

---

*improvement and rehabilitation deposits in mineral mining.*

## Chapter I

### GENERAL PROVISIONS

**Article 1.** Scope of regulation and subjects of application

1. This Decision provides in detail environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits in mineral mining in the territory of the Socialist Republic of Vietnam.

2. This Decision applies to organizations and individuals licensed to mine minerals and other related organizations and individuals in the territory of the Socialist Republic of Vietnam.

3. Environmental improvement and rehabilitation in the exploration and exploitation of oil, gas, mineral water and natural thermal water are not governed by this Decision.

**Article 2.** Interpretation of terms

In this Decision, the terms below are construed as follows:

1. Environmental improvement and rehabilitation in mineral mining means restoring the environment and ecosystems (soil, water, air, natural landscape, vegetation, etc.) at mineral mining sites and areas affected by mineral mining close to the original environmental conditions, or to reach the standards and regulations on safety and environment and serve purposes beneficial to humans.

### THE PRIME MINISTER

#### **Decision No. 18/2013/QĐ-TTg of March 29, 2013, on environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits in mineral mining**

*Pursuant to the December 25, 2001 Law on Organization of the Government;*

*Pursuant to the November 29, 2005 Law on Environmental Protection;*

*Pursuant to the November 17, 2010 Mineral Law;*

*At the proposal of the Minister of Natural Resources and Environment,*

*The Prime Minister promulgates the Decision on environmental improvement and rehabilitation and payment of environmental*

2. Payment of environmental improvement and rehabilitation deposits in mineral mining means payment by organizations or individuals licensed to mine minerals of an amount of money to Vietnam Environmental Protection Fund or the environmental protection fund of the locality where they mine minerals (below collectively referred to as environmental protection funds) to guarantee environmental improvement and rehabilitation.

3. An environmental improvement and rehabilitation scheme is prepared by a mineral-mining organization or individual in order to determine environmental improvement and rehabilitation plans and total amount of deposit to be paid to an environmental improvement and rehabilitation fund, and submitted to a competent agency for approval (below referred to as scheme).

4. Joint-mining area is an area with 2 (two) or more adjacent mines affecting one another.

## Chapter II

### ENVIRONMENTAL IMPROVEMENT AND REHABILITATION

**Article 3.** Requirements of environmental improvement and rehabilitation

1. To ensure that the environment and ecosystems at mineral mining sites and areas affected by mining activities are restored close to the original environmental conditions, or reach the standards and regulations on safety and environment, ensure safety and serve purposes beneficial to humans as specified in Appendix I to this Decision.

2. To be in line with local socio-economic development, mineral mining and land use and environmental protection master plans.

3. To carry out environmental improvement and rehabilitation right in the mineral mining process.

4. To be in line with plans for environmental improvement and rehabilitation promulgated by People's Committees of provinces or centrally run cities (below referred to as provincial-level People's Committees) for mineral mining projects located in joint-mining areas.

5. Environmental improvement and rehabilitation in the mining of toxic minerals containing radioactive materials must comply with the Law on Atomic Energy and relevant laws, apart from complying with this Decision.

**Article 4.** Entities to make schemes and supplementary schemes

1. All organizations and individuals involved in mineral mining shall make and submit schemes to competent agencies for consideration and approval. Specifically:

a/ Organizations and individuals applying for a mineral mining license.

b/ Organizations and individuals currently mining minerals without approved projects for environmental improvement and rehabilitation or paying environmental improvement and rehabilitation deposits.

2. The following entities shall make supplementary environmental improvement

and rehabilitation schemes (below referred to as supplementary schemes):

a/ Organizations and individuals requesting modification of their mineral mining licenses in terms of mining area, depth and output.

b/ Organizations and individuals applying for extension of mineral mining licenses.

c/ Organizations and individuals requesting changes in their approved environmental improvement and rehabilitation plans.

3. The following entities are exempted from making schemes:

a/ Organizations and individuals currently mining minerals that possess approved projects on environmental improvement and rehabilitation or have paid environmental improvement and rehabilitation deposits as prescribed.

b/ Organizations and individuals mining ordinary building materials as prescribed in Clause 2, Article 64 of the Mineral Law.

