THE MINISTER OF NATURAL RESOURCES AND ENVIRONMENT	**SOCIALIST REPUBLIC OF VIET NAM**
-------	**Independence - Freedom - Happiness**

No. 34/2009/TT-BTNMT	*Hanoi, December 31, 2009*

CIRCULAR

PROVIDING FOR THE FORMULATION, APPROVAL, EXAMINATION AND CERTIFICATION OF ENVIRONMENTAL REHABILITATION AND RESTORATION PROJECTS AND MAKING OF DEPOSITS FOR ENVIRONMENTAL REHABILITATION AND RESTORATION FOR MINING ACTIVITIES

THE MINISTER OF NATURAL RESOURCES AND ENVIRONMENT

Pursuant to the November 29, 2005 Law on Environmental Protection;
Pursuant to the March 20, 1996 Law on Minerals, and the June 14, 2005 Law Amending and Supplementing a Number of Articles of the Law on Minerals;
Pursuant to the Government's Decree No. 80/ 2006/ND-CP of August 9, 2006, detailing and guiding a number of articles of the Law on Environmental Protection;
Pursuant to the Government's Decree No. 21/ 2008/ND-CP of February 28, 2008, amending and supplementing a number of articles of the Government's Decree No. 80/2006/ND-CP of August 9, 2006, detailing and guiding a number of articles of the Law on Environmental Protection;
Pursuant to the Government's Decree No. 25/ 2008/ND-CP of March 4, 2008, defining the functions, tasks, powers and organizational structure of the Ministry of Natural Resources and Environment;
Pursuant to the Prime Minister's Decision No. 71/2008/QD-Trg of May 29, 2008, on making of deposits for environmental rehabilitation and restoration for mining activities;
At the proposal of the General Director of the Vietnam Environment Administration and the Director of the Department of Legal Affairs.

STIPULATES:

Chapter I

GENERAL PROVISIONS

Article 1. Scope of regulation

This Circular details a number of provisions of the Prime Minister's Decision No. 71/2008/ QD-TTg of May 29.2008. on making of deposits for environmental rehabilitation and restoration for mining activities (below referred to as Decision No. 71/2008/QD-TTg), concerning the formulation, appraisal, approval, examination and certification of environmental rehabilitation and restoration projects/additional environmental rehabilitation and restoration projects; the depositing order and procedures, and management and use of deposits for environmental rehabilitation and restoration in mining activities.

Article 2. Subjects of application

This Circular applies to state management agencies; domestic and foreign mining organizations and individuals (below collectively referred to as organizations and individuals) and other concerned organizations and individuals.

Chapter II

FORMULATION, APPRAISAL AND APPROVAL OF ENVIRONMENTAL REHABILITATION AND RESTORATION PROJECTS/ADDITIONAL ENVIRONMENTAL REHABILITATION AND RESTORATION PROJECTS

Section I. FORMULATION, APPRAISAL AND APPROVAL OF ENVIRONMENTAL REHABILITATION AND RESTORATION PROJECTS

Article 3. Formulation of environmental rehabilitation and restoration projects

1. The following organizations and individuals are required to formulate environmental rehabilitation and restoration projects:

a/ Organizations and individuals having new investment projects to exploit minerals or investment projects to increase the mining capacity, expand mining areas or increase the mining depth;

b/ Mining organizations and individuals that possess approved/certified environmental impact assessment reports/environmental protection commitments/environmental standard satisfaction registrations/environmental protection schemes but do not yet possess approved environmental rehabilitation and restoration projects or pay deposits for environmental rehabilitation and restoration;

c/ Mining organizations and individuals that do not yet possess approved/certified environmental protection schemes or pay deposits for environmental rehabilitation and restoration.

2. An environmental rehabilitation and restoration project must have a structure and details meeting the requirements specified in Appendix 1 to this Circular.

3. Bases for determining deposits and methods of calculating expenses for environmental rehabilitation and restoration are specified in Articles 7 and 8 of Decision No. 71/2008/QD-TTg and Appendix 2 to this Circular.

4. If incapable of formulating by themselves environmental rehabilitation and restoration projects, organizations and individuals defined in Clause 1 of this Article may hire consultancy service providers to formulate such projects. A consultancy service provider must be a lawfully established one that satisfies the following conditions:

a/ Being staffed with technicians trained in environment or mining discipline;

b/ Having physical-technical foundations, means, machinery and equipment up to quality standards meeting the requirements of formulation of environmental rehabilitation and restoration projects.

Article 4. Submission of dossiers of request for appraisal and approval of environmental rehabilitation and restoration projects

1. Organizations and individuals requesting appraisal and approval of environmental rehabilitation and restoration projects shall submit dossiers to competent agencies defined in Clause 4, Article 2 of Decision No. 71/2008/ QD-TTg for appraisal and approval. Agencies competent to approve environmental impact assessment reports, environmental protection commitments or environmental protection schemes are defined in the Government's Decree No. 80/2006/ND-CP of August 9.2006. detailing and guiding a number of articles of the Law on

Environmental Protection (below referred to as Decree No. 80/2006/ND-CP); the Government's Decree No. 21/2008/ND-CP of February 28, 2008, amending and supplementing a number of articles of Decree No. 80/2006/ND-CP; and the Natural Resources and Environment Ministry's Circular No. 04/2008/TT-BTNMT of September 18, 2008, guiding the formulation and approval or certification of environmental protection schemes and the examination and inspection of implementation of environmental protection schemes.

2. A dossier of request for appraisal and approval of an environmental rehabilitation and restoration project is specified as follows:

a/ Organizations and individuals defined at Point a, Clause 1, Article 3 of this Circular are not required to make separate dossiers but are only required to submit environmental rehabilitation and restoration projects enclosed with dossiers of request for appraisal and approval/certification of environmental impact assessment reports/environmental protection commitments. A written request for appraisal and approval/certification of an environmental impact assessment report/environmental protection commitment must additionally contain the request for appraisal and approval of an environmental rehabilitation and restoration project;

b/ Organizations and individuals defined at Point b. Clause 1, Article 3 of this Circular are required to make dossiers of request for appraisal and approval of environmental rehabilitation and restoration projects. Such a dossier comprises a written request for appraisal and approval of an environmental rehabilitation and restoration project, made according to the form provided in Appendix 3 to this Circular, and 7 (seven) copies of written explanations about I he project and relevant drawings (if any);

c/ Organizations and individuals defined at Point c, Clause 1, Article 3 of this Circular are not required to make separate dossiers but are only required to submit environmental rehabilitation and restoration projects enclosed with dossiers of request for approval/certification of environmental protection schemes. A written request for appraisal and approval/certification of an environmental protection scheme must additionally contain the request for appraisal and approval of an environmental rehabilitation and restoration project.

Article 5. Contents of appraisal of environmental rehabilitation and restoration projects

The principal contents of appraisal of an environmental rehabilitation and restoration project include:

1. Legal grounds for and the conformity of the structure and details of the project;

2. The suitability of the selected plan; the volume of environmental rehabilitation and restoration work, the implementation schedule against the granted mining license, the approved investment and mining design project; environmental protection and labor safety requirements during the project implementation and the project's conformity with the local land use planning:

3. Bases for calculating environmental rehabilitation and restoration funds; the accuracy and completeness of fund estimates and the suitability of the method of depositing.

Article 6. Appraisal of environmental rehabilitation and restoration projects

1. For organizations and individuals defined at Point a. Clause 1. Article 3 of this Circular that have investment projects on mining for which environmental impact assessment reports are required, environmental rehabilitation and restoration projects and these reports shall be appraised simultaneously. The minutes of meetings of the Appraisal Council, written remarks on

the environmental rehabilitation and restoration project and evaluation opinions on the environmental rehabilitation and restoration project shall be made according to the forms provided in Appendices 4,5 and 6 to this Circular.

