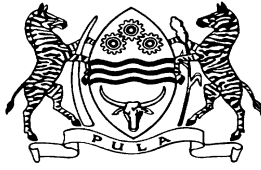


Government of Botswana
Ministry of Minerals Energy and Water Resources



REPUBLIC OF BOTSWANA



MINING LICENCE AND MINERALS PERMIT APPLICATION
REQUIREMENTS



Forward your applications to: The Director of Mines, Private Bag 0049, Gaborone, Botswana

www.mines.gov.bw

Last updated: June 2013

MINING LICENCE (ML) APPLICATION

Who may apply for a Mining Licence.

Holder of a prospecting licence, or retention licence, or a prospecting waiver.

How do you prepare for a Mining Licence application.

1. If the area has been sufficiently prospected and no other person has exclusive rights over that area, you can apply for a prospecting waiver from the Department of Mines. If the area has not been prospected before, apply for a prospecting licence from Department of Mines and then apply for a Mining Licence after completing your prospecting programme which should included a feasibility report. (NB For river sand, no waiver shall be used).
2. In case a waiver from prospecting is used and the proposed area overlaps with an existing prospecting licence area, mining licence area or retention licence area, obtain consent from holder of the prospecting licence, mining licence or retention licence.
3. Obtain surface rights from the relevant Land board, in case of tribal land; Department of Lands, in case of State land; or land owner, in case of freehold land.
4. Survey the area and prepare a plan with coordinates and the total area of the proposed site being applied for.
5. Conduct an Environmental Impact Assessment (EIA) Study and prepare an Environmental Management Programme (EMP) and obtain their authorisation from the Department of Environmental Affairs (This should be a part of the feasibility study)
6. Conduct an Archaeological Impact Assessment of the area within the proposed mining area and obtain clearance from the Department of National Museum and Monuments.
7. If the area is within a game reserve or national park, or any wildlife conservation area, obtain a clearance from the Department of Wildlife and National Parks.
8. Resolution of company board of directors to apply for mining licence.

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Ministry of Minerals Energy and Water Resources

9. Feasibility study report has to contain the following:
- a) Details of mineral deposit (including all known, proven, indicated, inferred ore reserves and mining conditions)

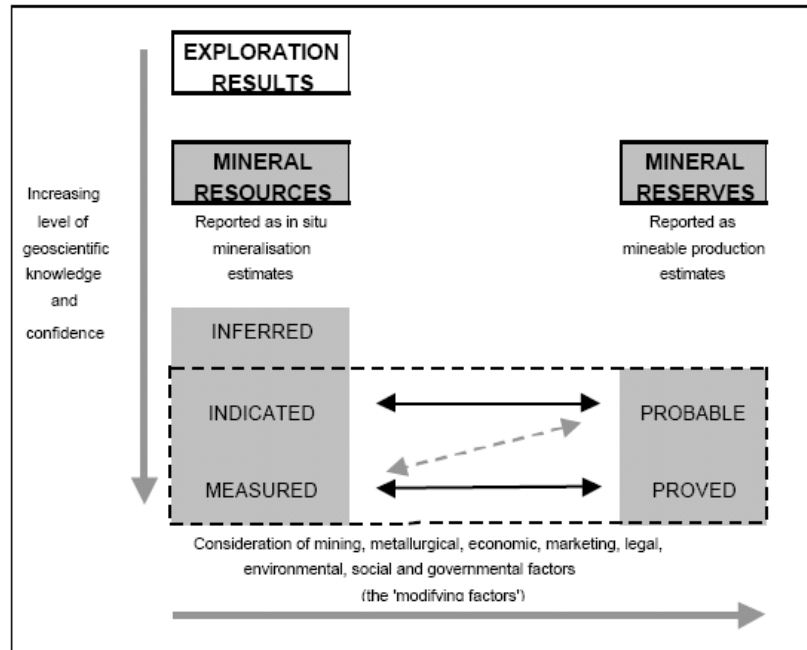


Figure 1: framework for classifying tonnage and grade estimates so as to reflect different levels of geoscientific confidence and different degrees of technical and economic evaluation.

