

**FORM C13**

**MINES & MINERALS ACT 2009**

**ENVIRONMENTAL MANAGEMENT PLAN IN RESPECT TO ARTISANAL MINING LICENCE**

**MINISTRY OF MINERAL RESOURCES**



***ENVIRONMENTAL MANAGEMENT PLAN***

*Submitted in support of application for Artisanal Mining Rights*

*Mines and Minerals Act 2009, Artisanal Mining Regulations 2009*

**Introduction**

This document provides a simplified format by which applicants for Artisanal Mining Rights can compile an Environmental Management Plan (EMP) to comply with Regulation 33 of the Artisanal Mining Regulations of 2009. It is also informed by the Environmental Protection Act 2000. The document will assist the applicants with planning for environmental protection when running their mining operation, if the mining right is granted. It will also assist the government officials in assessing the technical capability of the applicant to run a viable mining operation with the appropriate level responsibility towards environmental management. It also serves as a record of the applicant's undertaking to comply with environmental provisions of the law and the regulations.

This document is to be completed and submitted together with application for Artisanal Mining Rights.

**Section A – Biographical information of the Applicant**



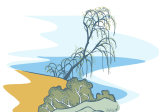












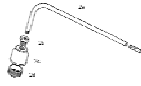

A1	Full name of person or entity applying for Artisanal Mining Rights:	
A2	Identity/Registration of applicant:	
A3	Address:	
A4	Contact numbers:	
A5	Email:	
A6	<u>Location of area to which application relates:</u>	
A6.1	District	
A6.2	Chiefdom	
A6.3	Village	
A6.4	Section	

## Third Schedule: reporting forms

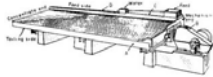
A6.5	Nearest Regional Office				
A6.6	Coordinates (if known)				
A6.7	Current use of land	a. Crops	b. Grazing	c. Residential	d. Mining
A6.8	Owner of the land				

### Section B – Environmental Impact Assessment

This section will enable the government officials to determine the level of impact the mining operation will have on the environment.

B1: DESCRIPTION OF THE ENVIRONMENT LIKELY TO BE AFFECTED BY THE MINING OPERATION					
B1.1	What does the environment look like?			Tick (X)	
	a. Open relatively flat 	a. Slope 	d. River bank 	e. Stream 	
B1.2	What is the type of soil?				
	a. Sandy	b. Gravel	c. Loamy		
B1.3	How deep is the soil?			a. <600mm	b. >600mm
B1.4	Describe the vegetation				
	a. Grass 	b. Shrubs 	c. Trees 		
B1.5	What animals occur in the area?				
	a. Large animals 	b. Small animals 	c. Unique creatures 		
B1.6	Are there any protected areas?				
	a. Game park/nature reserve 	b. Monuments 	c. Cultural areas 		
B1.7	What mineral is going to be mined?				
B1.8	What equipment will be used?				
	a. Water pump 	b. Rock drill 	c. Diamond washing plant	d. Hand Jig	e. Mercury retort 
	f. Excavator (earth mover) 	g. Diamond shaker box	h. Panning dish	i. Sluice box	j. Shaking table

