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In exercise of the powers conferred by Article 50 of the Mines and Minerals Management Act, 1995, the Minister of Trade & Industry makes the following Regulations:

PART 1. MINING LEASES AND MANAGEMENT

Chapter 1. Administration, definitions, procedures

Short title, force, extent

1. This Regulation shall be called the Mines and Minerals Management Regulations 2002.
2. It shall come into force on First Day of April 2002
3. It shall extend to the whole of the kingdom of Bhutan.

Definitions

4. The following definitions shall apply to this Regulation:
 - 4.1 “Blaster” means a shot firer certified by Ministry of Home Affairs under Sec. 68 of the Explosive Rules, 1989 or any person holding a blaster or shot firer's certificate from recognised institutes but endorsed by the Ministry of Home Affairs on recommendation by the Department of Geology and Mines.
 - 4.2 “Competent person” means any person who has the qualifications for a specified responsibility as defined in this Regulation or who possess other documents issued or approved by the Royal Government of Bhutan.
 - 4.3 “Company” means any organization registered under Companies Act of the Kingdom of Bhutan, 2000.
 - 4.4 “DGM” means the Department of Geology and Mines, Ministry of Trade and Industry, Royal Government of Bhutan.
 - 4.5 “Despatch Inspector” means a person employed by the DGM to monitor mineral transport and mining operation and issue transport permits.
 - 4.6 “Director” means the Head of the DGM.
 - 4.7 “EA Act” means the Environmental Assessment Act, 2000.
 - 4.8 “Employed” means any person who is paid by the lessee to carry out activities in connection with the mine.
 - 4.9 “Environment” means the complex web of interrelationships between the abiotic and biotic components which sustains life on earth, including the social, health and

cultural aspects of human beings.

- 4.10 “Environmental Management Plan (EMP)” means a plan that specifies the environmental, health and safety terms for the design, construction, and operation of a mine under Article 24 of the MMMA.
- 4.11 “Final Mine Feasibility Study (FMFS)” means the document submitted by the applicant for final approval of a mining lease under Articles 22-23 of the MMMA.
- 4.12 “Foreman” means the competent person employed and appointed in writing by the lessee to supervise or control activities in a mine or a part thereof
- 4.13 “Government” means the Royal Government of Bhutan or any government agency authorized by it to carry out a specific activity on behalf of the Royal Government of Bhutan.
- 4.14 “Lessee” shall mean a person or an organisation who has been granted a mining lease.
- 4.15 “MMMA” means the Mines and Minerals Management Act, 1995.
- 4.16 “Manager” means the competent person employed and appointed in writing by the lessee to manage all the operations of the mine under Article.36 of the MMMA.
- 4.17 "Minister" shall be the Head of Ministry under Article 4.f of the MMMA.
- 4.18 “Mine official” means any person employed and appointed in writing by the lessee to carry out specific duties related to compliance of the terms of the lease.
- 4.19 “Mine Plan (MP)” means a detailed description of the mine and proposed mining works that is part of the FMFS under Article 23 of the MMMA.
- 4.20 “Mine Restoration Plan (MRP)” means a detailed description of the environmental, health and safety terms for the closure of a mine or its part, the termination of related activities, and the restoration of the natural environment at the site of the mine and surrounding area and it shall form a part of the FMFS under Article 23 of the MMMA.
- 4.21 “Mining Division” means the Mining Division of the Department of Geology and Mines.
- 4.22 “Misfire” means the failure to explode of an entire charge of explosives in a shot hole.
- 4.23 “National Inspector” means an officer of the DGM who is authorized in writing by the Director to inspect all mines under the MMMA.
- 4.24 “Officer” means an officer of the Mining Division authorized in writing by the Minister or Director to exercise powers conferred by the MMMA.
- 4.25 “Operational mining scheme” means a periodically updated description of how the

EMP, MP and MRP will be implemented in practice.

- 4.26 "Public road" means road under the jurisdiction of the Government for public use.
- 4.27 "Regional Inspector" means an officer of the Mining Division who is authorized to inspect and control mines in a region.
- 4.28 "Registry" means the Registry of Mineral Titles, DGM.
- 4.29 "Serious bodily injury" means any injury which involves, or in all probability will involve, the permanent loss of any part or section of a body or the use of any part or section of a body, or the permanent loss of or injury to the sight or hearing or any permanent physical incapacity or the fracture of any bone or one or more joints or bones of any phalanges of hand or foot.
- 4.30 "Site" means the mining area for which a mining lease has been granted under the MMMA.
- 4.31 "Working place" means the place on the site where an activity connected with the mine is carried out by or on behalf of the lessee.

Chapter 2. Boundaries

- 5. The DGM determines the boundaries of the mining area for leasing under Article 18 of the MMMA.
- 6. All boundaries extend downward, vertically without limit.
- 7. All boundaries are demarcated by the official demarcation surveys.

Chapter 3. Registry of Mineral Titles

- 8. The Registry of Mineral Titles is established within the DGM to maintain accurate registers, maps, and technical and financial records of mining leases under Article 14.vii of the MMMA.
- 9. The Registry of Mineral Titles shall collect and maintain the documents listed in Annex 3 of this Regulation.