**Article 5.** Process of making and submitting schemes and supplementary schemes

1. Time of making and submitting schemes and supplementary schemes for appraisal:

a/ Organizations and individuals defined at Point a, Clause 1, Article 4 of this Decision shall make and submit schemes to competent state management agencies for appraisal together with reports on environmental impact assessment or written environmental protection commitments as prescribed.

b/ Organizations and individuals defined at Point b, Clause 1, Article 4 of this Decision

shall, apart from being sanctioned as prescribed by law, make and submit schemes to competent state management agencies for appraisal and approval within 2 (two) years from the effective date of this Decision.

c/ Organizations and individuals defined in Clause 2, Article 4 of this Decision shall make and submit supplementary schemes to competent agencies for appraisal and approval before mining minerals or being licensed to change the mining area, depth and output, or having their mineral mining licenses extended, or changing their approved environmental improvement and rehabilitation plans.

2. Dossiers of request for appraisal and approval of schemes or supplementary schemes are prescribed as follows:

a/ A dossier of request for appraisal and approval of a scheme comprises:

- A written request for appraisal and approval of the scheme;

- Nine descriptions of the scheme enclosed with relevant drawings;

- A report on environmental impact assessment or written environmental protection commitment or written registration of satisfaction of environmental standards or environmental protection scheme, enclosed with a copy of the approval decision or certificate (if any);

- The investment project on mineral mining enclosed with the decision to approve the investment project, and a copy of the mineral mining license (if any).

b/ A dossier of request for appraisal and approval for a supplementary scheme comprises:

- A written request for appraisal and approval of the supplementary scheme;

- Nine descriptions of the supplementary scheme enclosed with relevant drawings;

- A report on environmental impact assessment or written environmental protection commitment or written registration of satisfaction of environmental standards or environmental protection scheme, enclosed with a copy of the approval decision or certificate;

- The investment project on mineral mining enclosed with the decision to approve the investment project, and a copy of the mineral mining license (if any).

3. Contents of a scheme or supplementary scheme are prescribed below:

a/ Contents of a scheme include:

- General information on the mineral mining project and legal grounds for making the scheme;

- The mining process, topographical and geomorphological characteristics; reserves of mines; mineral mining works; current conditions of the environment and ecosystems in mineral mining areas and adjacent areas;

- Making and selecting an environmental improvement and rehabilitation plan;

- Listing and calculating the volume of environmental improvement and rehabilitation works according to the selected environmental improvement and rehabilitation plan;

- Making an implementation plan and a supervision program during the environmental improvement and rehabilitation; a program on inspection and certification of the completion of environmental improvement and rehabilitation;

- A plan on maintaining environmental improvement and rehabilitation works;

- The amount of environmental improvement and rehabilitation deposit and method of payment;

- Estimated funds sufficient for each environmental improvement and rehabilitation work at the time of implementation according to the selected environmental improvement and rehabilitation plan;

- Commitment on quality standards of the environment and ecosystems, and quality of environmental improvement and rehabilitation works after completing the mineral mining.

b/ Contents of a supplementary scheme include:

- General information on the mineral mining project and legal grounds for making the supplementary scheme;

- Description and comparison of the mineral mining conditions; natural conditions, topographical and geomorphological characteristics, and the environment and ecosystems at the time of making the supplementary scheme; comparison of the current natural landscape, environment and ecosystems with those before mining;

- Making and selecting an environmental improvement and rehabilitation plan;

- Listing and calculating the volume of supplementary environmental improvement and rehabilitation works;

- Making an implementation plan and a supervision program during the environmental improvement and rehabilitation; a program on inspecting and certifying the completion of environmental improvement and rehabilitation;

- A plan on maintaining environmental improvement and rehabilitation works;

- The amount of environmental improvement and rehabilitation deposit and method of payment;

- Estimated funds sufficient for each environmental improvement and rehabilitation work at the time of implementation according to the selected environmental improvement and rehabilitation plan;

- Commitment on quality standards of the environment and ecosystems, and quality of environmental improvement and rehabilitation works after completing the mineral mining.

**Article 6.** Appraisal and approval of schemes or supplementary schemes

1. Competence to appraise and approve schemes:

a/ The Ministry of Natural Resources and Environment shall appraise and approve schemes of mineral mining projects specified at Point a, Clause 2, Article 18 of the Government's Decree No. [29/2011/ND-CP](#) of April 18, 2011, on strategic environmental assessment, environmental impact assessment

and environmental protection commitment (below referred to as Decree No. 29/2011/ND-CP).

b/ Ministries, ministerial-level agencies and government-attached agencies shall appraise and approve schemes of projects specified at Points b and c, Clause 2, Article 18 of Decree No. 29/2011/ND-CP.

c/ Provincial-level People's Committees shall appraise and approve schemes of mineral mining projects specified at Point d, Clause 2, Article 18 of Decree No. 29/2011/ND-CP.

d/ Provincial-level Natural Resources and Environment Departments shall appraise schemes of local mineral mining projects, other than those specified at Points a, b and c of this Clause.