2. For organizations and individuals defined at Point a. Clause 1, Article 3 of this Circular that have investment projects on mining for which environmental protection commitments are required, environmental rehabilitation and restoration projects shall be appraised by competent agencies through summarizing written evaluation opinions of the provincial-level Natural Resources and Environment Department, and the Natural Resources and Environment: Industry and Trade; Finance-Planning; and Agriculture and Rural Development Divisions under the People's Committee of the district or town (below referred to as the district-level People's Committee) and opinions of the commune-level People's Committee of the locality where the mining project is implemented.

3. Environmental rehabilitation and restoration projects of organizations and individuals defined at Point b. Clause 1, Article 3 of this Circular shall be appraised as follows:

a/ For environmental rehabilitation and restoration projects falling within the approving competence of ministries, ministerial-level agencies or government-attached agencies, agencies witht approving competence shall appraise these projects. The contents of appraisal comply with Article 5 of this Circular. When necessary, the agency with approving competence may form a team to make examination visits to mining areas. Such an examination team consists of representatives of the provincial-level Natural Resources and Environment Department and the district-level People's Committee of the locality where the mining project is implemented. Examination results shall be presented in a record signed by involved parties;

b/ For environmental rehabilitation and restoration projects falling within the approving competence of People's Committees of provinces or centrally run cities (below referred to as provincial-level People's Committees) or provincial-level Natural Resources and Environment Departments, agencies with approving competence shall appraise these projects through summarizing evaluation opinions of the provincial-level Natural Resources and Environment Department (except projects falling within the approving competence of provincial-level Natural Resources and Environment Departments) and the Industry and Trade: Construction: Finance; and Agriculture and Rural Development Departments, and opinions of the district- and commune-level People's Committees of locality where the mining project is implemented. When necessary, the agency with approving competence may form a team to make examination visits to mining areas. Examination results shall be presented in a record signed by involved parties;

c/ For environmental rehabilitation and restoration projects falling within the approving competence of district-level People's Committees or Natural Resources and Environment Divisions, agencies with approving competence shall appraise these projects through summarizing written evaluation opinions of the provincial-level Natural Resources and Environment Department, and the Natural Resources and Environment Division (except projects falling within the approving competence of district-level Natural Resources and Environment Divisions); Industry and Trade; Construction; Finance-Planning; and Agriculture and Rural Development Divisions under the district-level People's Committee, and opinions of the commune-level People's Committee of the locality where the mining project is implemented.

4. For environmental rehabilitation and restoration projects of organizations and individuals defined at Point c, Clause 1, Article 3 of this Circular, agencies with approving competence shall

appraise these projects together with environmental protection schemes. An environmental rehabilitation and restoration project shall be appraised as follows:

a/ Environmental rehabilitation and restoration projects for which environmental protection schemes equivalent to environmental impact assessment reports are required shall be appraised under Point b. Clause 3 of this Article:

b/ Environmental rehabilitation and restoration projects for which environmental protection schemes equivalent to environmental protection commitments are required shall be appraised under Point c. Clause 3 of this Article

5. Written requests for opinions of district-/ commune-level People's Committees and written replies to these requests shall be made according to the forms provided in Appendices 7 and 8 to this Circular.

6. Expenses for the appraisal of environmental rehabilitation and restoration projects comply with current regulations.

Article 7. Re-appraisal of environmental rehabilitation and restoration projects

1. In case an environmental rehabilitation and restoration project is not up to requirements for approval by a competent agency or the Appraisal Council, the organization or individual shall formulate a new one and make a written request for re-appraisal.

2. For an environmental rehabilitation and restoration project to be appraised under Clause I, Article 6 of this Circular which is subject to re-appraisal, the agency with approving competence shall send requests for evaluation opinions of members of the former Appraisal Council. When necessary, the agency with approving competence may set up a new Appraisal Council.

3. For an environmental rehabilitation and restoration project to be appraised under Clause 2,3 or 4, Article 6 of this Circular which is subject to re-appraisal, it shall be re-appraised as in the case of first-time appraisal.

4. Expenses for the re-appraisal of environmental rehabilitation and restoration projects comply with current regulations.

Article 8. Time limit for appraising or re-appraising environmental rehabilitation and restoration projects

1. The time limit for appraising or re-appraising environmental rehabilitation and restoration projects under Clause 1. Article 6 of this Circular is similar to that for appraising environmental impact assessment reports under Article 12 of Decree No. 80/2006/ND-CP, and the Natural Resources and Environment Ministry's Circular No. 05/2008AT-BTNMT of December 8. 2008, guiding strategic environmental assessment, environmental impact assessment and environmental protection commitment.

2. The time limit for examination and receipt and appraisal or re-appraisal of an environmental rehabilitation and restoration project under Clauses 2, 3 and 4, Article 6 of this Circular is specified as follows:

a/ Within 7 (seven) working days after receiving a dossier, the agency with approving competence shall examine its completeness and validity before issuing a receipt slip. If the dossier is incomplete or invalid, the dossier-receiving agency shall notify such to the submitting organization or individual for finalization of the project;

b/ Within 20 (twenty) working days after receiving a complete and valid dossier, the agency with approving competence shall appraise or re-appraise the project and notify in writing the organization and individual of appraisal or re-appraisal results and requirements for finalization of the project;

c/ Within 7 (seven) working days after receiving a written request, the district- or commune-level People's Committee shall give its written opinions on the project.

The time limit for appraising or re-appraising an environmental rehabilitation and restoration project is exclusive of the time limit for collecting opinions of the district-/commune-level People's Committee.

Article 9. Finalization of environmental rehabilitation and restoration projects

When receiving a notice from the agency with approving competence on the results of appraisal or re-appraisal of an environmental rehabilitation and restoration project, the organization or individual shall finalize the project, append a seal on every two adjacent pages, and send it together with written explanations about the modified and supplemented details to the agency with approving competence, specifically as follows:

1. For an environmental rehabilitation and restoration project falling within the approving competence of the Ministry of Natural Resources and Environment, 3 (three) copies together with 1 (one) CD of the project documents must be sent to the Ministry of Natural Resources and Environment: 1 (one) copy to the provincial-level People's Committee of the locality where land is used by the project; and 1 (one) copy to the provincial-level Natural Resources and Environment Department of the locality where land is used by the project: for a project located in 2 (two) or more provinces, the number of copies of the project documents equivalent to the number of additional provinces is required; and 1 (one) copy to be kept by the submitting organization or individual.

2. For an environmental rehabilitation and restoration project falling within the approving competence of a ministry, ministerial-level agency or government-attached agency, 3 (three) copies together with 1 (one) CD of the project documents must be sent to the ministry or ministerial-level or government-attached agency; 1 (one) copy to the Ministry of Natural Resources and Environment; 1 (one) copy to the provincial-level People's Committee of the locality where land is used by the project; and 1 (one) copy to the provincial-level Natural Resources and Environment Department of the locality where land is used by the project; for a project located in 2 (two) or more provinces, the number of copies of the project documents equivalent to the number of additional provinces is required; and 1 (one) copy to be kept by the submitting organization or individual.

3. For an environmental rehabilitation and restoration project falling within the approving competence of the provincial-level People's Committee or Natural Resources and Environment Department. 1 (one) copy together with 1 (one) CD of the project documents must be sent to the provincial-level People's Committee; 1 (one) copy to the Ministry of Natural Resources and Environment; and I (one) copy together with 1 (one) CD to the provincial-level Natural Resources and Environment Department; I (one) copy to the district-level People's Committee of the locality of project implementation; for a project located in 2 (two) or more districts, the number of copies of the project documents equivalent to the number of additional districts is required: and 1 (one) copy to be kept by the submitting organization or individual.

