatistics, mathematical method, and so on) and understand their distinguishing features, it is very important to acquire knowledge and empirical information about economic factors such as cut-off grade, and about technical factors such as waste dilution, mining loss and mineral recovery. In regard to the standards for classifying resources and reserves of the country, this information is used not only for mining activities, but also for the initial listing requirement and disclosure items required for mining companies to be listed on stock markets in Australia, Canada, UK, USA and so on. The standards of those countries are made based on Australia's JORC Code. These and other countries are collaborating to prepare an international standard for mineral evaluation, the CRIRSCO International Template.

To facilitate investors' decisions, Cambodia should prepare a Resources & Reserves evaluation standard based on the JORC and CRIRSCO standards.

#### **6) Geological Information Center**

If mining policy and mining-related regulations have been amended, and if basic geological information such as geological maps, map of mineral deposits and occurrences, etc., has been developed, then it would be a good idea to establish a geological information center for investors.

- Study of geological information centers in other countries
- Establishment of a Geological Information Center (library and cadastre room) and Mineral Museum

- Maintenance and administration of Website

(Points to Note)

These actions, including the construction of the building, are funded by a loan.

Through the establishment of a Geological Information Center, the GDMR will make available geological, mineral occurrence, metallogenesis, and other such maps that are made or kept by them, including offering them for sale. They shall also offer free access to the mining cadastre, and consider expanding the center as a one-stop service center for mineral license applications.

To publicize the attractiveness of Cambodia's mineral resources to the Cambodian people, especially to the younger generation and mining investors, it is desirable to establish a Mineral Museum attached to the Center, which would feature exhibits of mineral and rock samples, as well as provide a pictorial introduction to the country's mining activities, including quarrying.

There are some examples of other countries that have opened a Website but have not updated the contents for 5 years or more. However, investors want to have the latest information. So, the Website should be maintained and administered by a subcontractor, and updated at least every two or three years.

## **7) Compilation of a Mining Yearbook (annual mining statistics)**

- Making questionnaires and associated guidebooks for mining companies
- Analyzing the collected data

(Points to Note)

It is important for the Government to obtain information on the volume of ore extracted and amount of money spent on mining activities not only for setting and revising taxes and royalties, but also for preparing a mining development plan. These statistics are also useful for investors for making development plans.

The following is the statistical information on metal mines that is required:

- a. Mineral concessions: Number of applications, number of concessions, areas
- b. Exploration: Number and length of drillings, trenches, adits/drifts (by main target mineral)
- c. Tonnage and ore grade of Resources & Reserves
- d. Production Activities

Open Pit Mining: Volume of waste, crude ore (tons, grade)

Underground mining: Length of trunk line extension

Length of extensions (tunnels, shafts), crude ore (tons, grade) (by mining method)

Mineral Processing: Plant feed (tons, grade), concentrate (tons, grade)

Main Equipment (Size, capacity)

Specific consumption (Water, electricity, fuel & lubricants, explosives, tires, parts, consumables, reagents, etc.)

Main Unit Cost (total, wages & salaries, electricity, fuel & lubricants, explosives, tires, parts, consumables, reagents, etc.)

e. Manpower (by occupation)

f. Mine Management

Revenue (from concentrate)

Operating profit

Depreciation

Capital expenditures

In addition, the GDMR should refer to the statistics for the 'Industry' items surveyed in 2000 that are listed in the 'Statistical Yearbook of Cambodia, 2008', pages 235 to 244.

## 8) Mineral Laboratory

- Survey on demand for Mineral Analysis for other ministries, institutes, and the private sector
- Installation of the following equipment
  - X-ray diffraction analyzer
  - X-ray fluorescence analyzer
  - Atomic absorption spectrometer
  - Polarizing microscope
- Full implementation of mineral analysis services

(Points to Note)

If mineral exploration in Cambodia is prosperous, the GDMR may establish a mineral laboratory for their administrative, research and development work, and chemical and physical analysis services for the private sector. However, before establishing a laboratory, the GDMR should examine the economic evaluations, to determine whether the greater benefit would come from using outside services or by conducting analyses by themselves. (This is because some countries that have introduced analytical equipment through international cooperation have been not been able to use this equipment due to lack of funds for parts and consumables).

The construction of a building is required for this action and will be funded by a loan. International organizations would have to provide support for the installation of equipment and associated training.

## (2) Establishment of a Mining Council

It is very important for the government of a democratic country to hear many opinions and comments and to work with experts and stakeholders, when it establishes, promotes, and reviews projects (for example, mining policy, mining laws and regulations, mining development plans). This is especially true for mining, which is a new industry in Cambodia, so the GDMR

needs support from qualified persons and companies with experience in mining. In addition, there must also be cooperation with residents of mining areas and areas impacted by mining activities, and with ministries in charge of other sectors. For these reasons, a Mining Council, consisting of GDMR officials, officials from other ministries, companies, qualified persons with experience, and provincial government officials, should be established. The Council would discuss the key issues of mining administration, and would be divided into working groups to handle various themes with GDMR officials.

The establishment of a permanent Mining Council will increase investor’s sense of security and trust of the Cambodian government. It will serve as proof of the transparency in the Cambodian mining industry.

The actions to be carried out for this subject are as follows.

**1) Establishment of a Mining Council and Working Groups**

**2) Regular Meetings**

- Mining Council – Semi-annual
- Working Group – Quarterly

(Points to Note)

For reference, Fig. 7.3.2 shows a diagram of a previous Mining Council of Japan

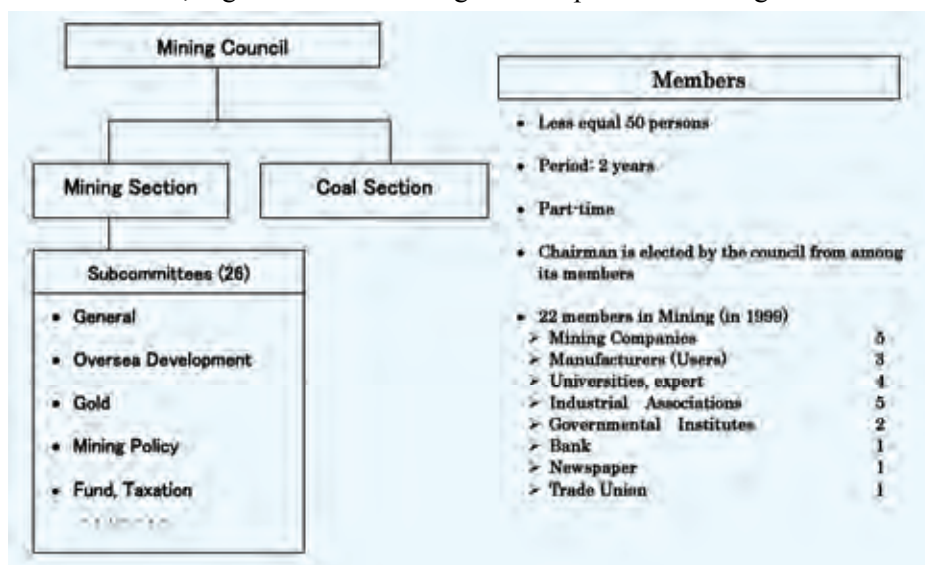


Figure 7.3.2 Mining Council of Japan (1999)

**(3) Establishment of Mining Policy**

Mining policy is a tool to show a nation how to use mining to develop its economy, maintain safety and health, protect the environment from the negative impacts of mining, and pass down finite resources to future generations. Furthermore, it is important to show mine developers, that is, investors, the high level of security and international competitiveness of investment in Cambodia’s mineral resources. For the future, measures will have to be taken to promote mining as a key national project.

Mining policy must be clarified through documentation, and made easily accessible to

Cambodians and foreign investors.

Because Cambodia has no notable mining activity, it has not engaged in worldwide activities to attract mining investment, so there are undoubtedly many investors who have little knowledge about the mineral resource potential of Cambodia.

Establishment and publication of a mining policy, and establishment of information services will be necessary to promote mining investment.

First, the Government should publish its Mining Policy. Next, if the results of the Conceptual Mining Development Plan indicate it to be necessary, the Government should add, modify, and/or change the priorities of the provisions. Finally, at the end of the Action Plan period, the Government should clarify the key goals of mining development in line with the results of the Detailed Mining Development Plan, then prepare a Mining Policy that stipulates the role of the Government and the measures needed for mining development to be carried out as a key project for the NSDP.

Therefore, the actions to be carried out for this area are as follows:

- 1) Establishment of a Mining Policy**
- 2) Review and/or Modification of the Mining Policy**
- 3) Preparation of the Mining Policy for Inclusion in the NSDP.**

(Points to Note)

The basic concepts of the Cambodian mining policy should be transparency, good governance, sustainable mine development, and mining investment promotion. The mining policy will have to provide the details for handling these items. By studying the results of advanced mining countries that have dealt with these issues, Cambodia will be able to adopt some sound ideas for its mining policy. Cambodia should also refer to ‘Extractive Industries Transparency Initiative (EITI) Source Book’ (March 2005) and the MMSD Project’s ‘Breaking New Ground –A Report on Mining, Minerals and Sustainable Development’ (May 2002).

Furthermore it is important for the Mining Council reflect the ideas, comments and opinions of the Cambodian people.

The ‘First Stage Mining Policy’, as it regards mining investment promotion, should focus on exploration activities. Based on the results of the First Stage Mining Development Plan, the Second Stage Mining Policy will be prepared, with a focus on the method(s) of mine development.

The study team has proposed the main points of mineral policy on the following 3 principles to the GDMR (refer to Appendix VII-1):

- I. Promoting economic growth and local development
- II. Establishing a transparent, effective and efficient mining administration based on good governance
- III. Establishing sustainable mineral development with environmental considerations

The following 9 guidelines have been recommended in order to achieve the above three principles.



- i. The role of the Government in mine development
- ii. The establishment of laws and regulations related to mining
- iii. Strengthening management and good governance
- iv. Increasing and disclosing basic information
- v. Strengthening partnerships
- vi. Training human resources
- vii. Development of mining infrastructure
- viii. Fostering artisanal, and small- and medium-size mining operations, and supporting improved environmental protection.
- ix. Increasing the amount of value-added mineral products

#### **(4) Preparation of a Mine Development Plan**

If a country wants to promote general industries, it may encourage investors to invest in special economic zones that have convenient infrastructure, and offer other legal and economic incentives. However, in the case of mining, the job site is limited to the place where the mineral resources exist. The viability of mining depends on the chemical and physical qualities and conditions of mineral occurrence at the site. Moreover, some types of mineral mining must extract and transport huge amounts of material. In such cases, energy and transportation are crucial to the viability of the operation.

Therefore, there are many examples of investments in mineral potential areas that have been delayed due to insufficient infrastructure and/or deficiency of minable resources. Accordingly, there are many cases in which mine investors request the Government to provide the infrastructure. This means that national governments are asked to make a huge investment in construction. Currently, Cambodia does not have much capital. Therefore it is important for the Cambodian Government to know how much return it can get – in other words, the level of socio-economic benefits – from investing in mining. If the government determines that the economic return from mining promotion would be higher than that from promising new projects in other sectors, the Government will invest intensively in the mining sector.

In this Action Plan, the Mine Development Plan is given the task of proposing practical measures for the Government, based on the evaluation of the socio-economic contribution of mine development. Considering the financial situation of the Cambodian Government, a priority production system should be introduced that sets the key goal (an area and/or mineral) for providing the most effective use of Government funds and human resources.

First, the Conceptual Mining Development Plan (CMDP) should be prepared during the Basic Founding Period (BFP). The main theme of the CMDP is to determine whether or not mine development will become a core of the economic development of Cambodia.

Specifically, this plan is formulated as follows. Based on the current pace of exploration, it appears that exploration for deposits that may have a major effect on the Cambodian economy will remain at a level where the resources can be calculated. The rough mineable reserves of each mineral deposit are calculated for the volume of resources in each

deposit. And the scale and period (approximately 15 to 20 years) of mining operations are determined. The capital and operating costs of the mine site are evaluated by applying the mining and mineral processing models that are based on the characteristics of its minerals and ore deposits. In addition, the capital and operating costs of transportation and other infrastructure are evaluated by applying the estimated unit costs. As for the revenue, mineral (metal) prices are estimated through surveys of supply and demand. Then the economic feasibility of each deposit is calculated by applying the Discounted Cash Flow (DCF) method to determine the Internal Rate of Return (IRR). The IRR is used as the basis for determining the optimal way of development; selecting areas, selecting minerals regardless of area, or selecting minerals in an area.

As a result, approximately three to five projects that are determined to have the highest economic feasibility are selected as promising ones. For these promising projects, the role of the Government and mining policy, mining laws and regulations, administrative measures, and financing are specified.

In the Mining Fostering Period (MFP), the Government should support and assist with exploration activities of promising projects. In this way, the volume of exploration would become sufficient to evaluate the mineable reserves, and the conditions for mining and mineral processing would become clear. Utilizing these findings, a specific operational design would be made, then the capital and operating costs of the mine site would be calculated with a high degree of accuracy. The infrastructure for each project would also be designed in detail. Forecasts of the supply and demand of minerals should be thoroughly studied. Then, through the DCF evaluation, the most profitable project would be determined to be the Key Project. The measures and funding needed to promote the project as a National Key Project are clarified. This plan is called a Detailed Mine Development Plan.

The technical supports for development are obtained through the Mining Council. Furthermore, the Mining Infrastructure Council and associated working groups are established in collaboration with other ministries such as MPWT as the technical advisory council for planning the mining infrastructure.

The five actions to be carried out for this area are as follows.

**1) Preparations**

- Acquisition of methods for designing mines and conducting feasibility studies
- Establishment of planning methodology
- Installation of planning equipment (computers, mine planning software, scanner, printer)

**2) Establishment of the Council of Mining Infrastructure (CMI)**

**3) Creation of a draft Mine Development Plan**

**4) Establishment of Working Groups of the CMI**

**5) Formulation of the Detailed Mine Development Plan**

(Points to Note)

There are various ways to express the objective of a mine development plan.

Today the economic effectiveness of public investment is an issue in Japan. It is very important to explain quantitatively how national funds are managed effectively for the nation's benefit. Therefore, we propose that the Mining Development Plan should include an evaluation of economic feasibility. For this purpose, the methods of mineral evaluation and feasibility study carried out by the private sector are very useful. Therefore in the preparation stage, an expert should be dispatched by an international organization, and/or the mining industry to provide GDMR staff with instruction in high-level mine design technologies. With respect to creating mining and mineral processing models, it is important to obtain the operational parameters from the expert and/or mining companies, in order to make a practical development plan.

Furthermore, through this planning, the GDMR staff can enhance their capacity to evaluate the operating plans and feasibility studies submitted by concessioners.

#### **(5) Amendment of Laws and Completion of Regulations Related to Mining**

Today, mining regulations (as Decrees, Sub-decrees and Prakas) have been formulated in line with the 'Law on Management and Exploitation of Mineral Resources' (hereafter 'Mining Law'). These should be completed as soon as possible to promote mining administration. After completion, it is recommended that the decrees, etc., be compiled into mining laws and regulations that are in the same order as the articles of the mining law.

Moreover, mining investment can be strengthened by amending and revising the mining law. However, from the perspective of sustainable development there are some points that will have to be clarified by mining laws and regulations. Comments on these matters are given in 2.4.2 and 2.3.2 in Chapter 2.

Accordingly, the following items should be discussed and, where necessary, revised.

- Priority given to issuing mining licenses on a first come, first served basis
- Security of title
- Security of tenure
- Stability of investment parameters
- Reasonable royalties and fees
- Incentives and privileges at the exploration and development stages
- Export liberalization of raw mine products and/or concentrates
- Need for a mineral investment agreement
- Introduction of public hearings
- Good governance (transparency)
- Mining environment management
- Harmonization with local communities

In this Action Plan, the Mining Policy is established. Aspects of mining policy, law and regulations may have to be revised.

As the first step of the revision, a study should be conducted on the 'Mining Law'

targeting the stakeholders related to mining (exploration and mining companies and their employees, and local residents), to obtain their comments about the laws and regulations in force, and their suggestions for revisions.

Since 1990, many countries have made amendments to their respective mining laws to better promote investment and sustainable development. Before amending the Cambodian Mining Law, the GDMR should study the mining laws of other countries to introduce some of the best concepts to Cambodian law. At the same time, comparisons should be made with the systems of other countries to develop and implement measures that will provide the highest competitiveness for attracting mining investment.

When revising (or establishing) taxes, royalties and fees for mining (TRF), it is recommended to establish a Mining Taxation Study Team that consists of staff from the GDMR and MEF. The team would establish the methodology for evaluating Cambodia's global competitiveness. Accordingly, the Team would collect information about the TRF of other countries and revenue vs. expenditures (profit) of the mining companies, in order to determine an optimum TRF.

As for the Mining Act Regulations, the regulations that are required by the current Mining Law should be prepared and compiled within the next two years. After that, new regulations in line with the amended Mining Law should be prepared.

As mentioned above, this area consists of the following three actions.

- 1) Enhancement of Mining Law**
- 2) Revision (Establishment) of Taxes, Royalties and Fees**
- 3) Formulation of Mining Regulations**

(Points to Note)

It is important to describe the abovementioned items simply (i.e., without making a lot of exceptions) and clearly. The establishment of a win-win relationship (of coexistence and mutual prosperity) between Government and miner will help to increase national revenues. This would include settlement of tax rates and incentives corresponding to the growth stages of mining, such as exempting exploration equipment from import taxes, providing deferred depreciation of exploration equipment, introduction of a Canadian-style flow through share tax credit (after the growth of the Cambodian stock market), tax holidays, accelerated depreciation, etc.

With respect to royalties, there are some people who favor imposing royalties on net income. However, considering the GDMR's methods for procuring funds for developing mines, and local infrastructure and communities, royalties should be determined not on the basis of mineral product prices but by some other method. However, in order to enhance international competitiveness, the royalty rates should be determined by estimating the total amount of taxes, including other taxes and fees, and comparing the total amount with that of other mining countries. For methods for comparing TRF competitiveness, refer to the

‘Global Mining Taxation Comparative Study’ published by the Colorado School of Mines, and ‘Mining Royalties’ published by the World Bank.

## **(6) Institutional Reform**

This area consists of 2 actions with regard to mining titles and financial basis for the GDMR.

### **1) Establishment of a simple, fair and even system for mineral licenses**

Investors tend to view the procedure of acquiring mining rights as a barometer of the enthusiasm of the Government for mine development, and mining administration. Therefore the procedures should be simple and fair.

The application for and granting of mining licenses should preferably include the following:

- Easy access
- Simple procedure
- Granting licenses within a stipulated period of time
- Clear and convincing reason(s) for rejection, if applicable

By the facilitating the procedure, the GDMR can save manpower. Furthermore, considering the risk of exploration and huge investment in mining development, incentives should be provided during the exploration and initial operation stages, and investment parameters must be stable over the long term..

This Action should involve making the following reforms:

- Introduce the first-come, first-served principle (with a progressive tax rate for non-activity)
- Make it possible to apply for a mineral license through the GDMR Website (e.g. the procedure of British Columbia in Canada)
- Simplify the application documentation for exploration licenses (require only an exploration plan)
- Clarify the period needed to complete the procedure for receiving a mining license ,from application to granting, and strictly adhere to the schedule
- Modify the mineral agreement to include incentives and stability of investment parameters. Or abolish the mine opening agreement system for all new projects.
- (Establish an effective one-stop shop)

This action is started by collecting information on the procedures of other countries, then selecting the system which is suited for Cambodia. To introduce this system, it might be necessary to amend the Mining Law.

Next, GDMR staff should receive training in countries where this system has been implemented. Subsequently, the equipment (computers and software) should be installed, then the system should be tested and started.

(Points to Note)

When granting mining-related licenses, especially exploration licenses, the principle of ‘first come, first serve’ is required, for fairness and transparency. Adopting this principle will simplify the procedures for both sides (the GDMR and Applicants) and make the work of the GDMR more efficient.

For example, concession maps and cadastres will be made freely accessible to visitors, through computers installed in the Information Service Center of the GDMR: and visitors will be able to register/apply for licenses at the Center.

Moreover, it is recommended to introduce the prospecting (general survey) permit procedure through the website. This will require the following:

- Expression of concession blocks in rectangular shapes delineated by longitude and latitude
- Payment of registration and/or permission fees by credit card
- Enhancement of computer security systems

## **2) Establish the financial basis for GDMR activities**

Given the financial situation of Cambodia, the actions in this plan which require great expenditures would have to be carried out with the support of one or more international organizations (counterparts). However, this raises concerns that the Action Plan might become unstable (especially with regard to the timing of the Actions) due to the condition of a counterpart. On the other hand, according to the Prakas, MIME has the right to allocate a part of royalties for their activities, but it has not done so in actuality. Therefore, the establishment of a system and/or persistent negotiation with MEF is required for assuring the distribution of the funds for these activities. Consideration should also be given to creating an activity fund by charging a fee for some of the GDMR’s services.

This Action is designed to achieve the following sub-actions

- Guarantee the allocation of 8% of royalties for geological and mineral surveys
- Increase the allocation of royalties for geological and mineral surveys, and local infrastructure construction
- Allocate land rents and other fees related to mining to GDMR activities for mine development and for fostering small- and medium-scale mining
- Establish separate budget managing systems for each General Department within the MIME
- Generate funds through GDMR services. This involves:
  - Bidding for mining concessions for deposits that are discovered by the GDMR’s surveys
  - Utilizing idle time of staff and equipment & tools for outside services (ex. mineral analysis, geological consulting)

(Points to Note)

The GDMR will have to be patient but determined in its negotiations with MIME,

MEF and the Council of Ministers. It is essential to have an action plan before negotiations on the budget can take place.

The royalties and fees may be distributed between the GDMR and the Provinces as project-specific tax revenue for a short period (approximately 15 years). This is because the general tax revenue collected from the mining industry is more than 10% higher than taxes collected from other industries (without considering, for the time being, whether or not the profit tax rate on mining is reasonable).

### **(7) Fostering Small- and Medium-scale Mining (SMEM)**

For the stable evolution of mine development in Cambodia, it is important to foster domestic mining entities. Although foreign direct investment will strengthen the Cambodian economy, some foreign companies may withdraw unexpectedly due to changes in economic conditions. Today, Cambodia's domestic mining companies are small to medium in scale. Generally speaking, SMEM's financial situation is fragile. And their marketing capacity is small. Consequently, the Government will have to provide financial and other support for management and marketing of SMEM..

In addition to enhancing domestic entities, environmentally-sound mining entities should be fostered. Because of the lack of funds and technologies, artisan, and small- and medium-size miners tend to have a negative impact on the environment and human life. Thus, technological and financial support should be provided by the government.

The government should eliminate illegal mining activities by strengthening the mine inspection system. The government should also train and organize illegal miners who wish to become legal miners.

To achieve these goals, the following actions should be taken:

- Study illegal mining, and investigate the possibility of organizing miners into mining cooperatives or similar groups
- Expand the artisanal mining areas and increase the effective period of licenses
- Provide vocational training for workers in small- and medium-scale mining operations
- Provide exemptions for taxes, royalties and mining fees in consideration of financial conditions of small- and medium-scale mining operations that are in debt
- Study ways to provide financial support to small- and medium-scale mining operations through governmental loan guarantees such as two-step loans
- Provide an official buying program for artisanal miners, which operates transparently and offers fair value for their products
- (Allocate land rents and other fees related to mining for the GDMR activities for mine development and for fostering small- and medium-scale mining)

The following four Actions should be taken on this area. The Actions and Sub-actions are as follows.

#### **1) Investigation & Study of illegal mining**

- Establishment of Mining Regional Offices (4 offices) – Completed in 2010
  - Strengthening of mine inspections (twice a month at suspicious sites)
  - On-the-Job Training for mine inspectors administered by a foreign expert
- 2) Holding of workshops for miners**
- Workshops with lectures (Mining, Mineral Processing, Environmental Technologies) held at 2-3 places/year (Phnom Penh, Kratie, Stung Treng, Mondulkiri, etc.)
  - Hands-on Workshops (Later period of the Action Plan)
- 3) Organization of Artisanal and Small-Scale Mines**
- Arrangement on the Legal Regulations for SMEM (Definitions of SMEM, Cooperative Association for SMEM)
  - Management and Marketing Training for Mine Owners (2-3 places per year)
  - Organizing of Joint Delivery and Marketing System
- 4) Financial Support**
- Special Taxation for SMEM (Revision of the rates of Royalties, Fees and Taxes)
  - Establish a Loan System for SMEM (with Government guarantees)
- (Points to Note)

Fig.7.3.3 shows the concept of the two-step loan.