2. The agencies competent to appraise and approve supplementary schemes are those having appraised and approved relevant schemes.

3. The appraisal of schemes or supplementary schemes must be carried out by appraisal councils. Appraisal councils shall assist competent agencies in examining the correctness and properness of legal grounds, environmental improvement and rehabilitation plans, and deposits in schemes or supplementary schemes.

4. The appraisal process is as follows:

a/ Schemes of organizations and individuals defined at Point a, Clause 1, Article 4 of this Decision that have investment projects on mineral mining for which environmental



impact assessment reports are compulsory must be appraised at the same time with environmental impact assessment reports as prescribed in Decree No. 29/2011/ND-CP.

b/ Schemes of organizations and individuals defined at Point a, Clause 1, Article 4 of this Decision that have investment projects on mineral mining for which written environmental protection commitments are compulsory; and schemes or supplementary schemes of organizations and individuals defined at Point b, Clause 1, and in Clause 2, Article 4 of this Decision must be appraised as follows:

- Within 5 (five) days after receiving a dossier of request for appraisal, the state management agency with appraisal competence shall examine the completeness and validity of the dossier. If the dossier is incomplete or invalid, the competent agency shall request in writing the requester to complete the dossier;

- After receiving a valid dossier, the state management agency with appraisal competence shall convene a meeting of the appraisal council, notify in writing the appraisal result to the requester: within 30 (thirty) days from the date on which the meeting of the appraisal council is convened, the requester shall revise and complete the scheme or supplementary scheme and send it back to the competent state management agency for consideration and approval;

- In the course of examining the revised contents of the scheme or supplementary scheme according to the result of the meeting of

the appraisal council, the appraising agency may request the requester in writing or electronically to further revise the unsatisfactory scheme or supplementary scheme;

- Within 15 (fifteen) days after receiving a complete dossier, the competent state management agency shall decide to approve the scheme or supplementary scheme;

- After issuing the decision to approve the scheme or supplementary scheme, the approving agency shall give a written certification on the supplementary back cover, and send it to the requester and related units.

5. Time limits for appraising schemes and supplementary schemes:

a/ Schemes or supplementary schemes within the appraising competence of ministries, ministerial-level agencies or government-attached agencies must be appraised within 45 (forty-five) days from the date of receiving complete and valid dossiers. Complicated environmental improvement and rehabilitation projects must be appraised within 60 (sixty) days.

b/ Schemes or supplementary schemes beyond the appraising competence of ministries, ministerial-level agencies or government-attached agencies must be appraised within 30 (thirty) days after receiving complete and valid dossiers. Complicated environmental improvement and rehabilitation projects must be appraised within 45 (forty-five) days.

c/ Appraising agencies may carry out field surveys before the appraisal when necessary. The periods of field survey and dossier

completion are not included in the appraisal time limit.

### Chapter III

#### PAYMENT OF ENVIRONMENTAL IMPROVEMENT AND REHABILITATION DEPOSITS

**Article 7.** Purposes and principles of deposit payment

1. Environmental improvement and rehabilitation deposits aim to ensure that mineral-mining organizations and individuals carry out environmental improvement and rehabilitation properly as prescribed by law.

2. Deposit payment principles:

a/ Mineral-mining organizations and individuals shall pay deposits to environmental protection funds. Organizations and individuals that mine minerals in localities without environmental protection funds shall pay deposits to Vietnam Environmental Protection Fund.

b/ Deposits are paid and refunded in Vietnam dong.

c/ Deposits enjoy demand deposit interest rates from the payment time.

d/ Interests may be withdrawn only once by depositors after obtaining a certificate of completion of environmental improvement and rehabilitation.

**Article 8.** Calculation of deposits

1. The total deposit equals the total costs for implementing environmental improvement and

rehabilitation works provided in Appendix II to this Decision.