## Third Schedule: reporting forms

									
<b>B2: HOW WILL THE MINING OPERATION IMPACT ON THE ENVIRONMENT</b>									
B2.1	What is the depth of proposed mining operation? (in metres)								
B2.2	Total area of pits (in square metres)								
B2.3	What will be the size of each pit before being backfilled								
B2.4	How many pits will be dug?								
B2.5	Will food be cooked on the site	YES		NO					
B2.6	Will firewood be collected on the site?	YES		NO					
B2.7	Will water be extracted from a river or dam for the mining operation?	YES		NO					
B2.8	How far is the water from the mining operation? (km)								
B2.9	How much water per day will be used? (litres)								
B2.10	Will drinking water be available for workers?	YES		NO					
B2.11	Will toilet facilities will be made available for workers	YES		NO					
B2.12	Will it be necessary to construct a road to access the proposed mining area?	YES		NO					
B2.13	Will there be any dredging?	YES		NO					
B2.14	Will there be any diversion of a river or a stream?	YES		NO					
B2.15	Will trees be cut or uprooted to clear the area?	YES		NO					
B2.16	Will trees be cut for timber for use in the mining operation?	YES		NO					
<b>B3: TIMING OF MINING OPERATION</b>									
B3.1	How long will the mining operation last? (months)								
<b>B4: SOCIO-ECONOMIC IMPACT</b>									
B4.1	How many people will work at the mining operation?								
B4.2	How many men will work at the mining operation?								
B4.3	How many women will work at the mining operation?								
B4.4	Where will the workers come from?								
B4.5	How many hours per day will workers work for?								
<b>B5: IMPACT ON CULTURAL HERITAGE</b>									
B5.1	Are there any historic sites, graves, monuments etc. in the area?	YES		NO					
<b>B6: SPECIFIC POLLUTION ELEMENTS</b>									
B6.1	Will there be any air pollution? Dust, smoke, chemicals etc.	YES		NO					
B6.2	Will there be any noise pollution	YES		NO					
B6.3	Will there be any water pollution?	YES		NO					
B6.4	Will there be any blasting or vibrations?	YES		NO					
B6.5	Will there be any impact on topsoil?	YES		NO					
B6.6	Will there be mine waste be dumped?	YES		NO					
<b>B7: IMPACTS AND MITIGATION</b>									
	<i>Impacts</i>	<i>Mitigation and management</i>							YES

## Third Schedule: reporting forms

B7.1	How will topsoil be handled?	Topsoil will be removed and saved	
B7.2	How will spillages be handled?	Clean up and neutralise	
B7.3	How will chemical wastes be handled?	Deliver to special storage facility	
B7.4	What special precautions will be taken with handling mercury?	Use of retort	
B7.5	How will river and stream diversion be handled?	Re-establish original river course	
B7.6	How will vegetation removal be handled?	Re-vegetate	
B7.7	How will open pits be treated?	Back filling and re-vegetation	
B7.8	How will waste dumps be treated?	Landscape and re-vegetate	
B7.9	How will turbid water be treated?	Settling ponds	
<b>B8: MONITORING AND PERFORMANCE</b>			
B8.1	How will the environmental management plan be monitored?		
	a. Monthly inspection	YES	NO
	b. Monthly reports to the Ministry	YES	NO
<b>B9: CLOSURE ENVIRONMENTAL OBJECTIVES</b>			
B9.1	Describe how the environment will look like after mine closure and rehabilitation		
	a. Will the open pits be completely covered?	YES	NO
	b. Will dumps be landscaped and re-vegetated?	YES	NO
	c. Will original river courses be re-established?	YES	NO
<b>B10: FINANCIAL PROVISION</b>			
B10.1	Describe how rehabilitation will be paid for		
	a. Income from the mining operation	YES	NO
	b. Existing savings of the licence holder	YES	NO
	c. Loan from a financier	YES	NO

### Section C – Undertaking by Applicant

I ..... being the applicant for Artisanal Mining Rights declare that the information given in this form is true and correct to the best of my knowledge. I undertake to carry out the activities outlined in Section D of this document to the best of my ability. I understand that this is legally binding and failure to do so can make me liable for prosecution.

Signed on this ..... day of ..... 200....., at ..... (place)

Signature of Applicant .....

## Section D – Environmental Management Plan

### D1 – Introduction

This part of the environmental management plan (EMP) documents the operational activities in the implementation of EMP. These activities once signed off by the Ministry will be legally binding requirements of the EMP.

### D2 – Requirements

#### D2.1 – Mine Plan and Demarcations

		Tick (x)
D2.1.1	Mine plan of area with demarcation as per mining licence	
D2.1.2	Mine plan to be update as mining site is developed	
D2.1.3	Water bodies demarcated on mine plan	
D2.1.4	Other environmental hotspots demarcated on mine plan	

#### D2.2 – Restrictions and responsibilities

		Tick (x)
D2.2.1	Mining to take place only within the demarcated area as per licence	
D2.1.2	Areas excluded from mining by Ministry officials to be demarcated on mine plan	
D2.1.3	No mining to take place in excluded area	
D2.1.4	Licence holder responsible for rehabilitation	
D2.1.5	Manager and workers sufficiently trained in environmental protection and management	
D2.1.6	Record of area being previously disturbed	
D2.1.7	Plan to be update as mining site is developed	