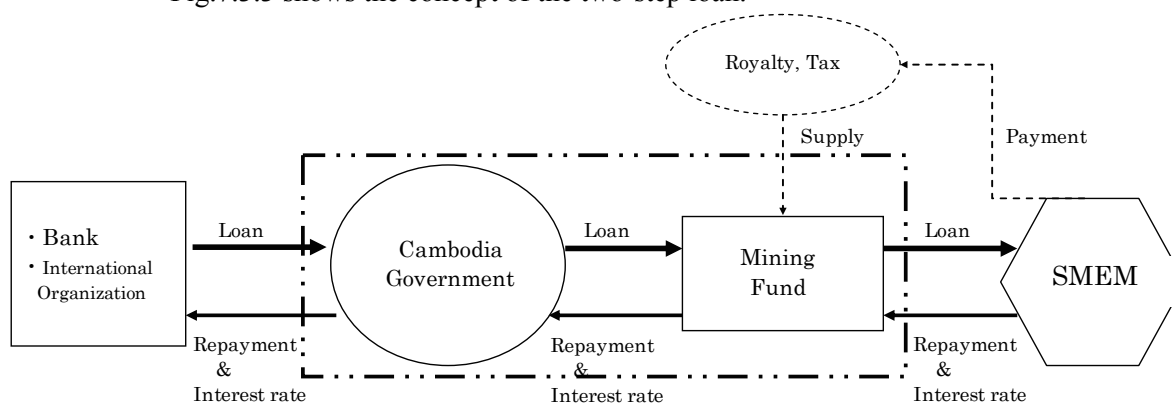


Fig.7.3.3 Concept of Two Step Loan

### (8) Preparation of Mining Infrastructure

In Cambodia, the mineral deposits that show the greatest potential are mostly located in remote areas where the infrastructure is not well developed.

The Key Goal for the priority production system is established by the Mine Development Plan; the Government works on the development of mining infrastructure (mainly for transportation and energy) as a part of the NSDP.

On the subject of the Mine Development Plan, a mining infrastructure committee should be established for dealing with mainly technical matters. This includes practical aspects of infrastructure development, such as:

- Land acquisition
- Measures for preventing pollution, and



- Selection of the best way to vitalize the local economy, with the cooperation of
  - MIME
  - MPWT
  - Provincial offices of the above ministries related to the Key Goal, and
  - Mining companies

(Hereafter these organizations are collectively referred to as the 'Parties of Mining Infrastructure')

First, the Parties of Mining Infrastructure' should hold regular meetings to exchange opinions about the infrastructure fields of the Mining Development Plan, and strengthen their mutual understanding.

Furthermore, considering the above mentioned items, the Parties should prepare a Construction Plan for Mining Infrastructure in line with the Detailed Mining Plan.

Thus, the following two actions should be taken with regard to this area:

- 1) Information Exchange (One meeting of the 'Parties of Mining Infrastructure' per year)**
- 2) Preparation of the Construction Plan**

#### **(9) Cooperation with Stakeholders**

In many mining countries, there have often been conflicts between mining companies and other stakeholders. The causes of these conflicts are varied, and may include concerns about mining pollution, disturbance of the land, damage to heritage sites (especially those of aborigines and local culture), and money matters, among other things.

To mitigate these conflicts, especially those caused by the misunderstanding of mining activities, the mining companies and the Government should establish a good relationship with other stakeholders, such as residents of the mining areas, land owners, other areas affected by mining activities, etc., through activities that deepen mutual understanding.

For this purpose, as an action on this subject, a Stakeholders Conference is established to provide a place for the representatives of stakeholders to exchange information, discuss the issues of mining development, and consider how to make all stakeholders aware of the benefits of mining activities.

Moreover, to foster a proper understanding of mining, the government and mining companies should hold open seminars for local residents of mining areas.

Thus, the following two actions should be taken with regard to this area:

- 1) Stakeholders Conference (approximately 10-15 members: twice a year)**
- 2) Open Seminars on Sustainable Development (2 places per year)**

#### **(10) Cooperation with Neighboring Countries**

There are some areas in Cambodia where mineral deposits may extend into one or more neighboring countries (Thailand, Vietnam, Laos). If these deposits are mined in each

country independently, the ore reserves near the border are left undeveloped, in order to avoid invading the other country. (There are more undeveloped reserves left in open pits than in underground mines). If the deposit is excavated as one cross-border mine, these losses of mineral resources will be prevented. Also, productivity may be increased due to economies of scale.

If a mine can use the infrastructure freely, the Cambodian Government will be able to save public investment for infrastructure in some cases. For the mining companies, if there are no restrictions on using the infrastructures of both countries, they will be able to increase their profitability by selecting the most efficient infrastructure.

Moreover, by using the most competitive products available in the two countries, the profitability of the mine will increase. This in turn will increase the national revenue.

Thus, it is desirable to develop the mineral resources around border areas cooperatively with the other country(s).

The following actions should be carried out to prepare for future development with neighboring countries.

**1) Exchanging information about mine development (One meeting of the relevant mining ministries per year)**

**2) Four Nation Mine Development Committee (In the last period of the Action Plan: once a year)**

Member Countries: Cambodia, Laos, Vietnam and Thailand

(Points to Note)

Ultimately, the Government should enter into a Mining Integration Treaty. With regard to the contents, refer to the 'Mining Integration and Complementation Treaty between Chile and Argentina'.

### **7.3.2 Detailed Action Plan for Institutional Reform**

Based on 7.3.1, each action is divided into several steps, and allocated a department in charge, manpower and period of activity. This plan is called the 'Detailed Action Plan for Institutional Reform'. This section consists of following tables:

Table 7.3.1 Outline of the Detailed Action Plan for Institutional Reform

Table 7.3.2 Manpower Summary, including foreign experts

Table 7.3.3 Detailed Action Plan for Institutional Reform

Table 7.3.1 Outline of the Detailed Action Plan for Institutional Reform (1)

Item	Strategy/Action	Dept.	Manpower		IC	Expend. Thou. US\$	Basic Founding P.					Mining Fostering P.								
			GDMR	Outside			11	12	13	14	15	16	17	18	19	20				
1. Basic Information	1. Geological Information Collection	DoG	GA 3	-		60(T)														
	2. Field Survey	DoG	GB 8		⊙															
	3. Mapping	DoG	GA, GB		⊙	1200(T)														
	4. Update GIS Database	DoG	GA																	
	5. Resources & Reserves Evaluation	DoG	GA, GB		(⊙)															
	6. Geological Information Center	DoG	GC 3			30(Y) 50(T)														
	7. Mining Yearbook	DMR, DCM	MA 6			20(Y) 50(T)														
	8. Mineral Laboratory	DoG	GD6		⊙	10(Y) 450(T)														
2. Mining Council (MCL, &WG)	Establishment & Regular Meeting	GDMR	TA 9	5		10(Y) 10(T)														
3. Mining Policy	1. Mining Policy Establishment	GDMR	TA		⊙															
	2. Review/Modification	GDMR	TA																	
	3. Policy for NSDP	GDMR	TA																	
4. Mining Development Plan	1. Preparations	DMRD	DA7 GA,GB		⊙	60(T)														
	2. Council of Mining Infrastructure (CMI)	DMRD	DA,GA,GB																	
	3. Conceptual Plan	GDMR	DA(2)	10		30(T)														
	4. CMI Working Group	GDMR	DA	L&I		10(T)														
	5. Detailed Plan	GDMR	DA			60(T)														

..... Preparation ■ Establishment — Routine (Regular)

Dept: Department IC: Supported by International Corporation ○ : If possible ⊙ : Absolutely Expnd. : Expenditure T—Required at once Y—Required each year  
P: Period Manpower: ex. GA7--- G(department)/A(name of the Group) 7(persons) G-DoG D-DMRD M-DMR & DCMR T—from each dept Co.—Company  
MCL: Mining Council MCLWG: Working Group of MCL CMI: Mining Infrastructure Council CMIWG: Working Group of CMI MCL&WG : MCL and MCLWG  
L&I : MCL and DCMR LIWG: MCLWG and DCMRIWG →: Action extending during the period

Table 7.3.1 Outline of the Detailed Action Plan for Institutional Reform (2)

Item	Strategy/Action	Dept.	Manpower		IC	Expend. Thou. US\$	Basic Founding P.					Mining Fostering P.							
			GDMR	Outside			11	12	13	14	15	16	17	18	19	20			
5. Laws & Regulations	1. Enhancement of the Mining Law	DMRD	DB 3			10(T)													
	2. Taxation	DMRD	DC 4																
	3. Mining Regulations	DMRD	DB			10(T)													
6. Institutional Reforms	1. New Procedure for Mining Licenses	DMR	MB 3		©	100(T)													
	2. Creation of Financial Basis	GDMR	GDMR																
7. SME Mining (SMEM)	1. Investigation & Study of Illegal Mining	GDMR	GDMR																
	2. Workshop	4 Depts	TC 4			10(Y) 20(T)													
	3. Organization of SMEM	DMR	MC 2			10(Y)													
	4. Financial Support	DMRD	TB																
8. Mining Infrastructure	1. Information Exchanges	GDMR	DA	CMIWG		5(Y)													
	2. Construction Planning	GDMR	DA	CMIWG		10(Y)													
9. Cooperation with Stakeholders	1. Stakeholders Conference	DMR	MC	10-15		10(Y)													
	2. Open Seminars	DMR	MC			10(Y)													
10. Cooperation with Neighboring Countries	1. Information Exchange	GDMR	GDMR	3 Co.		20(Y)													
	2. Mine Development Committee	GDMR	GDMR	3 Co.		20(Y)													

..... Preparation

█ Establishment

█ Routine (Regular)

Dept: Department IC: Supported by International Corporation ○ : If possible © : Absolutiel Expnd. : Expenditure T—Required at once Y—Required each year  
P: Period Manpower: ex. GA7--- G(ddepartment)A(name of the Group) 7(persons) G-DoG D-DMRD M-DMR & DCMR T—from each dept Co.—Company  
MCL: Mining Council MCLWG: Working Group of MCL CMI: Mining Infrastructure Council CMIWG: Working Group of CMI MCL&WG : MCL and MCLWG  
L&I : MCL and CMRI LIWG: MCLWG and CMRIWG

Table 7.3.2 Manpower Summary

Number of staff in each department allocated for Institutional Reform in the Action Plan

1. Department of Geology

			Number of staff
Group A	(GA)	Information Collection, Mapping, Evaluation	3
Group B	(GB)	Field Survey, (Mapping), (Evaluation)	8
Group C	(GC)	Geological Information Center	3
Group D	(GD)	Mineral Laboratory	6
Others	(TA)	(Mining Policy, Mining Council)	(2)
	(TC)	(Workshop for SMEM)	(1)
<hr/>			
Total (Excluding TA and TC)			20

2. Department of Mineral Resource Development

Group A	(DA)	Mining Development Plan	7
Group B	(DB)	Laws and Regulations	3
Group C	(DC)	Taxation, Royalties, Fees	2
Others	(TA)	(Mining Policy, Mining Council)	(2)
	(TB)	(Taxation/Loans for SMEM)	(1)
	(TC)	(Workshop for SMEM)	(1)
<hr/>			
Total (Excluding TA, TB and TC)			12

3. Department of Mineral Resources/ Department of Construction Material Resources

Group A	(MA)	Mining Yearbook	6
Group B	(MB)	New Procedure for Mining Licenses	3
Group C	(MC)	Organization of SMEM, Cooperation with Stakeholders	2
Others	(TA)	(Mining Policy, Mining Council)	(2)
	(TB)	(Taxation/Loans for SMEM)	(1)
	(TC)	(Workshop for SMEM)	(1)
<hr/>			
Total (Excluding TA, TB and TC)			11

4. Foreign Experts

Geologist	Field Surveys, Mapping, Mineral Evaluation	1 person x 4 years
Geophysicist	Mapping, GIS	1 person x 3 years
Mineral Analyst	Mineral Laboratory	1 person x 3 years
Mining Engineer	Mining Development Plan	1 person x 4 years
Mining Expert	Mining Laws and Regulations	1 person x 2 years
Short-term Experts	Mine development plans, Processing, Metallurgy, Economics (4 months per person)	3 persons x 2 years

**Table 7.3.3 Detailed Action Plan for Institutional Reform (1)**

**1. Improvement of Basic Information about Mineral Resources**

To evaluate the socio-economic effects of mine development in the country, and to increase the attractiveness to investors, the government should restructure the geological sector as the center of mineral resource surveys, mineral research, and related information services. This item should be given first priority.

Strategy/Action	Activities	Period		Department	Group	Budget*2 Thou. US\$
		BFP (end2010)	MFP			
1. Geological Information Collection	Team Organization	1Q2011	(1Q2016)	DoG	GA(3p)*1	
	Installation of Database Equipment (computer, GIS & Mine Planning Software, Plotter, Scanner, Printer)	2Q2011-4Q2011		DoG	GA	60 (T)
	Historical Data Collection and Analysis (R)*3	1Q2011-2Q2011		DoG, DMR (companies)	GA (DMR 1p)	
	Preparation of Technical Report Guidelines for Mineral Concessionaires	2Q2011-4Q2013	.....▲ 4Q2020			
2. Field Survey	On-going Exploration Data Collection & Analysis (R)	1Q2011-4Q2014		DoG	GB (8)	
	Field Training in Domestic Exploration (Geophysical, Geochemical, Geology & Mineral Evaluation). Education and Training at a Foreign Institute (GS) and/or University (1-2 persons, period 2-4 years, total 8 persons) (R). Geological & Geochemical Survey (general Geology)	1Q2011-4Q2015	1Q2016 4Q2020	DoG	GB	
3. Mapping	Compile 1:500,000 geological tectonic map of the whole area of Cambodia (with 1 Foreign Expert)	1Q2011-2Q2013 4Q2011		DoG	GA, GB	20 (T)
	Update the 1:200,000 geological map of eastern Cambodia (Rottanakiri & Mondulkiri) (with 1 Foreign Expert)	1Q2011-4Q2014		DoG	GA, GB	470 (T)
	Make 1:100,000 geological and geochemical maps of promising areas (4 sheets) (with 1 Foreign Expert)	1Q2012-4Q2015		DoG	GB	700 (T)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (2)**  
**1. Improvement of Basic Information about Mineral Resources (continued)**

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
4. Update GIS Database	Update GIS database for geological information	3Q2012-4Q2015		DoG	GA	-
5. Evaluation of Resources & Reserves	(Training: Included in Training & Education for Field Surveys) Resources & Reserves Evaluation using GIS data base and Resources & Reserve evaluation system	(1Q2011-3Q2013)		(DoG)	GA, GB)	-
6. Geological Information Center	Study other countries' geological information centers (mineral library, licenses application system, mineral museum)	4Q2013-4Q2014	1Q2016-4Q2016		GA, GB	
	(Construction of Building, 250m <sup>2</sup> each) (Loan)	1Q 2012		GDMR, DoG	GC(3p)	
	Establish a Geological Information Center (library and cadastre), and a Mineral Museum	(2013)		(GDMR)		(750)(T)
	Services at the Geological Information Center (R)	1Q2014-4Q2015		GDMR, DoG	GC(3p)	50 (T)
7. Mining Yearbook (Statistics)	Management and maintenance of Website (R)	→	→	DoG	GC(3)	30 (Y)
	Preparation of Contents of the Yearbook (Format, Analysis methods)	1Q2011-4Q2011		DoG	GC	2 (Y)
	Installation of Tools (computer, local data-base system)	2Q2012		GDMR, DMR, DCMR, Companies		
	Publication(R)	3Q2013-4Q2015	→	DMR, DCMR	MA(6p:DMR3p,DCMR3p) MA	50 (T) 20 (Y)
8. Mineral Laboratory	Survey of the Demand for Mineral Analyses from Other Ministries, Institutes and the Private Sector	1Q2011		DoG, Stakeholders	DD(6p)	
	(Construction of Building, 200m <sup>2</sup> ) (Loan)	1Q2012-4Q2012		(GDMR)		(400)(T)
	Installation of equipment and training by foreign experts	1Q2013-4Q2015		DoG	DD	450 (T)
	X-ray Diffraction Analyzer X-ray Fluorescence Analyzer Atomic Absorption Spectrometer Polarization Microscope Full Implementation of Mineral Analysis Services (R)		1Q2019-4Q2020			10 (Y)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M-- DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (3)**

**2. Establishment of a Mining Council (MCL)**

A Mining Council shall be established to reflect the opinions and comments of experts and stakeholders in the mining policy, mining legislations, and key activities of GDMR, and to resolve issues

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP (2010)	MFP			
1. Establishment	Study the participation of experts and stakeholders in governmental mining activities in other countries			GDMR	TA(9P:1pGD MR,2p each Dept)	10 (Y)
	Decide the functions of the Council and Working Group (MCWG)	1Q2011		GDMR Stakeholder(SH)	TA SH (5p)	
	Selection Councilors (MCLs) (10p)	2Q2011		GDMR, SH	TA, SH	
	Selection of Members of the Working Group (MCWGs)	3Q2011		GDMR MCLs	TA MCLs	
2.Regular Meetings	Semiannual Mining Council Meeting (R)	2Q2011- 4Q2015	1Q2016- 4Q2020	MCLs	MCLs TA	5 (Y)
	Quarterly Working Group Meeting (R)	3Q2011- 4Q2015	1Q2016- 4Q2020	MCWGs	MCWGs TA	5 (Y)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M-- DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2 :Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period



**Table 7.3.3 Detailed Action Plan for Institutional Reform (4)**

**3. Establishment of Mining Policy**

Through the establishment of mining policy, the Government clarifies the socio-economic importance of mining development for the country, and shows the process of sustainable development and how to create global competitiveness under Good Governance, for the Cambodian people and foreign investors.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1. <Mining Policy> (1) Draft Preparation	Study the mining policy of other countries that enjoy widespread popularity among investors (by documents, interviews) with the support of foreign expert(s) ----- Prepare Draft with the support of foreign expert(s)	(2010)		GDMR	TA(9P:1pGD MR,2p Dept)	
(2) Consultations	Polish up the policy through the Mining Council review	(2010)		GDMR	TA (MCWGs)	
(3) Review in MIME	Submit the draft to the MIME	1Q2011- 2Q2011		GDMR MCLs	TA MCWGs	
(4) Final Draft	Finalize the draft & send it to the Ministers Council	3Q2011		GDMR	TA	
2. <Review and/or Modification of Mining Policy> (1) Draft preparation	Study 1st stage 'Mining Development Plan ----- Evaluate the socio-economic contributions of mining development (If above evaluation is positive) Review the Mining Policy (If needed) Modify the policy through the Mining Council review	3Q2011	1Q2017	GDMR	TA TA,MCWGs	
(2) Consultation	Submit the modification to the MIME		1Q2017	GDMR	TA MCWGs TA	
(3) Review in MIME	Finalize the Modification & Send to the Ministers Council		2Q2017	GDMR	TA	
(4) Final Modification	Study the 2nd Stage Mining Development Plan ----- Draft of NSDP for mining sector preparation		3Q2017	GDMR	(MGWGs)	
3. <Mining Policy targeted for inclusion in NSDP> (1) Draft Preparation	Polish up the Draft through the Mining Council review		4Q2017	GDMR	TA	
(2) Consultations	Submit the draft to the MIME		4Q2017	GDMR	TA TA	
(3) Review in MIME	Finalize the draft & send it to the Ministers Council		4Q2017	GDMR	TA MCWGs	
(4) Final Draft	Finalize the draft & send it to the Mimisters Council		1Q2019	GDMR	TA MCWGs	
			2Q2019	GDMR	TA (MCWGs)	
			3Q2019	GDMR MCLs	TA MCWGs	
			4Q2019	GDMR	TA	
			4Q2019	GDMR	TA	

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M-- DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2 :Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (5)**

**4. Preparation of Mining Development Plan**

Based on the Mineral Evaluation prepared by the Geological sector, the GDMR carries out preparations for mine development for the purpose of estimating the socio-economic effects of Governmental support on mining activities, and clarifying the function of the Government with respect to mine development. And if feasible, the Plan has to include scenarios for sustainable mine development.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1. Preparations	Acquisition of methods for studying Mining Design and conducting feasibility studies (4 Mining Engineers, 2 Metallurgists, 1 Economist) at mining companies, and Foreign Institute ----- Establish Planning Methodology (Ex. Mine Modeling system and feasibility study using DCF method) ----- Installation of planning equipment (Computers, GIS & mine planning software, scanner, printer)	1Q2011-4Q2014		DMRD,DMR	DA(7R)	
		3Q2013-4Q2013		DMRD,DMR, (DoG)	DA,GA,GB	-
		4Q2013		DMRD,DMR	DA	60(T)
2.Establishment of a Council of Mining Infrastructure (CMI)	Preparatory Meeting (GDMR, MPWT, Province, MoE, Companies, Institutes) ----- Establishment (2 members from each organization)	1Q2014-3Q2015		GDMR, DMR,DCMR	TB 2	
		4Q2015		do.	do.	
3. <Formulation of a Conceptual Mining Development Plan (CMDP)>	Data entry & Trial Case Study	1Q2014-4Q2014		DMRD,DMR, (DoG)	DA,GA,GB	
(1) Preparation of the Draft	Making mining Development Plan (Selecting promising areas and/or minerals through economic analysis)	1Q2015-4Q2015		DMRD,DMR, (DoG)	DA,GA,GB	
(2) Consultation of the CMDP	CMDP evaluation by members of the MCLs & CMI (3 times)	2Q2015-4Q2015		GDMR,MCL, MCI	DA, MCL, MCLWGs	10(T)
(3) Publication	Finalizing the CMDP	End2015		GDMR, DMRD	DA	20(T)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M-- DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2 :Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (6)**

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
4. Working Group of CMI	Establish CMI working Group (CMIWDs) (CMCLWG + MPWT 2p+ Province 5p)		1Q2016	GDMR,DMRD	DA	
5. Planning of Detail Mining Development Plan(DMDP) (1) Preparation of the Draft	Clarification of the key issues of CMDP and reflecting the mineral evaluation activities		2Q2015- 3Q2016	GDMR,DMR, (DoG)	DA,GD,GB,C MI&MCLWGs	
	Studying the methodology of DMDP (if needed)		3Q2017	do.	do.	
	Additional data entry		4Q2017	GDMR,DMR (DoG)	DA,GA,GB	
	Making DMDP (Select one priority area and/or mineral, and determine the financial roles of the Government)		1Q2018- 4Q2018	do.	do.	
(2) Consultation of the DMDP	DMDP evaluation by members of the MCL & CMI (3 times)		2Q2018- 4Q2019	GDMR,MCL, MCI	DA, MCL, MCLWGs	10(T)
(3) Select Key Mineral and/or Development Area	Determination of the Key Mineral and/or Development Area that would make the greatest socio-economic contribution		4Q2019	do.	do.	
(4) Publication	Finalizing the DMDP		End2019	GDMR, DMRD	DA	50(T)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (7)**

**5. Amendment of the Mining Law and associated regulations related to Mining**

In order to foster mining as a key sector that contributes to the sustainable growth of the national economy, the government shall enact mining legislation that promotes mining development with fair and transparent procedures; effective, practical and high recovery technologies; sound health and safety measurement, and environmental measurement; rules for creating more comfortable communities for residents; and strong global competitiveness that attracts mining investors.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1. <Enhancement of Mining Law> (1) Mining Law Survey	Preparation of 'Mining Law survey' for stakeholders (Mining and/or Exploration company, Provincial residents) Implementation of the Survey ----- Identification of key issues reflected by the Survey	1Q2011		DMRD, (DMR,DCMR)	DB(3p)	
		2Q2011- 3Q2011		do.	do.	
		4Q2011		do.	do.	
		1Q2012- 4Q2012		do.	do.	
(2) Acquisition the concept of Advanced Mining Laws	Study of the laws of advanced mining countries, and model laws proposed by international organizations	1Q2013- 3Q2014		do.	do.	
(3) Draft Amended Mining Law	Preparation of Draft Amended Mining Law	2Q2013 3Q2014		GDMR, MCLs	DB,MCLWG	10 (Y)
(4) Consultation	Consultation with MCLs, relevant Ministries, International Organization (6 times with each Group, 2 times together)	4Q2014		GDMR	DB	
(5) Review by MIME	Submit to the MIME	End 2014		DMRD	DB	
(6) Publication	Establishment of Mining Taxation Study Team	3Q2011		DMRD	DC(4p)	
2. Taxation, Royalties, Fees	Establishment of Mining Taxation Study Team (GDMR2p, MEF2p) ----- Establishment of Methodology for Evaluating Global Competitiveness ----- Data Collection (Taxation in Other Countries, Mining Expenditures & Revenue) & Evaluation ----- Incorporation of the results into mining legislation	3Q2011- 4Q2011		do.	do.	
		1Q2012- 4Q2012		do.	do.	
		4Q2012		DMRD	DC,DB, MCLWG	

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M-- DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2 :Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (8)**  
**5. Amendment of the Mining Law and associated regulations related to Mining (continued)**

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
3.<Mining Law Regulations> (1) Compile the Prakas, Decrees	Compilation of the Prakas, Decrees, in line with current Mining Law and Mining Agreement ----- Preparation of additional parkas and/or decree required in urgent.	1Q2011-		DMRD	DB	
(2) Preparation of Mining Laws and Regulations	Preparation of regulations in line with the Amended Mining Law	1Q2011-4Q2012		do.	do.	
(3) Publication	Send to the MIME for Publication	1Q2013-3Q2014		do.	do.	
<Environmental Conservation Act For Mining>	This is discussed in 7.6.	End 2014		do.	do.	10 (T)
<Health & Safety Act for Mining>	This is discussed in 7.6.					

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M-- DMR&DCMR T--All Department \*1: p—Person(s)  
\*2 :Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
\*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (9)**

**6. Institutional Reforms**

To facilitate and strengthen the mineral development activities carried out by the GDMR, and to simplify the acquisition of mineral licenses for mining investors, some parts of the institutional system shall be reformed.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1.<New Procedure for obtaining Mineral Licenses> (1) Incorporate into the Mining Law	Investigation of systems in advanced mining countries	1Q2012- 4Q2012		DMR, DoG	MB(3p:DMR 2p,DoG1p)	
	Preparation of a systems for acquiring licenses under the Amended Mining Law	1Q2013- 4Q2013		do.	do.	
(2) Establishment of the system	Training by foreign experts (Ex.1 Canadian expert)	3Q2013- 3Q2015		do.	do.	
	Install the system, establish procedures (Ex. utilization of Website) Data input and testing		1Q2016 2Q2016- 4Q2016	do.	do.	100 (T)
(3) Commencement	Start of New System		1Q2017	do.	do.	