2. Costs for each environmental improvement and rehabilitation work must comply with local unit prices at the time of making the scheme or supplementary scheme. If a locality does not set unit prices or cost norms, those set by relevant ministries, sectors or localities in the same region may be used.

3. The deposit period is determined as follows:

a/ For new investment projects on mineral mining, the deposit period is determined based on approved investment projects on mineral mining.

b/ For mineral mining areas for which mineral mining licenses have been granted, the deposit period is determined based on the remaining validity periods of mineral mining licenses.

c/ In case the mining period stated in a mineral mining license is different from that calculated in the approved scheme or supplementary scheme, the organization or individual concerned shall adjust the content and calculate the amount of deposit according to the granted mineral mining license and send it to the agency with approving competence for consideration and adjustment.

**Article 9.** Method of deposit payment

1. For mineral mining licenses with a validity period of less than 3 (three) years, deposits must be paid in lump sum. The deposit is equal to 100% (one hundred percent) of the approved amount.

2. For mineral mining licenses with a validity period of 3 (three) years or longer, deposits may be paid in installments as follows:

a/ First deposit:

- For mineral mining licenses with a validity period of less than 10 years, the first deposit is 25% (twenty-five percent) of the total deposit;

- For mineral mining licenses with a validity period of between 10 years and less than 20 years, the first deposit is 20% (twenty percent) of the total deposit;

- For mineral mining licenses with a validity period of 20 years or longer, the first deposit is 15% (fifteen percent) of the total deposit.

b/ The second deposit payment onward equals the total deposit minus the first deposit and divided by the number of years according to the approved investment project or the remaining time according to the mineral mining license.

3. Organizations and individuals may pay deposits in lump sum.

**Article 10.** Order and procedures for paying and refunding deposits

1. Time of deposit payment:

a/ Organizations and individuals licensed to mine minerals shall pay the first deposit 30 (thirty) days before commencing the mining.

b/ If the deposit is paid in installments, the second payment onward must be made before January 30 of the year of deposit payment.

2. A deposit payment dossier comprises:

a/ A written request for payment of an environmental improvement and rehabilitation deposit.

b/ The decision to approve the scheme or supplementary scheme.

3. Deposit refund principles:

a/ Mineral-mining organizations and individuals that have paid deposits according to regulations may have part or the whole of the deposit refunded.

b/ The refund of deposits is determined according to the completed volume of each work in each stage of the scheme or supplementary scheme approved and certified by competent state management agencies.

4. A dossier of request for deposit refund comprises:

a/ A written request for refund of the paid deposit for environmental improvement and rehabilitation.

b/ The written certification of completion of one or all of environmental improvement and rehabilitation works.

5. The environmental protection fund shall refund the deposit within 5 (five) days after receiving a complete and valid dossier as prescribed in Clause 4 of this Article.

**Article 11.** Management and use of deposits

1. Environmental protection funds shall manage, use and refund deposits in accordance with law.



2. If a mineral-mining organization or individual falls bankrupt, the agency competent to approve the scheme or supplementary scheme shall use the deposit, including interest, for environmental improvement and rehabilitation.

#### Chapter IV

#### CERTIFICATION OF COMPLETION OF ENVIRONMENTAL IMPROVEMENT AND REHABILITATION

**Article 12.** Dossiers of request for certification of completion of environmental improvement and rehabilitation

1. After completing one or all of environmental improvement and rehabilitation works according to the approved scheme or supplementary scheme, an organization or individual shall make a report on the completion of environmental improvement and rehabilitation (below referred to as report) and send it to a competent agency for examination and certification.

2. Report making principles:

a/ For mineral mining licenses with a validity period of less than 3 (three) years, one report and request for examination and certification of completion of environmental improvement and rehabilitation must be made.

b/ For mineral mining licenses with a validity period of 3 (three) years or longer, reports and requests for certification of completion of each work must be made according to the approved scheme or supplementary scheme.

c/ Environmental improvement and rehabilitation works must ensure the quality and quantity according to the applicable standards and regulations, and be maintained in accordance with the approved scheme or supplementary scheme.

3. Report contents:

a/ Legal grounds for making the report.

b/ Completed environmental improvement and rehabilitation works in accordance with the approved requirements, enclosed with an assessment of work quality and environmental quality conducted by a competent verifying and supervising unit.

c/ The amount to be refunded corresponding to the monetary value of environmental improvement and rehabilitation works as calculated in the approved scheme or supplementary scheme.

d/ Consultation with the community which has been carried out as prescribed in Article 15 of Decree No. 29/2011/ND-CP.