Chapter 4. Exploration

- 10. Surface or sub-surface mineral prospecting may only be carried out on the basis of a license issued by the Director under Article 15 of the MMMA
- 11. Application for a mineral prospecting license shall be submitted on Form A of Annex 1 to this Regulation.

12. Prospecting licence shall be issued in form D under Annex 1.

Chapter 5. Mining lease

Eligibility to obtain a Mining Lease

13. Any Bhutanese individual, licensed firm or a company shall be eligible to obtain a mining lease
14. The grant of mining lease shall be only in accordance with Article 21 of the MMMA.

Mining Lease

15. In case the government decides to lease a pre-identified mineral deposit for commercial exploitation, it shall be done through public notification and sealed/open tendering process.
16. In other cases the applications for mining lease shall be processed in the order in which it was received.
17. A proprietor of an enterprise, an individual or a company may not be eligible to obtain or operate more than two mining/quarrying leases at any given instant.
18. A mineral based industry shall not be issued with more than one mining lease for a single mineral unless two mines are deemed necessary to sustain the economic life of the industry from the quantitative and qualitative point of view..
19. The mining lease shall be applicable to all excavations, including digging, dredging below the riverbeds, for the purpose of winning rocks and minerals for commercial purpose.

Application for grant of mining lease

20. An application for grant of a mining lease shall be made to the Director in two copies of Form B under Annex 1.
21. Upon receipt of the applications, the Director shall communicate to the applicants in writing stating the decision on acceptance or rejection of the application within the time limit specified in Annex 6 of these Regulations.
22. It shall state whether the information is complete and the application is accepted, or that the application is incomplete and identify the missing information.

Scrutiny of Application

23. After acceptance of the applications, the Director shall convene a technical committee, consisting of at least two mining engineers and on availability, a geologist of DGM, to assess and scrutinise:

- 23.1 The applicant's capability as per Article 21 of the MMMA
 - 23.2 That the applicant has operated the earlier leases satisfactorily
 - 23.3 The type of mineral required for the applicant's proposed operation
 - 23.4 The annual requirement of material
 - 23.5 The potential size and extent of the deposit
 - 23.6 The possibility of carrying out the proposed mining works with respect to the location, topographical conditions and behavior of the deposit.
 - 23.7 The fulfillment of other requirement as per the Form B of Annex I
24. The technical committee shall submit its report on its findings to the Director.
 25. The Director shall review the findings of the technical committee and submit it to the Minister for approval.
 26. The Director shall then consult with the concerned agencies and seek necessary clearances for issue of mining lease.
 27. After obtaining necessary clearances, the Director shall communicate to the applicant to carry out Final Mine Feasibility study of the proposed mining activity.

Final Mine Feasibility Study

28. The applicant shall carry out the Final Mine Feasibility study (FMFS) and submit the report to the Director, in accordance with the guidelines given in Annex 2 of the Regulations.
29. The Director shall convene a meeting inviting all the concerned agencies at a convenient location, where the applicant shall present the FMFS report in detail for the purpose of scrutiny and approval.
30. The FMFS shall be revised after its presentation and five copies of it shall be submitted to the Department for final review and approval.
31. Upon approval one copy of the FMFS report shall be returned to the applicant with seal and signature of the Director.

Environmental Clearance

32. The applicant shall submit an application for issue of environmental clearance in Form C of Annex I of these Regulations to the Director, along with the FMFS report in case of new proposals and six months before the expiry of earlier environmental clearance in case of an operating mine.
33. The Director shall forward the application in Form C of Annex I to the Secretariat of the National Environment Commission for review and issue of the Environmental

Clearance.

34. The Secretariat of the National Environment Commission shall issue the Environmental Clearance, to the applicant through the Director, in accordance with the provisions of Environment Assessment Act 2000.

Grant of Mining Lease

35. Upon receipt of all clearances required by law from concerned authorities of the Government under Article 19 of the MMMA, and upon determining that the applicant satisfies the conditions in Article 21 of the MMMA, the Director shall communicate it to the applicant in writing and shall state the basis for the decision.
36. The grant of mining lease is confirmed upon signing of lease agreement in Form E of Annex I of these Regulations, which shall start on the first day of calendar quarter falling on 1st January, 1st April, 1st July and 1st October.
37. A mining lease shall be given and renewed for such period as specified in Annex 4 of these Regulations which shall expire on the last day of calendar quarter falling on 31st March, 30th June, 30th September and 31st December.

Modification of the application documents

38. An applicant who intends to make a material change to the mining activity shall submit a written request to the DGM to take into account the intended change.
39. Within the time limit specified in Annex 6 for response to a request under Section 38 to amend an application, the Director shall:
 - 39.1 If the change is acceptable, issue an order in writing to the applicant allowing the modifications;
 - 39.2 If the change is not acceptable, issue an order in writing to the applicant refusing to allow the modifications.