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (10)**

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
2. <Creation of Financial Basis> (1) Securing activity funding	Secure 8% of Royalties for GDMR activities, through discussion with the MIME and MEF Allocation of royalties, mainly for collecting geological information	1Q2011-4Q2011		GDMR	GDMR	
		2Q2011-4Q2015	1Q2016-2Q2019	do.	do.	
(2) Establish principles for allocating royalties and mining fees	Review the allocation for the Government (general and GDMR) and Provinces Incorporate into Mining Law and Regulations	1Q 2013-2Q2014		GDMR, MEF	DC	
		1Q2013-3Q2014		DMRD	DC	
(3) Ministry's Budget System Managed by General Department	Proposals to, and negotiations with the MIME, MEF	1Q20011-4Q2012		GDMR	GDMR	
(4) Generation of Revenue	Study on introducing a tender system for some concessions (ex. mineral deposits discovered by the GDMR)		1Q2017 4Q2017	DMRD	DC	
	Implementation (R)		1Q2018			
	Study on utilization of workers and tools & equipment during idle time (ex. Mineral Analysis, Consulting)		1Q2019 4Q2019	DMRD	DC	
	Implementation (R)		1Q2020			

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period



**Table 7.3.3 Detailed Action Plan for Institutional Reform (11)**

**7. Fostering Small and Medium (SME) scale mining**

The Government shall support artisanal and small- and medium-scale mines, introduce technology that increases operational efficiency, protect miners and residents in mining areas from accidents and adverse health effects caused by mining activities, prevent pollution, keep the environment impact to be minimum; and foster partnership with SME and help them to procure financing, for the purpose of eliminating illegal mining, implementing sustainable mine development, and nurturing Cambodian enterprises.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP (2010)	MFP			
1. Investigate & study illegal mining	Establishment Regional Mining Offices (4)			GDMR	GDMR	
	Strengthen the investigation of illegal mining by frequent inspections (twice a month in suspicious areas) (regularly)	1Q2011-4Q2013		Regional Office	Inspector	
	On-the-job training for Mine Inspectors by 1 foreign expert about mining health and safety, and about preventing mine pollution for quarries	1Q2011-4Q2011		GDMR	GDMR	
2. Workshops for miners	Preparing training materials (for lectures)	1Q2014-4Q2015		Each Dept	TC(4p each Dept 1p)	
	Workshop (Mining, Processing, Environmental Technologies (Phnom Penh, Kratie, Stung Treng, Mondulkiri etc, 2-3 places/year)		1Q2016-4Q2018	do.	do.	10 (Y)
	Preparing practical training materials and tools		1Q2017-4Q2018	do.	do.	20 (T)
	Hands-on workshop		1Q2019-4Q2019	do.	do.	
3. Organization of Artisan and Small Mines	Establishment of laws and regulations for SMEs.		1Q2016-4Q2016	DMR, DCMR	MC(2p)	
	• Definitions of SME					
	• Cooperative Association for SMEs					
	Management and Marketing Training for Mine Owners (2-3 places/year)		1Q2017-4Q2020	do.	do.	10 (Y)
	Organizing joint delivery and marketing system		4Q2020	do.	do.	

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period



**Table 7.3.3 Detailed Action Plan for Institutional Reform (12)**  
**7. Fostering Small and Medium-scale Mining (continued)**

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
4. <Financial Support>						
(1) Special Taxation for SMEs	Review rates of royalties, fees, and taxation for SMEs ----- Implement special taxation for SMEs	1Q2013- 4Q2015		DMRD,(MEF)	TB(2p)	
(2) Loan System	Study the loan system to provide Government support for SMEs ----- Implement the Loan System (ex. Two-step loan)	1Q2013- 4Q2015	→ 1Q2016- 4Q2017	GDMR, MEF GDMR, Bankers,	TB TB	
			1Q2018-	do.	do.	

**Table 7.3.3 Detailed Action Plan for Institutional Reform (13)**

**8. Preparation of Mining Infrastructure**

In order to enhance Cambodia's international mining competitiveness and rural development, the MIME/GDMR and Ministries related to transportation and energy infrastructure have to work together to construct the main line of mining infrastructure that connects mines to manufacturing zones and export terminals.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1. Information exchange	1. Annual meetings among the MIME, MPWT, Provincial Offices related to mining development, Companies	4Q2015	→	GMDR, DMR	DA CMIWGs	5 (Y)
2. Construction Planning	1. Detailed planning in line with DMDP		1Q2020- 4Q2020	GDMR, DMR	DA, CMIWGs	10 (T)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
\*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
\*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

**Table 7.3.3 Detailed Action Plan for Institutional Reform (14)**

**9. Cooperation with Stakeholders**

Through the mutual understanding and cooperation among residents/communities of mining areas, miners, the Government, and other stakeholders, the Government will promote sustainable mining and rural development.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1. Stakeholders Conference	Selection of members (approx. 10-15 people) Stakeholders Conference (2/yr)	1Q2015 4Q2015		DMR, DCMR	MC(2p)	
2. Open seminars on sustainable mining development	Implementation of open seminars for the residents of mining areas (2 places/yr)	1Q2014- 4Q2015	→	DMR, DCMR DMR, DCMR	MC(2p) MC(2p)	10 (Y) 10 (Y)

**Table 7.3.3 Detailed Action Plan for Institutional Reform (15)**

**10. Cooperation with neighboring Countries**

Through cooperative agreements with neighboring countries, namely Laos, Viet Nam, and Thailand, Cambodia will be able to develop mineral resources located in border areas with maximum recovery; and by co-utilization of joint-use infrastructure for mining, both Cambodia and its neighbors will be able to strengthen their international mining competitiveness.

Strategy/Action	Activities	Period		Department	Group	Budget*1 Thou. US\$
		BFP	MFP			
1. Exchange information about mining development	Annual meetings of mining ministries		1Q2016- 4Q2018	GDMR	GDMR	20 (Y)
2. Four Nation Mine Development Committee	Establishment of the Committee Annual Committee meetings		4Q2018 1Q2019- 4Q2020	GDMR. GDMR	GDMR GDMR	 20 (Y)

Period: BFP—Basic Founding Period MFP: Mining Fostering Period  
 Group Name GA: G(Department)/A(Group name) Department: G--DoG D--DMRD M--DMR&DCMR T--All Department \*1: p—Person(s)  
 \*2: Budget --- T—Total(discontinued budget such as capital expenditure), Y—Yearly (annual budget that required regularly or several years)  
 \*3: R-- after the period the activities will be carried out as routine job →: Action extending during the period

## **7.4 Proposed Programs for Organizational Reform and Capacity Development**

### **7.4.1 Basic frameworks for Action Programs**

#### **(1) Long-Term Perspectives for GDMR Activity**

The development of action programs for organizational reform and human resources development at the GDMR requires a long-term perspective since it takes many years to materialize the programs. The following is our long-term perspective for the GDMR's activities.

##### **1) Environmental changes caused by mine development**

Considering that the GDMR's mission is to utilize mineral resources in Cambodia for the welfare of the Cambodian people while taking into consideration environmental preservation as much as possible, GDMR operations have to pay more attention to the following:

- Inspections to determine whether mining is being conducted according to relevant laws and regulations
- Acceleration of environmentally- friendly mine development
- Stringent monitoring of illegal activity
- Acceleration of quality investment
- Mining development based on dialogue among parties concerned, i.e., Government, investors and local residents of mining sites
- Utilization of resources in a way that maximizes the benefits to the people of Cambodia

##### **2) Expansion of the GDMR's operations under increasing mining development activities in Cambodia**

In this regard, the prospect for expansion of mining activities is uncertain since it depends on the availability of mineral reserves. However, exploration activities will continue to expand at an accelerating pace. Expansion in exploration activity will lead to an increase in applications for mining licenses. Daily operations at the GDMR will increase. In addition, as stated above, the GDMR is required to secure as much quality investment as possible.

#### **(2) Need for Human Resources at the GDMR**

##### **1) Areas where the staffing requirements is growing**

In order to solve various issues which the GDMR currently faces in their operations as described in Chapter 4, and to respond to the above trends in its activities, the GDMR has to accelerate its development of human resources in the following areas. Priority differs by area. The level of priority is shown in parentheses. Priority 1 programs should be implemented before Priority 2 programs.

- Development of laws and regulations related to mining safety and health, and environmental conservation (Priority 1)
- Development, review and assessment of the GDMR's strategy (Priority 1)
- Development of MIS system which will make the GDMR's operations more efficient and effective (Priority 1)

- Strengthening of personnel management (Priority 1)
- Improve the geological capacity of GDMR staff (Priority 1)
- Strengthening of public relations (Priority 2)
- Strengthening of inspections of daily operations (Priority 2)
- Strengthening new business related to mining activities (Priority 2)

## 2) Number of staff needed to achieve the above targets

The number of staff that will be needed for GDMR operations in the year 2020 is estimated as follows. Assuming that the growth rate of the construction sector in Cambodia, which is one of the major users of construction materials, is 15% per annum, and the elasticity of growth of mine production to the growth of the construction sector is 0.8, it is estimated that the mining sector will grow at 12% per year for the next 10 years. This means that the GDMR's activities will expand to three times the current level by the year 2020. Assuming a 5% per annum increase in productivity, the number of GDMR staff will need to increase to 141 and 190, respectively, by the years 2015 and 2020 from the current number, 100. This means that the GDMR will have to hire 40 additional staff members in the next five years and 50 additional staff in the following five years.

Finally, of the 190 staff who are projected to be working at the GDMR in the year 2020, it is estimated that 140 will be geology and mining engineering majors. This is because customer service work at mining sites is expected to increase at a high rate. However, since there is no institution which provides technical instruction in geology and mining engineering in Cambodia, it will be necessary for the GDMR to educate and train them by itself.

Table 7.4.1 Projected Number of Staff at the GDMR

Year	2010 (Current)	2015	2020
Index of work volume (Y2010=100)	100	180	310
Productivity index (Y2010=100)	100	128	163
Required staff (actual number)	100	140	190
(Number of staff who will have to have knowledge of geology and mining engineering)	(60)	(85)	(140)

## 7.4.2 Overview of Organizational Reform

### (1) Strengthening of Organization to be tackled in the Coming Three Years

As stated in 4.1.3, the following functions are being strengthened. The numbers in parentheses show the number of staff who are newly assigned to these functions considering the necessity to meet the demand for the GDMR's operations in the coming three years.

- Strengthen development of laws and regulations (3 in addition to current 1, total 4)
- Strengthen overall strategic planning (including specialist in industrial research) (3 in addition to current 1, total 4)
- Creation of a new Office for MIS Development (3)
- New assignment of a planning officer for personnel management (1)
- New assignment of a public relations officer (1)

- Strengthen Coordinating section with related Ministries (1)
- Creation of a new office for new business development (1)
- Strengthen Follow-up section (3)

The number of staff has been increased by 16.

## (2) Organizational Changes

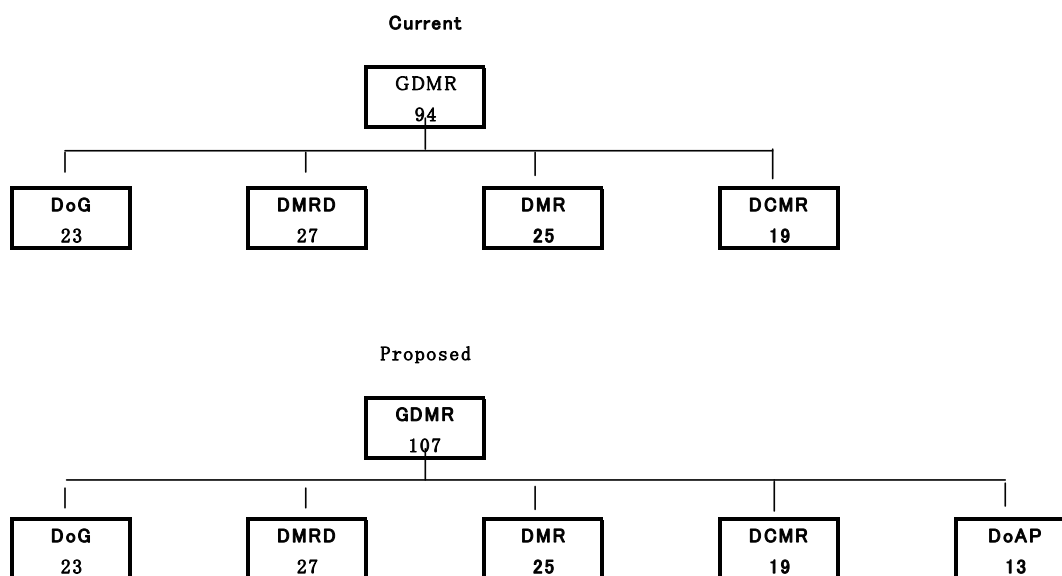
To strengthen the above areas, there are two options. One is to keep the framework of the current organization but to modify its duties (Case A). The other is to create a new department or office (Case B) (See Fig. 7.4.1).

- Modification of Duties of the Current Organization (Case A)

Environmental Impact Assessment work is allocated to the DoG, while other new areas are allocated as new duties to the DMRD. Considering the current duties, it would be reasonable to allocate the new duties described above to the DMRD. A new office of Follow-up would be created as a staff organization of the GDMR.

- Creation of a New Department (Case B)

One disadvantage of Case A is that too many new duties would be assigned to the DMRD. Therefore, it may be better to split the new duties into two parts and allocate some of them to the DMRD and the others to a newly created Department of Administration and Planning (hereafter referred to as DoAP).



Note: Number in parenthesis is staff size of June,2010

Fig.7.4.1 Proposed Organizational Reform

Under this idea, new duties would be allocated as follows. Expanded functions and new functions are shown in italics. The current Secretariat should be organized under the new Department of Administration and Planning.

- The DMRD: *Overall business strategy, Laws and regulations, Data management, Cooperation, Revenue management, New business development, Coordination*
- The DoAP: *MIS development, Special personnel officer (Capacity development), Public relations office, Follow-up office*

This Master Plan is designed not only to solve current problems which the GDMR faces but also to establish a strong and flexible management system which could easily be adapted to future quantitative and qualitative changes in mining development in Cambodia. Considering this, Case B is better than Case A because it has the capacity to respond to changes that will be taking place in the future.

The following is an organizational outline including the above functions.

- The DMRD:
  - Development of laws and regulations (3 in addition to current 1, total 4)
  - New business development (1)
- The DoAP (a new department):
  - Overall strategic planning (incl. specialist in industrial research) (3 in addition to current 1, total 4)
  - MIS development (3)
  - New assignment of planning officer for personnel management (1)
  - New assignment of public relations officer (1)
  - Coordination with related Ministries (1)
  - Follow-up section (3)

### **7.4.3 Proposed Detailed Programs for Organizational Reform**

#### **(1) Strengthening the Function of Overall Strategic Plan Formulation**

##### **1) Purpose**

The overall strategic plan is formulated to prioritize the operations and work to be done in each year. A strategic plan formulated by each Department would be collected and integrated into the overall strategic plan of the GDMR by the Department of Administration and Planning. For this integration, the business environment would be reviewed by a research specialist. The results of the review would be distributed to each Department for its reference in formulating its own strategic plan.

##### **2) New assignment**

One senior officer, one deputy director, and one research specialist would be newly assigned to this work.

##### **3) Basic research on the business environment which the GDMR must address**

The newly assigned research specialist would conduct surveys on the items listed below. The results would be fully utilized as inputs for each Department's and the GDMR's respective strategic plans.

- Recent trends in the mining industry and mineral resources development in Cambodia

- Recent trends in the mining industry and mineral resources development in major countries
- Trends in investment in Cambodia
- Overview of major investors and their investment behavior
- Recent trends in mineral resources development in neighboring countries
- Recent trends in the market for construction materials in Cambodia
- The impact of mineral and construction materials development on local and national economies in Cambodia

The specialist would prepare survey reports and submit them to each Department at the GDMR. If it is considered useful to do so, the report would also be delivered to parties concerned such as Government organizations and business groups including foreign investors.

The specialist would perform his duty while communicating and collaborating with MIME. The strategic plan is reported to DGMR and each Department. It will also be distributed to the Government and investors, if it is considered useful to do so.

#### **4) GDMR's overall strategic plan**

The overall strategic plan at the GDMR is formulated based on each Department's strategic plan which covers the following items:

- Prioritized business areas
- New business areas to be developed
- Quantitative targets for action
- Plan for human resources allocation
- Plan for procuring capital for developing new prioritized business

At the start of a new year, the performance of the previous year is reviewed and assessed, and reflected in the strategic plan for the new year.

## **(2) MIS Development**

### **1) Purpose**

MIS (Management Information System) development is designed to manage various management data and information gathered and created in the course of daily operations and to help design the GDMR's business strategies.

MIS development has the following effects. The first is to streamline the GDMR's daily operations. The second is to make it possible to assure transparency and accountability in each operation. The third is to make job rotation for staff easy. The fourth is to make it possible for staff to obtain strategic information quickly and easily through computer servers.

The linkage between Development of the GDMR's overall strategy and MIS development is shown in the following Fig.7.4.2.

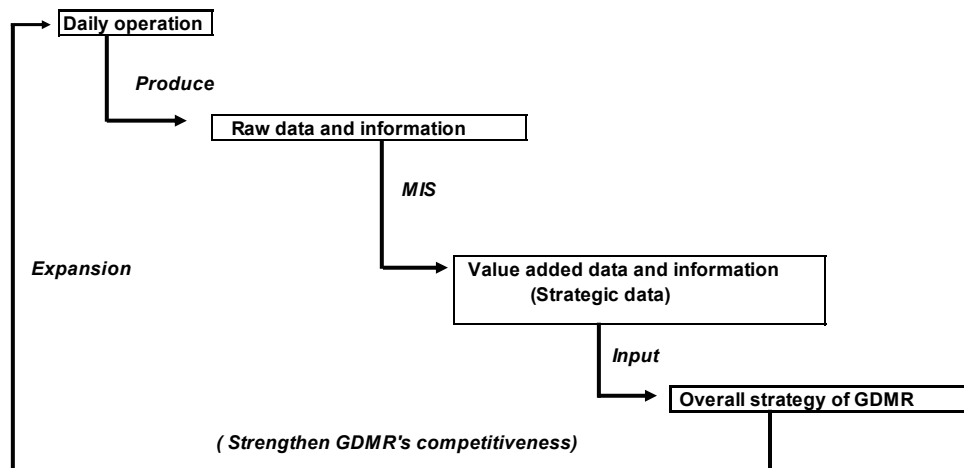


Fig.7.4.2 Strategy Formulation through MIS

## 2) Stored Data

Stored data are composed of the following three types of management data: 1) data that are indispensable for human resources management and asset management, 2) data that are created in daily operations (including customer information), and 3) data related to accounting such as fees and royalties. As is made clear from this explanation, the database described here is quite different from technical databases such as geological maps and reservoir data for mineral resources.

## 3) Procedures to be taken for construction

Analysis of operation flow is conducted first. Priority is given to the following operations.

- Registration of mining companies at DMRD
- Issuing licenses for exploration for metallic mineral resources, at DMR (Metallic)
- Issuing licenses for mining of construction materials, at DCMR (Construction)
- MOU-related information at DoG
- Personnel management data in each Department

## 4) Procedure

First, a development committee is set up. Members consist of an officer from each Department and from the Department of Administration and Planning. The committee is chaired by the staff member from the Department of Administration and Planning. The committee regularly reports on the proceedings to top management.

A detailed design of the MIS system is drawn by outside experts. Before commissioning the designing to outside experts, however, the following items must be decided:

- Operational areas to be included in MIS
- Information volume for each of the above areas
- Confirmation of operational flow
- Composition of system, software and hardware



- Place where hardware is to be installed
- Policy for security and access rights
- Manpower allocated for development and maintenance
- Budget

#### **5) Prioritized areas**

The areas will be enlarged in conjunction with the expansion of GDMR activities and operations. However, for the time being, the following areas are being given priority:

- Registration and issuance of licenses
- Statistics relating to registration and licenses
- Customer data files
- MOU-related data
- Personnel data
- Asset data
- Economic and industry information collected through contact with investors

#### **6) Maintenance of MIS**

Two staff members are assigned to maintain MIS. One of them is a high ranking official such as a deputy director. Technical follow-up is done by outside specialists. Until the system reaches a stable condition, an outside specialist will be employed for the maintenance.

#### **7) Hardware and networking**

The network will consist of one server, one computer for each staff member, and one printer for ten staff members.

While general information would be accessible to all staff, “strategic information”, such as information on registered companies, would be accessible to only a limited number of staff..

#### **8) Future plans**

In future, investors will be able to receive one-stop service for investment procedures by directly accessing the GDMR from their countries for investment applications.

#### **9) Process of development**

First, the MIS in each Department is designed based on existing operational procedures. After that, each system is integrated into one system. The database structure, which is the same in each Department, consists of the following three databases:

- Logbook database
- Local database
- Database for web site

However, as shown in the table below, the contents of these databases differ according to each Department’s activities, except for the personnel database, which should be the same in each Department due to its nature. In addition, it should be noted that the database for the web site is excluded here since a detailed explanation is given in another part of the Report.