- b) Technical report on mining and treatment possibilities and the applicant's intention in relation thereto
- c) Proposed programme of mining operations, which should include estimated date by which applicant intends to work for profit, estimated recovery rates, nature of product and envisaged marketing arrangements for sale of mineral product(s)
- d) Environmental Impact Assessment (EIA) Study and Environmental Management Programme (EMP)
- e) Forecast of capital investment, cash flow and details of anticipated financing plan
- f) Outline of proposed employment level and training program.
- g) Outline of proposed sources of goods and services
- h) Details of expected infrastructure, e.g. access road, electricity and water supply

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Government of Botswana
Ministry of Minerals Energy and Water Resources

- i) Audited statement of relevant exploration expenditure incurred prior to the application on the area applied for

N.B. With the exception of prospecting and feasibility study, which have to be completed first, the other items can be prepared all at the same time then submitted to the Director of Mines together with the completed application form (Form V). **Submit a soft copy** of financial model (from feasibility report) in Microsoft Excel format and **three (3) copies each** of bound hard copies.

Incomplete/ partially complete applications shall not be accepted.

List of items to submit to Director of Mines when applying for a mining licence.

- 1. Completed application form (Form V)*
- 2. Copy of resolution of company board of directors to apply for mining licence.*
- 3. If application is submitted by a consultant, a letter from an applicant appointing the consultant to submit applications on his/her behalf with the applicants postal address, telephone and fax numbers*
- 4. A certified copy of company registration certificate or certificate of incorporation*
- 5. Certified copies of identity documents for company directors*
- 6. Copy of prospecting licence and approved prospecting report or copy of retention licence or a copy of a waiver from prospecting.*
- 7. If the area is within or overlaps with a prospecting, retention or mining licence area a letter of consent of the holder of the licence. Copy of surface rights consent from the relevant Land board, in case of tribal land; Department of Lands, in case of State land; or land owner, in case of freehold land. The surface rights to be accompanied by a plan with survey coordinates and the total area of the site being applied for.*
- 8. A letter of authorisation of the Environmental Impact Assessment study and Environmental Management Programme from the Department of Environmental Affairs.*
- 9. Clearance of Archaeological Impact Assessment from the Department of National Museum and Monuments.*
- 10. Clearance from Department of Wildlife and National Parks, if the area is within the game reserve or national park.*

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Ministry of Minerals Energy and Water Resources

11. Detailed Feasibility report containing

- j) Details of mineral deposit, including all mineral resources and reserves (measure, indicated, inferred, probable and proven) and mining conditions.*
- k) Technical report on mining and treatment possibilities and the applicant's intention in relation thereto*
- l) Proposed programme of mining operations, which should include estimated date by which applicant intends to work for profit, initial position(s) of facilities with coordinates on the surface rights, estimated recovery rates, nature of product and envisaged marketing arrangements for sale of mineral product(s)*
- m) Environmental Impact Assessment study and Environmental Management Programme*
- n) Forecast of capital investment, cash flow and details of anticipated financial plan(FINANCIAL MODEL- soft copy in Microsoft Excel)*
- o) Outline of proposed employment level and training program.*
- p) Outline of proposed sources of goods and services*
- q) Details of expected infrastructure, e.g. access road, electricity and water supply.*

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MINERALS PERMIT (MP) APPLICATION

Who may apply for a Minerals Permit (MP)

- A person wishing to conduct small scale mining operation for any mineral other than diamonds over an area not exceeding 0.5 km² per permit, and production of raw ore not exceeding 50, 000 tonnes per annum while overall investment in fixed assets not exceeding P1 million.
- For industrial minerals, the applicant should be a citizen of Botswana, in a case of an association or partnership of individuals, the partnership or association should be composed exclusively of individuals who are citizens of Botswana and in case of a corporate body which is incorporated under the Companies Act, the directors and beneficial shareholders should be citizens of Botswana.

How do you prepare for a Minerals Permit application?