4. For an environmental rehabilitation and restoration project falling within the approving competence of the district-level People's Committee or Natural Resources and Environment Division, 1 (one) copy together with 1 (one) CD of the project documents must be sent to the district-level People's Committee; 1 (one) copy to the district-level Natural Resources and Environment Division; 1 (one) copy to the provincial-level People's Committee: and 1 (one) copy to be kept by the submitting organization or individual.

Article 10. Approval of environmental rehabilitation and restoration projects

Environmental rehabilitation and restoration projects shall be approved under decisions of heads of competent agencies, specifically as follows:

1. For an environmental rehabilitation and restoration project to be appraised together with an environmental impact assessment report, the contents of appraisal of the report and project shall be expressed in the same decision, which shall be made according to the form provided in Appendix 9 to this Circular.

2. An environmental rehabilitation and restoration project not specified in Clause 1 of this Article shall be approved under a separate decision, which shall be made according to the form provided in Appendix 10 to this Circular.

Article 11. Sending of approved dossiers of environmental rehabilitation and restoration projects

1. Agencies with approving competence shall send approved environmental rehabilitation and restoration projects enclosed with approval decisions to concerned organizations, individuals and agencies in accordance with Article 9 of this Circular.

2. The agency with approving competence shall give certification on the back side of the additional page of the front cover of each copy of environmental rehabilitation and restoration project according to the form provided in Appendix 11 to this Circular.

Section 2. FORMULATION, APPRAISAL AND APPROVAL OF ADDITIONAL ENVIRONMENTAL REHABILITATION AND RESTORATION PROJECTS

Article 12. Formulation of additional environmental rehabilitation and restoration projects

1. Organizations and individuals that have the mining duration extended shall formulate additional environmental rehabilitation and restoration projects.

2. Agencies approving environmental rehabilitation and restoration projects are competent to approve their additional environmental rehabilitation and restoration projects.

3. An additional environmental rehabilitation and restoration project must have a structure and satisfy the requirements specified in Appendix 12 to this Circular.

Article 13. Appraisal and approval of additional environmental rehabilitation and restoration projects

1. A dossier of request for appraisal and approval comprises:

a/ A written request for appraisal, made according to the form provided in Appendix 13 to this Circular;

b/ 7 (seven) copies of the additional environmental rehabilitation and restoration project;

c/ The environmental rehabilitation and restoration project enclosed with the previous approval decision.

2. The requirements on the presentation, details, order and time for appraisal or re-appraisal of an additional environmental rehabilitation and restoration project are the same as those for appraisal of the first environmental rehabilitation and restoration project and the form of appraisal or re-appraisal is the same as specified in Article 6 or 7 of this Circular.

3. Approval of an additional environmental rehabilitation and restoration project shall be expressed in an approval decision, which shall be made according to the form provided in Appendix 14 to this Circular;

In case an additional environmental rehabilitation and restoration project is approved together with an additional environmental impact assessment report, the contents of approval of the project and report shall be expressed in the same approval decision.

4. Expenses for appraisal of additional environmental rehabilitation and restoration projects comply with current regulations.

Chapter III

DEPOSITING ORDER AND PROCEDURES AND MANAGEMENT AND USE OF DEPOSITS

Article 14. Depositing order and procedures

The depositing order and procedures comply with Articles 9 and 10 of Decision No. 71/2008/ QD-TTg.

A dossier of request for making of deposits for environmental rehabilitation and restoration is specified as follows:

1. A dossier of request for depositing comprises:

a/ A written request for depositing, made according to the form provided in Appendix 15 to this Circular;

b/ 1 (one) copy of the environmental rehabilitation and restoration or additional environmental rehabilitation and restoration project enclosed with the approval decision.

2. After receiving deposits, the Vietnam Environmental Protection Fund or local environmental protection funds (below referred to as environmental protection funds) shall certify such depositing for organizations and individuals according to the form provided in Appendix 16 to this Circular.

3. Within 7 (seven) working days from receiving deposits, environmental protection funds shall notify in writing such to agencies competent to approve environmental rehabilitation and restoration projects and environmental protection state management agencies in localities.

Article 15. Management and use of deposits

1. Deposits shall be managed and used under Article 12 of Decision No. 71/2008/QD-TTg.

2. After being granted a mining license, if the term of the license is different from that calculated in the approved environmental rehabilitation and restoration project, an organization or individual defined at Point a. Clause 1, Article 3 of this Circular must re-calculate annual

deposits to suit the term of the license and send a report thereon to the agency with approving competence for consideration and modification.

3. Before November 30 every year, ministries, ministerial-level agencies, government-attached agencies, provincial-level People's Committees, environmental protection funds and district-level People's Committees shall send reports made according to the form provided in Appendix 17 to this Circular, specifically as follows:

a/ Ministries, ministerial-level agencies, government-attached agencies and provincial-level People's Committees shall send to the Ministry of Natural Resources and Environment reports on the making of deposits and environmental rehabilitation and restoration by organizations and individuals;

b/ The Vietnam Environmental Protection Fund shall report to the Ministry of Natural Resources and Environment while local environmental protection funds report to provincial-level People's Committees on the remittance, refund or management of deposits for environmental rehabilitation and restoration under regulations:

c/ District-level People's Committees shall report to provincial-level People's Committees on the depositing and environmental rehabilitation and restoration by organizations and individuals.

Article 16. Examination and certification of completion of environmental rehabilitation and restoration contents

1. A dossier of request for examination and certification of the completion of environmental rehabilitation and restoration work is specified in Clause 1, Article 11 of Decision No. 71/2008/ QD-TTg. A report on the completion of environmental rehabilitation and restoration work shall be made according to the form provided in Appendix 18 to this Circular.

2. Heads of examination and certification agencies shall issue decisions to form teams for examining the work of environmental rehabilitation and restoration performed by organizations and individuals. Such a decision shall be made according to the form provided in Appendix 19 to this Circular. Examination results shall be made in records according to the form provided in Appendix 20 to this Circular.

3. Contents of technical inspection include inspection of the quality of environmental rehabilitation and restoration works and environmental quality against technical standards (endosmosis. subsidence, slide, erosion and durability of environmental rehabilitation and restoration works, etc.) under regulations and satisfaction of environmental rehabilitation and restoration requirements as committed in approved environmental rehabilitation and restoration projects/additional environmental rehabilitation and restoration projects.

4. Agencies with examination and certification competence shall issue written certifications of the completion of part or all of environmental rehabilitation and restoration contents to eligible organizations and individuals under regulations. Such certification shall be made according to the form provided in Appendix 21 to this Circular.

Chapter IV

IMPLEMENTATION PROVISIONS

Article 17. Organization of implementation

1. Ministers, heads of ministerial-level agencies, heads of government-attached agencies, chairpersons of provincial-, district-and commune-level People's Committees, directors of environmental protection funds, mining organizations and individuals, and other concerned organizations and individuals shall implement this Circular.

2. Directors of provincial-level Natural Resources and Environment Departments shall direct, examine and urge mining organizations and individuals in their localities in making deposits for and conducting environmental rehabilitation and restoration under regulations.

3. The General Director of the Vietnam Environment Administration shall direct the appraisal and re-appraisal of environmental rehabilitation and restoration projects/additional environmental rehabilitation and restoration projects falling within the approving competence of the Ministry of Natural Resources and Environment; and guide, examine, monitor and urge the implementation of this Circular.

4. Mining organizations and individuals that already possess environmental impact assessment reports/environmental protection commitments/environmental standard satisfaction registrations/environmental protection schemes approved/certified before the effective date of Decision No. 71/2008/QD-TTg (June 26, 2008) and have made deposits for environmental rehabilitation and restoration are not required to formulate environmental rehabilitation and restoration projects but shall comply with regulations on making of deposits for and environmental rehabilitation and restoration under Decision No. 71/2008/QD-TTg and this Circular.