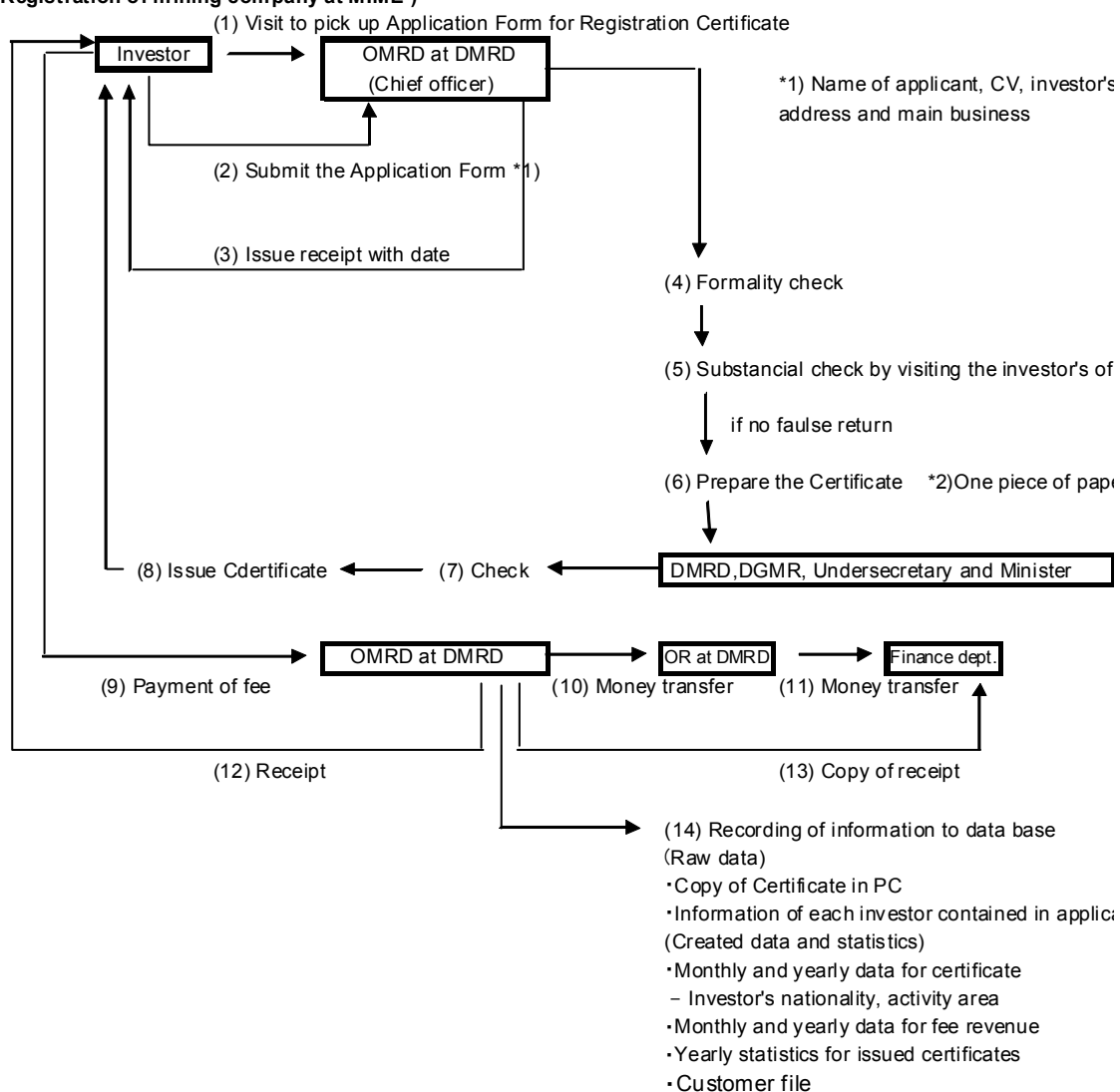
Table 7.4.2 List of Major Management Indicators

	DoG	DMRD	DMR	DCMR
Logbook	<ul style="list-style-type: none"> <li>Weekly, monthly and annual reports</li> </ul>	<ul style="list-style-type: none"> <li>Weekly, monthly, trimester, semester and annual reports</li> </ul>	<ul style="list-style-type: none"> <li>Weekly, monthly and annual reports</li> </ul>	<ul style="list-style-type: none"> <li>Weekly, monthly and annual reports</li> </ul>
Local database	<ul style="list-style-type: none"> <li>Officer profile (Name, date of birth, gender, date of employment, previous and present positions, educational background, International and local training)</li> <li>MOU profile (Name of company, address, date of MOU, expiry date, commencement of survey, documents submitted, latest date of MOU renewal, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Officer profile (Name, date of birth, gender, date of employment, previous and present positions, educational background, International and local training)</li> <li>Registration management database</li> <li>Mineral license database</li> </ul>	<ul style="list-style-type: none"> <li>Officer profile (Name, date of birth, gender, date of employment, previous and present positions, educational background, International and local training)</li> <li>Concession management database (Company profile, agreement details, license details, correspondence between company and Ministry, etc)</li> </ul>	<ul style="list-style-type: none"> <li>Officer profile (Name, date of birth, gender, date of employment, previous and present positions, educational background, International and local training)</li> <li>Concession management database (Company profile, Agreement detail, License detail, correspondence between company and Ministry, etc.)</li> </ul>
(Ref.) Organization (Office)	<ul style="list-style-type: none"> <li>Office of Geological Survey</li> <li>Office of Mapping</li> <li>Office of Environmental Geology</li> <li>Laboratory</li> </ul>	<ul style="list-style-type: none"> <li>Office of Mineral Resources Development</li> <li>Office of Database Management</li> <li>Office of Cooperation</li> <li>Office of Revenues</li> </ul>	<ul style="list-style-type: none"> <li>Administrator</li> <li>Office of Metal Resources</li> <li>Office of Non-Metal Resources</li> <li>Office of Coal and Gemstones</li> <li>Office of Mine Inspections</li> </ul>	<ul style="list-style-type: none"> <li>Crushed Stone office</li> <li>Sand Construction office</li> <li>Clay Construction office</li> <li>Administration office</li> </ul>

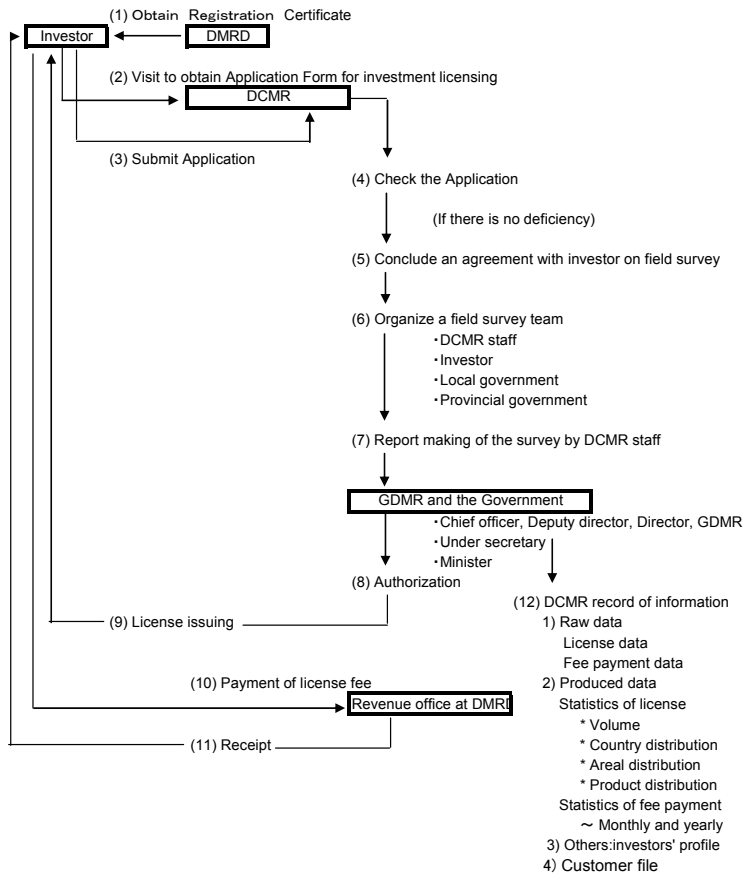
## 10) Preparations for designing MIS

When designing MIS, it is necessary to set the operation flow. This is because the MIS is constructed along the flow. The following are examples of major procedures, i.e., registering a company and issuing a license.

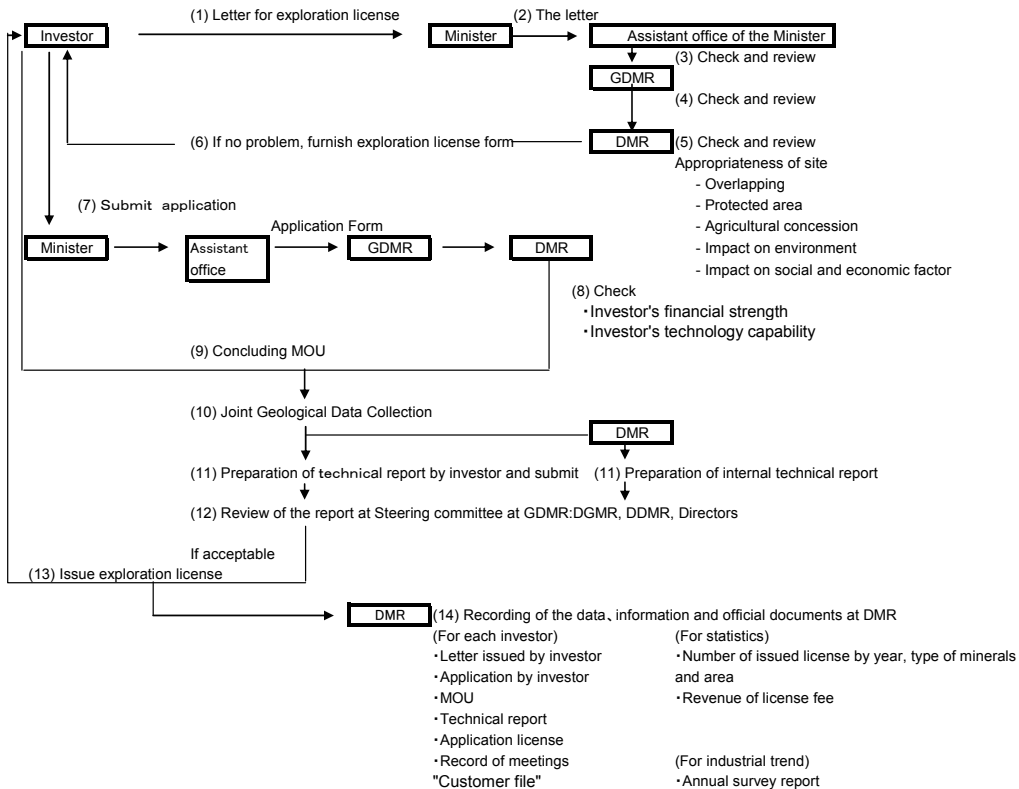
### ( Registration of mining company at MIM )



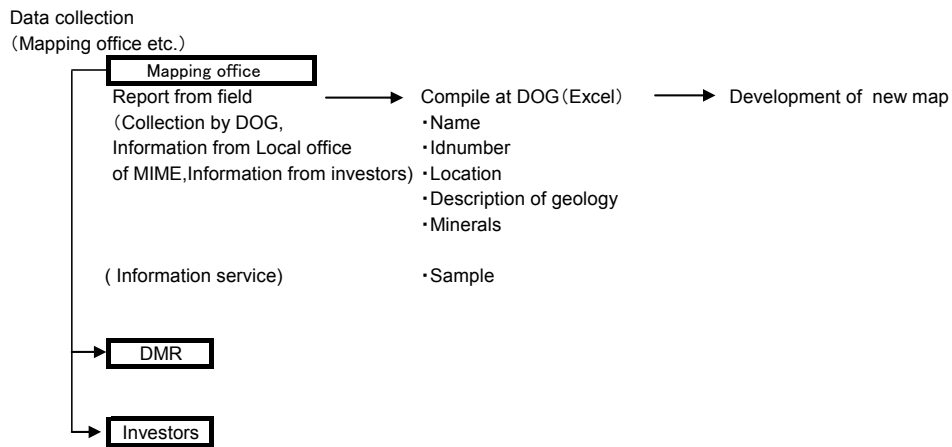
**(Procedure for obtaining exploitation license of construction materials minerals)**



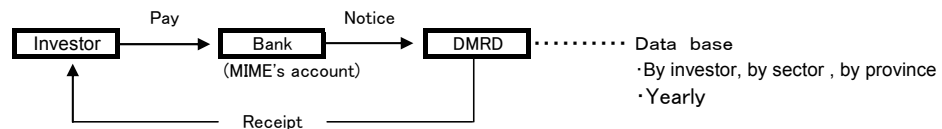
**( Procedure for obtaining exploration license of metallic mineral resources )**



( DoG)



(Royalty)



### 11) Operating system

Planning, management and maintenance of the MIS are carried out by the DoAP. Daily operations are conducted and managed by each Department. When one Department determines it is necessary to access the database in another Department, only the officer who has access rights can access it. The following are some examples of data access.

- Personnel data

The personnel officer can freely access data files and utilize the data for personnel management.

- Customer data

Officers responsible for overall strategy formulation can freely access the data file. The processed customer data, not raw data, is also available to the public relations officer for his daily operations.

### 12) Estimate of total investment cost

Total investment cost for MIS development is estimated to be US\$86,000. A breakdown of individual costs is shown below.

Table 7.4.3 Estimated Investment Costs for MIS

Investment item	Description	Unit price	Total cost
1. Software development	Consulting fee paid to software development company (One expert for 6 months)	US\$5,000 per month	US\$30,000
2. Server	One small type of server	US\$2,000 per unit	US\$2,000
3. Printer	Add 5 to current 10 units (3 printers for	US\$1,000 per unit	US\$5,000

	each Dept.)		
4. Personal computer	One computer for each staff member, there are 70 new units	US\$700 per unit	US\$49,000
Total			US\$86,000

Since the total investment cost is not small, the introduction of personal computers is done in phases over five years. Accordingly, investment cost in the initial year is US\$46,800 and from the second year it is US\$9,800.

### **(3) Assignment of Planning Officer for Personnel Management**

#### **1) Responsibilities of the officer**

The personnel officer has four main duties. The first duty is to find and identify the talents of each staff member and to place him or her in the section where he or she can work at full capacity. Since attention has not been duly paid to human resource development in the GDMR, human capital has not been accumulated. Thus, the personnel officer should make a plan to enable all staff at the GDMR to work at their full capacity. Second, the personnel officer should promote talented and active young staff for important work. Third, the officer should find another job for staff members who are not happy with their current assignment to let them work with more enthusiasm. The fourth duty is to make a training plan for staff.

With respect to personnel changes, the planning officer's task is only to make proposals; the final decisions are made by the Director General of the GDMR after discussions with relevant directors.

#### **2) Main tasks**

##### **(i) Development of personnel database**

All staff data are compiled as one MIS. Personal information is to be handled with care.

##### **(ii) Communication with all staff**

The officer meets with all staff at least once a month. At the meeting, the officer asks staff members how they feel about their work and what kind of work they want to be doing. Since the personality of the officer is very important, the person for the assignment should be selected carefully.

##### **(iii) Preparation of proposals for personnel changes**

The officer proposes changes in assignments for all staff, taking into consideration their respective career development plans.

Policies and strategies taken in personnel changes are as follows.

- Special considerations and priorities are given to younger workers
- Opportunities are given to women, too
- A rotation system is introduced to give young staff members opportunities to work in two or three departments in the first five years after they join the GDMR. After five years, they will be assigned to a department where their specialty can be fully utilized

(Examples of rotation)

DMRD----DMR----DoG  
DCMR----DoG-----DMRD

(iv) Establishment of programs for human resources development and training

The following three programs are to be established.

a) Specialized training

Since this type of training seems to be particularly effective, it should be given high priority so long as financial conditions allow. There are two areas of specialized training: technical and managerial. In the past, technical training has been given special attention, but managerial training is becoming important.

For managerial training, two different courses are to be prepared, one for management and one for clerical staff. The training will be given for one week each year. If it is necessary to do so, a lecturer will be invited from an outside organization. Suggested contents of the courses are as follows (though they are only tentative):

- Recent trends in the world economy and in the development of the mining sector
- Current natural resources development in the world
- Major natural resources development companies in the world: their strategies and investments
- Importance of corporate governance
- Principle of organization: conditions for excellent organization
- Strategies for human resources development
- Importance of the ability to communicate

b) Communication with management people

Management people should spend at least some time with all staff, even if this time is very limited, say only five minutes. The personnel officer develops ideas which make it possible for top management to devote some time to all staff.

c) Development of new programs for human resources development in daily operations

It is important for top management to be committed to this.

**3) Assignment**

One senior officer is assigned to this task. The senior officer should be a deputy director, given the importance of this role.

**4) Construction of a personnel database**

Personnel data management at the GDMR is falling behind the times. Data kept at each Department are only those which cover name, gender, date of birth, date of employment, previous and present positions, educational background, and experience in international and local training. These data are stored in computers but are not utilized effectively.

A personnel database is being prepared in order to make the senior officer's work as efficient as possible.

**(4) Enhancement of Public Relations Functions**

**1) Purpose**

The role of the mining sector is still minor in the Cambodian economy. As a result, the Cambodian people are mostly unaware of its importance. This has led to relatively low government funding of the sector. Public relations activities are being enhanced to give the Cambodian people a better understanding of the importance and potential of the mining sector.

## **2) Activities**

In the first step, a list of organizations which have contact with the GDMR is being prepared. It includes governmental offices, industrial associations and private companies. In the second step, based on the list, the newly assigned public relations officer will build a communication root with them. In this step, he will give them the GDMR's latest brochures, Guidebook for the Cambodian Mining Sector and the Report of the Master Plan Study. Further, the new website which is prepared by this study will be publicized. In the third step, when the section's activities are on track, a public relations newsletter will be periodically issued and distributed to relevant parties. The newsletter will contain information on recent activities of the GDMR, topics and profiles of GDMR staff. Based on the communication root which is to be constructed, the staff will contact relevant parties at least twice a year.

## **3) Staff**

A chief officer is to be assigned for the work. For the time being, this post will be held by the officer who is also responsible for overall strategic planning.

## **(5) Enhancement of Coordination Functions**

### **1) Purpose**

When the GDMR's activities expand, their functions will also expand and diversify as mentioned above. As a result, communications and cooperation with related organizations will become much more important. This means that coordinating functions with these organizations will also become more important.

### **2) Assignment**

One senior officer will be assigned for the above work. For the time being, this post will be held by the officer who is also responsible for overall strategic planning.

### **3) Main assignment**

The officer will coordinate the matters which involve various Departments within the GDMR. This may include international cooperation projects and projects in which various government offices are involved, such as environmental assessment.

## **(6) Enhancement of Follow-up Functions**

### **1) Duty**

Inspectors check whether staff are proceeding with their work in line with internal regulations set forth in operation manuals. In this regard, the most important thing is to check whether agreements with investors are properly made. They also check whether best efforts are being made for capacity building of staff.

### **2) Preparation**



GDMR issues the operation manuals for major tasks. The manuals cover the following areas:

- Registration of companies
- Determination of terms and conditions for issuing licenses
- Receipt of license fees
- Extension of exploration licenses
- Determination of terms and conditions for investor supports (incentives)
- Receipt of remuneration from investors by staff members who accompany them
- Report on capacity building for staff
- Agreements with investors

In addition to agreements with investors, the manuals include standard documents such as attendance lists and inventory lists of fixed assets.

### **3) Inspections**

Inspections will be conducted once a year. They will take around one month.

### **4) Reports**

Results of the inspection will be submitted to DGMR. As well, a summary of the results and recommendations will be given to the Director of each Department.

### **5) Inspectors**

Staff who have ample experience with and knowledge of operations at the GDMR are assigned as inspectors.

## **(7) Establishment of Three New Organizations**

In addition to the functional enhancements to each of the above departments, three new organizations will be created under the Director General of the GDMR. These are necessary to promote investment in Cambodia. The top management of each organization shall report directly to the Director General of the GDMR.

- Technology Center for Mineral Resources
- Mineral Laboratory
- Regional Mining Offices

The Technology Center for Mineral Resources is described in detail in 7.4.5 (3) “Long-term Perspective”. The Mineral Laboratory is described in detail in 7.3.1 (1) “Improvement of Basic Information about Mineral Resources”. The Regional Mining Offices are described in detail in 7.3.1 (7) “Fostering Small- and Medium-scale Mining”.

Their positions in the new complete organization chart of the GDMR are indicated in 7.4.6.

#### **7.4.4 Development of “Soft” Infrastructure for Successful Launch of Organizational Reform**

Successful launch of the above organizational reform requires the development of “soft” infrastructure. The main areas are described below.

##### **(1) Development of Operations Manuals**

###### **1) Examples of manuals to be developed**

Fields of operating manuals to be created are described below, and some examples of the manuals are shown in Appendix VII-2.

- Operating manuals for investment approval and issuance of mining licenses

The manuals cover procedures ranging from how investors approach the GDMR, how assessments and final decisions including terms and conditions at the GDMR, and how licenses are issued. In addition, the manual sets forth relevant internal regulations, documents to be prepared, format of agreements which go into effect between investors and the GDMR, and custody of related documents.

- Payment and receipt of royalties and fees

The manual sets forth procedures for determining royalties and fees which investors pay as well as for receipt and documentation of the fees. The manual also includes information on how to deal with cases where investors fail to pay the fees.

- Inspections

The manual covers selection of inspection sites and investors, items to be inspected, and methods. It also includes information on how to handle cases where misconduct is found. Since the procedure for reporting the inspection results is one of the key issues, the manual includes much detailed information about it.

###### **2) Merits of the manuals**

The manuals have many potential merits, including the following:

- Operations are made efficient since each officer can know how to proceed with them.
- They make the concepts and details of the operations easy to understand.
- They make it easy to identify areas where operations could be made more efficient.
- They enhance the transparency of operations.
- When an operating manual is available, it becomes easier to replace one worker with another worker.
- They can be used to train new officers.

##### **(2) Development of Laws and Regulations**

###### **1) Purpose**

In order to attract high-quality investment, it is necessary to develop laws and regulations which will serve to protect Cambodia’s natural resources and the interests of the Cambodian people. DMRD is responsible for the development of laws and regulations. However, due to the lack of human resources, development is lagging behind. In order to accelerate development, its organization is being changed.

## **2) Assignment**

This section of the DMRD is being strengthened through the assignment of two law school graduates. The work is being done under the supervision of the Chief Officer at the DMRD office.

## **3) Specifics of development**

Information about specific laws and regulations is given in 7.3.1 (5) “Amendment of Laws and Regulations Related to Mining”, and in 7.6.1 “Legal Preparations for Mine Safety and Environmental Management”

### **7.4.5 Capacity Building for the Staff**

#### **(1) Improvements for All Staff at the GDMR**

There is no magic wand for developing the capacity of staff. As stated in 4.2.3 (2) in Chapter 4, training through daily operations at the GDMR is the only way to develop staff members’ capacity. The Planning Officer for Personnel Management introduced earlier in 7.4.3 (3) is a facilitator for this training.

#### **(2) Enhancing the level of DoG Staff**

##### **1) Background**

Most of the staff at DoG received at least some training at the now defunct Russian Institute. However, given the changes taking place in mineral resources development, they feel they should be re-trained in advanced and sophisticated fields. In addition, they want training in such new areas as environmental conservation, safety and health, mining regulations, mineral resources economics and mineral resources engineering. Given these trends, it is an urgent matter to re-train staff at DoG under a well designed and organized curriculum.

In addition, staff at the GDMR who studied geology and mining in the past are now getting older and in the coming 10 years their number will decrease to 20-30 from the current 60. Considering the seriousness of this situation, it is imperative to train staff at the GDMR who have never studied geology and mining before.

##### **2) Officer in charge**

The newly assigned planning officer for personnel management described below is in charge of the planning. The officer makes a training program which considers the opinions and advice of each Department.

##### **3) Strengthening plan**

The following table shows where skill levels must be raised as well as the number of staff to be trained and the duration of training.

The necessity of raising skill levels is being felt in other Departments, too. Therefore, it is recommended that staff from other Departments also be allowed to participate in the training. Further, some of the curriculum, such as environmental conservation and mineral resources engineering, may be better if it is designed by a Department other than DoG. In these cases, training may be better handled by another Department such as DMR. However,

considering that DoG is in a better position to organize the overall curriculum, the DoG will supervise the training in collaboration with other Departments.

Table 7.4.4 DoG's Training Needs

Training topic	No. of staff to be trained	Duration	Place	Note
Intensive English course	6		Domestic	
GIS	2	2 years	Abroad	Master's level course
GIS	6	4-6 months	Domestic	
Remote sensing applications in geological mapping	4	3 months	Abroad	
Geological survey for mapping	5	6 months	Abroad/Domestic	
Geophysical survey in mineral exploration	4	4-6 months	Domestic	IP magnetic, electric, radiometric
Geochemical survey	6	3 months	Domestic	
Hydrogeology	1	2 years	Abroad	Master's level course
Rock and mineral testing	4	3-6 months	Abroad	Microscopy
Marine geology	2	2 years	Abroad	Master's level course
Geo-techniques	2	2 years	Abroad	Master's level course
Quaternary geology	1	2 years	Abroad	Master's level course
Petrology	1	2 years	Abroad	Master's level course
Mining (open pit)	2		Abroad	Bachelor level course
Mining (underground)	2		Abroad	Bachelor level course
Assessment of impacts from mining operations	2	3 months	Abroad	
Mining inspection	2	3 months	Abroad	
Mining economy	2	2 years	Abroad	Master's level course
Mining taxation	2	3 months		
Mine safety	2	3 months	Abroad	

(Source: Department of Geology)

### (3) Long-term perspective

Considering the importance of improving the abilities of staff in not only geological and mineral resources engineering areas but also in the fields of mining economy and administration, it is recommended to set up a comprehensive school that trains them in all aspects of mining activities. The following chart represents one concept. An institute would be established under the MIME, though the supervision would be entrusted to the GDMR. The institute would be set up with support from educational organizations, business organizations and donors. Daily operations of the institute would be supervised by the DoG. The advantage of an institute type of school is that since the institute would not issue any diplomas, the MIME might not be required to get permission for its creation from the Ministry of Education and would be able to set its curriculum by itself. Needless to say, the MIME would issue certificates to participants when they finished the course. Course participants would be recruited from the GDMR, MIME Provincial staff, other Ministries and private companies. However, the most important source would be new GDMR staff who will be hired in the coming 10 years, as stated in 7.4.1 (2). They would be required to have extensive knowledge of geology, but there is no institution in Cambodia that can provide specialized training in geology. The GDMR would therefore have to train its own geologists.

The scale of the Center is estimated to be as follows. Of the 190 staff members who are expected to be employed at the GDMR in 2020, about 140 of them will have to have

knowledge of geology and mineral resources engineering. Assuming that 20 of them will not need special training since they majored in geology in the past, the remaining 120 staff would be trained at the Center. This means that an average of 10 staff members would be trained every year up to 2020. Further, it is planned to accept trainees from external institutions as well, including other government offices and private companies. There may be 10 or more of these additional trainees per year. Therefore, the Center should be designed so that it can accommodate at least 20 trainees each year.

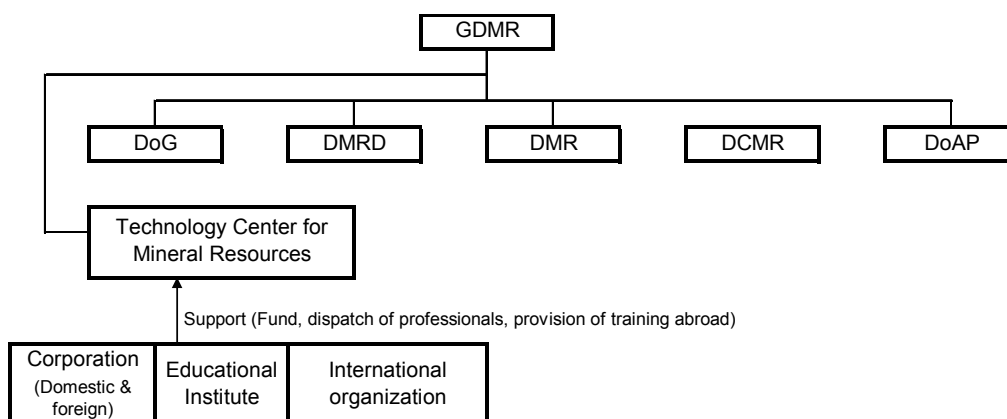


Fig. 7.4.3 Conceptual Diagram of the Proposed Technology Center for Mineral Resources

There are two preconditions for materializing the above idea:

- The GDMR's strong commitment to mineral resources development.
- A mid-term master plan for mineral resources development.