- 1) If the area has been sufficiently prospected and no other person has exclusive rights over that area, you can apply for a prospecting waiver from the Department of Mines. If the area has not been prospected before, apply for a prospecting licence from by Department of Mines and then apply for a Minerals Permit after completing your prospecting programme which should included a feasibility report. (NB For river sand, no waiver shall be used).
- 2) In case a waiver from prospecting is used and the proposed area overlaps with an existing prospecting licence area, mining licence area or retention licence area, obtain consent from the holder of the prospecting licence, mining licence or retention licence.
- 3) Obtain surface rights from the relevant Land board in case of tribal land; Department of Lands in case of State land; or land owner in case of freehold land.
- 4) Survey the area and prepare a plan with approved coordinates and total area of the surface area over the MP applied for.
- 5) Prepare a proposed programme of mining operation which should include:
 - a) Estimated date by which applicant intends to work for profit, capacity of production and scale of operations.

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Government of Botswana
Ministry of Minerals Energy and Water Resources

- b) Envisaged marketing arrangement for sale of mineral products.
 - c) Brief Environmental Impact Assessment study and brief environmental reclamation programme.
- 6) Conduct a brief Environmental Impact Assessment (EIA) Study with an Environmental Management Programme (EMP) and obtain authorisation from the Department of Environmental Affairs
 - 7) Prepare an archaeological assessment study of the area covered within the proposed mining area and obtain clearance from the Department of National Museum and Monuments.
 - 8) If the area is within a national park or game reserve, obtain clearance from Department of Wildlife and National Parks.

With the exception of prospecting, which has to be done ahead of everything else, all the other items can be prepared simultaneously and should be submitted together with the application form (Form VII).

Items to submit to Director of Mines when applying for the Minerals Permit

- 1. Complete application form (Form VII)*
- 2. If application is submitted by a consultant, submit a letter from an applicant appointing the consultant to submit applications on his/her behalf with the applicants postal address, telephone and fax numbers*
- 3. A certified copy of an identity (Oman) as proof of Botswana citizenship and in case of a company attach a certified copy of company registration certificate or certificate of incorporation and copies of identities of the Directors and shareholders*
- 4. Letter of Surface rights with surveyed coordinates, sketch plan and total area applying for.*
- 5. If the area is within a prospecting, Retention or Mining licence, consent from the concession holder should be submitted.*
- 6. Clearance of Archaeological Impact Assessment Report from Department of National Museum and Monuments.*
- 7. Proposed programme of mining operation which include:*
 - a. Estimated date by which applicant intend to work for profit, capacity of production and scale of operations.*
 - b. Envisaged marketing arrangement for sale of mineral products.*

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Government of Botswana
Ministry of Minerals Energy and Water Resources

- c. Brief Environmental Impact Assessment study and brief environmental reclamation programme.*
8. *Clearance from Department of Wildlife and National Parks, if the area is within the game reserve or national park.*

STATUTORY REQUIREMENTS AFTER OBTAINING A MINING LICENCE OR MINERAL PERMIT:

1) Acts which may be relevant

- Mines and Minerals Act; Act No.17 of 1999
- Mines, Quarries, Works and Machinery Act
- Explosives Act
- Precious and Semi precious Stones (Protection Act) – in case of retention licence for precious or semi-precious stones.

2) Lease charges:

Annual charge of P100/km² or part thereof for mining licence or minerals permit

3) Royalties Payments

Royalties payable shall be the following percentage of gross market value for the minerals. Royalties are payable monthly to the Botswana Government through the Director of Mines.

<u>Mineral Type</u>	<u>Percentage</u>
Precious stones	10%
Precious metals	5%
Other minerals	3%

4) Submission of Statutory Returns before the 15th of the month following that it relates to:

- a) Mineral production returns
- b) Labour and wages returns
- c) Health and Mortality returns

Other returns include:

Quarterly returns:

Ventilation returns

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Explosives magazine returns

Annual returns:

Survey plans

CONTACT DETAILS:

Gaborone Area	Francistown Area
Director of Mines	Director of Mines
P/Bag 0049	P/Bag F0081
Gaborone	Francistown
Tel: (+267) 365 7000	Tel: (+267) 245 0200
Fax: (+267) 3952141	Fax: (+267) 240 6004
Contact:	Contact:
Mr O. Ditsele	Mr B. Ace
Mr H. Biswas	Mr M. Tembe
Mr. M Stone	Ms. G. Gasha
Mr K Charles	