Article 18. Effect

This Circular takes effect on February 15, 2010.

Any problems arising in the course of implementation of this Circular should be promptly reported to the Ministry of Natural Resources and Environment for consideration and settlement.

FOR THE MINISTER OF
NATURAL RESOURCES AND ENVIRONMENT
DEPUTY MINISTER

Nguyen Xuan Cuong

APPENDIX 1

STRUCTURE AND REQUIREMENTS ON CONTENTS OF ENVIRONMENTAL REHABILITATION AND RESTORATION PROJECTS

(To Circular No. 34/2009/TT-BTNMT of December 31, 2009, of the Ministry of Natural Resources and Environment, providing for the formulation, approval, examination and certification of environmental rehabilitation and restoration projects and making of deposits for environmental rehabilitation and restoration for mining activities)

Part I

PROJECT EXPLANATIONS INTRODUCTION

To summarize constituents, origin of and necessity to formulate the environmental rehabilitation and restoration project.

Chapter I

GENERAL BACKGROUNDS OF THE PROJECT

1. General information

- Name of organization/individual:

- Contact address:

-Telephone:... Fax:……..

- Business registration certificate (or investment certificate).

- Form of project investment and management. To explain the form of investment, capital sources and selection of the form of project management. In case of hiring a project management consultancy organization, to provide information on the address and legal status of this organization.

2. Grounds for project formulation

Legal grounds: Decision No. 71/2008/QD-TTg: Circular No. 34/2009HT-BTNMT; mining license, decision approving the feasibility study report/investment project, basic design appraisal results, documents approving branch plannings, construction plannings and plannings on the use of land in the project implementation area, decision approving the environmental impact assessment report or written certification of the environmental protection commitment (if any), and other relevant documents; unit prices and economic norms applicable in the project formulation.

Basic documents: approved investment project to build mining works and appraised basic design or feasibility study report; approved/ certified environmental impact assessment report or environmental protection commitment (if any); environmental observation documents.

To indicate the name of the consultancy organization and name of the person in charge of and list of persons directly involved in the project formulation.

3. Geographical location

To clearly describe the geographical location, coordinates and boundary of the project implementation place; natural conditions, roads; rivers and streams; topographical characteristics, socio-economic conditions and surroundings of the mining area.

4. Project objectives

a/ General objectives: To set the project's general objectives of rehabilitating and restoring the environment in the following directions:

- Rehabilitating and restoring the environment so as to restore the original state of the environment and eco-systems.

- Rehabilitating and restoring the environment so as to restore the environment and eco-systems to a state similar to the original state.

- Rehabilitating and restoring the environment in the project area to satisfy environmental protection requirements and serve purposes beneficial to humans.

In addition to the above objectives, there are also other feasible objectives. For selected objectives, to clearly present practical bases for achievement.

b/ Specific objectives: To set specific objectives on jobs and job volumes to be completed each year, each period and at the end of the project implementation duration (depending on the volumes of environmental rehabilitation and restoration work of the entire mine or each mining area and the organization's or individual's request for competent agencies' inspection and certification of the completion of part or all of environmental rehabilitation and restoration contents).

Chapter II

CHARACTERISTICS OF MINING ACTIVITIES

1. General information on the mining area

- To indicate topographical and geomorphologic characteristics of the mining area; geological and engineering geological conditions, petrographical and mineral components, mineral distribution characteristics.

- To provide general information on the mine: mining schedule and volumes in each year and the whole mining duration, reserves and life of the mine, working regulations.

- Current situation and status of mining, remaining mineral reserves, remaining mining duration.

2. Mining methods

To introduce mining methods and procedures, and technologies used in mining; mining order and systems and parameters of mining systems; transportation inside and outside the mine; the situation of electricity and water supply and water drainage within the mine, spoil discharge; construction of works serving mining, and total mining ground.

3. Environmental status

- To indicate the status of geological structure and groundwater level in the mining area and places of environmental rehabilitation and restoration. To assess and forecast the possibility of subsidence, slide, geological faults, lowering of groundwater, surface, river/lake water levels; and environmental incidents in the course of mining and environmental rehabilitation and restoration.

- To indicate the environmental status at the time of project formulation; environmental protection measures applied and works built; environmental analysis results at the time of project formulation.

4. Environmental impacts

To provide general information on mining activities' impacts on the environment, such as impacts on terrain, surface and ground water environments; impacts or, the flora and fauna; impacts on the air environment; wastes; and impacts on economic activities in the area. To indicate possible changes in topography, land, eco-systems, rivers or streams at the end of the mining process.

To assess risks and forecast adverse impacts on the environment, and possible environmental incidents.

Chapter III

ENVIRONMENTAL REHABILITATION AND RESTORATION PLANS

1. Selection of environmental rehabilitation and restoration plans

- Based on practical conditions of each type of mining, and the mining process' impacts on the surrounding environment and communities; based on the geological formation, mineral components and quality of the environment in the area of project implementation, the organization or individual shall formulate feasible environmental rehabilitation and restoration plans. Such a plan must satisfy the requirements specified in Appendix 1 to Decision No. 71/2008/QD-TTg; and environmental rehabilitation and restoration work must not cause environmental incidents or affect human health and must comply with other regulations.

- To briefly describe each plan; works and volumes of environmental rehabilitation and restoration. For each plan, to make a map of restoration of the exploited space and indicate environmental rehabilitation and restoration works.

- To assess environmental impacts, sustainability and safety of environmental rehabilitation and restoration works under each plan (e.g.. subsidence, slide, permeation prevention, lowering of groundwater levels, fissure, environmental incidents, etc.).

- To calculate "land recovery indicators" according to the following formula:

Of which:

+ G_m: value of land after recovery, which is forecast at the market price at the time of calculation;

+ G_p: total expenses for land recovery to achieve use purposes;

+ G_c: original value of land before mine opening at the time of calculation (based on unit prices set by the State);

After evaluating and comparing the above data, to select the optimal environmental rehabilitation and restoration plan.

2. Environmental rehabilitation and restoration contents

Based on the selected environmental rehabilitation and restoration plan, to work out contents and measures for implementation, specifically:

- Designing and calculating job volumes of major works for environmental rehabilitation and restoration under the guidance in Appendix 2 to Decision No. 71/2008/QD-TTg, and this Circular.

- Designing and calculating job volumes for environmental rehabilitation and restoration to achieve the set objectives and suit practical conditions.

- Designing works to reduce adverse impacts and prevent and respond to environmental incidents in each phase in the process of environmental rehabilitation and restoration.

- Listing environmental rehabilitation and restoration works; job volumes to be performed in each phase and the entire process of environmental rehabilitation and restoration.

- Listing equipment, machinery, raw materials and materials, land areas and trees used in each phase and the entire process of environmental rehabilitation and restoration.

- Working out plans for incident prevention and response in the process of environmental rehabilitation and restoration.

Technical norms for designing and building environmental rehabilitation and restoration works are based on feasibility study reports or basic designs on mining or environmental impact assessment reports.

Chapter IV

ENVIRONMENTAL MANAGEMENT AND MONITORING

1. Management program

To display the diagram of environmental rehabilitation and restoration management.

To work out programs for examining and supervising implementation progress and quality of works; plans to inspect environmental rehabilitation and restoration works for examination and certification of the completion of project contents; measures to manage and protect environmental rehabilitation and restoration works after examination and certification.

2. Environmental monitoring program

To work out a program to monitor wastes and environmental quality in the process of environmental rehabilitation and restoration:

2.1. Waste monitoring: To monitor at least twice a year the flow/total volume of wastes and their typical pollution parameters in the process of environmental rehabilitation and restoration according to Vietnam's current standards and regulations. Places of monitoring must be shown in a diagram with notes and coordinates under current regulations.