### 1) Technology Center for Mineral Resources

The purpose and a capacity building program for the Technology Center for Mineral Resources are as follows:

#### 1. Purpose

- The first goal is strengthening the technological abilities of the GDMR staff.
- Fostering the primary- and medium-class engineers of the private mining sector

#### 2. Characteristics

- Cooperation among the GDMR, business, and academia
- Both technology-oriented and management-oriented
- Provides overseas training

#### 3. Courses

- Number of participants: 20 per year
- Course length: 1 year

##### (1) Basic Course

- Mineral resources development policy in Cambodia
- Importance of mineral resources in the Cambodian economy
- Overview of mining in the world and recent developments

- History of mining and mineral resource development policies in the world
- Measures for supporting mineral resources development
- Overview of mineral resources by type of mineral: reservoir, resource development, and material flow
- Site visits for freshmen (exploration sites, mining sites, metal recycling plants)

## (2) Specialized Courses

- Geology
  - ✓ Ore genesis, metallogenetic stages, and mineral deposits & ore zones
  - ✓ Exploration (remote sensing, geological surveys, geophysical exploration)
  - ✓ Basic methods for calculating ore reserves and evaluating minerals
  - ✓ On-site Geological Studies
- Mining
  - ✓ Mining methods
  - ✓ Mining processes
  - ✓ Mining equipment & machinery
  - ✓ Rock mechanics
  - ✓ Mining planning
  - ✓ On-site training at mines (two weeks)
- Mineral Processing
  - ✓ Principles of mining processing
  - ✓ Processes
  - ✓ Planning for mineral processing
- Smelting and Refining
  - ✓ Principles and methods
  - ✓ Processes and planning
  - ✓ Technologies for mineral recycling
- Mining Health & Safety and Environmental Protection
  - ✓ Mining field: Explosives, electricity, and mechanics for mining equipment & machinery, spontaneous combustion, gas & dust explosion, rock bursts, rock failure, slope stability, measurements for health & safety at mining sites, drainage treatment, noise control, and dust control
  - ✓ Processing field: Electricity and mechanics for processing equipment & machinery, treatment of hazardous/deleterious/toxic materials, and measurements for health & safety at processing sites
  - ✓ Smelting field: Electricity and mechanics for processing equipment & machinery, treatment of hazardous/deleterious/toxic materials, and measurements for health & safety at smelting sites
  - ✓ General fields: Ecology, Environmental Impact Assessments, laws and regulations in advanced countries

## (3) Mine Management Course

- Contracts
    - ✓ Exploration and development
    - ✓ Employment contracts
    - ✓ Agreements with local residents
  - Markets & Finance
  - Project evaluation
    - ✓ Project evaluation and finance
    - ✓ Case studies on exploration, mining, and mine closure
- (4) Other Courses
- Training in presentation and debate skills, reading international agreements in English
  - Overseas training

## 2) Initial investment costs and ongoing costs for the Technology Center

The costs to open and operate the Technology Center are calculated based on certain assumptions (for example, six study sections, lecturers from overseas, etc.). The details are as follows:

- Technology Center building construction cost (offices, training rooms, and classrooms): US \$1,000,000
- Training machinery and equipment cost: US \$600,000
- Advanced courses are composed of the following six sections
  - ✓ Geology
  - ✓ Mining
  - ✓ Mineral Processing
  - ✓ Metallurgy
  - ✓ Environmental Protection
  - ✓ Mining Economics and Marketing
- Lecturers: Due to the scarcity of qualified lecturers in Cambodia, invite them from overseas.  
One lecturer for each of the six fields listed above.
- Overseas lecturer cost: US \$200,000 per year, per lecturer (x 6 lecturers = US \$1,200,000)
- Annual facility operations cost: US \$100,000

### Total initial investment and ongoing operating costs:

- Total investment cost: US \$1,600,000
- Annual operations cost: US \$1,300,000

## 3) Establishment of geology and resource engineering courses at ITC

In contrast to the concept of the above Technology Center for Mineral Resources, the establishment of long-term higher education programs in geology and mineral resources

engineering is being considered at the Institute of Technology of Cambodia (ITC) to offer degrees in geology and resources engineering, and also to supplement basic technical education. In short, it would involve the creation of a greatly enhanced educational and research facility utilizing ITC’s current functions and facilities.

MIME/GDMR would like to establish alliances with the ITC and the Department of Higher Education of the Ministry of Education, Youth and Sport as a way of regularly exchanging opinions on how to provide, from a long-term perspective, higher education opportunities for persons who will be involved in the Cambodian mining industry in the future. ITC already has academic results in other engineering fields. It also has modern facilities and many networks both within and outside of Cambodia, so it appears to be the most likely organization for offering instruction in geology and resource engineering in Cambodia.

- The education curricula, practical training items, etc., will be decided after discussions among the ITC, the Ministry of Education, Youth and Sport, the MIME, and the MEF.
- Most of the students will be ITC enrollees who have graduated from high school, but it will also be possible for MIME employees who already hold other degrees to enroll in the Bachelor’s program.
- In the initial period of establishment, most of the faculty will be instructors invited from other countries.

#### 7.4.6 Overall Organization Chart after the Reform

The following chart shows the reorganized GDMR.

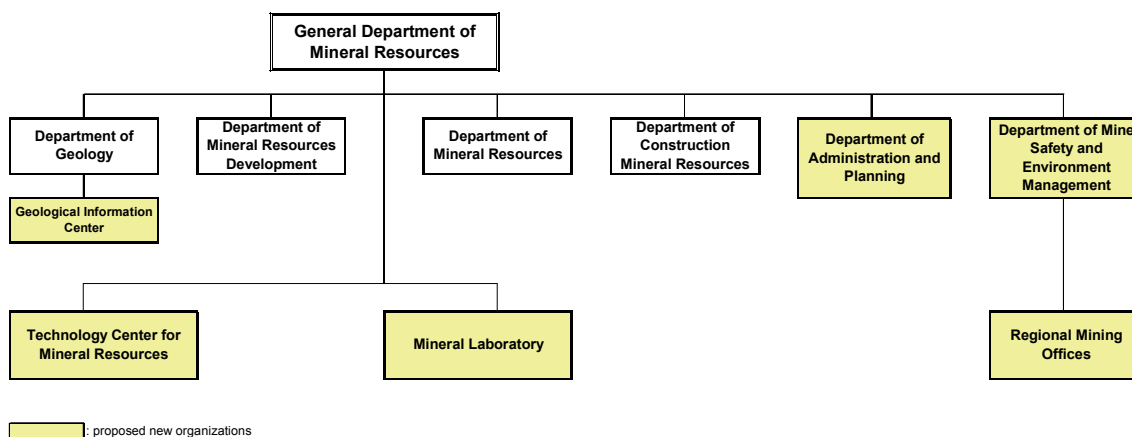


Fig. 7.4.4 Overall Structure of the Proposed GDMR Organization

The roles and functions of these new organizations are as follows:

Department of Administration and Planning: Comprehensive planning, general operations and management, and public relations.

Department of Mine Safety and Environment Management: Formulation of legal regulations related to mine safety and mining environments, and monitoring of mine safety (with a central mine supervisor stationed in the department)



Technology Center for Mineral Resources: Training for GDMR staff, and for private sector mining engineers and exploration engineers

Mineral Laboratory: National mineral analysis organization, provide analytical services to the private sector

Regional Mining Offices: Regional organizations of the GDMR which are under the jurisdiction of the Department of Mine Safety and Environment. Regional supervisors monitor exploration and exploitation (excavation) work.

#### **7.4.7 Implementation of an Action Plan**

Given their special features, it appears that organizational reform and capacity development will take a long time for full, successful implementation. This is because their effects will appear only gradually. Therefore, these reforms need a facilitator who will watch over their development and take prompt actions when necessary. For this reason, it is recommended that the GDMR ask one or more international donors to dispatch an expert to monitor the implementation of the action plan.

#### **7.4.8 Implementation schedule for Action plans**

Table 7.4.5 shows implementation schedules for action plans.

Table 7.4.5 Implementation Schedule of Action Plans for Organizational Reform and Capacity Development (1)

Plan	Officer in charge	Finance	Schedule (months after finalization of MPS)								
			1	2	3	4	5	6			
1. Organizational reform at GDMR 1.1 Final decision by top management  1.2 Explanation to MIME  1.3 Revision based on MIME's comment  1.4 Final approval by MIME	DGMR,DDGMR,D	Operating expenses			*						

Plan	Officer in charge	Finance	Schedule (months after determination of organizational reform)																			
			1	2	3	4	5	6	7	8	9	10	11	12	13							
2. Implementation of each plan 2.1 Development of overall strategic plan of GDMR (1) Assignment  (2) Formulation of work plan  (3) Survey on business environment  (4) Information gathering of each department's plan  (5) Formulation of semi-annual and annual plan for GDMR  (6) Final approval at top management meeting  (7) Review of strategic plan (semi-annual and yearly)  (8) Report of performance of the plan to top management	DGMR,DDGMR, D DGMR, DoAP  DoAP, DD,O  DD  DoAP, DD  DoAP, DD,O  DGMR,DDGMR, D DD  DD  DGMR,DDGMR,D,DD	Operating expenses	*	*																		
2.2 Construction of MIS  (1) Architecture of construction plan 1) Analysis of current operation process 2) Determination of development area 3) Determination of outline of system 4) Final decision at top management meeting 5) Assignment of IT consultant 6) Funding plan  (2) Start of development  (3) Determination of operation criteria for the system	DD DD DD DGMR,DDGMR, D DD DoAP, DD  DD IT consultant  DGMR,DDGMR,D	Operating expenses Special expenses    Special																				

(Abbreviation)

DoAP: Director of DoAP

DGMR: Director General of GDMR

DDGMR: Deputy director general of GDMR

D: Director of each department

DDoG: Director of DoG

DD: Deputy director

DDMRD: Deputy director of MRD

O: Officer

IS: Inspector

AS: Assistant staff

Table 7.4.5 Implementation Schedule of Action Plans for Organizational Reform and Capacity Development (2)

Plan	Officer in charge	Finance	Schedule (months after determination of organizational reform)																
			1	2	3	4	5	6	7	8	9	10	11	12	13				
2.3 Assignment of planning officer for personnel management (1) Assignment of officer (2) Formulation of personnel management planning (3) Participation on personnel database development (4) Interviewing with all personnel (5) Regular personnel changes 1) Preparation of proposal 2) Enforcement of personnel changes (6) Preparation of training programs by area and execution 1) For general staff 2) For management people	DGMR, DDGMR, D DD DD AS DD DD DD, AS D	Operating expenses	*	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2.4 Promotion of publicity (1) Assignment of officer in charge (2) Preparation of publicity list (3) Construct of communication route (4) Preparation of publicity materials (5) Execution of publicity	DGMR, DDGMR, D DD DD DD DD	Operating expenses	*	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2.5 Enrichment of coordination function (1) Assignment of officer in charge (2) Execution of coordination	DGMR, DoAP DD	Operating expenses	*	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
2.6 Preparation of operation manuals (1) Decision making on areas to be prepared (2) Assignment of officers responsible for the preparation at DoAP (3) Preparation 1) Make drafts 2) Discuss the drafts and finalize the contents 3) Documentation	DGMR, DDGMR, D DoAP D DGMR, DDGMR, D DAO	Operating expenses	*	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

(Abbreviation)  
 DoAP: Director of DoAP  
 DGMR: Director General of GDMR  
 DDGMR: Deputy director general of GDMR  
 D: Director of each department  
 DDoG: Director of DoG  
 DD: Deputy director  
 DDMRD: Deputy director of MRD  
 O: Officer  
 IS: Inspector  
 AS: Assistant staff

Table 7.4.5 Implementation Schedule of Action Plans for Organizational Reform and Capacity Development (3)

Plan	Officer in charge	Finance	Schedule (months after determination of organizational reform)														
			1	2	3	4	5	6	7	8	9	10	11	12	13		
2.7 Preparation of follow-up system for daily operation																	
(1) Assignment of officers for follow-up	DGMR, DoAP	Special expenses	*														
(2) Scheduling of follow-up and its announcement	DoAP			*													
(3) Start of follow-up	IS																
(4) Report of the result to DGMR	IS																*
2.8 Training of DoG staff																	
(1) Emergency measures	DGMR, DDoG, DDMR	Ordinary expenses	*														
1) Planning		Special expenses		*													
2) Request of support to donors																	
3) Training at overseas																	
(2) Creation of Technology Center for Mineral Resources	DGMR, DDGMR, D	Special expenses															
1) Preparation of detailed plan (Curriculum, Trainers, Size, Facility, Place, Funding plan)																	
2) Approval by the Minister of MIME																	
3) Explanation to parties concerned and marketing																	
4) Preparation for establishment																	
5) Opening																	*

(Abbreviation)

DoAP: Director of DoAP

DGMR: Director General of GDMR

DDGMR: Deputy director general of GDMR

D: Director of each department

DDoG: Director of DoG

DD: Deputy director

DDMRD: Deputy director of MRD

O: Officer

IS: Inspector

AS: Assistant staff

## **7.5 System for Managing and Utilizing Mineral Resource Information**

There are two major types of mineral resource information at the GDMR. They are 1) geology, mineral deposits and occurrences, and 2) concession management information.

Information on geology, mineral deposits and occurrences, which can be used to estimate the mineral resource potential of Cambodia, must be managed from a geo-scientific point of view; thus, this information should be managed by the DoG. All mineral resource information such as geological and geochemical survey data and company reports after evaluation, should be stored in the GIS database, and it should be entered according to the “Master Plan” described in this report. On the other hand, the mineral resource information should be shared with the GDMR, and publicly disclosed in future.

There are three categories for concessions, i.e., mineral resources, rock, and sand, which have been managed by the DMR. Because the concession datasets contain confidential information about investors, no related information has been disclosed under the present mining law. However, the GDMR should consider means of promoting the development of the Cambodian mining sector by, for instance, incorporating concepts of EITI, etc., into future revisions of the current mining law, and improve the transparency of information for related mining activities to gain the confidence of foreign investors.

We should consider the future management and uses of related mineral resources information, while reviewing and updating current laws and regulations. The following five basic elements should be considered for these purposes:

- i. Main office for each type of information management
- ii. Improvement of information sharing
- iii. Preservation of confidentiality
- iv. Implementation of information disclosure
- v. Transition of information management from the current to the future legal framework

## 7.6 Action plan for Mine Safety/Mining Environmental Management

The mining industry uses special mining machines and explosives to break up and extract ore in open pit and underground mines under harsh natural conditions. Mined ore is treated by special processing reagents to produce mineral concentrate. Therefore, there are more possibilities for work-related accidents in each production phase of the mining industry than in other industries. Historical statistical data for work-related accidents have shown this to be true around the world. Mined ore sometimes includes heavy or otherwise toxic metals such as arsenic or lead, and special reagents for processing sometimes seriously impact natural environments if they are released without detoxification. Furthermore, mining operations can cause other types of pollution, such as topographic deterioration, surface subsidence, and vibration and noise pollution. Wastes such as polluted water, tailings, smoke, and dust can also be produced at each stage of the mining process. If these issues are not dealt with appropriately, environmental and social impacts can occur. In addition, there is a concern that highly acidic water containing heavy metals can have a long-term impact on local residents' health and the surrounding environment, even after the mine is closed. Accordingly, appropriate management of mine safety and the mining environment is indispensable for enhanced Cambodian mining activities in the future, and necessary actions must be taken with a long-term perspective.

The action plan for mine safety and mining environmental management is shown in the following table.

Table 7.6.1 Action Plan for Mine Safety and Mining Environmental Management

Action Plan Item	Base Foundation Period					Fostering Period				
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Legal Establishment for Mine Safety/ Mining Environment	■	■								
Establishment of Committee for Mine Safety and Mining Environment			■							
Intensive Training for GDMR Staff for Safety/ Mining Environment		■	■							
Establishment of Qualification System for Mining Operation				■						
Introduction of Environmental Assessment				■						
Implementation of Baseline Environmental Survey					■	■				
Preparation of Guidebook for Mine Safety/ Mining Environment			■							
Unionization of Artisanal Gold Miners				■	■	■				
Decontamination of Areas Polluted by Artisanal Gold Mining				■	■	■				

Safe operations that incorporate mine and environmental protections require the following:

### 7.6.1 Legal Preparations for Mine Safety and Mining Environmental Management

Currently, there are no detailed regulations for mine safety in Cambodia. Therefore, a Mine Safety and Mining Environmental Law must be formulated. This law should regulate detailed matters such as underground ventilation, underground gases, underground fires, roof collapse, explosives, electricity, transportation, working spaces, surface facilities, and waste water facilities for mine safety, as well as smoke, dust, waste water, industrial wastes, waste dumping, tailings dams, land excavation, noise, vibration, toxic substances, and other mining environmental issues.

There are several environmental laws and regulations that have been implemented by the MoE and MAFF, such as the Mining Law, Environment Law, Law on Forestry, Protected Area Law, Sub-decree on the EIA Process, Sub-decree on Water Pollution Control, and

Sub-decree on Solid Waste Management. Mines should comply with this legal framework. However, more detailed regulations for mining activities should be formulated which specifically take account of mining. In particular, the following issues are strongly linked to mine safety and mining environmental management, and must be given a workable legal framework.

**a. Required Protective Equipment for Mine Workers**

Mine workers have a higher risk of accidents because they must work on the frontline of production under dangerous conditions. Therefore, mine workers need to be protected with safety equipment to decrease work-related accidents. Mine safety equipment includes safety helmets, safety glasses, dust masks, safety gloves, and safety shoes for all mines, and also helmet lamps and safety ropes for underground mines. The concessionaires must provide all mine workers with this safety equipment, and the mine workers must always use it.

**b. Legal Establishment of Mine Inspectors in the GDMR**

Mine inspectors at the GDMR must be legally qualified under the new law. The Mine Safety and Environment Law must clarify the legal obligation of mines to accommodate mine inspectors and specify the contents of mine inspections.

**c. Safety Maps**

Safety maps must indicate the locations of the following facilities: entrances, drifts, shafts, mining stopes, mined out areas, old drifts, fuel storage areas, main fans, drainage facilities, other underground facilities and open pits, processing plants, smelting plants, waste dumps, tailings dams, industrial wastes, wastewater treatment facilities, explosives storehouses, fuel storage, oil storage, storage area for toxic reagents, firefighting equipment, and other necessary safety items for surface facilities.

**d. Enhancing Self-Management of Safety**

Each mine needs to enhance self-management of safety by preparing safety rules, safety meetings, safety managers, and mine safety inspectors. For example, safety rules, safety meetings and safety managers should be established in mines with at least 50 workers, and mine safety inspectors should be appointed to mines with at least 500 workers.

**e. Required Accident Reporting**

Mines must be required to fully report all casualties or accidents immediately to the GDMR. These reports must also describe the accident causes and steps to prevent future occurrence. If the cause analysis and preventive steps are insufficient, the GDMR must give administrative advice to the mines.

**f. Accident Relief**

The necessary actions that concessionaires need to take for accident relief in mines must be regulated.

**g. Required Mining Environment Monitoring**

There is a sub-decree on water pollution control under the jurisdiction of the MoE. Based on this sub-decree, a guidebook for monitoring pollution sources in mining environments and in public water areas should be prepared for all concessionaires to comply with.

#### **h. Obligation to Submit a Mine Closure Plan**

When applying to GDMR for mine development, the mining rights holder must submit not only a plan for mining operations, but also a mine closure plan which includes clear, detailed measures for such things as environmental preservation and treating the mine site after the mine is closed.

This matter could be addressed as follows:

Implementation organization: the GDMR

Timing and period of implementation: From the early phase of the Basic Foundation Period (2011 to 2012), lasting 2 years.

Method of implementation: With the assistance of a mining consultant (4 months) and a legal expert (2 months), the relevant department at the GDMR will prepare a draft of the new law to submit to congress.

Expenditures (to be supported by foreign governments or international organizations): US\$73,000 【breakdown of the expenditures】 US\$60,000 for 6 man-months of consultants and US \$13,000 for other expenses including air-fare, car-hiring, and interpreter.

#### **7.6.2 Establishment of a Committee for Mine Safety and Mining Environment**

As mentioned earlier, mining can have larger direct impacts on the surrounding communities than other industries. These impacts can include immense deforestation for mine development, as well as the possibility of river contamination, dust pollution, noise pollution, and ecosystem destruction. There is also the possibility of local impacts caused by subsidence and slope failure in mining operations. Good management of mining activities cannot be accomplished only by the GDMR; close cooperation with related ministries is also needed. Therefore, concerned parties and organizations should always be observant of mining operations.

For that purpose, the government will establish a committee for mine safety and mining environment, and develop a procedure under the guidance of this committee for observing all mining activities in Cambodia. The GDMR is responsible for daily management of mining activities, but it could encounter some issues that overlap with the jurisdictions of other ministries. The object of the committee is to examine these issues from a wider variety of viewpoints to reach a consensus for solving them. If necessary, legal procedures can be formulated for the proposals discussed in the committee.

Members of the committee will include representatives of the MIME, MoE, MAFF, academic experts, concessionaires, mine workers, and local stakeholders. The minister of the MIME will have the authority to appoint and remove members upon the recommendation of the GDMR.

This matter could be addressed as follows:



Implementation organization: the GDMR

Timing and period of implementation: It would be done in 2013.

Method of implementation: The GDMR should take the initiative to establish this committee by approaching other ministries and organizations. The committee will have one regular meeting per year, but emergency committee meetings can be held if necessary.

Expenditures: US \$10,000 【breakdown of the expenditures】 US \$8,400 for 12 months of care-hiring, US \$600 for preparing materials and US \$1,000 for other expenses.

### **7.6.3 Mine Safety and Mining Environmental Training for the GDMR Staff**

After implementation of the Mine Safety and Mining Environment Law, it is necessary to ensure that each mine is complying with the law. Therefore, a Department of Mine Safety and Mining Environment should be established in the GDMR to supervise all the mines in the country. The staff in charge of supervising mine safety and mining environment should undergo practical training at mining sites, preferably in advanced countries such as the US, Australia, or Canada. After training abroad, the staff should hold seminars in the Khmer language to share what they have learned with the other staff.

This matter could be addressed as follows:

Implementation organization: the GDMR

Timing and period of implementation: At the early phase of the Basic Foundation Period (2012 to 2013), lasting 2 years.

Method of implementation: 3 staff members will be sent to an advanced mining country for 3 months of safety and environmental training.

Expenditures (to be supported by foreign governments or international organizations): US \$80,000 【breakdown of the expenditures for 3 staff members】 US \$8,400 for international air fare (US \$1,400×3 trainees/year×2 years), US \$15,000 for air fare in the mining country (US \$500/flight×5 flights×3 trainees/year×2 years), US \$54,000 for food and accommodation (US \$100/day×90 days×3 trainees/year×2 years), and US \$2,600 for other expenses (US \$1,300/year×2 years)

### **7.6.4 Qualifications related to Mining Operations**

As mentioned above, mining is a very specialized industry that is impossible for inexperienced persons to manage and supervise. As there are currently no regulations for this in Cambodia, there is a strong chance of accidents occurring at mines that are supervised by people who lack knowledge and experience. Several qualifications need to be established for appropriate mining supervision. A national examination system must be established that covers the qualifications for mine safety staff (low level and high level), safe handling of explosives, blasting engineers, treatment of dangerous poisons like cyanide, operation of large mining machines, operation of underground diesel machines, etc. Mine accidents can be prevented by

educating and training miners.

This matter could be addressed as follows:

Implementation organization: the GDMR

Timing and period of implementation: Done in 2014.

Method of implementation: With the assistance of a mining consultant (3 months), the relevant department at the GDMR will prepare a draft of a new sub-decree to submit to the minister.

Expenditures (to be supported by foreign governments or international organizations): US \$38,000【breakdown of the expenditures】US \$30,000 for 3 man-months of consulting and US \$8,000 for other expenses including international air-fare, car-hiring and interpreter

### 7.6.5 Introduction of Environmental Evaluations

Currently, there are no environmental regulations for exploration. As a result, each company carries out exploration without any environmental considerations or impact mitigation. Based on the national policy to conserve the beautiful nature of Cambodia, the “Environmental Evaluation” (hereafter EE) system used in Peru should be introduced in Cambodia to regulate the impacts of exploration operations according to the scale and type of exploration (Fig.7.6.1). There is no need to implement a detailed survey, like an EIA, but each company should study the environmental aspects of their exploration areas and determine how they can reduce environmental impacts caused by their operations in advance.

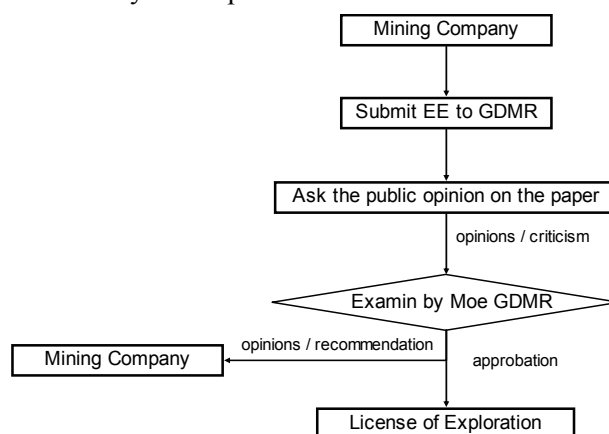


Fig.7.6.1 Flow-chart for Approval of Exploration Licenses

This matter could be addressed as follows:

Implementation organizations: the MoE and GDMR

Timing and period of implementation: Done in 2014.