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GUIDANCE ON MINING ISSUES FOR A MINING PROGRAMME OF A QUARRY

I. DRAWINGS

1. Following drawings should be attached with a mining programme;
 - 1.1 Surface plans which shows within proposed mining lease area and area within 1200 m from the mining lease boundaries:
 - (a) the position of boundaries of the proposed mining lease areas
 - (b) the position of the proposed means to protect against inadvertent access to the operational area (see regulation 563 of the Mines, Quarries, Works and Machinery, Cap 44:02)
 - (c) the position of all proposed and existing surface and underground mine workings and of boreholes and the boundaries of any caved area with the position of any fence erected to protect such area
 - (d) the position of all proposed plants and buildings related to the quarry including explosives magazines, first-aid and ablution facilities and blasting danger zone
 - (e) the position of all reservoirs, dams, and other works of similar nature, aerodromes and landing grounds and factory buildings
 - (f) the position of dwelling houses, cattle posts, public recreation and sports grounds, cemeteries or other places where public are accustomed to assemble
 - (g) the position of all railways, rivers, main roads and private roads which are principal means of access to a church, chapel, college, school, hospital or factory;
 - (h) the position of electric substations, electric power line, public telephone lines and main pipelines (on or under the surface)
 - (i) the position of and connection data to each surveyed triangulation or geodetic beacons
 - (j) the position of any other surface object which is not listed here and which the applicant think it necessary to be shown on the surface plan
 - 1.2 Location plan showing proposed site of mining lease area and the area within 13km from the lease boundaries which include the following:
 - (a) the position of any city, town and village boundaries or any built-up area
 - (b) the position of any existing mine and quarry
 - (c) the position of any reservoirs, dams, and other works of similar nature, aerodromes and landing grounds

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Government of Botswana
Ministry of Minerals Energy and Water Resources

- (d) the position of all railways, rivers and main roads
 - (e) and the position of any other surface object which is not listed here and the applicant think it necessary to be shown on the plan
- 1.3 Drawings showing, at least along two perpendicular lines, sections of the pit which shows the profile of the benches and the haul road/s in the pit at different stages of the life of the quarry, and the sections, at least along two perpendicular lines, showing the profile of the pit at the end of the life of the quarry before and after it is rehabilitated
- 1.4 Plans' showing the pit at the end of the life of the quarry before and after the quarry is rehabilitated.
2. All plans and section submitted should be drawn to scale. Plans and sections should be drawn on a statutory scale of 1/500, 1/1000, 1/1500, 1/2000, 1/5000, or other reasonable multiples or fractions of these scales. The scale chosen should be such that the size of the plan is reasonable and information provided on them is legible.

II. BENCHES AND FINAL HIGH WALL OF PIT

The following information should to be included in a mining programme:

1. The dimension of the benches and final high wall

Recommendations:

The height should comply with regulation 558 or 562 of the Mines, Quarries, Works and Machinery Regulations, Cap 44:02, as the case may be

2. The overall slope of the final high wall

Recommendations:

Geotechnical study should be conducted by a person competent to conduct such study to determine the overall slope and bench dimensions

III. IN-PIT HAUL ROAD

The following information should be included in a mining programme:

1. Haul road gradient

Recommendations:

- a) The average slope of the haul road should not be more than 8% (1 in 12.5 or 4.6 degrees).
- b) No place on the haul road should be steeper than 10% (1 in 10 or 5.7 degrees).

2. The width of the haul road

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Government of Botswana
Ministry of Minerals Energy and Water Resources

Recommendations:

The width of the haul road should be three times the widest truck to be operated on it plus the width of the safety berms to provide safe two way traffic.

3. Dimension of safety berms

Recommendations:

- a) The height of the berms from its base to its apex should be based on the size of the biggest truck to be operated on the haul road and in no case it should be less than one metre.
- b) The width of the safety berms should be at least twice its height.