For environmental rehabilitation and restoration works discharging wastewater and gas emissions and involving potential danger of environmental pollution, to encourage the construction and installation of equipment for flow measurement and constant observation of typical pollution parameters in wastes.

2.2. Environmental monitoring: To monitor typical pollution parameters according to Vietnam's current standards and regulations. If there are no state agencies' monitoring stations or points in environmental rehabilitation and restoration areas, environmental monitoring shall be conducted at least twice a year. Places of monitoring must be shown in a diagram with notes and coordinates under current regulations.

2.3. Other types of monitoring: To monitor at least once a year in environmental rehabilitation and restoration areas such indicators as soil endosmosis, erosion, slide, subsidence; landslides in river, stream and lake banks and coasts; alluvial deposit in river, stream and lake beds and sea bottom; changes in surface and ground water levels; salt and alum infiltration (depending on characteristics of each environmental rehabilitation and restoration project).

In the process of mining, environmental monitoring results in approved environmental impact assessment reports/environmental protection commitments/environmental protection schemes may also be used.

Chapter V

ESTIMATES OF ENVIRONMENTAL REHABILITATION AND RESTORATION EXPENSES

1. Estimates of environmental rehabilitation and restoration expenses

- Bases for estimation: latest expense norms and unit prices set by localities or ministries or branches in case localities have not yet set these norms and unit prices.

- Estimate details: To be based on practical conditions, volumes and specific jobs of environmental rehabilitation and restoration work; and pursuant to the guidance in Appendices 1 and 2 to Decision No. 71/2008/QD-TTg, and Appendix 2 to this Circular.

- Making a general list of expenses, covering those for environmental rehabilitation and restoration works; volumes; and unit price of each work item in each phase, and total expenses for environmental rehabilitation and restoration.

2. Calculation of deposits and time of depositing: Deposits and first-time and subsequent times of depositing are specified in Articles 8 and 9 of Decision No. 71/2008/QD-TTg, and this Circular.

3. Deposit recipients: Organizations and individuals may select recipients of deposits for environmental rehabilitation and restoration (local environmental protection funds or the Vietnam Environmental Protection Fund).

Chapter VI

IMPLEMENTATION COMMITMENTS AND CONCLUSIONS

1. Commitments of organizations and individuals

The organization's and individual's commitments to pay deposits for environmental rehabilitation and restoration; implement environmental rehabilitation and restoration plans: realize commitments to the community; and observe regulations on environmental rehabilitation and restoration and environmental protection involved in the project phases, specifically:

- Commitment to ensure truthfulness and objectivity in the calculation of deposits;

- Commitments to make deposits for environmental rehabilitation and restoration to environmental protection funds as indicated in the project;

- Commitment to allocate funds for implementation;

- Commitments to apply and complete environmental rehabilitation and restoration measures;

- Commitments to realize environmental incident prevention and response plans and to compensate for and handle environmental pollution in case of environmental incidents;

- Commitment to comply with reporting and inspection regulations;

- Commitment to make reports on implementation results of the environmental rehabilitation and restoration project/additional environmental rehabilitation and restoration project and results of

the environmental monitoring program and send these reports to the agency approving the environmental rehabilitation and restoration project and local environmental protection state management agencies under regulations.

2. Conclusions

To make conclusions and evaluate the project's socio-economic impacts; and the reasonability of the amount of environmental rehabilitation and restoration deposits.

Part II

ANNEXES

1. Drawings:

No.	Drawings
1	Map of the location of the mining area (on a 1:5,000 or 1:10,000 scale)
2	Topographic map with (or without) open seams of the mine area (on a 1:1,000 or 1:2,000 scale)
3	Map of completion of each phase of mining
4	Map of the mine's general plan (on a 1:2,000 or 1:5,000 scale), displaying all work items and technical networks
5	Map of completion of mining (on a 1:2,000 or 1:5,000 scale)
6	Map of the mine status' general plan (on a 1:2,000 or 1:5,000 scale), displaying all work items and technical networks
7	Map of the location of the environmental rehabilitation and restoration area (on a 1:5,000 or 1:10,000 scale)
8	Map of environmental rehabilitation and restoration in each phase and year
9	Map of restoration of the exploited space (on a 1:1,000 or 1:2,000 scale)
10	Detailed design drawings of environmental rehabilitation and restoration works
11	Plan on locations of environmental observation and monitoring works

2. Related dossiers and documents:

- Copies of the approval decision/written certification of environmental impact assessment report/environmental protection commitment/ environmental protection scheme; and of the mining license (if any);

- Copies of the decision approving the investment project on mining, of the notice on appraisal of basic designs, or equivalent documents:

- Land allocation decision and land rent contract;

- Three-dimension (3D) map of restoration of the exploited space, in case environmental impact assessment reports are required for environmental rehabilitation and restoration projects;

- Unit prices applied in calculating environmental rehabilitation and restoration funds; unit prices and expense norms applied by relevant ministries and branches; and land use planning map (if any).’

APPENDIX 2

ESTIMATES OF ENVIRONMENTAL REHABILITATION AND RESTORATION EXPENSES

(To Circular No. 34/2009/TT-BTNMT of December 31, 2009, of the Ministry of Natural Resources and Environment, providing for the formulation, approval, examination and certification of environmental rehabilitation and restoration projects and making of deposits for environmental rehabilitation and restoration for mining activities)

Based on practical conditions of each type of mining and each environmental rehabilitation and restoration work as indicated in environmental rehabilitation and restoration projects/additional environmental rehabilitation and restoration projects, to estimate environmental rehabilitation and restoration expenses. Some of these expenses are specified below:

A. Environmental rehabilitation and restoration expenses

1. For open-cast mines not at the risk of generating acid drainage:

Expenses for environmental rehabilitation and restoration for open-cast mines:

Of which:

* M_{cp} : total expense for environmental rehabilitation and restoration;

* C_{kt}: expense for environmental rehabi-litation and restoration in mining pits;

* C_{bt}: expense for environmental rehabi-litation and restoration in spoil dumping sites;

* C_{qd}: expense for environmental rehabili-tation and restoration in tailings dumping sites;

* C_{td}: environmental rehabilitation and restoration expense for dismantlement of industrial and civil works;

* C_{bs}: additional expense for environmental rehabilitation and restoration (i.e., expense for the achievement of the project objectives, which shall be calculated on the basis of volumes of additional works).

1.1. Expense for environmental rehabilitation and restoration in mining pits (Ck[):

a/ For mining pits deep in the natural ground planned to be filled up

This expense may be calculated according to the following formula:

* Cd: expense for purchasing soil to fill up the mining pits $Cd = Q.c_d$

$Q=1.1\ V_m$

- 1.1: coefficient taking into account the soil-ramming degree;

- Q: volume of soil for filling up the mining pits (m^3);

- V_m: volume of the mining pits (m^3);

- C_d: expense for soil for fill-up and leveling (VND/m^3);

- C_v : expense for transporting soil to the mining pits $Cv = Q.c_v$;

- Q: volume of soil for leveling and filling up the mining pits (m^3);

- C_v: expense for transporting soil to the mining pits (VND/m^3).

*C_s: leveling and fill-up expense Cs = Q.k.c_s

- Q: volume of soil for leveling and filling up the mining pits (m^3);

- k: coefficient for the to-be-leveled volume of work (%);

- C_s: unit price for leveling (VND/m^3).

*C_c : expense for vegetation covering

- S: area to be covered with vegetation (m^2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- c^h: remuneration for digging a hole (VND/ hole);

- c^c: expense for purchasing and planting saplings (VND/hole);

- c^p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c^d: expense for rich soil per hole (VND/ hole).

b/ For mining pits deep in the natural ground

Environmental rehabilitation and restoration expenses shall be calculated according to the following formula:

* C_{qm}: expense for leveling around the mining pits C_{qm} = S.c_s (VND)

- S: area to be leveled (m2);

- c_s: expense for leveling 1 m2 of soil around the mining pits (VND/m2).