Method of implementation: With the assistance of a mining consultant (2 months) and an environmental expert (2 months), the relevant department at the GDMR will prepare a draft of the new Prakas to submit to the minister.

Expenditures (to be supported by foreign governments or international organizations): US

\$50,000 【breakdown of the expenditures】 US \$40,000 for 4 man-months of consulting and US \$10,000 for other expenses including international air-fare, car-hiring and interpreter

#### **7.6.6 Baseline Environmental Survey**

In mining areas, baseline environmental surveys must be implemented at an early phase of the mining process to collect basic environmental data, including metal compound concentrations, local fauna and flora, etc. This data should be used as a parameter for measuring environmental changes in the long-term operations of the mines. If environmental changes occur after mining production has begun, the MoE and GDMR must give administrative guidance to the mine to reduce the environmental impact to the level of the values derived from the baseline surveys. These surveys should include careful attention to UXBs in mining areas.

This matter could be addressed as follows:

Implementation organizations: the MoE and GDMR

Timing and period of implementation: At the end phase of the Basic Foundation Period and the beginning phase of the Fostering Period (2015 to 2020), it would be done in some mining areas every year.

Method of implementation: With the assistance of a geologist (5 months), geochemist (5 months) and an international environmental survey company, the relevant department (the DoG) at the GDMR will implement the baseline surveys for the first 2 years. After that, the DoG will conduct the baseline surveys on its own using its acquired skills.

Expenditures (to be supported by foreign governments or international organizations): US \$620,000 (for the first 2 years) 【breakdown of the expenditures】 US \$100,000 for 10 man-months of consulting, US \$500,000 for the international environmental survey company and US \$20,000 for other expenses including international air-fare, car-hiring and interpreters for the consultants

#### **7.6.7 Preparation of a Guidebook for Mine Safety / Mining Environment**

The environment-related laws and sub-decrees covering mining activities are: the Mining Law, the Environment Law, the Law on Forestry, the Protected Area Law, the Sub-decree on the EIA Process, the Sub-decree on Water Pollution Control, the Sub-decree on Solid Waste Management, and the Agreement on Metallic Mineral Exploration and Exploitation, as well as the Mine Safety and Mining Environment Law mentioned in 7.6.1. The GDMR is required to instruct mining companies to comply with all these laws and sub-decrees. So, a guidebook for mining operations that explains these legal regulations should be prepared to help mining companies understand them.

This matter could be addressed as follows:

Implementation organization: the GDMR

Timing and period of implementation: When the legal preparations for mine safety and environmental management are completed in the Basic Foundation Period, done in 2013.

Method of implementation: With the assistance of a mining consultant (4 months), the relevant department at the GDMR will prepare this guidebook.

Expenditure (to be supported by foreign governments or international organizations): US\$50,000 【breakdown of the expenditure】 US\$40,000 for 4 man-months of consultants and US\$10,000 for other expenses including international air freight, car-hiring and interpreter

### **7.6.8 Unionization of Artisanal Gold Miners**

The artisanal gold miners in the country should be unionized at the provincial or local level under the auspices of the GDMR. This union should have mining rights to manage its mines just as the private companies do. The GDMR will provide each union with instruction in exploration methods, mining methods, and processing methods, with assistance from mining experts. After that, these unions will be expanded to the national level to maintain a constant connection with the GDMR. This could be the starting point for the artisanal gold miners to commence legitimate mining operations that invigorate Cambodian mining.

This matter could be addressed as follows:

Implementation organization: the GDMR

Timing and period of implementation: At the ending phase of the Basic Foundation Period (2014), lasting 3 years. It might last longer if necessary.

Method of implementation: With the assistance of a mining consultant (10 months) and a geological engineer (6 months), the relevant department at the GDMR will implement the project. For 3 years, the GDMR will survey the state of operations and ore reserves of the artisanal mining areas to determine whether or not operations can continue. Artisanal mining areas which are permitted to continue operating for a limited time might be targets for unionization. The GDMR should provide them with loans to buy the necessary machines when necessary. But if they cannot continue operations over the long term, the GDMR should close these mining areas.

Expenditures (to be supported by foreign governments or international organizations): US \$800,000 【breakdown of the expenditures】 US \$160,000 for 16 man-months of consulting, US \$70,000 for the survey of the state and ore reserves of the artisanal mining areas by analyses of samples and drilling, US \$540,000 for purchasing mining and processing machines, and US \$30,000 for other expenses including international air-fare, car-hiring and interpreter

### **7.6.9 Decontamination of Areas Polluted by Artisanal Gold Mining**

The areas where the artisanal gold miners operated in the past are badly contaminated due to lax management of mining operations and lack of tailings dams. This might have a

negative impact on residents of the surrounding area. This project will investigate ways to restore the environments of areas contaminated by mercury, as well as the construction of a processing plant to recover un-recovered low-grade gold ore with new technologies such as a closed carbon-in-pulp system (CIP system) and the construction of a tailings-dam to hold tailings from the plant. Contaminated soil containing low-grade gold ore in the surrounding areas will also be transported to the plant to be treated. This project will be done concurrently with the unionization of the artisanal gold miners to obtain exact information on contaminated areas and also to instruct artisanal miners about appropriate mining operations, functioning as an institute that teaches mining. Profits gained from the recovery of un-mined gold could be used to fund this project.

This matter could be addressed, as follows:

Implementation organization: the GDMR

Timing and period of implementation: At the ending phase of the Basic Foundation Period (2014), lasting 3 years. It might last longer if necessary.

Method of implementation: With the assistance of an international mining consulting company, the relevant department at the GDMR will implement the project. For 3 years, the GDMR will collect information on contaminated areas, survey the state of the areas, and investigate the recovery of un-mined low-grade gold as well as small amounts of unrecovered gold contained in the contaminated soil to design and construct a gold-recovery plant with new technology such as a CIP system. At the same time, a new tailings dam should be designed and constructed to collect and seal tailings from the plant. Contaminated soil in the surrounding areas will also be surveyed, extracted, and transported to the decontamination plant by dump trucks for treatment. The decontamination process for this project will be imparted on through technology transfer to the GDMR, which will construct the second and third plants, and continue decontamination in the country in collaboration with the artisanal gold miners union.

Expenditures (to be supported by foreign governments or international organizations): US \$1,000,000 (for the first project) **【breakdown of the expenditures】** US \$150,000 for surveys and analyses of contaminated areas, US \$550,000 for the design and construction of a small-scale plant for gold recovery (decontamination plant), US \$100,000 for the construction of a tailings dam, US \$100,000 for local subcontractors to extract and transport contaminated soil, and US \$100,000 for other expenses, such as engineering fees for operating the plant.

*End of Report*

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## **Appendix I-1**

### **Minutes of the Steering Committee on the Master Plan Study for Promotion of the Mining Industry in the Kingdom of Cambodia**

**Date :** 19<sup>th</sup> May, 2009    **Time :** 9:00 – 12:00 and 14:30 – 18:00

**Place :** Conference Room of the Ministry of Industry, Mines and Energy

#### **Presents :**

Cambodia : H. E. Mr. Tan Kim Vinn (Secretary of State)

H. E. Mr. Ung Ponnara (Under Secretary of State)

H. E. Mr. Sok Leng (Director of GDMR)

Mr. Peng Navuth , (Deputy Director General of GDMR)

Mr. Uch Bora (Deputy Director General of GDMR)

Mr. Yos Mory Rath, Mr. Mak Sopheakra, Mr. Sieng Sotham, Mr. Sim Sisokhaly

Mr. Chera Vichett,

Japan : Mr. Masaharu Marutani (JICA Study Team Leader)

Mr. Shigeki Miyake (JICA Office)

Mr. Kenichi Kumagai, Mr. Naoya Takebe, Mr. Kazuki Shingu

Mr. Haruo Harada, Mr. Hidehiro Ishikawa, Mr. Ryuta Shukuwa

Interpreter : Mr. Vang Randy (Khmer to English)

#### **Agenda :**

1. Opening Remarks
2. Explanation of the Main Points of the Progress Report by the JICA Team Leader
3. Approval of the Progress Report
4. This Fiscal Year's Program, by the JICA Team Leader
5. Field Survey Program, by the JICA Team Member
6. Investment Promotion Activity by the JICA Team Leader

#### **1. Opening Remarks**

H. E. Tan Kim Vinn gave the opening address to get the meeting started.

#### **2. Explanation of the Main Points of the Progress Report, by the JICA Team Leader**

Mr. Marutani explained about the presentation of the Progress Report, and there was a discussion between MIME and the JICA Study Team about that Report.



-MIME reviewed the Progress Report chapter by chapter with the JICA Study team, and made comments about points to be corrected, revised, added or removed including words, phrase, and meanings.

-MIME disagreed with some of the comments in the Progress Report, particularly about mining companies' activities, mining law and organizational reform.

-MIME requested the JICA Study Team to revise the Progress Report and present it again.

### **3. Approval of the Progress Report**

-Based on the above discussion, MIME and the JICA Study Team agreed on revising the Progress Report.

-MIME approved the Progress Report through its revision.

-The JICA Study Team will present the revised Progress Report (PDF file) to MIME by the end of the 4<sup>th</sup> field survey (19<sup>th</sup> June, 2009).

### **4. This Fiscal Year's, by the JICA Team Leader**

Mr. Marutani explained about 'This Fiscal Year's Program'.

### **5. Field Survey Program, by JICA Team Member**

Mr. Harada explained about the field survey program, particularly about the purpose, methods and locations of the surveys.

### **6. Investment Promotion Activity, by the JICA Team Leader**

Mr. Marutani explained about 'Investment Promotion Activity'

- MIME would like to consider attending PDAC (Prospectors and Developers Association of Canada).

-Mr. Marutani and another JICA Study team member told MIME that PDAC would be a very good chance to introduce potential investors to Cambodia's mineral resource potential.



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H. E. Sok Leng  
Director of GDMR  
Date



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Mr. Masaharu Marutani  
JICA Study Team Leader  
Date 09.06.2009

Appendix I-2  
Letters from MIME Minister



**ក្រសួងឧស្សាហកម្ម រ៉ែ និង ថាមពល**  
**Ministry of Industry, Mines and Energy**

លេខ : ១៩៩៣ MIM E

**ព្រះរាជាណាចក្រកម្ពុជា**

**ជាតិ សាសនា ព្រះមហាក្សត្រ**

**Kingdom of Cambodia**  
**Nation Religion King**

Phnom Penh, September 17<sup>th</sup> 2009

Mr. Masaharu Marutani  
JICA Study Team Leader  
The Master Plan Study for Promotion of the Mining Industry  
in the Kingdom of Cambodia

Dear Mr. Masaharu Marutani

With refer to your invitation letter dated on 17th June 2009, request us to nominate two senior officers to participate in the international mining conference PDAC; in Toronto, Canada from 7th March to 10th March 2010; we are now very pleased to nominate two senior officers from General Department of Mineral Resources to attend in the conference.

- 1) Mr. Peng Navuth Deputy Director General, GDMR
- 2) Mr. Yos Mony Rath Director, Department of Mineral Resources

We expect that this event, PDAC 2010 would be a good opportunity for Cambodia to promote mining industry in the international forum.

Yours sincerely,



Suy Sem  
Minister





**ក្រសួងឧស្សាហកម្ម រ៉ែ និង ថាមពល**  
**Ministry of Industry, Mines and Energy**  
 លេខ : ៣៥៣.អ.រ.រ.ជ.

**ព្រះរាជាណាចក្រកម្ពុជា**

**ជាតិ សាសនា ព្រះមហាក្សត្រ**

**Kingdom of Cambodia**  
**Nation Religion King**

Phnom Penh, 17 December, 2009

Mr. Masaharu Marutani  
 JICA Study Team Leader  
 The Master Plan Study for Promotion of the Mining Industry  
 In the Kingdom of Cambodia

Dear Mr. Marutani,

Referring to the MIME's Letter, Ref. No. 1963 MIME, dated September 17, 2009, I would like to inform you that Mr. Yos Mony Rath, Director of the Department of Mineral Resources, is not able to attend the said PDAC Convention 2010 from 7-10 March 2010, Toronto, Canada, due to his own busy duties.

However, Mr. Chrea Vichett, Deputy Director of the Department of Mineral Resources Development, is nominated to replace him to attend the said PDAC Convention 2010.

Please accept, Mr. Masaharu Marutani, the assurance of my high consideration.

Yours sincerely, *[Signature]*



**SUY SEM**  
 Minister

## Appendix I-3

### Minutes of the 2<sup>nd</sup> Steering Committee on the Master Plan Study for Promotion of the Mining Industry in the Kingdom of Cambodia

**Date:** 28<sup>th</sup> Jan, 2010 **Time:** 9:00 – 12:00 and 15:00 – 17:00

**Place:** Conference Room of the Ministry of Industry, Mines and Energy

#### Participants:

Cambodia: H. E. Mr. Ung Ponnara (Under Secretary of State)

Mr. Peng Navuth , (Deputy Director General of GDMR)

Mr. Uch Bora (Deputy Director General of GDMR)

Mr. Chourcheth Tyvoin (Deputy Director General of GDMR)

Mr. Yos Mory Rath, Mr. Mak Sopheaktra, Mr. Sieng Sotham, Mr. Chera Vichett,

Japan : Mr. Masaharu Marutani (JICA Study Team Leader)

Mr. Kenichi Kumagai, Mr. Naoya Takebe, Mr. Kazuki Shingu

Mr. Kazushige Wada, Mr. Haruo Harada, Mr. Ryuta Shukuwa

Interpreter: Ms. Yukie Yamazaki (Khmer to Japanese)

Mr. Reaksa Rous (Khmer to English)

#### Agenda:

1. Opening Remarks
2. Comments from MIME about the Interim report
3. Discussion about the Interim report
4. Approval of the Interim report
5. Closing Remarks

#### 1. Opening Remarks

H. E. Mr. Ung Ponnara gave the opening address to get the meeting started.

That was followed by an address by Team Leader Masaharu Marutani, who reported that a discussion would be held about the contents of the Interim report.

#### 2. Comments from MIME about the Interim report

- MIME indicated that is redundant information in Chapters 2 and 3, and it is difficult to understand. MIME wanted the sentence structure to be reconsidered.
- Regarding the training of human resources and institutional reform in Chapter 4, MIME felt that it should contain not only analyses of and resolutions for present conditions and issues, but it should also include a view of the future.
- Regarding the action plan in Chapter 7, MIME stated that it would like for the period of the plan to be shortened. The JICA Study Team will reconsider this after consulting with GDMR.
- Also regarding the action plan in Chapter 7, MIME would also like for an additional proposal to be made regarding the training of human resources.

- MIME recommends that the JICA Study Team would contact with the Ministry of Education to assist in training of human resources.
- MIME would also like to have an estimate of the number of staff in MIME who will be needed in the mining sector during the period of the action plan.
- While there is information about how to promote the mining industry, MIME thinks it would be a good idea to include something about the MIME's management, policy, etc., as it relates to mining.

The JICA Study Team's responses to the above comments were as follows:

- The current state and future vision (targets) of the Cambodian mining industry will be clearly indicated in the Interim report.
- In addition, a comparison will be made between the two, and action plan will be proposed to fill in the gaps. The JICA Study Team would like to rewrite the sentence flow to make it clearer.

### 3. Discussion about the Interim report

Detailed question-and-answer sessions were held for each chapter in the Interim report.

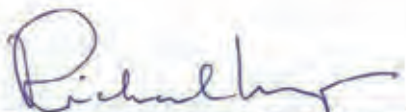
- Errors in text, maps, etc. that were pointed out have been corrected.
- Sentences structure, wording, etc., that was pointed out as being difficult to understand have been revised.
- MIME would like for the source of the data used in Chapter 5 to be clearly noted.
- MIME stated that it would like for the information/data in each chapter to be supplemented. JICA Study Team agreed (for example, operation manual for training of human resources).

### 4. Approval of the Interim Report

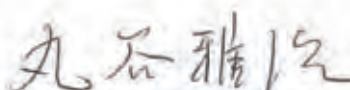
The JICA Study Team decided to create a revised version of the Interim report in late March or early April that includes the comments of the Steering Committee. MIME agreed to this, and also approved of the Interim report with added revisions.

### 5. Closing Remarks

H. E. Mr. Ung Ponnara gave the closing remarks to end the meeting. It was agreed that MIME and the JICA Study Team will continue to work together on future studies.



H. E. Mr. Ung Ponnara  
Under Secretary of State MIME  
Date 04/02/2010



Mr. Masaharu Marutani  
JICA Study Team Leader  
Date 04/02/2010



## Appendix I-4

### Minutes of the 3<sup>rd</sup> Steering Committee of the Master Plan Study for Promotion of the Mining Industry in the Kingdom of Cambodia

**Date:** 27<sup>th</sup> July, 2010

**Time:** 9:00 – 12:00 and 14:30 – 18:00

**Place:** Conference Room of the Ministry of Industry, Mines and Energy (9:00 –12:00)  
Conference Room of the General Department of Mineral Resources(14:30 – 18:00)

#### **Participants:**

Cambodia: H. E. Mr. Ke Ky (Under Secretary of State)

H. E. Mr. Sok Leng (Director General of GDMR)

Mr. Peng Navuth (Deputy Director General of GDMR)

Mr. Yos Mory Rath (Director of DMR)

Mr. Mak Sopheaktra (Director of DCMR)

Mr. Sieng Sotham (Director of DoG)

Mr. Sim Sisokhaly (Director of DMRD)

Mr. Chera Vichett (Deputy Director of DMRD), Mr. Loueung Vanmonyrak

Japan: Mr. Yoshiki Ehara (Assistant Director of JICA Headquarters)

Mr. Takanobu Shinoda (Representative of JICA Cambodia Office)

Mr. Yethny Phearun (Program Officer of JICA Cambodia Office)

Mr. Masaharu Marutani (JICA Study Team Leader)

Mr. Kenichi Kumagai, Mr. Naoya Takebe, Mr. Kazuki Shingu,

Mr. Kazushige Wada, Mr. Haruo Harada, Mr. Hidehiro Ishikawa

Mr. Ryuta Shukuwa

Interpreters: Mr. Sei Ha, Mr. Reaksa Rous, Mr. Randy Vang

#### **Agenda:**

1. Opening Remarks
2. Comments from MIME and Discussion about the Draft Final Report
3. Approval of Draft Final Report
4. Closing Remarks

#### **1. Opening Remarks**

H. E. Mr. Ke Ky stated that the GDMR was very pleased with the JICA Study Team's participation in the 3<sup>rd</sup> steering committee meeting. The MIME warmly welcomed the JICA Study Team's involvement in implementing the Master Plan Study and Action Plan for GDMR. The participants were asked to provide comments to improve the Draft Final Report. Mr. Ke ky expressed appreciation to the Japanese Government for supporting this Master Plan Study for Cambodia.

## **2. Comments from MIME and Discussion about the Draft Final Report**

Comments were received from MIME, and were used as a basis for a discussion among MIME, JICA and the JICA Study Team. The discussion examined every chapter of the report, with special focus on Chapter 7.

- Regarding the title figure, MIME requested that some of the place names be revised.
- Regarding the wording of the laws and regulations related to environment in mining activity in Chapter 2, MIME requested that regulations be noted, in clearly understandable sentences or expressions
- MIME said that some of the tables and charts in Chapters 2 and 3 were not clear, and asked that they be made easier to read.
- Regarding Chapter 3, MIME requested that the contents of the analyses about the classification of the 3 types of companies that were engaged in exploration should be clearly noted that they were made based on studies and interviews conducted by the JICA Study Team.
- There was a request to revise some of the royalty revenue data in Chapter 4 because they were incorrect. The JICA Study Team was also asked why it was necessary to royalty revenue data on an individual country basis in the report.
- After discussing this, the JICA Study Team decided to delete the data on royalty revenue.
- Regarding Chapter 7, MIME had some questions and requests about the Mining Council.
- Why are all of the members of the council from outside organizations? Furthermore, can the committee conduct its business appropriately if the chairperson does not have specialized knowledge of mining?
- There is no council in Cambodia, but its importance is recognized. There was a request for further, detailed information about the roles and responsibilities of the council.
- The JICA Study Team replied that it was important to obtain a consensus with stakeholders about these questions and therefore the process was appropriate. The team also decided to send MIME detailed information about the roles and responsibilities of the council.
- Regarding the special tax system for companies in Chapter 7, MIME asked to be told about the best way to set tax rates.
- MIME asked that a detailed explanation be added about the organizational chart for the Institutional Reform. MIME also asked that the organizational chart include information about a Department of Mine Safety and Environmental Management.
- Regarding the training of human resources, MIME asked that information about considering a long-term alliance with ITC (Institute of Technology of Cambodia) be included in the report.
- There was also a request to include details about the roles and official responsibilities of the National Committee for Mine Safety and Environment.

- Regarding the contents of Environmental Evaluations, there was a request to include separate case studies, etc., from Peru in which the details could be understood, in order to introduce Environmental Evaluations in Cambodia.
- There was a request to be told of measures that have been taken in other countries to resolve the problem of illegal mining.
- There was also a request for a Khmer language translation of the report.
- The JICA Study Team answered these questions, and explained the MIME side to incorporate them into the Final Report. The JICA Study Team also explained to act on the request for separate reports related to Environmental Evaluations in Peru.
- If there are other comments from MIME/GDMR, JICA asked MIME to compile them by August 20<sup>th</sup> and convey them to the Study Team. MIME agreed to this request. In addition, JICA replied that it will consider the request for a Khmer language translation of the report separately in an internal meeting.

#### 4. Approval of the Draft Final Report

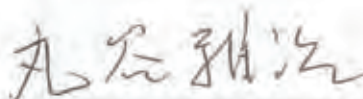
MIME approved of the Draft Final Report on the condition that the contents of this 3<sup>rd</sup> steering committee meeting, and the comments that will be submitted by August 20<sup>th</sup>, be incorporated into the Final Report. The JICA Study Team agreed to this.

#### 5. Closing Remarks

H. E. Mr. Ke Ky gave the closing remarks to end the meeting. It was agreed that MIME, JICA and JICA Study Team would continue to work together on future studies.