IV. EXPLOSIVES AND BLASTING

Regarding explosives and blasting the following information should be included in the mining programme:

- 1. The provision for the explosives magazine should be there in the mining programme in the case of a quarry to be worked with the use of explosives and in the case of a commercial quarry, there should be provision for permanent explosives magazines
- 2. The location of the explosives magazines with safety distances according to Third Schedule of the Explosives, Chapter 24:02 should be shown on the surface plan
- 3. Blasthole diameter and powder factor to be used at the quarry should be included in the mining programme
- 4. The danger zone in which flying debris emanating from blasting operations may fall should be marked on the surface plan

Recommendations:

The flyrock danger zone, that is, the maximum distance (D_{max}) from a blasthole to which flying debris may go, can be calculated by the following two empirical formulae and the greater value of D_{max} of so calculated values should be considered.

$$D_{max} = 260 d^{2/3} \quad \text{and} \quad D_{max} = 35(sk)^{0.67}$$

Where: D_{max} is the maximum distance from a blast hole in metres to which the flying debris may go. It should be measured from the periphery of the proposed pit and not from the centre of the pit.

d is the diameter of the blast holes in inches

s is also the diameter of the blast holes but in millimetres

k is the maximum proposed powder factor in kg/m^3

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5. Besides flyrock, vibration and airblast are among the most significant issues for communities located near mining projects. Measures to be taken to prevent adverse effects of ground vibration and airblast emanating from blasting in a quarry and to prevent injury due to flyrock should be provided in a mining programme.

To prevent adverse effects due to ground vibration and airblast emanating from blasting in the quarry, the blasting parameters should be based on seismic survey of the area and study on effects of airblast conducted by a person competent to conduct such survey and study.

In case such survey and study are not conducted, the following recommendations are made to prevent adverse effects of ground vibration and airblast and to prevent injury due to flyrock. However, if there is still a complaint about or suspicion of adverse effects on properties in the area due to ground vibration or airblast emanating from blasting in the quarry, seismic survey of the area and study on airblast should be conducted to establish blasting parameters required to ensure safe blasting.

Recommendations:

When a built-up area is within 13km from the mining lease boundaries of a quarry, the following measures should be taken according to the distance of the built-up area from the quarry:

- a) Where a built-up area is within 13km but not nearer than 5km from the lease boundary of a quarry, necessary measures should be taken when carrying out blasting operations in the quarry to prevent adverse effects on the built-up area due to ground vibration and airblast emanating from the blasting.
- b) Where a built-up area is within 5km but not nearer than 1.2km from the mining lease boundary of a quarry, along with taking other measures, not more than four blastholes, if the diameter of the blastholes is up to 110mm, or not more than two blastholes, if the diameter of the blasthole is more than 110mm, should be fired in a delay and electronic detonators or technology better than electronic detonators should be used to delay blastholes.
- c) Where a built-up area is within 1.2km but not nearer than a distance equal to the flyrock danger zone plus 300m measured from the mining lease boundaries of a quarry, rock in the quarry should be broken using a method other than blasting. However, if the area is sparsely populated, blasting can be done in the quarry provided that:

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Government of Botswana
Ministry of Minerals Energy and Water Resources

- Necessary measures are taken to prevent adverse effect from flying debris, ground vibration and airblast; and
 - Each blasthole is detonated separately using electronic detonators or technology better than electronic detonators.
- d) Where a built-up area is within a distance equal to the flyrock danger zone plus 300m measured from the mining lease boundaries of a quarry, rock in the quarry should strictly be broken using a method other than blasting. However, if the area is sparsely populated and it is practicable to evacuate the area, blasting can be done in the quarry after evacuating the area of people and animals provided that:
- Necessary measures are taken to prevent adverse effect from flying debris, ground vibration and airblast; and
 - Each blasthole is detonated separately using electronic detonators or technology better than electronic detonators.
- e) Where a highway, busy public road or a railway passes within 1.2km from the mining lease boundaries of a quarry, rock in the quarry should be broken using a method other than blasting, unless the quarry is specifically operated for the construction, repair or maintenance of such highway, road or railway and Department of Roads or Botswana Railways, as the case may be, is aware of and has consented to the quarry being operated by blasting.