* C_{bm}: expense for reinforcing banks of the mining pits C_{bm} = c_m.S/cos (VND)

- S: area determined on the plan of the to-be-reinforced banks (m^2);

- ~: angle of slope of the banks (degree);

- C_m: expense for reinforcing 1 m^2 of the pit banks (VND/m^2).

* C_r: expense for placing fences and signboards (VND).

* C_{cx}: expense for planting trees around the mining pits (VND)

- S: area to be covered with vegetation (m^2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: expense for tree planting (VND/hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c_d: expense for rich soil (or for reserving surface soil) per hole (VND/hole);

C_m: expense for forming the water drainage system for mine holes

$$C_m = l.c_m \text{ (VND)}$$

- l: length of the water drainage system (m);

- c_m: expense for forming the water drainage system for mine holes (VND/m).

c/ For mines with mining pits other than mine holes

In case the open-cast mining site has no mine holes, environmental rehabilitation and restoration expenses include the expense for leveling the ground for vegetation covering or change of land use purpose. The expense for environmental rehabilitation and restoration in the mining site shall be calculated as follows:

$$C_{kt} = C_s + C_{cd} + C_c$$

* C_s: expense for ground leveling $C_s = S.c_s$

- S: area to be leveled (m^2);

- c_s: expense for leveling 1 m2of soil around the mining pits (VND/m^2).

*C_{cd}: expense for soil rehabilitation $C_{cd} = S.d. (c_d + c_v + c_s)$

- S: mining area to be rehabilitated (m^2);

- d: thickness of the rich soil layer required, which must be at least 0.3 m (m);

- c_d: unit price of 1 m3 of rich soil (if rich soil is taken from the surface soil layer stripped upon mine opening and kept for environmental restoration, c_d is the expense for keeping surface soil) (VND/m^3);

- c_v: expense for transporting rich soil to the mining site (VND/m^3);

- c_s: expense for leveling rich soil to rehabilitate the surface soil of the mining site (VND/m^3).

* C_c: expense for vegetation covering $C_c = S.k. [c_d + c_h + c_c + c_p + c_b]$

- S: area to be covered with vegetation (m^2);

- k: number of tree-planting holes per m^2 (hole/m^2):

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: expense for tree planting per hole (VND/ hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c_d: expense for rich soil per hole (VND/ hole).

In case the open-cast mining site is on a high mountain with deep mining pits difficult to fill up for restoring the original ground and impossible to create a reservoir, the expense for environmental rehabilitation and restoration in the mining pits shall be calculated as follows:

$$K_{kt} = C_{qm} + C_{bm} + C_{cx}$$

* C_{qm}: expense for leveling the ground around the mining pits $C_{qm} = S.c_s$ (VND)

- S: area to be leveled (m^2);

- c_s: expense for leveling 1 m2 of soil around the mining pits (VND/m^2).

* C_{bm}: expense for reinforcing the mining pits' banks $C_{bm} = c_m . S_t/\cos$ (VND)

- S.: area on the plan of the mining pits to be reinforced (m^2);

- ~: angle of slope of the banks (degree);

- C_m: unit price for reinforcing 1 m^2 of the banks (VND/m^2).

*C_{cx}: expense for planting trees around and on the bottom of mining pits and growing grass on the talus of the banks of mining pits (VND)

$$C_{cx} = (S + S_d).k.(c_d + c_h + c_c + c_p + c_b) + c_{ct}.S_t/\cos$$

- S: area to be covered with vegetation on the layers on the mine banks (m^2);

- S_d: area of the bottom of the mining pits (m^2);

- S_t: area on the plan of the layer side and talus top (m^2);

- c_{ct}: expense for purchasing special-use grass for growing on the talus (VND/m^2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: unit price for planting saplings and trees (VND/hole):

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c_d: expense for rich soil per hole (VND/ hole).

1.2. Expense for environmental rehabilitation and restoration in spoil dumping sites (C_{bt})

a/ For the plan on prompt environmental restoration, to level the ground and cover it with rich soil and plant trees right after dumping. In this case, the environmental restoration expense shall be calculated according to the following formula:

$$C_{bt} = C_{ct}+C_{tc}+C_{mt}$$

* C_{ct}: expense for soil rehabilitation $C_{ct} = S.k.c_d$

- S: total area of layers of the spoil dumping site (m^2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- cd: expense for rich soil per hole (VND/ hole).

*C_{tc}: expense for planting trees on the whole surface of the spoil dumping site:

$$C_{tc} = S.k.(c_h + c_c + c_p + c_b)$$

- S: total area of the site's surface (m^2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: unit price for purchasing and planting saplings (VND/hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole).

*C_{mt} : expense for growing grass on the sides of the site's layers $C_{mt} = S_{mt}.C_{co}$

- S_{mt}: area of sides of the site's layers (m^2);

- C_{co}: expense for growing grass (VND/m^2).

b/ For the plan on environmental rehabilitation and restoration in highly heaped dumping sites, the rehabilitation covers leveling, layering, and making of a stable slope to prevent subsidence, covering sites' layers and tops with soil surface and then with vegetation. The environmental restoration expense shall be calculated according to the following formula:

$$C_{bt} = C_{sc} + C_{gc} + C_{tc} + C_{mt}$$

*C_{sc} : expense for leveling and layering $C_{sc} = Q_{sc}.c_s$ (VND)

- Q_{sc}: volume of spoil to be leveled and layered (Q_{sc} depends on each type and size of dumping site, ensuring a reserve stability coefficient for the dumping site's sides) (m^3);

- c_s: expense for leveling and layering per m3 of spoil (VND/m^3).

* C_{gc}: expense for forming the water drainage system for spoil layers:

$$C_{gc} = l.c_m \text{ (VND)}$$

- l: length of the water drainage system for spoil layers (m);

- c_m: expense for forming the water drainage system (VND/m).

*C_{ct}: expense for soil rehabilitation $C_{ct} = S.k.c_d$

- S: total area of layers of the site (m^2);

- k: number of tree-planting holes per m^2(hole/ m^2);

- c_d: expense for rich soil per hole (VND/ hole).

: C_{tc}: expense for planting trees on the surface of the site:

$$C_{tc} = S.k.(c_h + c_c + c_p + c_b)$$

- S: total area of the surface of the site (m^2);

- k: number of tree-planting holes per m^2;

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: expense for saplings and tree planting (VND/hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole).

*C_{mt}: expense for growing grass on the sides of the sites layers $C_{mt}= S_{mt}.C_{co}$

- S_{mt}: area of the sides of the site's layers (m^2);

- C_{co}: expense for grass growing (VND/m^2).

1.3. Expense for environmental rehabilitation and restoration in tailings dumping sites (C_{qd})

a/ For crude tailings dumping sites where water drainage is easy, to form appropriate water drainage systems, dry, level and cover the sites with surface soil layers and plant trees or restore the cultivation area, if possible. The environmental rehabilitation and restoration expense shall be calculated as follows:

$$C_{qd} = C_{tn} + C_{sg} + C_{ct} + C_{tc}$$

* C_{tn}: expense for forming the water drainage system (VND);

* C_{sg}: expense for leveling the surface (VND);

* C_{ct}: expense for soil rehabilitation (VND);

* C_{tc}: expense for vegetation covering (VND).

b/ For fine tailings sites where water drainage is difficult, rehabilitation and restoration expenses include the expense for forming a safe tailings reservoir with embankments or fences and warning signboards to prevent entry of humans and animals:

$$C_{qd} = C_{db} + C_{hr} + C_{bb}$$

*C_{db}: expense for forming embankments, reinforcing dams and overflow gates to ensure safety for rivers' lower sections (VND);

- C_{hr}: expense for building fences (VND);

- C_{bb}: expense for placing signboards (VND).