Lapse of the lease

40. When a lessee has not commenced mining operation within a period of two years from the date of grant of the lease or discontinues mining operation for a period exceeding two years, the lease shall lapse automatically.
41. The Government, upon written application by the lessee, may determine that the non-commencement or discontinuance was due to reasons beyond the control of the lessee, may revive the lease and modify the terms and conditions.
42. An application for renewal of a lease shall be made to the Director at least one year before expiry of the existing lease in Form J of Annex I.
43. If the Director refuses to issue or renew a mining lease for the whole or part of the area

applied for, it shall inform the applicant in writing within one week of taking the decision and state the basis for the decision.

Suspension, termination, modification by the Government

44. If mining works are not carried out in compliance with the lease agreement and the approved FMFS or the updated and approved FMFS, the National Inspector or Regional Inspector may order the lessee to suspend all or part of the mining operation until compliance with the terms of the lease is restored.
45. In case of serious and imminent threat to human health or the environment caused by noncompliance with the lease agreement and the FMFS, the suspension order may be delivered orally on the site by the National Inspector or Regional Inspector, and shall take effect immediately. Within one week, the Director shall issue an order in writing, stating the noncompliance with the lease and the actions that shall be taken to restore compliance, and giving a time limit for the actions to be taken.
46. The Director shall inform the lessee in writing, at least three months in advance, of its intent to modify or terminate the lease for the reasons set out in Article 32 of the MMMA.
47. Upon receipt by the Director, the information of the suspension, termination or modification of any clearance required for the operation of a mining lease, the Director shall suspend, terminate or modify the mining lease accordingly, and shall immediately inform the lessee in writing, stating the basis of the decision.

Disqualification for grant of a mining lease

48. Any individual, firm or a company shall be disqualified to obtain a mining lease or participate in any form in a mining venture if
 - 48.1 That individual, firm or company has defaulted in complying with the lease terms and conditions and has been penalised for more than two times for a same offense.
 - 48.2 That individual, firm or company has failed to fulfill the terms and conditions of a tender for mining lease after emerging as a successful bidder.

Chapter 6. Royalty, mineral and surface rent

Royalty and mineral rent

49. The lessee shall pay royalty and mineral rent under Articles 42 of the Act, in accordance with the schedule in Annex 5 of this Regulation.
50. The royalty and mineral rent payable shall be on the actual quantity of mineral despatched from the mine for each quarter ending on 31st March, 30th June, 30th September and 31st December.
51. The Minister may amend the rates of royalty and mineral rent set out in Annex 5 of these

Regulations from time to time.

Surface Rent

52. The lessee shall pay surface rent for the lease area under Article 43 of the MMMA.
53. The surface rent for the government land in the demarcated mining area shall be payable at the rate fixed by the Government.
54. If Government is not the surface right holder of any part or whole of the mining area, then the lessee shall pay the surface rent to the surface right holder/title holder as per Section Ka 3(1) of the Land Act, 1979. However, in case of the damage of the standing crops on the land of the titleholder, owing to mining operation, the lessee shall pay the cash compensation and the surface rent to the affected owner, as per the rate fixed by the government from time to time.
55. The rate of surface rent may be subject to periodic revision by the Government.

Environmental restoration bond

56. The lessee shall deposit an environmental bond to the Government as security for mine reclamation and environmental restoration in the mine and for ensuring that the negative impacts on the surrounding environment are minimised.
57. The environmental bond shall be payable proportionate to the amount specified in the approved FMFS in the first month of each lease year during the first half of the lease period and its extensions, if any.
58. The payment of environmental bond shall not relieve the lessee from implementing environmental protection measures as per approved FMFS report during the course of mining operation.
59. On surrender, termination or the expiry of the mining lease, the Government shall allow the lessee to reclaim the bond, along with any earned interest when it has received certification by the Director that the restoration work in the mine and the surrounding area has been satisfactorily completed.
60. If the lessee did not carry out restoration or rehabilitation activities as per approved FMFS during surrender, termination or expiry of the lease up to the complete satisfaction of the Government, the bond with interest shall be claimed by DGM and utilised to cover the costs of restoration of the mining area affected by the mining activities.
61. Any difference between the actual cost of reclamation and restoration of the mining area and the amount of the bond deposited shall be returned to the lessee.

Chapter 7. The mining operation

Boundary Pillars

62. On the grant of a lease, the lessee shall at his own expense erect and throughout the lease period maintain easily visible and identifiable boundary walls or pillars according to the demarcation to be shown in the plan annexed to the lease.
63. Boundary pillars shall be erected at regular intervals, not exceeding 100 metres.
64. The boundary pillars shall remain intact till the mining lease expires.

Notice for opening or reopening of a mine

65. The lessee shall inform the DGM in writing at least 15 days in advance of the opening of a new mine or reopening of an existing mine after discontinuance or suspension of operation exceeding three months in Form N of Annex 1.