### D3 – Infrastructure requirements

#### D3.1 – Topsoil

		Tick (x)
D3.1.1	Topsoil to be removed and stored within boundaries of production area	
D3.1.2	Topsoil to be stored properly so that it is not eroded or washed away	
D3.1.3	Overburden to be stored separately close to excavation, for later backfilling	
D3.1.4	Overburden to be used for backfilling as soon as mining is complete	

#### D3.2 – Access to site

		Tick (x)
D3.2.1	Location of the road to access the mining site to be agreed on with lawful owner	

## Third Schedule: reporting forms

	or occupier of the land	
D3.2.2	Road route to be chosen to minimise impact on the environment, i.e. minimum vegetation clearing, re-contouring.	
D3.2.3	All access to the mining site must be through this designated access route	
D3.2.4	Roads must be maintained to minimise erosion and dust generation	
D3.2.5	At the end of mining licence holder to plough the roads so that re-vegetation (assisted or un-assisted) can take place; except for those land owner or wants to remain	

### D3.3 – Mining Camp

		Tick (x)
D3.3.1	Mining camp to be established within the boundaries of the production area	
D3.3.2	Mining camp to be established in a way the minimises impact on the environment, i.e. minimise clearing of vegetation, re-contouring	
D3.3.3	Topsoil to be removed and stored as described in D3.1	
D3.3.4	Pollution, i.e. dust, noise, light, vibrations etc. from the mining shall be kept within acceptable standards	
D3.3.5	A pit latrine to be established for the workers	
D3.3.6	Clean drinking water to be provided to employees	
D3.3.7	Special storage areas to be created within the boundaries of the production area	
D3.3.8	Non-biodegradable waste products such glass, plastic, paper, metal shall be collected and disposed of appropriately	
D3.3.9	Biodegradable waste to be buried in a pit within the boundaries of the production area	
D3.3.10	Buildings that had been constructed to be removed according to the provisions of the Act	
D3.3.11	Lawful land owner or occupier may want some of the buildings to be left for his as per agreement with licence holder	
D3.3.12	Mining camp to be dismantled and rehabilitated to its former state as much as is practicable.	

## D4 – Operating procedure in mining area

### D4.1 – Limitations on mining

		Tick (x)
D4.1.1	Mining to take place only within the boundaries of the demarcated production area is indicated on the plan that accompanies the mining licence	
D4.1.2	No mining to be done in areas that have been excluded by the Ministry officials, even if they are within the boundaries of the demarcated production area	
D4.1.3	Mining of the river bed, through dredging or diversion of the water course to be done only with special permission from the Director	
D4.1.4	Dredging to be carried out only when the special permit has been obtained	
D4.1.5	Location of any river diversions to be indicated on the plan as the mining progresses	
D4.1.6	River to be rehabilitated so that it is as close to its natural state as possible.	
D4.1.7	River must be able to maintain as natural a flow as possible.	
D4.1.8	All foreign objects to be removed	

**D4.2 - Excavations and their rehabilitation**

		Tick (x)
D4.2.1	Excavations to be only be done within the demarcated production area, and should be marked on the mine plan	
D4.2.2	No excavations to be done in the areas that have been excluded from mining by the Ministry officials	
D4.2.3	Topsoil must be removed and stored as indicated in D3.1	
D4.2.4	No excavation to be greater than 10 metres in depth	
D4.2.5	Overburden to be put as close as possible to the excavation to allow for later backfilling when the mining is complete	
D4.2.6	Excavation to be backfilled immediately after mining has been completed in that particular pit	
D4.2.7	Backfilled area to covered with topsoil for re-vegetation (i.e. assisted (with seed or plants from the indigenous vegetation) or unassisted natural re-growth)	