H. E. Mr. Ke Ky  
Under Secretary of State MIME  
Date



Mr. Masaharu Marutani  
JICA Study Team Leader

Date 19 August 2010



## Appendix I-5 First Workshop

### (1) Workshop Program

# **1ST WORKSHOP ON JICA – GDMR PROJECT**

**THE MASTER PLAN STUDY FOR PROMOTION OF THE MINING INDUSTRY  
IN THE KINGDOM OF CAMBODIA**

**14:30-15:30, 28th August 2008 at the Conference Room of Ministry of Industry, Mines and Energy**

## **AGENDA**

**1. Opening Address (3min)**

*by H.E. Mr. Sok Leng, General Director,  
General Department of Mineral Resources*

**2. Overview of the Study  
(20min)**

*by Mr. Masaharu Marutani, Team Leader, JICA Study Team*

**3. General Outline for GIS Database and Website Creation  
(10min)**

*by Dr. Kazushige Wada, GIS Database Expert, JICA Study Team*

**4. Closing Address (3min)**

*by Mr. Masaharu Marutani, Team Leader, JICA Study Team*

## (2) The List of Participants

### 1<sup>st</sup> Workshop on 28<sup>th</sup> August 2008

No.	Name	Position	Organization
1	H.E. Mr. Sok Leng	Director General	MIME
2	Mr. Simsisokhaly	Director	MIME
3	Mr. Yos Monyrath	Director, DMR	MIME
4	Mr. Peng Navuth	Deputy Director General	MIME
5	Mr. Chrea Vichett	Depty Director, DMRD	MIME
6	Mr. Sieng Sotham	Director of Geo Dept	MIME
7	MR. Sok Sophaorn	Staff	MIME
8	Mr. Eam Seakbo	Staff	MIME
9	Mr. Kong Makara	Chief Office	MIME
10	Mr. Hing Tonn	Deputy Director, DMRD	MIME
11	Mr. Ieng Vannarith	Official	MIME
12	Mr. Sok Sokha	Official	MIME
13	Mr. Loenng Vanmonyarak	Official	MIME
14	Mr. Ou Narath	Official	MIME
15	Mr. Shigeki Miyake	JICA Cambodia Office	JICA
16	Mr. Satoshi Kobayashi	JICA Head quarter	JICA
17	Mr. Masaharu Marutani	JICA Team Leader	JICA
18	Mr. Kazushige Wada	JICA GIS Expert	JICA
19	Mr. Kazuki Shingu	JICA Team member	JICA
20	Ms. Kaori Eiju	JICA Team member	JICA

### (3) Photos of the First Workshop

28 August 2008, MIME Conference Room



Scene of the first workshop (interior)



The opening address was given by H.E. Mr. Sok Leng, General Director of GDMR



Team Leader Mr. Marutani gave an overview of the survey



Team member Dr. Wada explained about the creating a GIS database and web site



After the presentations, there was an enthusiastic O&A session



Mr. Marutani answered a participant's question

## Appendix I-6 Progress Workshop

### (1) Workshop Program

<b><u>PROGRESS WORKSHOP</u></b>	
<b>The Master Plan Study for Promotion of the Mining Industry in the Kingdom of Cambodia</b>	
	08:30-17:00, On 20th May, 2009 at the MIME Conference room
	

#### AGENDA

<b>Registration</b>		<b>8:00 – 8:30</b>
<b>1. Opening Address</b>	<i>H.E. MR. Tam Kim Vinn, Secretary of State, MIME</i>	<b>8:30 – 8:35</b>
<b>2. Welcome Address</b>	<i>Mr. Murakami, Deputy Resident Representative, JICA Cambodia Office</i>	<b>8:35 – 8:40</b>
<b>3. Overview of the Progress of the JICA – GDMR Project</b>	<i>Mr. Masaharu Marutani, Team Leader, JICA Study Team</i>	<b>8:40 – 9:10</b>
<b>4. Mining sector in Cambodia</b>	<i>H.E. Mr. Sok Leng, General Director of GDMR, MIME</i>	<b>9:10 – 9:35</b>
<b>5. Institutional Reformation of the Mining Sector</b>	<i>Mr. Kenichi Kumagai, JICA Study Team</i>	<b>9:35– 10:05</b>
	<u>(Coffee Break 10:05 – 10:25)</u>	
<b>6. Satellite Image Analysis</b>	<i>Mr. Hidehiro Ishikawa, JICA Study Team</i>	<b>10:25 – 10:50</b>
<b>7. Mineral Resources Potential</b>	<i>Mr. Haruo Harada, JICA Study Team</i>	<b>10:50 – 11:15</b>
<b>8. - Discussion-</b>		<b>11:15 – 11:45</b>
	<u>(Lunch Break 11:45 – 14:30)</u>	
<b>9. Organization Reform of Mining Administration and Capacity Building</b>	<i>Mr. Naoya Takebe, JICA Study Team</i>	<b>14:30 – 14:55</b>
<b>10. Current State and Issues of the Mining Industry in Cambodia</b>	<i>Mr. Kazuki Shingu, JICA Study Team</i>	<b>14:55 – 15:20</b>
	<u>(Coffee Break 15:20 – 15:50)</u>	
<b>11. - Discussion-</b>		<b>15:50 – 16:50</b>
<b>12. Closing Address</b>	<i>H. E. Mr. Tan Kim Vinn, Secretary of State, MIME</i>	<b>16:50 – 17:00</b>

## (2) The List of Participants

The List of Participants on the Progress Workshop on 20 May, 2009			
No.	Name	Title	Organization
1	H.E Mr. TAN KIM VINN	Secretary of State, MIME	MIME
2	H.E Mr. UNG PONNARA	Under Secretary of State, MIME	MIME
3	H.E. Mr. SOK LENG	Director General, General Department of Mineral Resources	MIME
4	Mr. PENG NAVUTH	Deputy Director General, General Department of Mineral Resources	MIME
5	Mr. UCH BORA	Deputy Director General, General Department of Mineral Resources	MIME
6	Mr. CHOU CHETH TYVOIN	Deputy Director General, General Department of Mineral Resources	MIME
7	Mr. YOS MONY RATH	Director, Department of Mineral Resources	MIME
8	Mr. SIENG SOTHAM	Director, Department of Geology	MIME
9	Mr. SIM SISOKHALY	Director, Department of Mineral Resources Development	MIME
10	Mr. MAK SOPHEAKTRA	Director, Department of Construction Material Resources	MIME
11	Mr. CHREA VICHETT	Deputy Director, Department of Mineral Resources Development	MIME
12	Ms. MAK BOLY	Deputy Director, Department of Geology	MIME
13	Mr. NOUN NARIN	Deputy Director, Department of Mineral Resources	MIME
14	Mr. HING TUN	Deputy Director, Department of Mineral Resources	MIME
15	Mr. EAM SEAK BO	Chief of Laboratory Office, Department of Geology	MIME
16	Mr. KONG MAKARA	Office Chief , Mineral Resources Development	MIME
17	Mr. TOUCH MENG LAY	Chief Office, of Data Management, DMRD	MIME
18	Mr. SOK RITHY	Chief of Revenue Office, DMRD	MIME
19	Mr. AI HOEUN	Vice-Office Chief , Gem and Coal, DMR	MIME
20	Mr. VAN SOCHEAT	Office Chief , Industrial Minerals, DMR	MIME
21	Mr. SOK SOKHA	Official of the DMR – In charge of GIS	MIME
22	Mr. Loeung Vanmonyrak	Officer, DMR	MIME
23	Mr. LONG SOBUN RITHY	Vice-Office Chief of Cooperation, DMRD	MIME
24	Mr. Hong Bona	Chief Office, DMR	MIME
25	Mr. Seng Laing	Chief Office, DMR	MIME
26	Mr. YIN RATHA	Office Chief of Inspection, DMR	MIME
27	Mr. BEN BUNNARIN	Office Chief, Department of Geology	MIME
28	Mr. CHOUP SOKUN THEARA	Office Chief, Department of Geology	MIME
29	Mr. YOS SAMUTH	Office Chief, Department of Geology	MIME
30	Mr. CHEA DARA	Director, Dept. of Cooperation and ASEAN Affairs	MIME
31	Mr. Yusuke Murakami	Deputy Resident Representative	JICA
32	Mr. Shigeki Miyake	Assistant Resident Representative	JICA
33	Mr. Heng Salpiseth	Program officer, Infrastructure division	JICA
34	Mr. Masaharu Marutani	Team Leader	JICA Study Team
35	Mr. Kenichi Kumagai	Senior Mining Expert	JICA Study Team
36	Mr. Naoya Takebe	Senior Organization Expert	JICA Study Team
37	Mr. Kazuki Shingu	Senior Mining Expert	JICA Study Team
38	Mr. Hidehiro Ishikawa	Senior Satellite Image Analyst	JICA Study Team
39	Mr. Haruo Harada	Senior Geologist	JICA Study Team
40	Mr. Ryuta Shukuwa	Coordinator	JICA Study Team
41	Mr. Shigeru Kannari	Interpreter (Khmer-Japanese)	JICA Study Team
42	Mr. Reaksa Rous	Interpreter (English-Khmer)	JICA Study Team
43	Mr. Randy Vang	Interpreter (Khmer - English)	JICA Study Team
44	Ms. Mow Som Vina	Typist	JICA Study Team

### **(3) Opening Address**

**Opening Welcome Speech of  
H.E. Suy Sam, Minister of the Industry, Mine and Energy Ministry  
On an Occasion of Workshop on Checking of Improvement of Core  
Project in Promoting Mine Industry in the Kingdom of Cambodia  
20 May 2009**

- Mr. MURAKAMI, Cambodia regional deputy director of the Japan International Cooperation Agent, and colleagues
- Mr. Masaharu Marutani, head of the JICA research team, and colleagues
- Secretaries of State, Under-Secretaries of State,
- Directors, deputy directors, department directors and other workshop participants

Today I have great honor and am delighted to participate in this workshop to check the improvement of the Core Research in promoting mine industry in Cambodia.

In the name of the Industry, Mine and Energy Ministry and on behalf of myself as the ministry, I would like to warmly welcome the presence of JICA research team, His and Her Excellency, and other participants in the today workshop.

Ladies and gentlemen!

It has been for 10 months since the arrival of the JICA research team led by Mr. Marutani in Cambodian territory, conducting research on Cambodia's mine sector in a bid to make a core plan in promoting the mine industry in Cambodia. During this period, the JICA team has collected mine- relevant data and other necessary information which directly or indirectly affects the development of the mine sector, such as environment, infrastructure, institutions and human resource, etc.

Thus, on this occasion, I would like to remind you of and notice some crucial points of Cambodian mine sector's trend and challenges as well as recommendations in regards to the visions of the ministry in enhancing the mine sector in Cambodia.

Ladies and gentlemen!

We can say that the mine sector renewed its activities after 1988 when the country started being controlled by Prime Minister Hun Sen, head of the Royal government of Cambodia, bringing national unity, territory unity, peace and security to the country, as a whole. Peace and political stability cannot be absent from the economic development and trust building among investors.



To attract local and international investors to Cambodia's mine sector investment and strengthen sustainable management and development of mine resources, the law on Mine Operation and Management was drafted and then adopted by the National Assembly, which was officially promulgated on July 13, 2001. Up to now, sub-degrees, inter-ministries' declarations and other relevant provisions have also been approved continuously.

Nevertheless, those laws and provisions are not enough to manage and attract more gigantic investing companies to conducting research and investing in mine operation within the country. Therefore, improvement in legal framework and adoption of other new laws and provisions will be compulsory for the ministry to ensure effective and sustainable mine management and operation for the national economy.

Human resource is also another huge challenge in the mine field. After a shutdown of the Mine-Geology University in 2000, we have very few geologists for the next generation working at this field. The ministry has used all efforts to promote this skill training program by submitting a petition to the Ministry of Youth and Sports to consider reopening the Mine-Geology University and contacting partner countries in terms of Japan, China, Korea, Australia and Vietnam with the main aim of asking them to grant overseas scholarship to Cambodian students who have already finished high school.

The information about and data on mine geology is also crucial; we have yet to collect exact information and data on mine resources substantiating where our mine potential is located, how much it is and whether it is worth operating. This issue requires capacity strengthening of mine officers who need to be equipped with transportation and sufficient technical tools used in conducting the research and assessing our potential of mine resource.

#### (4) Welcome Address

May 20, 2009

Greeting at Progress workshop on the Master Plan Study for Promotion the Mining Industry of Cambodia Progress Workshop

Senior Representative  
JICA Cambodia Office

His Excellency Mr. Tan Kimvin, Secretary of State, MIME  
H.E Mr. Ung Ponnara Under secretary of state  
H.E. Mr. Sok Leng Director of General

Ladies and Gentlemen:

On behalf of JICA Cambodia office, it is my great pleasure to address this Progress Workshop on the Master Plan Study for Promoting the Mining Industry of Cambodia hosted by H.E. Tan Kimvin, Ministry of Mining Industry and Energy.

As you know, this master plan study started in August of last year. The purpose of this study is to promote the Cambodian mining industry, with emphasis on the following points: (1) to compile information on Cambodian geology and mineral resources, and to provide it effectively both nationally and internationally, (2) to create an “action plan for investment promotion,”(3) to create an “action plan for reforming organizations and institutions, nurturing human resources, and improving environmental management, supervision and inspection of mincs” as medium/ long term tasks, (4) to strengthen the capacity of the GDMR, which has the central role in the development of mineral resources. The project has been conducted very smoothly, especially thanks to professional cooperation between the GDMR’s counterpart and the Japanese experts.

This development study is significant and characteristic because it is the first comprehensive cooperative project in the mining sector in Cambodia. The draft final master plan will be submitted to MIME in June 2010 and be finalized in August. I strongly anticipate that our M/P will contribute both to economic development and to environmental protection in Cambodia.

We are now in the middle stage of the study, with May and June being particularly important to the study. Because in this stage, we formulate the action plan for investment promotion and identify the medium-long term priority issues.

In advance of the workshop, the steering committee was held just yesterday, and it was confirmed that the each component of the study and discussed a bout the contents of the progress report. I anticipate that there will be something to be gained and to support taking the shape of the master plan in this workshop.

Finally, I would like to conclude my speech by expressing the anticipation that this workshop would be very successful for the smooth implementation of the study in the future.

Thank you very much once again and good luck with your challenges ahead.  
(End)



#### **(4) Closing Address**

**Speech of  
H.E. Tan Kem vin, Secretary of State of the Industry, Mine and Energy  
Ministry  
On an Occasion of Closing the Workshop on Checking of Development of  
Core Research in Promoting Mine Industry in the Kingdom of Cambodia  
20 May 2009**

- Under-Secretaries of State
- Mr. Miyake Shigeki, Cambodia regional representative of the Japan International Cooperation Agent, and colleagues,
- Mr. Masaharu Marutani, head of the JICA research team, and colleagues
- Directors, deputy directors, department directors and other workshop participants of the General Department of Mine Resources

It has been for the whole day that ladies and gentlemen has paid attention to listening to the importance and content of the core project in promoting Cambodia's mine industry as a partial result of the research and assessment of the JICA research team led by Masaharu Marutani for around 10 months. The presentation clearly showed the current situation, management and the operation of mine resources in Cambodia. It did display that we need to do more other tasks to accomplish our goal in "promoting the development of Cambodia's mine industry".

Through this presentation, ladies and gentlemen have learnt that to enhance the competence of our General Department of Mine Resources in attracting mine investments in the Kingdom of Cambodia, managing mine operation and boosting investors' business, the General Department has to strengthen its own capacity and do other vital tasks in advance regarding legal framework, other additional provisions and improvement of some part of the management structure. We also need to provide capacity trainings to our department's officers and equip them with means of transportation and enough tools used in research and mine operation management.

Besides, JICA will help the general department set up the data and information system and precise geology; prepare geological and mine resource maps; file a guide book showing the potential of mine resources in Cambodia and create webpage, which is a significant tool used for disseminating information in regards to mine management and operation in Cambodia to the public in a bid to interest national and international investments in Cambodia's mine industry.

Questions, request for more explanation on the report meaning, participants' idea sharing and clarification by the research team today play crucial role in process of producing the core project.

Ladies and gentlemen!

The program of the core project in promoting the development of Cambodia's mine industry lasts 3 years, which will be finished at the end of 2010. The JICA research team has to conduct in-depth study and analysis of all collected information before being able to file and produce important documents mentioned above. Recent continuations in terms of viewpoints on contents and evaluation of the project will be passed through a number of workshops broader than this.

In the final stage, the Ministry of Industry, Mine and Energy will receive the final report produced by the JICA research team which will be used as the guide book substantiating what are really essential for us to boost the mine industry in Cambodia and how and when we can use them to attract more investments. This will be valuable for Cambodia's mine sector, which lacks skills and experiences.

On this occasion on behalf of the Royal Government of Cambodia, I faithfully appreciate the JICA research team who has put all efforts into gathering research information, producing fruitful outcomes in accordance with the planned schedule program through program evaluation as well as launching today workshop.

I strongly hope and believe that the JICA research team will be continuing its program activities in better cooperation with officers of the General Department of Mine Sources until reaching the final praiseworthy outcome contributing to the core project in promoting the development of Cambodia's mine industry. The final result will be thoroughly organized and its whole content will follow advance of modern science in regards to the international standard.

Ladies and gentlemen!

Based on the outlook of the Ministry of Industry, Mine and Energy and the Royal Government of Cambodia, natural resource development shall stand on the principle of sustainable development. Sustainable development of mine sector shall proceed with profound thought of environment and society. As the matter of fact, every single development of natural resources always harms both environment and the society. Nonetheless, it can be reduced to minimum effect via effect assessment on environment-society and it is required to restore and rebuild any damage resulting from the natural development after each of operation stages has been completed. This described issue has been compiled and determined by the law.

The sustainable development also includes small mine operation. It cannot proceed smoothly without it. We have to primarily conduct a research on potential of mine resources and then analyze expenses paid for them and their benefits in return. Small mine operations should have been examined and considered relocating in any place where there is no presence of major mine resources. We need to have a mechanism for creating one big community composing small mine business so as to easily control and provide skill training on technical mine operation and awareness on environment protecting to all small businessmen.

In this advanced technology age, draining and filtering mine resources out of operation is a requirement for all mine companies to follow. This is recommended to collect mine resource as emptily as possible since mine resources are unborn resources after the end of the operation.



Attracting investments is a priority objective on which the government is focusing. Thus, laws and provisions along with tie cooperation shall build satisfaction and confidence of investors in Cambodia's mine industry investment.

Ladies and gentlemen!

The core project in promoting the development of Cambodia's mine industry being conducted by the JICA research team is absolutely crucial for encouraging more investments and managing the mine industry effectively in the future.

I entirely believe that this lesson has been thoroughly planned through the clear and accurate research. The lesson is also composed of the best experiences and implementation methods which have been being practiced by countries with developed mine operations.

I do hope that these experiences and methods will be thoroughly scrutinized basing on the exact situation of the current mine sector in Cambodia and the national culture before being integrated into the core project.

On this occasion, in the name of the Royal Government of Cambodia and as the secretary of state of the Ministry of Industry, Mine and Energy, I profoundly thank the Japanese government, Japanese people, particularly JICA for granting not only techniques but also finance so as to implement the core project research for enhancing future development of the mine industry in Cambodia.

I faithfully praise the JICA research team which has been on mission in Cambodia since September 2008 with efforts to collect and analyze necessary information and data for the sake of research on the core project with sufficient supporting information and effectiveness of the project implementation.

I strongly hope that the core project research will become an effective guide map used for preparing management strategy policies and the future development of mine resources. The most important components of improving the mine sector are the followings: producing of a geological map and a better mine map with exact information and data; setting up mine-geology-controlling system; creating webpage to disseminate information to the public; reforming management structure, improving human resource, managing environment and inspecting mine operation.

Finally, in the name of the Royal Government of Cambodia and as the secretary of state of the Ministry of Industry, I would like to give 4 Buddha blesses to the workshop participants: longevity, prosperity, happiness and good health.

I hereby declare to close the workshop on checking of the improvement of the core project research in developing Cambodia's mine industry from now onwards.

## (5) Photos of the Progress Workshop



Scene of the Progress workshop (interior)



The opening address was given by H.E. Mr. Tan Kim Vinn (right), Secretary of State of MIME



The welcome address was given by Mr. Murakami (left), Senior Representative of JICA Cambodia Office



Team Leader Mr. Marutani gave an overview of the progress of the survey



H.E. Mr. Sok Leng explained about the management and development of mineral resources in Cambodia



Team member Mr. Kumagai explained about institutional reformation of the Cambodian mining sector





Mr. Ishikawa explained about the satellite image analysis



Mr. Harada explained about mineral resources potential in Cambodia



Mr. Takebe explained about organizational reform of mining administration and capacity building



Mr. Shingu explained about the current state of and issues with the Cambodian mining industry



Mr. Marutani answered a question from H.E. Mr. Ung Ponnara, Under Secretary of State of MIME



Scene from the enthusiastic Q&A session, which focused on satellite image analysis and geological issues

## Appendix I-7 Interim Workshop

### (1) Interim Workshop Program

# **INTERIM WORKSHOP**

## **The Master Plan Study for Promotion of the Mining Industry in the Kingdom of Cambodia**



09:00-18:20, on 4th June, 2010  
at the MIME Conference Room



### **AGENDA**

<b>Registration</b>		<b>8:45 – 9:00</b>
<b>1. Opening Address</b>	<i>H.E. Mr. Tam Kim Vinn, Secretary of State, MIME</i>	<b>9:00 – 9:10</b>
<b>2. Overview of the Progress of the JICA – GDMR Project</b>	<i>Mr. Masaharu Marutani, Team Leader, JICA Study Team</i>	<b>9:10 – 9:40</b>
<b>3. Institutional Reform of the Mining Sector</b>	<i>Mr. Kenichi Kumagai, JICA Study Team</i>	<b>9:40– 10:20</b>
	<u>(Coffee Break 10:20 – 10:40)</u>	
<b>4. Results of the Field Geological Survey</b>	<i>Mr. Haruo Harada, JICA Study Team</i>	<b>10:40 – 11:05</b>
<b>5. Ground Truth of Satellite Image Analysis</b>	<i>Mr. Hidehiro Ishikawa, JICA Study Team</i>	<b>11:05 – 11:25</b>
	<u>(Lunch Break 11:25 – 14:30)</u>	
<b>6. Opening of the GDMR Website</b>	<i>Dr. Kazushige Wada, JICA Study Team</i>	<b>14:30 – 14:50</b>
<b>7. Proposed Action Plans for Institutional Reform of Mining Administration and Capacity Building</b>	<i>Mr. Naoya Takebe, JICA Study Team</i>	<b>14:50 – 15:20</b>
<b>8. Action Plan for Mine Safety and Environmental Management</b>	<i>Mr. Kazuki Shingu, JICA Study Team</i>	<b>15:20 – 15:45</b>
	<u>(Coffee Break 15:45 – 16:10)</u>	
<b>9. - Discussion-</b>		<b>16:10 – 18:20</b>
<b>10. Closing Address</b>	<i>H.E. Mr. Tam Kim Vinn, Secretary of State, MIME</i>	<b>18:20 – 18:25</b>

## (2) The List of Participants

### The List of Participants on the Interim Workshop on 4th June, 2010

No.	Name	Title	Organization
1	H.E Mr. TAN KIM VINN	Secretary of State, MIME	MIME
2	H.E. Mr. SOK LENG	Director General	MIME/GDMR
3	Mr. PENG NAVUTH	Deputy Director General, General Department of Mineral Resources	MIME/GDMR
4	Mr. UCH BORA	Deputy Director General, General Department of Mineral Resources	MIME/GDMR
5	Mr. CHOU CHETH TYVOIN	Deputy Director General, General Department of Mineral Resources	MIME/GDMR
6	Mr. SIENG SOTHAM	Director, Department of Geology	MIME/GDMR
7	Mr. SIM SISOKHALY	Director, Department of Mineral Resources Development	MIME/GDMR
8	Mr. MAK SOPHEAKTRA	Director, Department of Construction Material Resources	MIME/GDMR
9	Mr. CHREA VICHETT	Deputy Director, Department of Mineral Resources Development	MIME/GDMR
10	Mr. HING TUN	Deputy Director, Department of Mineral Resources	MIME/GDMR
11	Mr. KONG MAKARA	Office Chief , Mineral Resources Development	MIME/GDMR
12	Mr. TOUCH MENG LAY	Chief Office, of Data Management, DMRD	MIME/GDMR
13	Mr. Takanobu Shinoda	Represent Officer	JICA
14	Mr. Shinya Sueoka	JICA Expert	JICA
15	Mr. Sok Chhay	Program officer, Infrastructure division	JICA
16	Mr. Masaharu Marutani	Team Leader	JICA Study Team
17	Mr. Kenichi Kumagai	Senior Mining Expert	JICA Study Team
18	Mr. Naoya Takebe	Senior Organization Expert	JICA Study Team
19	Mr. Kazuki Shingu	Senior Mining Expert	JICA Study Team
20	Mr. Kazushige Wada	GIS Expert	JICA Study Team
21	Mr. Hidehiro Ishikawa	Senior Satellite Image Analyst	JICA Study Team
22	Mr. Haruo Harada	Senior Geologist	JICA Study Team
23	Mr. Ryuta Shukuwa	Coordinator	JICA Study Team
24	Mr. Sei ha	Interpreter (Khmer-Japanese)	JICA Study Team
25	Mr. Reaksa Rous	Interpreter (English-Khmer)	JICA Study Team
26	Mr. Randy Vang	Interpreter (Khmer - English)	JICA Study Team

### (3) Report of the Interim Workshop

#### 1. Interim Workshop Overview

This workshop was held to review the contents of the revised Interim Report as part of the Master Plan Study for Promotion of the Mining Industry in Cambodia. This workshop featured reports by the members of the JICA study team, the Ministry of Industry, Mines and Energy (MIME) and the General Department of Mineral Resources (GDMR). After the presentation, a Q&A session was held. Opinions were exchanged on each presentation, MIME / GDMR requested new support from JICA, and there were robust discussions among MIME / GDMR, JICA and members of the study team.

- Date           Friday, June 4, 2010
  - Time           9:00-18:20
  - Location      Cambodia MIME, 1flr conference room
  - Attendees:
    - Cambodia MIME / GDMR :       12 people
    - JICA Cambodia Office :         3 people
    - Study Team :                    11 people (including 3 interpreters)
- Total attendees: 26 (refer to the list of participants)

#### 2. Opening Address

H.E. Mr. Tan Kim Vinn , Secretary of State of MIME welcomed everyone and expressed his thanks to JICA and the study team for their work on the Study on the Master Plan to Promote the Cambodian Mining Industry, which began in 2008. He added some comments and expressed his appreciation to the study team for their work on the publication of the revised Interim Report with the GDMR's comments.

#### 3. Workshop Presentations

The team members spoke about their survey work and results.

#### 4. Question & Answer Session

After the presentations, there were questions and discussions, mainly about the action plan for investment promotion. The MIME / GDMR asked for additional support with more detailed scientific studies about geochemical surveys. The Q&A session went on longer than expected, for two hours.

#### 5. JICA Remarks

After the Q&A, Mr. Shinoda, of the JICA Cambodia office expressed his thanks to the MIME and GDMR for their enthusiastic participation in this seminar.

#### 6. Closing Address

H.E. Mr. Tan Kim Vinn, Secretary of State of MIME gave the closing remarks and expressed his thanks to all the participants for the cordial atmosphere of this day-long event. He also thanked the study team for their presentation of ideas and measures to promote the Cambodian mining industry.