4. A dossier of request for examination and certification of completion of environmental improvement and rehabilitation comprises:

a/ A written request for examination and certification of completion of environmental improvement and rehabilitation.

b/ Seven reports on the completion of environmental improvement and rehabilitation.

c/ Seven reports on the work quality and environmental quality assessment results made by the verifying and supervising unit.

d/ One copy of the scheme or supplementary scheme enclosed with the approval decision.

**Article 13.** Inspection and certification of completion of environmental improvement and rehabilitation

1. The agency competent to examine and certify the completion of environmental improvement and rehabilitation is the agency that has approved the scheme or supplementary scheme.

2. The certificate of completion of environmental improvement and rehabilitation serves as a basis for carrying out the procedures for closing the mine and handing over land and environmental improvement and rehabilitation works to the local administration for management as prescribed.

3. Examination and certification principles and process:

a/ The certification of completion of environmental improvement and rehabilitation is carried out through field inspection with the participation of related agencies.

b/ Examination and certification process:

- Within 5 (five) days after receiving a dossier, the competent agency shall examine the completeness and validity of the dossier and request the requester to supplement the dossier if it is incomplete or invalid;

- Within 30 (thirty) days after receiving a complete and valid dossier, the competent agency shall form an examination team to examine the completion of the scheme or

supplementary scheme. The examination team comprises representatives of the local administration, local natural resources and environment agency, the agency that has granted the mineral mining license and the environmental protection fund to which the deposit is paid. When necessary, the competent agency may invite some related units and agencies in charge of supervising environmental quality and environmental improvement and rehabilitation works to join the examination team:

- After obtaining the examination result, the competent agency shall send a written notice of the examination result to the requester;

- Within 15 (fifteen) days after making the written notice of the examination result or after receiving the complete dossier in case supplementation must be made at the request of the examination team, the competent agency shall issue a certificate of completion of environmental improvement and rehabilitation.

4. Examination contents:

a/ Examining each environmental improvement and rehabilitation work against the report submitted by the requester.

b/ Checking the volume and quality, and process and results of maintenance of environmental improvement and rehabilitation works against the commitments made in the scheme or supplementary scheme, the design dossier, and applicable standards and regulations.

Chapter V  
RESPONSIBILITIES OF MANAGEMENT  
AGENCIES AND UNITS

**Article 14.** Responsibilities of the Ministry of Natural Resources and Environment

1. To assume the prime responsibility for, and coordinate with other ministries, ministerial-level agencies, government-attached agencies and provincial-level People's Committees in, guiding, inspecting and examining the implementation of this Decision.

2. To formulate and promulgate or submit for promulgation legal documents and guidelines on environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits in mineral mining.

3. To appraise and approve schemes and supplementary schemes, examine and certify the completion of environmental improvement and rehabilitation according to its competence.

4. To formulate and promulgate guidelines on environmental protection and environmental improvement and rehabilitation in mineral mining and joint-mining areas according to regulations.

5. To assume the prime responsibility for, and coordinate with other ministries, ministerial-level agencies, government-attached agencies and provincial-level People's Committees in, identifying areas affected by the mining of hazardous minerals containing radioactive substances and assessing the impacts caused

by the mining of hazardous minerals containing radioactive substances on the environment and humans.

6. To annually inspect and examine the environmental protection, environmental improvement and rehabilitation and deposit payment according to its competence.

**Article 15.** Responsibilities of other ministries, ministerial-level agencies and government-attached agencies

1. To appraise and approve schemes and supplementary schemes, examine and certify the completion of environmental improvement and rehabilitation according to their competence.

2. To guide, examine and inspect the environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits by mineral-mining organizations and individuals according to their competence.

3. To handle violations of the regulations on environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits according to their competence.

4. To report results of environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits to the Ministry of Natural Resources and Environment before December 31 every year.

**Article 16.** Responsibilities of provincial-level People's Committees

1. To appraise, approve, examine and certify the completion of environmental improvement and rehabilitation according to schemes or supplementary schemes according to their competence.

2. To promulgate master plans on land use after mineral mining; plans for environmental improvement and rehabilitation in local joint-mining areas.

3. To guide, examine and inspect the environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits by mineral-mining organizations and individuals according to their competence.