1.4. Expense for dismantlement of supporting works to restore the ground (C_{td})

This expense shall be calculated according to the following formula: $C_{td} = S.c_{td}$.

- S: area to be dismantled (m^2);

- c_{td}: expense for dismantlement (VND/m^2).

2. For open-cast mines at the risk of generating acid drainage

2.1. Expense for environmental rehabilitation and restoration in mining pits (C_{kt}):

a/ For mining pits deep in the natural ground planned to be filled up:

This expense may be calculated according to the following formula:

$$C_{kt} = C_d + D_v + C_s + C_{ct} + C_c + C_{bs}$$

* C_d: expense for purchasing soil to fill up the pits $C_d= 1.1.V_m.c_d$ (VND)

- V_m : volume of the mining pits (m3);

- C_d: unit price of soil for leveling and fill-up (VND/m^3);

* C_v: expense for transporting soil to the mining pits $C_v = Q.c_v$ (VND)

- Q: volume of soil for leveling and filling up the mining pits $Q = 1.1.V_m$ (m^3);

- C_v: expense for transporting soil to the mining pits (VND/m^3).

*Cs: expense for leveling $C_s = Q.k.c_s$ (VND)

- Q: volume of soil used for leveling and filling up the mining pits (m^3);

- k: coefficient for the to-be-leveled volume of work, which is commonly 30-40%:

- C_s: unit price for leveling 1 m3 of soil (VND/ m^3).

* C_{ct}: expense for forming a permeation-proof layer to prevent acid drainage and a surface soil layer for tree planting

$$C_{ct}=S.d_{ds}(c_{ds} +c_v +c_g) + c_l.$$

- S: area of the mining pit's surface to be filled up (m^2);

- d_{ds}: thickness of the clay layer (m);

- c_{ds}: unit price of 1 m3 of clay (VND/m^3);

- c_v: unit price for transporting 1 m^3 of soil (VND/m^3);

- c_l: expense for rolling and ramming 1 m^2 of clay to reach an endosmosis of 1.10^{-6} (VND/m^2);

- c_g: unit price for leveling 1 m^3 of soil (VND/ m^3).

* C_c: expense for vegetation covering $C_c = S.\ k.[c_d. + c_h. + c_c + c_p + c_b]$

- S: area to be covered with vegetation (m2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: expense for saplings and tree planting (VND/hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c_d: expense for rich soil per hole (VND/ hole).

* C_{bs}: Environmental rehabilitation and restoration expenses additionally arising upon project implementation.

b/ For mining pits deep in the natural ground planned to be retained

The expense for environmental rehabilitation and restoration in the mining pits is similar to that applicable to mines not at the risk of generating acid mine drainage (Section b. Part 1.1), plus the expense for treating acid water (C_{xl}).

$$C_{kt} = C_{qm} + C_{bm} + C_r + C_{cx} + C_m + C_{xl}$$

* C_{qm} : expense for leveling places around the mining pits (VND)

* C_{bm}: expense for reinforcing banks of the mining pits (VND)

* C_r: expense for placing fences and signboards (VND).

* C_{cx}: expense for planting trees around the mining pits (VND)

* C_m: expense for forming the water drainage system for mine holes (VND)

* C_{xl}: expense for treating acid water stagnated on the surface and bottom of the mining pits before discharging water into the mining pits (VND).

c/ For mining pits other than mine holes

The environmental rehabilitation and restoration expense shall be calculated as follows:

$$C_{kt} = C_s + C_{ct} + C_c \text{ (VND)}$$

*C_s: expense for leveling the layer surface $C_s = S.c_s$

- S: area to be leveled (m^2);

- c_s: expense for leveling 1 m2 of soil on the layer surface (VND/m^2).

*C_{ct}: expense for forming a permeation-proof layer to prevent acid drainage and surface soil layer for tree planting

$$C_{kt} = S.[d_{ds}.(c_{ds} + c_v + c_g) + c_1]$$

- S: area of the mining pits' surface to be filled up (m2);

- d_{ds}: thickness of the clay layer (m);

- c_{ds}: unit price of 1 m^3 of clay (VND/ m^3);

- c_v: expense for transporting 1 m3 of soil (VND/ m^3);

- c^1: unit price for rolling and ramming 1 m^2 of clay to reach an endosmosis of 1.10^{-6} (VND/m^2).

*C_c; expense for vegetation covering $C_c = S.k.[c_d + c_h + c_c + c_p + c_b]$

- S: area to be covered with vegetation (m^2);

- k: number of tree-planting holes per m2 (hole/m^2);

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: unit price for planting saplings and trees (VND/hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c_d: expense for rich soil per hole (VND/ hole).

Note: The permeation-proof layer aims to prevent sulfide spoil from contacting the air, so this layer may be made of other permeation-proof materials, such as geotechnics fabrics, spoil not generating acid (e.g., granite or calcium silicate) or alkali materials which can neutralize acids. However, this part only deals with the permeation-proof layer made of clay.

2.2. Expenses for environmental rehabilita-tion and restoration in spoil dumping sites (C_{bt})

Expenses for environmental rehabilitation and restoration in spoil dumping sites are the same as those for common spoil dumping sites. For sites of spoil containing sulfide minerals, these expenses shall be added with the anti-permeation expense for walls, bedding and surface of the sites as follows:

$$C_{ct} = C_{tn} + C_m + C_{tc}$$

*C_{tn}: anti-permeation expense for walls and bedding of the sites:

$$C_{tn} = (S_n + S_t).[d_{ds} .(c_{ds} + c_v + c_g) + c_l]$$

- S_n: area of the bedding of the sites (m^2);

- S_t: area of the walls of the sites (m^2);

- d_{ds}: thickness of the clay layer (m);

- c_{ds}: unit price of 1 m3 of clay (VND/m^3);

- c_v: unit price for transporting 1 m^3 of soil (VND/m^3);

- c_g: unit price for leveling 1 m^3 of soil (VND/ m^3);

- c_l: unit price for rolling and ramming 1 m2 of clay to reach an endosmosis of 1.10^{-6} (VND/ m^2).

*C_m: expense for forming a permeation-proof layer on the surface of the sites to prevent acid drainage and a surface soil layer for vegetation covering. The permeation-proof layer may be made of clay with low endosmosis; the minimum thickness of the clay layer for covering the whole surface of the filled-up area is 0.3 m and must be rolled and rammed to reach a low endosmosis. If the clay layer is thinner, the surface should be covered with a layer of other permeation-proof materials, such as geotechnics fabrics or permeation-proof polymer materials.

$$C_m = S.[d_{ds}(c_{ds}. + c_v + c_g) + c_1]$$

- S: area of the surface of the sites (m^2);

- d_{ds}: thickness of the clay layer (m);

- c_{ds}: unit price of 1 m3 of clay (VND/m^3);

- c_v: unit price for transporting 1 m^3 of soil (VND/m^3);

- c_l: unit price for rolling and ramming 1 m2 of clay to reach a small endosmosis (VND/m^2).

* C_{tc}: expense for vegetation covering $C_{tc} = S.k.[c_d + c_h + c_c + c_p + c_b]$

- S: area to be covered with vegetation (m^2);

- k: number of tree-planting holes per m^2 (hole/m^2);

- c_h: remuneration for digging a hole (VND/ hole);

- c_c: unit price for planting saplings and trees (VND/hole);

- c_p: expense for fertilizer per hole (VND/ hole);

- c_b: expense for tending saplings during the first 3 years and planting trees in replacement of dead ones (VND/hole);

- c_d: expense for rich soil per hole (VND/ hole).