#### (4) Photos of the Interim Workshop



Scene of the Interim workshop (interior)



The opening address was given by H.E. Mr. Tan Kim Vinn, Secretary of State of MIME



Team Leader Mr. Marutani gave an overview of the survey



Team Member Mr. Kumagai explained about the action plan for investment promotion



Team Member Mr. Harada explained about the field survey results



Team Member Mr. Ishikawa explained about the results of satellite image analysis



Team Member Mr. Wada explained about web site development



Team Member Mr. Takebe explained about human resources and restructuring



Team Member Mr. Shingu explained about the action plan for mine safety and environmental protection



After the presentations, there was a 2-hour discussion between the team and the GDMR



Team Leader Mr. Marutani responds to a question from the GDMR



JICA representative Mr. Shinoda responds to a question from the GDMR

## Appendix I-8 Final Seminar

### (1) Final Seminar Program

#### **FINAL SEMINAR**

#### **The Master Plan Study for Promotion of the Mining Industry in the Kingdom of Cambodia**



08:30-16:20, on Thursday 29h July, 2010  
at Sunway Hotel, Phnom Penh



#### **AGENDA**

<b>Registration</b>		<b>8:30 – 9:00</b>
<b>1. Welcome Address</b>	<i>Mr. Hitoshi Hirata, Senior Representative, JICA Cambodia Office</i>	<b>9:00 – 9:10</b>
<b>2. Opening Address</b>	<i>H.E. Mr. SUY SEM, Minister of Industry, Mines and Energy</i>	<b>9:10 – 9:20</b>
	<u>(Coffee Break 9:20 – 9:40)</u>	
<b>3. Summary of the Project</b>	<i>Mr. Masaharu Marutani, Team Leader, JICA Study Team</i>	<b>9:40 – 10:10</b>
<b>4. Action Plans for Institutional Reform of the Mining Sector</b>	<i>Mr. Kenichi Kumagai, JICA Study Team</i>	<b>10:10 – 11:00</b>
<b>5. Action Plans for Mine Safety and Environmental Management</b>	<i>Mr. Kazuki Shingu, JICA Study Team</i>	<b>11:00 – 11:30</b>
<b>6. Action Plans for Institutional Reform of Mining Administration and Capacity Building</b>	<i>Mr. Naoya Takebe, JICA Study Team</i>	<b>11:30 – 12:00</b>
	<u>(Lunch at Sunway Hotel 12:00 – 13:30)</u>	
<b>7. Ground Truth of Satellite Image Analysis</b>	<i>Mr. Hidehiro Ishikawa, JICA Study Team</i>	<b>13:30 – 14:00</b>
<b>8. Results of the Field Geological Survey</b>	<i>Mr. Haruo Harada, JICA Study Team</i>	<b>14:00 – 14:30</b>
<b>9. Opening of the GDMR Website</b>	<i>Dr. Kazushige Wada, JICA Study Team</i>	<b>14:30 – 15:00</b>
	<u>(Coffee Break 15:00 – 15:30)</u>	
<b>10. – Q &amp; A –</b>		<b>15:30 – 16:00</b>
<b>11. Summary Remark</b>	<i>H.E. Mr. Sok Leng, Director General, GDMR</i>	<b>16:00 – 16:10</b>
<b>12. Closing Address</b>	<i>H.E. Mr. Tan Kim Vinn, Secretary of State, MIME</i>	<b>16:10 – 16:20</b>



## (2) The List of Participants

N°	Participant Names	Position / Organization
<b>Leader of Ministry of Industry Mines and Energy</b>		
1	H.E. Mr. Suy Sem	Minister
2	H.E. Mr. Tan Kim Vinn	Secretary of State
3	H.E. Mr. Ke Ky	Under Secretary of State
<b>General Department of Mineral Resources</b>		
4	H.E. Mr. Sok Leng	Director General
5	Mr. Peng Navuth	Deputy Director General
6	Mr. Uch Bora	Deputy Director General
7	Mr. Chour Chethyvorn	Deputy Director General
<b>Department of Mineral Resources Development</b>		
8	Mr. Sim Sisokhaly	Director
9	Mr. Chrea Vichett	Deputy Director
10	Mr. Phay Chantrasith	Deputy Director
11	Mr. Kong Makara	Chief of Mineral Resources Development Office
12	Mr. Touch Menglay	Chief of Data Management Office
13	Mr. Sok Rithy	Chief of Revenue Office
14	Mr. Long Sobunrithy	Vice Chief of Cooperation Office
15	Mr. Ou Narath	Staff, DMRD
16	Mrs. Sem Sok Kim	Staff, DMRD
17	Miss. Heng Tola	Staff, DMRD
<b>Department of Mineral Resources</b>		
18	Mr. Yos Mony Rath	Director
19	Mr. Nuon Norin	Deputy Director
20	Mr. Seng Laing	Chief of Metallic Mineral Office
21	Mr. Phok Salorn	Chief of Gem and Coal Mineral Office
22	Mr. Van Socheat	Chief of Non Metallic Mineral Office
23	Mr. Yin Rotha	Chief of Mining Inspection Office
24	Mr. Leoung Vanmony Rak	Staff, Department of Mineral Resources

<b>N°</b>	<b>Participant Names</b>	<b>Position / Organization</b>
<b>Department of Geology</b>		
25	Mr. Sieng Sotham	Director
26	Mr. Nuon Chanan	Deputy Director
27	Ms. Mak Boly	Deputy Director
28	Mr. Eam Seakbo	Chief of Laboratory Office
29	Mr. Ben Bunnarin	Chief of Research Geology Office
30	Mr. Choup Sokuntheara	Chief of Geology Environment Office
31	Mr. Yos Samuth	Chief of Mapping Office
32	Mr. Sok Sophorn	Staff, Mapping Office
<b>Department of Construction Material Resources</b>		
33	Mr. Hing Tun	Deputy Director
34	Mr. Sok Kiroath	Deputy Director
35	Mr. Mak Sochettra	Vice Chief of Administration Office
36	Mr. Sok Sokha	Staff, Department of Construction Material Resources
<b>EMBASSY OF JAPAN</b>		
37	Mr. Hiroyuki Yokoyama	First Secretary
<b>JICA</b>		
38	Mr. Hitoshi Hirata	Senior Representative JICA Cambodia Office
39	Mr. Takanobu Shinoda	Representative JICA Cambodia office
40	Mr. Yoshiki Ehara	Assistant Director of Energy and Mining Division, Natural Resources and Energy Group Industrial Development Department and Energy, JICA
41	Mr. Shinya Sueoka	JICA Expert to GDMR
42	Mr. Yethny Phearun	Program Officer, JICA Cambodia office

<b>N°</b>	<b>Participant Names</b>	<b>Position / Organization</b>
<b>Others</b>		
43	Mr. Pav Sophal	Ministry of Economy and Finance
44	Mr. Vann Vark	Ministry of Land Management, Urban Planning and Construction
45	Mr. Dwong Samreat	Ministry of Environment
46	Mr. Khorn Saret	Ministry of Agriculture, Forestry and Fisheries
47	Mr Vong Pieith	Ministry of Public Works and Transport
48	Mr. Koeui Path Vorun	Ministry of Water Resources and Meteorology
49	Mr. Ham Komchheus	Council for Development of Cambodia
50	Mrs. Khorn Dinravy	Senior National Project Manager, UNDP
51	Ms. Mong Sochenda	UNDP
52	Mr. Shingo Fukuda	The Japan Chamber of Commerce and Industry in Cambodia
53	Mr. Hitomitsu Iwatate	The Japan Chamber of Commerce and Industry in Cambodia
54	Mr. Tomoo Kawata	The Japan Chamber of Commerce and Industry in Cambodia
55	Mr. Ong Kimleng	The Japan Chamber of Commerce and Industry in Cambodia
56	Mr. Kiyotaka Doho	The Japan Chamber of Commerce and Industry in Cambodia
<b>JICA Study Team</b>		
57	Mr. Masaharu Marutani	Team Leader
58	Mr. Kenichi Kumagai	Senior Mining Investment Expert
59	Mr. Naoya Takebe	Senior Organization Expert
60	Mr. Kazuki Shingu	Senior Mining Expert
61	Mr. Hidehiro Ishikawa	Senior Satellite Image Analyst
62	Mr. Haruo Harada	Senior Geologist
63	Dr. Kazushige Wada	Senior GIS Expert
64	Mr. Ryuta Shukuwa	Coordinator
65	Mr. Sei Ha	Interpreter ( Khmer to Japanese)
66	Mr. Reaksa Rouis	Interpreter ( Khmer to English)
67	Mr. Randy Vang	Interpreter ( Khmer to English)

### **(3) Welcome Address**

Greeting at the Final Seminar on the Master Plan Study for  
Promotion of the Mining Industry of Cambodia

Senior Representative  
JICA Cambodia Office

His Excellency Mr. Suy Sem, Minister of Industry Mines and Energy  
H.E. Mr. Tan Kim Vinn, Secretary of State, Ministry of Industry Mines and Energy  
H.E. Mr. Ke Ky, Under Secretary of State, Ministry of Industry Mines and Energy  
H.E. Mr. Sok Leng, Director of General, General Department of Mineral Resources  
Excellencies,  
Ladies and Gentlemen,

On behalf of the Japan International Cooperation Agency, JICA, it is my great pleasure to make a brief remark at this Final Seminar on the Master Plan Study for Promotion of the Mining Industry of Cambodia, hosted by H.E. Mr. Suy Sem, the Minister of Industry Mines and Energy.

The mining sector in Cambodia has a great potential. Many countries and a lot of companies are attracted and some have started their own researches.

However, for the sustainable development of this country, for the welfare of the Cambodian people, the comprehensive study is necessary to make the only potential into the real prosperity of Cambodia.

I am very pleased to say that this master plan study is the first comprehensive research project conducted in the mining sector of Cambodia.

This study has started since August 2008.

The purpose of this study is to promote the Cambodian mining industry, with emphasis on the following points: (1) to compile information on Cambodian geology and mineral resources, and to share with stakeholders in and outside of this country, (2) to create an “action plan for investment promotion,” (3) to draft an “action plan for reforming organizations and institutions, nurturing human resources, and improving environmental management, supervision and inspection of mines” as medium/long term tasks, (4) to improve the capacity of the General Department of Mineral Resources, GDMR at the MIME, which has the central role in the development of mineral resources.

I would like to express my deep appreciation to our colleagues at the GDMR for their cooperation provided to the project during the implementation.

The Draft Final Report of this master plan was just submitted to the MIME in early July 2010.

I am very proud of the fact that this report is truly the product of collaborative efforts between JICA and the MIME officers, who are working very hard for sustainable development of the mining sector in this country.

This master plan proposes comprehensive programs to jump up the mining sector’s GDP share from 0.4% to 10% within the next ten years. It is not easy to accomplish this target, but it worth to challenge it.

This study is the first endeavor which shall be followed by much more concrete studies to attract more investment in the mining sector. Japan Oil Gas and Metals National Corporation, JOGMEC is now starting discussions with MIME to conduct a follow up study. I do hope Japanese cooperation will help your country to make the real prosperity in Cambodia.

Finally, I hope that this will be a productive and informative seminar for the sustainable development of the mining sector in Cambodia.

Thank you.

(End)

## (4) Opening Address

**Speech of H.E Suy Sem, Minister of Industry, Mine and Energy**  
at the Opening Ceremony of the Final Seminar

on

**the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia**

*Dated 29<sup>th</sup> July, 2010 at Sunway Hotel, Phnom Penh, Cambodia*

### **Respected:**

- **H.E.**, the Secretary of State, Under Secretary of State, General Director, Representative of Inter-ministries of the Royal Government of Cambodia!
- Mr. **Hitoshi Hirata**, the senior representative of the Japanese International Cooperation Agency (JICA) to Cambodia and your colleagues!
- Mr. **Masaharu Marutani**, team leader of JICA Master Plan Study and colleagues!
- His Excellencies, Chum Teav, national and international distinguished guests, ladies and gentlemen!

Today, I have great pleasure to be here, presiding over at the Opening Ceremony of the Final Seminar on **the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia** with His Excellencies, Chum Teav, national and international distinguished guests, and with all participants!

On behalf of the Royal Government of Cambodia and myself, I would like to express my deep thank to the Japanese Government, the Japanese people and particularly to JICA for provision of grant to allow the study of Master Plan for Promotion of Mining Industry in the Kingdom of Cambodia to be happened. I would also sincerely express my appreciation to the Project Study Expert Team led by **Mr. Masaharu Marutani** for the dedicated effort in achieving the remarkable result at this particular moment. Thanks to the presence of His Excellencies, Chum Teav, national and international distinguished guests as well as ladies and gentlemen for attending at this seminar.

### **His Excellencies, Chum Teav, ladies and gentlemen!**

Peace and political stability is the indispensable factor in national economic development as well as the improvement of the confidence in attracting both domestic and foreign investors to invest in all sectors in Cambodia. In fact, the slow development of mining sector in Cambodia is due to the insecurity along the mountainous areas where minerals are deposited. It is just the time when the country has gained a completed peace in **1998** through the Win-Win Policy and with the wisdom of **Samdach Akak Mohasena Padei Techhou Hun Sen**, prime minister of the Kingdom of Cambodia, the country then has many domestic and foreign investors come to invest, to research and to evaluate the mineral potential for the exploitation.

Along with the peace and political stability, we have to enable the favorable investment climate by formulating laws, regulations; legal instruments, master plan as well as action plan for the effective development of various sectors. In fact, the process of supporting to the mining development in Cambodia, the Royal Government has established various laws such as: Law on Investment of the Kingdom of Cambodia, Law on Mineral Management and Exploitation, Law on Environment and Natural Resource Management, Fiscal Law, Land Law, Sub-decree on Environmental Contamination Control, Law on Environmental and Social Impact Assessment etc. In addition to this, the Royal Government tried to cooperate with advanced countries as well as the financing institutions in sharing of experiences and understanding to the Cambodia mining officials on technical, laws, legal instruments which are implemented by those countries in mining sector through training, information exchange and various projects implementation. Recently, the Ministry of Industry, Mine and Energy has collaborated with the United Nations Development Program to Cambodia in organizing the International Conference on Mining Exploitation under the theme “Chance for Cambodia” participated by the experts who



have high knowledge and experiences in mining sector to do presentation and discussion to the Cambodian officials in charge of mining sector and all stakeholders to understand the context of mining management and development as well as the mining cooperation from the preliminary study phase to the final phase aims for Cambodian officials to exchange practical experiences and to select the model best practice. The preparation of Master Plan for Promotion of Mining Industry in Cambodia at this particular moment is another additional effort of the Royal Government aiming to accelerate and manage the mining development toward prosperity with sustainability, transparency and high responsibility.

**His Excellencies, Chum Teav, ladies and gentlemen!**

The “**Master Plan Study Project for Promotion of Mining Industry in the Kingdom of Cambodia**” was started to implement in **August, 2008** and planned to complete in **August of this 2010**. For the last **23** months that the Master Plan Study Team of JICA led by **Mr. Masaharu Marutani** has conducted the study and explored the investment climate in mineral exploration in Cambodia, the laws and relevant legal instruments which Cambodia has, the management structure of General Department of Mineral Resource, Human Resource and to collect the mineral related geological data in order to prepare and formulate as the **5 and 10 years Action Plan** to promote mineral industry in the Kingdom of Cambodia to be prosperous in the future. Based on the results obtained from this research study for the period of the last **23** months, the General Department of Mineral Resource and the JICA Master Plan Study Team have already collaborated in organizing two seminars, examining and discussing the action plan which has to be determined in this Master Plan as follow:

- 1- Institutional Reform for Mining Sector*
- 2- Action Plan for Mine Safety and Environmental Management*
- 3- Action Plan for Mining Management Institution and Human Resource Training*
- 4- Satellite Image Analysis*
- 5- Results of Field Geological Survey*
- 6- Hosting of New Website of GDMR*

**His Excellencies, Chum Teav, ladies and gentlemen!**

The presentations on Final Report of the Master Plan Study for Promotion of Mining Industry in Cambodia which are going to start for a bit while will present to His Excellencies, Chhum teav, Ladies and Gentlemen of what contained in this Master Plan and what the concerned intuitions/ministries have to contribute with the Ministry of Industry, Mine and Energy in implementing various action plans in order to promote the mining investment and management to realize success and can contribute to the poverty reduction in Cambodia.

I have a firm expectation that through the study and discussion in the last two seminars, together with this final seminar will make this Report on Master Plan Study to become an effective road map for formulating the strategic management policy and mineral resource development to be prosperous in the future. I encourage all speakers and participants to kindly contribute your active comments so that this Master Plan Report will be in a comprehensive and improved manner.

Finally, I would like to wish His Excellencies, Chhum teav, ladies and gentlemen as well the seminar body to have a fruitful result and to be blessed with four Buddha’s blessing: Longevity, Good Complexion, Peace and Strength for ever.

I would now declare the opening of the seminar on Final Draft Report of the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia from this particular hour onwards.

***Thank you!***

## **(5) Summary Remark**

**Wrap Up Report of H.E Sok Leng, General Director of GDMR of MIME**

at the Closing Ceremony of the Final Seminar

on

**the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia**

*Dated 29<sup>th</sup> July, 2010 at Sunway Hotel, Phnom Penh, Cambodia*

### **Respected:**

- H.E **Tan Kim Vinn**, the Secretary of State of MIME
- H.E **Ke Ky**, Under Secretary of State of MIME
- Mr. **Hitoshi Hirata**, the senior representative of the Japanese International Cooperation Agency (JICA) to Cambodia and your colleagues
- Mr. **Masaharu Marutani**, team leader of JICA Master Plan Study and colleagues
- Deputy director generals, Department directors, deputy directors, representatives of various concerned institutions/ministries
- Officials of GDMR
- Ladies and gentlemen!

First of all, I would like to express my thank to His Excellencies, national and international distinguished guests, ladies and gentlemen for sparing your busy schedule to attend today **seminar on Final Draft Report of the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia**.

Allow me now to present the wrap up report of various presentations in the seminar conducted for the whole day as follow:

The seminar body has attentively listened to the deep, meaningful opening speech and the precious recommendations of H.E **Suy Sem**, minister of Industry, Mine and Energy in which H.E, the Minister has highly valued the results of this Draft Master Plan and Action Plans which the General Department of Mineral Resource has to examine and to implement in order to strengthen the mining management and development as well as the promotion of mining sector investment in Cambodia to be prosperous in the future.

The seminar body has received the warmest welcome speech of Mr. **Hitoshi Hirata**, representative of the Japanese International Cooperation Agency (JICA) to Cambodia.

The seminar body has listened and discussed on the 7 presentations, presented by the JICA Master Plan Study Team as follow:

- 1- Overview of Master Plan Study Project for Promotion of Mining Industry in Cambodia**
- 2- Action Plan for Institutional Reform**
- 3- Action Plan for Mine Safety and Environmental Management**
- 4- Action Plan for Management Reform and Officials Capacity Building**
- 5- Satellite Image Analysis**

**6- Result of Geological Survey in a number of areas of the Kingdom of Cambodia and the creation of Geological and Mineral Resource Map, scale of 1:200.000 and 1: 1.000.000**

**7- Hosting of New Website of General Department of Mineral Resource (GDMR)**

The General Department of Mineral Resource considered this Master Plan as the effective road map for the GDMR to examine and implement three main action plans, including:

- 1- Action Plan for Reform of Mining Institution
- 2- Action Plan for Mine Safety and Environmental Management
- 3- Action Plan for Management Reform and Officials Capacity Building, aiming at promoting mining investment in Cambodia and enhancing the management and mineral resource development to be prosperous in the future. But the GDMR has a number of common challenges such as:
  - Strengthening environmental protection and solution method
  - Social problems within the artisanal mining communities and management approach of our mining industry
  - Human resource training on specialized courses on Mineral Geology, Mineral Exploration and Exploitation techniques, administration, laws etc. to continue resume the leadership, management and development of mining sector in Cambodia in the future.

Based on various action plans that have to be implemented according to the time frame specified in the Master Plan, the GDMR expects that every challenge will be solved as planned.

On behalf of the GDMR, I would like to take this opportunity to express my deep thank to the Japanese government and Japanese people for providing the grant both technical and financial to create this Master Plan for Promotion of Mining Industry in Cambodia to be prosperous in the future.

I would like to express my deep thank to the JICA Master Plan Study Team for organizing this crucial seminar today and I would like to sincerely appreciate all members of the JICA Master Plan Study Team for the effort in making this Master Plan to be in a completed manner and to be implemented effectively.

Allow me now to end up my wrap up report of the one day seminar at this moment.

***Thank you***

## **(6) Closing Address**

**Speech of H.E Tan Kim Vinn, Secretary of State of Industry, Mine and Energy**  
at the Closing Ceremony of the Final Seminar

on

**the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia**

*Dated 29<sup>th</sup> July, 2010 at Sunway Hotel, Phnom Penh, Cambodia*

### ***Respected:***

- Mr. **Hitoshi Hirata**, the senior representative of the Japanese International Cooperation Agency (JICA) to Cambodia and your colleagues!
- Mr. **Masaharu Marutani**, team leader of JICA Master Plan Study and colleagues!
- H.E, the Under Secretary of State of MIME
- H.E, the General Director, Deputy General Director of GDMR
- Representatives of concerned ministries/institutions
- Ladies and gentlemen!

Today, I have great pleasure to be here, attending with His Excellencies, ladies and gentlemen at the Closing Ceremony of the crucial Final Seminar on **the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia** for strengthening the leadership capacity, mineral resource development and mineral exploitation as well as for attracting the foreign companies to come to invest, to conduct the exploration and the mineral resource exploitation in Cambodia.

For the whole day, His Excellencies, ladies and gentlemen have paid your attention in observing and listening to the six presentations of the JICA Study Team members which are imperative topics quoted from the Final Draft Report of Master Plan, including:

***7- Institutional Reform for Mining Sector with 10 points action plan***

***8- Action Plan for Mine Safety and Mining Environment Management with 9 points action plan***

***9- Action Plan for the Reform of Organizational Structure, including the additional establishment of a number of specialized departments and offices to ensure the effective management of mineral resource exploitation.***

***10- Satellite Geological Image Analysis***

***11- Results of Field Geological Survey and***

***12- the Hosting of New Website of GDMR***

I would like the seminar body to be informed that, besides the contents of the above topics in the Draft Master Plan, there are a lot of other works to be described that the Study Team has already prepared which are the usual tools for mining management and promotion of investment of mining industry in Cambodia such as: Specific Geological Data Information System, Geological Map and Mineral Resource Map, scale of 1/200.000 and 1/1.000.000, the Guidebook also shows the mineral potential in Cambodia and the new GDMR website etc. In

the process of surveying to create the above tools, the Study Team has conducted the Skill Training Course to the officials of GDMR to know how to store, utilize and to update the information very well.

I would like to highly evaluate for the study results of the JICA expert team led by Mr. **Masaharu Marutani** and would like to appreciate for the effort of all study team members which subsequently achieved the study results with a clear content and in a complete international standard according to their respective works as planned in the Inception Report. The Final Report or the End Report of this Study is also planned to complete in the coming month of August according to the programs set forth.

***Respected the seminar body!***

Questions, clarification of the report content and the contribution of comments from His Excellencies, ladies and gentlemen in each topic; and the explanation of the members of study team today are, in fact, crucially contributed in the creation of the Master Plan and can also be considered as the common knowledge provided for today seminar. The Ministry of Industry, Mine and energy and the Master Plan Study Team will accept the good comments of the seminar today to review, study and to integrate into the Master Plan or to revise some points if necessary.

In this coming October, the Ministry of Industry, Mine and Energy will be receiving the Book of Master Plan which we considered as the Guide to show the way/road map for GDMR to formulate the strategy and tactics in order to translate various contents into valuable legal instruments for highly effective implementation. I think that, organizing various contexts on institutional reform of mining sector, mine safety and environmental management in mining etc. legal norms/instruments having value/degree similar to laws or wide scope regulations which have to accommodate their meanings with various laws and legal instruments of various specializations that are already promulgated; and shall have a value/degree similar to the international standard in order to gain the confidence from the domestic and foreign mining companies. This is a great and difficult task, as the seminar has already presented, it demands for the assistance from necessary financial institutions or international cooperation agencies both technical expertise and finance.

I would like to take this opportunity to inform the seminar body to be aware that the United Nations Development Program (UNDP) to Cambodia has found that it is necessary to get ourselves well prepared to receive the blessing from mineral resource we are having, to contribute to the national economic development and as a part of national budget revenue. The **International Conference on Mining Exploitation** organized under the support of UNDP with the theme “**Chance for Cambodia**” brought the Ministry of Industry, Mine and Energy and various companies operating the mineral exploration in Cambodia as well as the conference members, coming from the ministries/institutions of the Royal Government and a number of national/international organizations with knowledge and experiences on management of mining exploitation in various countries and will be shown that we are necessary have to have legal instruments and further experiences to ensure the mining management in Cambodia to be better operated and to be blessed by the our existing mineral resource.

This has been clearly shown that the Master Plan for Promotion of Mining Industry in Cambodia is imperatively advantageous.

On behalf of the Royal Government of Cambodia, Ministry of Industry and Energy and myself, I would like to once again express my deep thank to the Japanese government and the Japanese people for providing the unconditional grant both technical and financial to make the Master Plan Study for Promotion of Mining Industry in Cambodia to be materialized.

Finally, on behalf of the Ministry of Industry and Energy and myself, I would like to express my sincere thank to His Excellencies, ladies and gentlemen the members of the entire seminar body to be blessed with good health and realizing further successes in your respective business.

I now declare the closing of the seminar on Final Draft Report of the Master Plan Study for Promotion of Mining Industry in the Kingdom of Cambodia!

***Thank you***

## (7) Photos of the Final Seminar



Scene of the Final Seminar (interior)



The Welcome Address was given by Mr. Hirata, Representative of JICA Cambodia Office



The Opening Address was given by H.E. Mr. Suy Sem, Minister of MIME



Team Leader Mr. Marutani gave a summary of the survey



Team Member Mr. Kumagai explained about the action plan for investment promotion



Team Member Mr. Takebe explained about institutional reform of mining administration and capacity building.





Team Member Mr. Shingu explained about the action plan for mine safety and environmental protection



Team Member Mr. Ishikawa explained about the results of satellite image analysis



Team Member Mr. Harada explained about the field survey results



Team Member Mr. Wada explained about web site development



After the presentations, there was a discussion between the GDMR/JICA/Study Team and participants



The Closing Address was given by H.E. Mr. Tam Kim Vin, Secretary of MIME