4. To report results of environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits; the management and use of deposits and environmental protection charges to the Ministry of Natural Resources and Environment before November 30 every year.

**Article 17.** Responsibilities of environmental protection funds

1. To receive deposits from mineral-mining organizations and individuals.

2. To certify the payment of deposits by organizations and individuals and send the certificates to competent agencies to approve schemes or supplementary schemes and local state management agencies in charge of environment.

3. To refund deposits and pay interests thereon to organizations and individuals

according to regulations.

4. To manage and use deposits in accordance with law. To annually report the management, use and refund of deposits to provincial-level People's Committees and the Ministry of Natural Resources and Environment.

5. To urge mineral-mining organizations and individuals to pay deposits on schedule. To request competent authorities to handle violations of regulations on deposit payment.

**Article 18.** Responsibilities of mineral-mining organizations and individuals

1. To make and submit schemes and supplementary schemes to competent authorities for appraisal and approval.

2. To publicize the contents of approved schemes and supplementary schemes via commune-level People's Committees and Fatherland Front Committees of localities where minerals are mined, for inspection and supervision.

3. To complete all environmental improvement and rehabilitation works and pay deposits in accordance with approved schemes and supplementary schemes.

4. To pay fees for appraisal, examination and certification of the completion of schemes and supplementary schemes according to regulations.

5. To report results of environmental improvement and rehabilitation and payment of environmental improvement and rehabilitation deposits to the agencies that

have approved schemes or supplementary schemes and local environmental protection management agencies before November 30 every year.

Chapter VI  
IMPLEMENTATION PROVISIONS

**Article 19. Effect**

This Decision takes effect on May 15, 2013, and replaces the Prime Minister's Decision No. [71/2008/QĐ-TTg](#) of May 29, 2008, on payment of environmental improvement and rehabilitation deposits in mineral mining.

**Article 20. Organization of implementation**

1. The Ministry of Natural Resources and Environment shall assume the prime responsibility for, and coordinate with other ministries, ministerial-level agencies, government-attached agencies and provincial-level People's Committees in, guiding and organizing the implementation of this Decision.

2. Ministers, heads of ministerial-level agencies, heads of government-attached agencies, chairpersons of provincial-level People's Committees, mineral-mining organizations and individuals, environmental protection funds and related organizations and individuals shall implement this Decision.

*Prime Minister*  
NGUYEN TAN DUNG

**Appendix I**

REQUIREMENTS ON PLANS FOR  
ENVIRONMENTAL IMPROVEMENT  
AND REHABILITATION IN MINERAL  
MINING

*(To the Prime Minister's Decision No.  
18/2013/QĐ-TTg of March 29, 2013,  
on environmental improvement and  
rehabilitation and payment of environmental  
improvement and rehabilitation deposits in  
mineral mining)*

I. GENERAL REQUIREMENTS OF  
ENVIRONMENTAL IMPROVEMENT  
AND REHABILITATION IN MINERAL  
MINING

For all forms of mineral mining, environmental improvement and rehabilitation must be carried out for the following works:

1. Mining sites upon completion of mining

a/ Mining sites and mines leaving pits upon completion of mining

If, upon completion of mining, the pit's bottom is above the groundwater level, to fill up the pit to the level of the surrounding terrain or to a height that ensures complete drainage of water on the surface of the mining site upon completion of environmental improvement and rehabilitation; to reinforce the pit slope in the topsoil layer and soil and rock layers to ensure safety and technical requirements; to build embankments or lower the sloping edges which are vulnerable to landslide; to build a water



drainage system; to plant trees on the entire bottom of the pit;

If, upon completion of mining, the pit's bottom is below the groundwater level, to fill up the pit or to turn it into a water reservoir for aquaculture, water supply or irrigation; to reinforce the pit slope to ensure safety and technical requirements; to build surrounding dikes and plant trees thickly around; to build solid fences with warning signboards showing the pit's depth to keep animals and people away; to build a system to collect surrounding water and a system to drain water into the outside environment; to restore the ecosystem, vegetation and environment close to the original environmental conditions;

b/ Mining sites and mines taking a shape other than pit upon completion of mining

To fill them up for planting trees or changing their land use purposes: to build a system to drain surface water; to restore the ecosystem, vegetation and environment close to the original environmental condition.

c/ To restore the areas upon completion of mining to the safety state according to the national technical regulations on safety in pit and open-cast mining and regulations on mine closure.