Abandonment /Discontinuance/Surrender

66. The lessee may not abandon/discontinue/surrender a mine or part of a mine during the lease period without prior permission in writing of the Director.
67. The lessee shall send a statement of intention to abandon/discontinue/surrender the mine to the Director at least three months in advance. Where abandonment takes place as a result of natural or human forces beyond the control of the lessee, notice shall be sent as soon as possible.
68. The notice shall be accompanied by plans and sections on a scale of not less than 1:1000 showing the up-to-date workings and highlighting the environmental protection measures undertaken as well as those remaining to be carried out in the mine. The notification of the lessee's intention to cease operations under Article 28(iv) of the MMMA, shall include the following:
 - Brief description of reasons for closure
 - All current maps, records and reports on current location of workings
 - Summary of remaining reserves
 - Quantity and quality of all stockpiles and waste piles.
 - Description of current production methods, equipment, mine restoration plan and remaining products.
69. The Director may, by order in writing before the proposed date of abandonment, prohibit abandonment or allow it with such conditions as he may specify in the order.

Transfer of the mining lease

70. The lessee shall apply to the Director in Form K of Annex 1, at least three months in advance of any intent to transfer the rights and obligations of the mining lease to a third party under Article 27 of the MMMA.
71. The Director shall examine the proposed transfer and may allow it if the party receiving the mining lease is capable and demonstrates their intent to fulfill the obligations of Articles 28.i and 37 of the MMMA.

Mine closure

72. The lessee shall ensure that, at the end of the lease period or at the end of mine life, restoration work is carried out according to the Mine Restoration Plan in the approved FMFS to the satisfaction of the Director.
73. Minor changes to the post-mining land use plan can be introduced to take account of changed circumstances, after consultation with concerned persons and organisations and upon approval from the Director.

Chapter 8. Management of Mining Operations

Manager

74. The lessee shall appoint a suitably qualified manager to be responsible for the control and daily supervision of the mine under Article 36 of the MMMA as per Section 80 and 81 and his/her appointment shall be approved by the Director.
75. The manager shall be the authorized representative of the lessee for compliance with the terms of the lease and, in particular, with the obligation set out in Articles 28, 36 and 37 of the MMMA and these Regulations.
76. The manager shall have a minimum educational qualification of Class XII and at least two years experience of working or training in a mine for the mines employing 10 or more persons and his/her appointment shall be approved by the Director.
77. The manager shall have a degree in mining engineering and at least two years experience of working in a mine, for
 - 77.1 Large mines employing over 100 persons
 - 77.2 Mechanised mines using heavy earth-moving machinery such as loaders, dumpers, drill machines, excavators etc.

Foreman

78. In mines employing over 10 persons a mine foreman, having a minimum qualification of Class X and at least two years experience of working or training in a mine, shall be

employed.

79. In mines employing more than 100 persons a foreman, possessing minimum five years of field experience with a certificate course in mining from DGM or outside, shall be employed to assist the manager and to take charge of the mine during the absence of the manager
80. In a mine carrying out blasting operations, the foreman shall also possess a blaster's certificate or shall obtain one as soon as possible.

Blaster

81. In mines using explosives for breaking rock, the lessee shall employ a blaster having a shot firer's certificate under Section 68 of the Ministry of Home Affairs Explosives Regulation, 1989.

Engineer/engineering supervisor

82. For mines employing more than 100 persons, an engineer or engineering supervisor shall be employed to assist the manager in installation and maintenance of electrical and mechanical equipment.
83. The Director may require the lessee to appoint an engineer/engineering supervisor in a mine with fewer workers but with many installed machinery such as crushers, screens, compressors, heavy earth-moving machinery, etc., where such a person is needed to ensure the safe operation of the machinery.

Chapter 9. Records, Reports and Notices

Plans and sections

84. The lessee shall keep the following plans and sections on the mine site:
 - 84.1 A key plan on a scale of 1:50000 or larger, showing the boundary of the mining lease and the adjoining area up to a distance of 5 km, contours at not more than 20 m intervals, the natural drainage system, roads and footpaths, land uses, and places of religious or cultural heritage or natural value (e.g. sites of endangered species or biotopes, special beauty, etc.).
 - 84.2 An environment plan of the mining lease and the surrounding area within 1 KM of the mining lease on a suitable scale showing the boundary of the lease, contours at 5 m intervals, natural drainage system, roadways, power transmission line, land use of the area, places of cultural heritage and tourist interest, if any, the location of landslides, if any, the mine workings, area deforested, area covered by dumps, mine infrastructure such as workshop, crusher house, mine office, township, area afforested and mined area reclaimed.
 - 84.3 A working plan showing details of the mine workings and every surface feature within the boundary of the mine leasehold on a scale of 1:500, 1:1000 or 1:2000, as

appropriate.

- 84.4 A transverse section or sections of the workings indicating the topographical surface, the dip and thickness of the mineral deposit and other strata, faults and folds and benches in the overburden, mineral and soil dumps, if any.
85. All plans and sections submitted under this Regulation shall clearly show the name of the mine, the name of the lessee, the purpose for which the plan or section has been prepared, the true North, and the scale of the plan.