2.3. Expense for environmental rehabilitation and restoration in tailings dumping sites (C,)

a/ For highly stable tailings dumping sites, after completing the mining (closing the sites), to dry and cover the sites with a layer of permeation-proof materials or a spoil layer not generating acid on the surface of the sites, which is a layer separating sulfide tailings from oxidizing agents, then to cover them with surface soil and vegetation. The expense for environmental restoration in tailings dumping sites is similar to that for spoil dumping sites (Section 1.3).

$$C_{qd}=C_{tn}+C_{sg}+C_{ct}+C_{tc}.+C_{xl}$$

-*C_{tn} : expense for forming the water drainage system and reinforcing the discharging dam or spillway;

* C_{sg}: expense for leveling the surface;

* C_{ct}: expense for the surface permeation-proof layer to prevent acids and the surface soil layer for soil rehabilitation;

* C_{tc}: expense for vegetation covering;

* C_{xl}: expense for the system for collecting and treating acid water from the sites.

b/ For unstable tailings dumping sites, they will be formed into submerged tailings reservoirs to prevent sulfide tailings from contacting the air. In this case, environmental restoration expenses are similar to those mentioned above (Section 1.3). but exclude the expense for rehabilitating the surface of the sites because the surface of tailings reservoirs is covered with a water layer of at least 0.3 m thick.

$$C_{qd} = C_{db} + C_{hr} + C_{bb} + C_{xl}$$

* C_{db}: expense for reinforcing embankments, dams and overflow gates to become permanent and ensure safety for lower river sections;

* C_{hr}: expense for building fences;

* C_{bb}: expense for placing warning signboards;

*C_{xl}: expense for the system for collecting and treating acid water.

2.4. Expense for dismantlement of supporting works to restore the ground (C_{td})

The expense for dismantlement of supporting works upon finishing mining shall be calculated similarly as above (Section 1.4).

Note: For mines generating hazardous wastes (e.g., spoil, tailings containing a high content of heavy metals, radioactive substances, etc.), to restore the environment like for mines at the risk of generating acid drainage.

3. For pit mines

3.1. Expense for environmental restoration in pits (C_{hl})

a/ The expense for environmental rehabilitation and restoration in case of wholly filling up pits where mining has finished shall be calculated as follows:

$$C_{hl} = Q.(c_{vl} + c_x + c_v) + C_{bs}.$$

- Q: volume of materials used for fill-up (m^3);

- c_{vl}: unit price of 1 m^3 of materials (VND/ m^3);

- c_{vl}: expense for technology to fill up with 1 m^3 of materials (VND/m^3);

- c_v: unit price for transporting 1 m^3 of materials (VND/m3);

- C_{bs}: additional expense for environmental rehabilitation and restoration.

b/ For pits for which, upon finishing mining, the pit-collapsing method is applied, since the exploited volume of tailings and spoil has been transported to other places, the surface in the mining site will sink. The environmental rehabilitation and restoration process covers the leveling of the ground appropriate for vegetation covering (the environmental restoration expense is the same as that for open-cast mines).

c/ For pits partially or not filled up. it is still necessary to restore the environment upon finishing mining. To fill up pit entrances/pit wells under regulations, and build fences or walls to ensure safety for people and livestock. The environmental restoration expense shall be calculated as follows:

$$C_{hl} = C_{ml} + C_r + C_{bs}$$

-C_{ml},: expense for filling up pit entrances (VND). When filling up pit entrances/pit wells, to use reinforced concrete panels or steel panels for raising the filling layer above the ground surface. To reinforce places around well mouths or pits with a hard rock layer of around 1 m thick to avoid subsidence and bear an average load caused by gravity or pressure of collapse or pit gas. To design appropriate air-ventilation pipes for all layers filling up well mouths/pits;

- C_r: expense for building fences or walls (VND):

- C_{bs}: additional expense for environmental rehabilitation and restoration.

3.2. The expense for environmental restoration in spoil and tailings dumping sites and civil and industrial works shall be calculated similarly as that for open-cast mining.

4. For riverbed sand, gravel and spread mineral exploitation:

Environmental rehabilitation and restoration expenses (M) for riverbed sand, gravel and spread mineral exploitation include the expense for environmental rehabilitation and restoration in areas used as warehouses and yards, makeshift roads and landfills for daily-life wastes, and the expense for rehabilitation of riverbeds, river banks and dike banks and dismantlement of supporting works. The environmental rehabilitation and restoration expenses shall be calculated according to the following formula:

$$M_{cp} = C_{sg} + C_{sp} + C_{nv} + C_{xl} + C_{td} + C_{bs}$$

*C_{sg}: expense for leveling the ground, cleansing sand, gravel and spread minerals and restoring the ground or cultivation land for the areas already used as riverside warehouses and yards, makeshift roads linking sand warehouses or yards with roads: $C_{sg} = S.c_g$

- S: area to be leveled (m^2);

-c_g: unit price per m2 for leveling and cleansing (VND/m2).

*C_{sp}: expense for leveling and cleansing makeshift holes for burying daily-life wastes during the mining process, and for rich soil for tree planting: $C_{sp} = S.d.(c_d + c_g + c_v)$

- S: area of holes (m^2);

- d: thickness of the rich soil layer for tree planting (m);

- c_d: unit price of 1 m3 of rich soil (VND/ m^3);

- c_g: unit price for shoveling and leveling soil (VND/m^3);

- c_v: unit price for transporting 1 m3 of soil from source to holes (VND/m^3).

*C_{nv}: expense for dredging from riverbeds mud and sand deposited in the mining process or removing obstacles arising in the mining process which obstruct traffic and change currents in the mining site: $C_{nv} = Q\text{-}k.c_{nv}$

- Q: volume of mud and sand deposited in the mining process (m^3);

- k: coefficient of the work volume to be dredged (%);

- c_{nv}: unit price for dredging deposited mud and sand (VND/m^3).

*C_{xl}: expense for handling and rehabilitating riverbank or dike-bank landslides caused by riverbed sand, gravel and spread mineral exploitation in the mining area: $C_{xl} = Q.k.c_g + S.c_{gc}$

- Q: volume of mud and sand discharged into the riverbed (m^3);

- k: coefficient of the work volume to be leveled in the riverbed (%);

- S: area of the riverbank or dike bank to be reinforced (m^2);

- c_g: unit price for leveling sand and pebbles in the riverbed (VND/m^3);

- c_{gc}: unit price for reinforcing the riverbank or dike bank (VND/m^2).

* C_{td}: expense for dismantling investors' civil structures after riverbed sand exploitation to restore the ground: $C_{td}. = S.c_{td}$

- S: area to be dismantled (m^2);

- c_{td}: unit price for dismantlement (VND/m^2).

*C_{bs}: additional expense for environmental rehabilitation and restoration.

Notes:

- The unit prices are based on work construction unit prices set by localities where environmental rehabilitation and restoration projects are implemented.

- Coefficient for leveling and dredging (k) depends on the characteristics of mines and mining technologies applicable to each type.

- Unit prices of planted trees and for transportation, tending and protection are based on unit prices set the Ministry of Agriculture and Rural Development.

B. Expenses for management of environ-mental rehabilitation and restoration projects

Project management expenses (C_{ql}) include expenses for project management jobs from the stage of preparation and implementation to completion, certification and hand-over of projects to localities.

$$C_{ql} = k_{ql}.M_{cp} \text{ (VND)}$$

- k_{ql}: percentage (%), which shall be determined based on the norm of project management expense applicable to industrial works in the construction sector.

- M_{cp}: total environmental rehabilitation and restoration expenses as determined in Part A.-

*Note: Except Appendices 1 and 2, other appendices mentioned in this Circular are not printed herein.-