## 2. Spoil sites:

To renovate the spoil sites to ensure the prescribed slope of layer surface and sides; to build a system of embankments at the foot of the sites, a system to collect and treat water on the surface and at the foot of the site layers; to cover the top, layers and sides of the spoil sites

with soil and vegetation.

## 3. Tailings dumping sites:

a/ For dumping sites of crude and solid tailings where water drainage is easy

To level the dumping sites and cover them with soil and vegetation; to build a system to collect and treat water on the surface and from the bottom of the sites before discharging into the environment.

b/ For dumping sites of fine tailings where water drainage is difficult

To build or reinforce the surrounding dykes or embankments to ensure safety; to consolidate the pipe system to collect wastewater from tailings and treating such wastewater up to standards before discharging it into the environment; to build solid fences, plant trees thickly and place danger warning signboards showing the depth and condition of wastes in the reservoir.

## 4. Industrial yards and auxiliary areas to serve mineral mining and enrichment

To dismantle structures and equipment (except those ensuring mine safety and environmental protection); to treat environmental pollution according to national standards and technical regulations on environmental protection; to fill up and plant trees on the entire areas (unless the areas are used for other purposes); to build a system to drain surrounding water; to restore the ecosystem, vegetation and environment suitable to the original environmental condition.

5. Adjacent areas not allocated for management but adversely affected by ore mining, sorting and enriching

To treat pollution and rehabilitate the environment in case mineral mining activities cause environmental pollution and incidents, affecting the adjacent areas and communities.

## II. SPECIFIC REQUIREMENTS OF ENVIRONMENTAL IMPROVEMENT AND REHABILITATION FOR SOME FORMS OF MINERAL MINING

Apart from complying with the general requirements on environmental improvement and rehabilitation stated in Section I of this Appendix, the following requirements must also be ensured for some forms of mineral mining:

1. For open-cast mines at risk of generating acid mine drainage and hazardous elements

All mines of solid minerals containing sulfide mineral components pose the risk of generating acid mine drainage:

Requirement of additional environmental improvement and rehabilitation: To cover the area with a layer of materials of low permeability and ram this layer to an endosmosis of below  $1 \times 10^{-6}$  cm/s or apply anti-permeation measures to ensure safety in the entire surface and bottom of the mining site, spoil site and other auxiliary areas; rainwater; to build a system to collect and treat overflowed water and wastewater generated in the mining area and other related areas up to

standards and regulations before discharging into the environment;

Designs of spoil sites must comply with regulations on dumping of hazardous wastes; water on the surface and at the bottom of the spoil site must be collected and treated up to standards and regulations before being discharged into the environment. After dumping is finished, the spoil sites must be covered with soil and vegetation according to regulations.

2. For pit mining

Requirements of environmental improvement and rehabilitation at mine passages and entrances:

a/ For mining areas without mining and construction works on the ground

To fill up subsided areas and plant trees to rehabilitate the ecosystem and environment close to the original environmental condition or for other land use purposes. If mine passages are not filled up, to choke and block all main and secondary mine entrances according to standards and national technical regulations on safety in pit mining;

b/ For mines with main and secondary pits with their bottom below the groundwater level, to give priority to converting them into water storage and supply works to serve people's daily life or irrigation.

c/ For mining areas beneath mining and construction works to be protected

To improve and rehabilitate the environment by choking and blocking all long-wall mines

and other mine passages upon completion of mining in order to maintain the works on the ground.

3. For exploiting sand, gravel and minerals in the riverbed and sand in marine and coastal areas

a/ To build embankments at the exploiting areas and affected areas at risk of landslide.

b/ To level and dredge deposited areas due to exploitation activities; to restore the ecosystem and the environment in the riverbed and coastal areas to the original environmental condition.

c/ To dismantle works built on the bank or shore (except those to be used for other purposes), treat wastes and polluted areas up to environmental standards and regulations; to fill up, level and plant trees on the whole areas with works.

4. For mining radioactive minerals

To refrain from changing the land use purpose and growing food crops until the radioactivity level returns to the allowable limit; to cover the area with a layer of materials of low permeability and ram this layer to an endosmosis of below  $1 \times 10^{-6}$  cm/s or apply anti-permeation measures to ensure safety on the surface and bottom of the entire mining area, spoil sites and other auxiliary areas; to dismantle and decontaminate storehouses of radioactive substances and equipment; to collect and treat radioactive scraps and wastes according to regulations on radiation safety and hazardous wastes. To collect and treat wastewater generated in

mining areas and other related areas up to standards and regulations before discharging into the environment. To zone off and place warning signboards at areas with radioactive risks.