Records of the mine

86. The lessee or the manager shall keep and maintain in the mine office, the up-to-date records of the mine which shall include records on;
- 86.1 Excavation and disposal of overburden and inter-burden waste, top soil and low grade mineral,
- 86.2 Mineral raised, stockpiled or despatched to its destinations,
- 86.3 All workers deployed, mandays worked, wages of workers, and age, gender and nationality of workers,
- 86.4 Machinery and equipments, their performance, fuel and lubricant consumption,
- 86.5 Blast-hole drilling and explosives,
- 86.6 Accidents,
- 86.7 Health and safety measures,
- 86.8 Environmental protection measures, and
- 86.9 Others not yet specified.

Report on minerals prospecting

87. The prospecting licensee shall submit to the Director the half yearly progress report and a final report of the work giving details of the findings.

Monthly report

88. On or before the 15th day of each month, the lessee shall submit to the Director a monthly report on employment, machinery, etc. of previous month in Form L, Annex I.
89. The Despatch Inspector assigned to the mine shall submit the monthly raising and despatch statement, in Form G of Annex I based on the mineral despatch done through Form F of Annex 1.

Quarterly report

90. On or before the 15th day of the month following a quarter of the year, the lessee shall submit to the Director a quarterly report in Form H, Annex I for the four quarters.

Annual report

91. Each year, on or before the 31st day of March, the lessee shall submit to the Director an annual report for the preceding year in Form I, Annex I.
92. The FMFS shall be reviewed and updated annually, and modifications shall be communicated to the DGM in the annual report under Section 91 of these Regulations.
93. If a mine is abandoned, or the mine lease is transferred, or upon termination or expiry of the mining lease, the report under Section 91 shall be submitted within one month of the abandonment or change of lessee, or within three months of termination or expiry, as the case may be.

Notice of change in employment

94. When a new manager, engineer, surveyor or foreman is appointed, or when the employment of any manager, engineer, surveyor or foreman is terminated for any reason, the lessee shall inform the Director within two weeks.

Change of name of mine and address

95. The lessee shall inform the Director in writing of any change in the name or address of the mine within one week of the change.

Chapter 10. Monitoring, offences and sanctions

Inspection and Monitoring

96. The DGM shall inspect and monitor all leased mines at least once every six months and may also conduct spot checks, as frequently as necessary.
97. An officer who enters property under Section 96 shall, upon request, provide proof of identity to any person on the site.

Powers of Inspectors

98. The Director shall appoint such officers possessing the prescribed qualifications to be Inspectors for the purpose of enforcing the MMMA and Regulations.
99. An Inspector may:
- 99.1 Call for and examine all reports, registers and records required to be maintained by

all holders of a mining lease.

- 99.2 Visit, enter, inspect and examine, with or without previous notice, all facilities related to operation directly or indirectly related to a mining lease.
 - 99.3 Investigate the circumstances surrounding an accident, dangerous occurrence, or activity connected with the health and safety of workers or the public.
 - 99.4 Take measures either immediately or by subsequent notice, up to and including the closure of part or all of a mine, where the workings are not being carried out in accordance with the provisions of the MMMA and with the approved plans required by these regulations, such measures to be provided in writing to the person in charge of the operation at the time such action is deemed necessary by the inspector.
 - 99.5 Take samples of any material in or discharged from any mine processing facility.
 - 99.6 Examine orally any person supposed to be acquainted with the facts and circumstances of any activity being examined or investigated under the Act.
 - 99.7 Take any other actions under the MMMA and regulations for the purpose of monitoring and enforcing the environmental terms of a prospecting license or mining lease.
 - 99.8 Upon producing official identification, stop and search any conveyance suspected of carrying mineral illegally which is defined as an offence under the Act.
 - 99.9 Prepare and distribute notices approved by the Director regarding either general or mine-site specific details on proper procedures and precautions for good and safe mining practices, environmental standards and worker and public health and safety, such notices to have the legal status of regulations. The lessee shall keep such notices posted in one or more conspicuous places at the mine.
 - 99.10 Exercise such other powers as may be authorized by the Government in this behalf,
100. All powers conferred by this Regulation to Inspectors shall be exercised in such a manner as to avoid unreasonably impeding or obstructing the legitimate working of the mine.

Qualifications of Inspector

101. Officers appointed by the Director, as National Inspectors and Regional Inspectors, shall hold a degree in either mining engineering or geological sciences from an educational institution recognized by the Government.
102. Officers appointed by the Director, as Despatch Inspectors shall complete prescribed training and apprenticeship requirements.

Compliance orders

103. If the DGM determines that an offense is being committed or has been committed under Articles 32 or 45 of the MMMA, the Director shall issue an order in writing directing the prospecting licensee or mine lessee to comply with the order.
104. The order shall state the sanctions and basis for their imposition. It shall give the contact details of the responsible official, and state that the decision may be appealed, within the time limit given in Annex 6, to the Director or Minister under Articles 48 of the MMMA.
105. The Director may give the mine lessee the opportunity to make a compliance agreement in writing, wherein, the lessee shall undertake to comply with the FMFS and other terms of the mining lease within the time limit and on the terms specified in the agreement.
106. The Director may issue a separate order concerning:
 - 106.1 Matters not covered by the agreement;
 - 106.2 The consequences of non-compliance with the agreement;
 - 106.3 Matters not covered by the agreement, if additional facts relevant to the agreement were not known to the DGM at the time of the agreement.
107. A lessee who enters into a voluntary compliance agreement with the DGM under Section 105 and who complies fully with the agreement, does not commit an offense under the paragraph of Articles 32 or 45 of the MMMA.