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RIVER SAND MINING

Environmental Problems and Possible Solutions

A. Environmental Impact

1. Access Road

Plying of heavy vehicles from public road to river sand collection points needs access roads. Majority of such access roads are following the same alignment of existing roads/tracks being used by pedestrians/cart owners. Movement of heavy vehicles sometimes cause problems to cattle post, agriculture land, human habitations, borehole users due to dust, noise and also causes traffic hazards.

2. Mining Activity

Harvesting of river sand and other associated activities are the main source of environmental degradations and the most serious ones are detailed hereunder –

- a) Damage of river bank due to access ramps to river bed, damage to the vegetation, soil erosion, micro disturbance to ground water, possible inducement of changed river course, change to the aesthetics of an area.
- b) Loss of riverine vegetation along the banks due to construction of roads connecting successive access ramps to river bed.
- c) Contamination of sand aquifer water due to ponding as well as from oils leaking from machinery. Due to uneven rocky bed of the river, sand bed thicknesses vary considerably and harvesters are tempted to dig more sand from a pocket where thickness of sand is more and they cause ponding. In the stagnant water, biodegradable materials especially floral waste gets accumulated thus causing contamination and inducing conducive environment for mosquito breeding.
- d) Ponds dug on river bed pose a hazard of livestock and children falling into such pits and drowning.
- e) Introduction of soils into river bed resulting in choking of the river by growth of vegetation within the river bed.
- f) River banks collapse due to mining in close proximity of the river banks or sometimes the mining of the banks themselves for river sand or pit sand.
- g) Destruction of river bank hinterland and flora due to extraction of river sand or pit sand on the river banks.

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Ministry of Minerals Energy and Water Resources

- h) Evaporation of sand bed water due to exposure to drying atmosphere of the water by removal or river sand. Watering of livestock from the sand bed water gets disturbed due to mining of sand as the quality and quantity of such water goes down.
- i) Surface degradation due to stockpiling and road network.
- j) Combination of all these activities results in an offensive look.
- k) Wildlife is also affected by such sand harvesting as it is directly or indirectly dependant on the river.

B. Mitigation Measures

- i. A minimum number of access ramps to the river bed should be maintained. Access points to the river bed are to be determined based on:-
 - Where access ramps already exist, no new ramps should be developed.
 - Least steep portion of the river bank.
- ii. Least vegetation growth. Haulage roads parallel to the river bank and roads connecting access (ramps) to the river bed shall be away from bank, preferably a minimum of 100m away.
- iii. No sand be collected within 2.5m to 5.0m from the bank of a river, and where the river is meandering, no sand should be collected within 5.0 m from outer bank of the meander or bend.. A safe buffer width or clearance should mainly be determined by the height of the river bank and thickness of sand to be extracted from close vicinity of that bank.
- iv. A sand bed of at least 0.5m thickness should be left on the river bed during extraction, and where there is sand bed water, the sand bed left should be 0.5m above the level of the water.
- v. Ponding in the river bed should not be allowed.
- vi. There should be minimal damage to the flora standing on the river bank.
- vii. Access roads from the public roads and up to the river bank should be aligned in such a way that it would cause least environmental damage.
- viii. Operations during daylight only.

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Government of Botswana
Ministry of Minerals Energy and Water Resources

- ix. No foreign material should be allowed to remain/spill in river bed and catchment area, or no pits/pockets are allowed to be filled with such material.
- x. Stockpiling of harvested sand on the river bank should be avoided.
- xi. For particular operations, approaching river bed from both the banks should be avoided.
- xii. Digging of river bank within 500m for pit sand and gravel, and also taking any thing from that zone for construction of access ramps, should be strictly prohibited.
- xiii. At least 0.5m sand bed should be left in-situ while harvesting sand from river bed.

C. GENERAL

- ii) Each site may have its own specific problems. So apart from general guidelines, any site specific issues must be addressed.
- iii) River stretches close to the villages or settlements or where other uses of the river already exist, should be avoided. Consultation with communities nearby is very crucial to avoid conflict with other uses of the river.
- iv) The area of proposed sand extraction should cover the river banks so that environmental damage to the river bank due to sand extraction can be covered under Mines and Minerals Act.

Interested and affected Parties should be consulted.