Designs of spoil sites must comply with regulations on dumping of hazardous wastes; water on the surface and at the bottom of the spoil sites must be collected and treated up to standards before being discharged into the environment.

Environmental improvement and rehabilitation at the mines of radioactive minerals must comply with the Law on Atomic Energy and relevant laws.

### III. OTHER REQUIREMENTS

1. To select plant species and varieties suitable to local living conditions and of high economic value; the replanting rate must be equal to 40%-50% of the tree density.

2. During mining, to arrange areas for storing the removed soil and topsoil for environmental improvement and rehabilitation. Removed soil and topsoil must not contain hazardous or radioactive components. The topsoil must be thick enough for planting trees according to regulations.

3. Spoil sites must be leveled into layers to ensure technical safety according to approved design. Spoil sites must not be higher than the nearest natural hill or mountain and the original natural terrain elevation.

4. The restoration of the ecosystem and vegetation must ensure the species, varieties

and quantities similar to those existing before mining.

5. The period of maintenance of environmental improvement and rehabilitation works is determined according to each scheme or supplementary scheme, ensuring requirements on environment and technical safety, and certification by competent agencies of the completion of all environmental improvement and rehabilitation works is required.

## Appendix II

### METHOD OF ESTIMATING ENVIRONMENTAL REHABILITATION AND RESTORATION COSTS

*(To the Prime Minister's Decision No.  
18/2013/QĐ-TTg of March 29, 2013,  
on environmental improvement and  
rehabilitation and payment of environmental  
improvement and rehabilitation deposits in  
mineral mining)*

Depending on the selected plan for environmental improvement and rehabilitation, the total cost estimate for environmental rehabilitation and restoration ( $M_{cp}$ ) is the total of costs for carrying out main works below:

$$M_{cp} = M_{kt} + M_{bt} + M_{cn} + M_{xq} + M_{bc} + M_k$$

In which:

$M_{kt}$ : Cost for improving and rehabilitating the environment in the mining site, including filling up mines and reinforce the mine slope in the topsoil and soil and rock layers; building surrounding embankments or dykes, erecting solid fences with signboards; planting trees

in and around the mining site; building water drainage and treatment facilities; leveling and covering with fertile topsoil; for pit mines, the cost for blocking mine entrances and branch pits (when necessary) complies with regulations on pit mining; ramming to prevent permeation and building a system to prevent and treat acid mine drainage at sulfide mineral mines and radioactive substance mines; rehabilitating vegetation and ecosystem, etc.

$M_{bt}$ : Cost for improving and rehabilitating the environment at spoil sites and tailings dumping sites, including filling up and leveling the ground and cutting layers to ensure safety requirements; building dykes and embankments at the foot of layers to ensure safety and prevent landslide at the spoil sites; building a system to collect water on the surface and at the foot of layers; treating water from spoil sites before discharging into the environment; ramming to prevent permeation and building a system to prevent and treat acid mine drainage at sulfide mineral mines and radioactive substance mines; planting trees on the surface and sides of the layers of the spoil sites, etc.;

$M_{cn}$ : Cost for improving and rehabilitating the environment at industrial yards, sorting, enriching and auxiliary zones, including dismantling structures and equipment on the ground and transporting them to storage places; treating wastes and polluted areas; leveling the ground, covering with fertile topsoil and planting trees; building a system to collect and drain water; rehabilitating vegetation and ecosystems, etc.;

$M_{xq}$ : Cost for improving and rehabilitating the environment in areas adjacent to mines which are affected by mining activities, including remedying environmental degradation and rehabilitating the environment, dredging streams and rivers, repairing and maintaining roads; planting trees to rehabilitate eco-systems and vegetation in these areas, etc.;

$M_{hc}$  Administrative cost for environmental improvement and rehabilitation work, designing and design appraisal; unexpectedly arising volume and inflation; operating wastewater treatment systems; repairing and maintaining environmental improvement and rehabilitation upon completion of environmental improvement and rehabilitation and restoration activities (equal to 10% of total cost for environmental improvement and rehabilitation), etc.

$M_k$ : Other costs.-