Compensation and Sanctions

108. The determination of liability and sanctions for offenses committed under Articles 32 or 45 of the MMMA shall take the following factors into account:
 - i. Magnitude of the offense
 - ii. Frequency of the offense
 - iii. The culpability of the offender
 - iv. The extent of the achieved or intended economic advantage from the offense.

Remedies

109. A sanction for an offence under the Act does not relieve a person from other liability under law.

Administrative appeals

110. Any decision or order taken against the applicant or lessee under the MMMA and subsidiary regulations shall state that the person has the right to appeal within a specified time limit, and shall give the name and contact details of the person and office to which

appeal may be made.

111. Such appeal, if not resolved amicably by the Director within 60 days, may be transmitted to the Minister.
112. The Minister shall notify the appellant of receipt of the appeal and the action to be taken regarding investigations and arbitration procedures, within 30 days of official receipt of the appeal from the Director.

PART 2. OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENT

Chapter 11. Explosives

General requirements

113. All transport, storage and use of explosives on the site shall be carried out in compliance with the Ministry of Home Affairs Explosives Rules, 1989.
114. Any explosive brought into a mine shall be in a well constructed and securely locked container made of heavily galvanized iron or steel. The blaster shall keep the keys to the containers on his person throughout his shift and relinquish them to the manager at the end of the shift. A container for detonators may not be constructed of metal or other conductive material.
115. Detonator shall not be kept in a container that contains other explosives.

Use of explosives

116. No explosive may be used in a mine except that provided by the lessee.
117. A detonator may only be taken out from its container when it is required for immediate use.
118. The preparation of charges and the charging and stemming of holes shall be carried out by or under the personal supervision of the blaster.
119. Only the blaster may fire the shots.
120. The blaster shall be provided with wooden rods for stemming shot holes, a pair of suitable crimpers for crimping detonators, a pricker made of wood or of a non-ferrous metal for priming cartridges, and a knife for cutting off fuses.
121. In case of electric shot firing:
 - 121.1 The shot shall only be fired by means of a suitable shot firing apparatus.
 - 121.2 The blaster shall keep the key of the shot firing apparatus in his person throughout his shift and relinquish it to the manager at the end of the shift.
 - 121.3 When multiple shots are to be fired at the same time, the circuit shall be tested for electrical resistance or continuity before it is connected to the firing apparatus
122. Before a shot is charged, stemmed, circuit tested or fired:
 - 122.1 The blaster shall ensure that all persons in the vicinity have taken proper shelter.

- 122.2 He shall give sufficient warning, by an efficient system of signals or by other means approved by the manager over the entire danger zone of 500 metres radius from the place of firing that a blasting is going to take place.
123. Adequate shelters shall be provided when the workings offer insufficient protection against fly rock.
124. An all-clear signal shall be given after shots have been fired, except in case of a misfire.
125. Where a public road lies within the 500 m radius of the danger zone from the blast holes, guards shall be posted at appropriate places to prevent persons and vehicles coming within the danger zone during the blasting period.

Misfires

126. When a misfire occurs in a mine, indicated by the counting of exploded shots in case of fuse blasting, or observed by the blaster from other indications in case of electrical or detonating cord blasting, no person shall enter the place of blasting until 30 minutes in case of fuse blasting and 5 minutes in case of electrical or detonating cord blasting after the firing of shots. The place of the misfire shall be marked by a red flag to indicate it as a danger zone.
127. In the event of a misfire, the following procedure shall be followed:
- 127.1 The tamping may be sludged out with compressed air or water under pressure and the hole may be reprimed and fired.
- 127.2 When the misfire is due to a faulty cable, or is due to a faulty connection in case of electrical firing, the shot may be fired again after the defect has been rectified.
- 127.3 Where the steps in Sections 127.1 and 127.2 have not been successful, another shot may be fired in a relieving hole where practicable. The relieving hole shall be drilled at least 30 cm away from and parallel to the misfire hole.
- 127.4 After the relieving hole has been fired, a careful search shall be made for cartridges and detonators amongst the material brought down by the shot.
- 127.5 Before leaving the mine, the blaster shall inform the foreman and the manager of the misfire that has occurred; when a misfired shot has not been relieved or re-blasted, he shall also inform the officer of the next shift before he leaves the mine.
- 127.6 The blaster shall record every incident of misfire in a bound-paged book kept for that purpose.
128. The manager shall ensure that utmost care is exercised when working is carried out in the mine in an area where the presence of a misfired hole has been reported and the hole has not been relieved.