**D4.3 – Processing area and waste dumps, and their rehabilitation**

		Tick (x)
D4.2.1	Processing areas to be established as close as possible to the excavation so that the tailings and waste benign (not harmful) waste can be used to be backfill the excavation when mining is complete.	
D4.2.2	Area for processing to be chosen so as to cause minimum environmental impact, i.e. vegetation clearing, re-contouring etc.	
D4.2.3	Topsoil from the area selected for processing to be removed and stored as indicated in D3.1	
D4.2.4	Location of the processing area to be within the boundaries of the demarcated production area, and to be marked on the mine plan	
D4.2.5	Tailings and other waste material from the processing to be stored in a specially constructed area, so that it does not run-off or overflow or washed away into the environment	
D4.2.6	Location of waste material storage to be shown on the mine plan and to be monitored regularly	
D4.2.7	Tailings to be treated so that they do not harm the environment or delay the process of rehabilitation. This may include a process of de-watering in settling ponds	
D4.2.8	After completion of the mining, the processing area shall be rehabilitated appropriately. This may entail:	
	o Contouring of waste dumps, covering them with topsoil and re-vegetating them	
	o Decommissioning of the processing plant	
	o Dismantling of equipment and buildings	
	o Cleaning up any residue and storing it appropriately	
	o Ploughing area and re-vegetating it	

**D5 – Final Rehabilitation**

		Tick (x)

## Third Schedule: reporting forms

D5.1	All infrastructure, equipment, plant and temporary buildings erected at the mining camp and within the production area to be removed at the closure of the mine.	
D5.2	Infrastructure removed may exclude roads and some buildings that may have been part of an agreement with the lawful land owner or occupier	
D5.3	Waste material like scrap tyres, metal, plastic, paper etc. to be removed to an appropriate dumping or landfill area	
D5.4	Mining waste material like gravel, sand, slimes etc., should be appropriately treated for rehabilitation, which may include covering with topsoil and re-vegetation	

### D6 – Monitoring and Reporting

		Tick (x)
D6.1	Mining licence holder to ensure that there is regular monitoring of all activities pertaining to environmental management and protection as agreed to in the environmental management plan (EMP).	
D6.2	Mining licence holder to submit a monitoring report to the Director on a regular basis (once a month). The report shall include:	
	<ul style="list-style-type: none"> <li>o Updated mine plan</li> <li>o Rehabilitation activities already carried out</li> </ul>	
D6.3	Ministry officials to carry out visual inspection of the site on a regular basis to ensure that all activities being carried out are according the EMP.	
D6.4	Inspections will cover assessment of impact on plant and animal life, and physical environment, using Form G	
D6.5	If the mining operation is found not to be complying with agreed EMP, the Director may suspend the operation while investigation is being carried	

### D7 – Closure

		Tick (x)
D7.1	Mining licence holder to apply to the Director for closure when intending to close his mining operation	
D7.2	Closure application to be accompanied by an environmental report which will cover the following:	
	<ul style="list-style-type: none"> <li>o Environmental impacts that will be associated with mine closure</li> </ul>	
	<ul style="list-style-type: none"> <li>o Activities to safeguard the environment and when these will be carried out</li> </ul>	
	<ul style="list-style-type: none"> <li>o The state of the land after the completion of the environmental rehabilitation activities have been carried out</li> <li>o What the land can be used for after rehabilitation</li> </ul>	

### D8 – Potential Environmental Impacts Assessment

Impacts:	Mining (ore extraction)	Topsoil removal	Access roads	Overburden removal	Mineral Extraction	Tailings, waste storage and disposal	Water usage	Material handling	Buildings	Energy generation and use	Fuel storage	Workers
Land												
Soil												



## Third Schedule: reporting forms

Water												
Air												
Plants												
Animals												
Visual												
Noise												
Heritage												

#Key: VL – very low; L – low; M – medium; H – high; VH – very high

### Section D – Undertaking by Applicant

I, ..... the undersigned, on behalf of myself/on behalf of ..... understand the contents of the environmental management plan, and undertake to adhere to conditions it sets out, as agreed to by the Director of Mines

Signed on this ..... day of ..... 200....., at ..... (place)

Signature of Applicant .....

Witness .....

### Section E – Approval by Ministry

Document approved on behalf of the Director by .....

Designation of signatory .....

Signed at .....Regional Office                      Date:.....