Chapter 12. Machinery and plant

129. Only properly trained and certified persons may operate or supervise the operation of machinery on the site of the mine. The operator of heavy earth moving machinery shall possess an operating certificate duly certified by mechanical in-charge and manager of the mine.
130. Every air receiver forming part of a compressed air plant shall be fitted with a safety valve and an air gauge, which shows pressure in excess of the atmospheric pressure.
131. Moving parts of any machinery, which can pose danger to the workers, should be adequately fenced while in use. Adequate precautions shall be taken while the guards are removed for carrying out any examination, adjustment or repair.
132. Loose outer clothing may not be worn in close proximity to any moving machinery.
133. A competent person shall, at least once a week, make a thorough inspection of all machinery and plant in use and shall record the result in a bound-paged book kept for the purpose.
134. When heavy earth-moving machinery is used in a mine, the lessee shall maintain a log book for each machine showing the hours in use and idle, the reason for idleness, consumption of fuel/energy and lubricants, and the output of the machine during the corresponding working hours.

Chapter 13. Accident Prevention and response

Protective clothing and equipment

135. The lessee shall ensure that any person entering a mine site shall wear a helmet and protective footwear.
136. The lessee shall supply, free of charge, a helmet and protective footwear to any person who works in the mine site. This shall be replaced when damaged or worn.
137. The regional inspector may ask the lessee to supply other protective equipment such as gloves, goggles, ear plugs, dust respirators, etc., to any worker or a group of workers who are exposed to special hazards at work.

Notice of accidents

138. Whenever there occurs in or near a mine:
 - An accident causing loss of life or serious bodily injury in connection with mining works, or,
 - An accident due to explosives or bursting of equipment containing compressed air or other substance at high pressure,

the lessee shall immediately inform the Regional Inspector and the Director, and submit a report on the accident in Form M, Annex I to the Director within one week with a copy endorsed to Dzongdag.

Weekly day of rest

139. No person shall be required or allowed to work in a mine for more than six days in one week.

Hours of work

140. No person employed in a mine shall be required or allowed to work more than forty-eight hours in any one week.

141. No person employed in a mine shall work for more than five hours continuously before he has had a rest interval of at least half an hour.

142. The period of work of every employee shall be arranged so that, in addition to the rest interval, it does not total more than 12 hours in one day.

Compensation

143. Compensation, in case on accidents resulting in injury or death, shall be made as per the existing laws of the Kingdom.

144. In case of any damage to private or government property within or outside the mining lease area resulting from any activity in the mine, the lessee shall pay suitable compensation as determined by the Government.

Chapter 14. Open cast mines

General precautions

145. In open cast working in soft rock, such as alluvial soil, clay, debris, gravel or similar ground:

145.1 The sides shall be sloped at an angle not exceeding 45 degrees from the horizontal, unless the Director permits another angle by order in writing.

145.2 The sides shall be kept benched; the height of any bench may not exceed 1.5 m and the breadth may not be less than the height.

146. In an excavation in any hard and competent rock worked manually:

146.1 The sides shall be sloped at an angle of not more than 60 degrees from the horizontal.

146.2 The face shall be benched; the height of any bench may not exceed 5 m and the

breadth may not be less than the height.

147. Where, in a mine employing heavy earth-moving machinery and deep hole blasting, the requirements of sections 145 or 146 cannot be complied with, the manager shall propose a suitable method for approval in writing to the Director at least 60 days prior to the start of the work.
148. Work may not begin until the lessee has received written permission for the alternative method from the Director.
149. No tree, loose stones or debris shall be allowed to remain within a distance of 3 m from the edge or sides of the excavation.
150. No person may undercut any face or side to cause over-hanging.

Underground mining

151. If a lessee or manager proposes to extract ore/mineral by underground mining method, he shall submit a detailed proposal with the scheme of entry, blasting, loading, support, size of openings and pillars, haulage etc. to the Director for approval.
152. Any underground mining shall not start prior to the approval in writing from the Director.
153. The Department shall formulate separate regulations for the operation of underground mines as and when required.

Chapter 15. Occupational health and environment

Health and environmental standards

154. The lessee shall ensure that the mine works comply with all emission limits and ambient air quality standards adopted by the National Environment Commission under the EA Act, Articles 33.2.
155. If emission limits or ambient air quality standards are adopted after the grant of the mine lease, the lessee shall prepare an action plan to bring the mine works into compliance within a reasonable time not exceeding one year, and submit it to the Director for approval as a proposed modification to the FMFS in the annual report under Section 91 of these Regulations.

Occupational disease

156. The lessee shall inform the Director within seven days of any cases where a person employed in the mine is suspected of having contracted pneumoconiosis and other dust diseases of the lungs.
157. Any medical practitioner, who attends to a person employed in a mine and diagnoses that the person is suffering from pneumoconiosis, shall immediately send a notice in writing to

the Director.

Sanitary and drinking water conditions

158. In compliance with Articles 37.ii of the MMMA, the lessee shall provide and maintain adequate numbers of clean latrines and a sufficient supply of cool and wholesome drinking water for all persons working at the site.

Dust

159. The lessee shall take such all necessary measures to control dust emissions at any work place and to suppress dust by spraying water or by other measures to ensure that workers are not exposed to harmful concentration of airborne respirable dust.
160. For the purpose of these Regulations respirable dust is airborne dust with size of less than 10 micrometer.
161. For the purpose of this regulation, a place shall be considered to have harmful concentrations of airborne respirable dust if:
- the 8 hour time-weighted average concentration of airborne respirable dust exceeds three mg/m³ of air if the dust contains less than 5 percent of free silica, or,
 - the 8 hour time-weighted average concentration of airborne respirable dust exceeds the value of 15 divided by the percentage of free silica present in the dust.
162. Pending adoption of emission limits and ambient air quality standards by the National Environment Commission under Articles 33.2 of the EA Act, the lessee shall take all measures necessary to ensure that the ambient air quality meets the following standards at the site boundary:
- less than 500 µg/m³ concentration of suspended particulate matter, and,
 - less than 200 µg/m³ concentration of suspended particulate matter if the area immediately beyond the leasehold is rural or residential in character.
163. The lessee shall at least every six months or whenever the Regional Inspector requires by an order in writing, cause the air at every workplace where airborne dust is generated to be sampled and the concentration of respirable dust determined.
164. When the dust monitoring results have established that the permissible levels of dust concentration are being exceeded at any place, the operation or operations causing excessive dust generation shall be shut down until remedial measures have been taken to ensure that the ambient air quality standards in Sections 161 and 162 of these Regulations or in the mine lease or other rules and regulations issued by the Government are complied with.

Noise

165. The lessee shall take steps to control the generation of noise in a mine and ensure that workers at the mine are not exposed to high noise levels.
166. The maximum permissible noise level on the site shall be 90 dBA for an 8 hour shift.
167. If a particular operation in the mine such as drilling, dozing, crushing, compressor operation, etc. generate a higher noise level, the working hours for the operators of such equipment shall be reduced to 4 hours when the noise level is 93 dBA; the working hours shall be reduced by further 50 percent for every additional 3 dBA increase in the noise level in the work zone.
168. Workers shall not be allowed to enter an area in which the noise level is 115 dBA or more without appropriate ear protection.
169. The lessee shall provide ear plugs or ear muffs to workers in areas of more than 90 dBA.
170. The lessee shall cause to be monitored the noise level at the site and just outside the boundary at suitable locations at least every three months, according to the terms of the lease.

Use of topsoil

171. Where topsoil is excavated for mining works or where creation of overburden/waste dumps would cover the topsoil, the lessee shall remove the topsoil separately before starting the excavation or constructing the waste dump.
172. The lessee shall use the topsoil for reclamation of mined out areas, overburden and waste dumps.
173. If the topsoil cannot be used immediately after its removal, the lessee shall store it separately for future use in such a way as to prevent loss through wind or water.

Overburden and waste dumps

174. Wherever possible, the lessee shall back-fill the waste rock and overburden into the mine excavations with a view to restore the land to its approximate original shape.
175. In deposits where in-pit dumping is not possible and also to accommodate the overburden and waste material produced in the initial stage of mine development, the lessee is required to locate suitable waste dumping places outside the mine pit, create dump in layers suitably terraced at the edges to improve stability, control erosion and for ease in reclamation, and vegetate it as early as possible
176. The lessee shall undertake phased reclamation, restoration and rehabilitation of lands affected by mining operation.
177. The overburden and wastes shall be disposed only at the site indicated in approved FMFS or the area approved by the Technical Committee of the DGM and as per the terms and

conditions of the Environmental Clearance.

Ground vibration

178. Whenever any damage to private or public property or places of cultural heritage is reportedly caused by blast-induced ground vibration, the Regional Inspector may require the lessee to carry out measurements of peak particle velocity (PPV) and frequency of the ground vibration induced by blasting and to develop a predictor equation for ground vibration for the site.
179. Depending on the type of structures and the dominant excitation frequency, the peak particle velocity (PPV) in mm/s on the ground adjacent to the structures not belonging to the lessee may not exceed the values given below in the table. For structures belonging to the lessee 50% higher ppv value may be permitted.

Type of structure	Dominant excitation frequency, in Hz and maximum permissible ppv value in mm/s		
	<8Hz	8-25Hz	>25Hz
Domestic houses	5	10	15
Industrial buildings (RCC and framed structures)	10	20	25
Places of cultural heritage	2	5	10

Water

180. Any water leaving the mine boundary shall not exceed the value of
- 180.1 50mg/l of total suspended solid (TSS).
- 180.2 10mg/l of oil and grease
181. Where the mine effluent or overburden dump seepage water has any toxic element, the water shall be treated to reduce the toxicity level acceptable to DGM/NECS before being allowed to leave the mine lease area.

Monitoring of Environmental Quality

182. The lessee or the manager of a mine shall be required to get the environmental quality in and around the mine lease area monitored regularly for air, water, noise, vibration and slope stability as specified in the environmental clearance.
183. A copy of the environmental quality monitoring results shall be submitted to the Regional Inspector every three months.
184. The lessee or the manager shall get the annual environmental statement prepared giving the environmental quality of air, water and noise in the mine and its surroundings, the area deforested and revegetated, results of ground vibration measurements, area of top soil and waste dumps and details of environmental protection works.