

1. Introduction

Ethiopia has a huge potential of various mineral resources, but not yet well explored and exploited, and hence its contribution to the overall economy or GDP is low. However, as reported by the World Bank Group (2014), its contribution to the foreign exchange earnings reached about 10% of which the artisanal mining takes the lion's share of over 65%. The artisanal mining also significantly contributes to the employment of at least 1.26 million people and supports the livelihood of over 7.5 million populations.

According to the revised mining operation proclamation No.816/2013 Artisanal mining is defined as a mining operation carried out by individuals or small and micro-enterprises which is mostly of manual nature and does not involve the engagement of employed workers. Nearly all the miners use hand/manual tools to do both mining and processing of Minerals.

The Artisanal mining supports countless livelihoods both directly and indirectly. Women are one of the beneficiaries of these activities and in some cases successful. They tend to mine more on open surface and on shallow depth, while men tend to mine more in deep pits and underground tunnel.

A. Need for this guideline

The people and the environment at artisanal mine sites must be protected from any negative impacts from artisanal mining. The miners and the society around the mine site must be informed about potential dangers, immediate or long term. The miners and authorities must be aware of potential dangers, know how to avoid these, how to lessen the effect and how to safely close a mine site.

The Artisanal mining license holders are not entitled to submit Environmental Impact Assessment document or related environmental management plans as a prerequisite for license issuance. The Artisanal mining situation at the grassroots level does not consider the proclamations or any regulation of environmental issues. Therefore, damage to the environment is evident and significant.

Strong governance and management of the Artisanal mining sector will help the government of Ethiopia capture the positive benefits of Artisanal mining while ensuring that any negative environmental, social and economic impacts are minimized or eliminated.

Hence, the guideline will help both the regulatory body and the licensees to minimize the likely negative environmental impacts.

B. Purpose and Scope of this guideline

Purpose

The Purpose of this guideline is to create awareness on Environmental management plan and to guide the miners on how to properly manage the environment during the Artisanal mining process.

Moreover, this document is aimed to support environmentally acceptable and sound management of Artisanal Mining activities by providing concise and easily understandable information.

Scope

This guideline is only limited to the artisanal mining sector; it is only intended as a guideline on environmental management and does not in any way replace existing legislation enacted in the country.

C. Target audiences (Who the guideline is for)?

Target audiences of this guideline are Licensing authority, Local authority, Environmental protection authority, Licensee (Artisanal miners) and Local communities.

D. How to use this guideline

This guideline is meant to highlight the importance of environmental protection, to provide a basic check list for Environmental management of the artisanal mining sector. It is used both by the artisanal miners and the regulatory body as a check and balance tool in managing and evaluating the environmental impacts during and after mining activities ceased. It helps the miners to identify environmental baseline information and present the environmental management plan of their mining activities to the licensing authority.

E. Limitation of this guideline

This guideline is limited to the activities of artisanal miners, and as stipulated in the mining legislation does not include environmental impact assessment and not engaged in community development participation. The guideline is continuously updated and the recommendations herein do not substitute legislation concerning environmental protection or artisanal mining.

2. Preparation of the Environmental management

Environmental management is directed at mitigating, minimizing or avoiding negative impacts whether arising during the operation phase, or after completion (for example, project site rehabilitation) is appropriate for the artisanal mining sector.

A. Background information required to prepare Environmental management

This section provides information about the environmental components that may be significantly affected by the Artisanal mining, including but not limited to:

- mining process and methodology,
- size of license area given to mine,
- duration of the license and license issuance date
- social and natural environment in the mining area,
- Waste generated from mining activities and its management techniques,
- And methods used to manage the environment.

B. Preparation of Environmental management

After brief baseline information of the area Environmental management is prepared by annexed format. (See annex three)

3. Roles of stakeholders

A. Licensing authority

- Clearly delineating the geological potential area,
- Guide on how to prepare Environmental management for Artisanal miners,
- Proper follow up on mining techniques to be applied in environmental sensitive manner,
- Environmental management plan approval and issuance of artisanal mining licenses in consultation with relevant environmental authorities
- Monitoring and evaluation their environmental management plan implementation

B. Local authority

- Create awareness on environmental management obligation on development of cooperatives, small and micro enterprises in line with the job opportunity,
- Follow up and report environmental impacts due to illegal artisanal mining activities and

- Close follow up on the activity of Environmental management to rehabilitate or keep the mining as environmentally friendly

C. Environmental protection authority

- To create awareness of the environmental management beyond the guideline document based on the context of the local artisanal mining sector
- Environmental management plan approval and issuance of artisanal mining licenses in consultation with licensing authorities
- Monitoring and evaluation Artisanal mining environmental management Practicability
- Close contact with the licensing authority to raise awareness on environmental management and take corrective measures

D. Licensee (Artisanal miners)

Based on Mining Operations Council of Ministers Regulation No. 423/2018; the artisanal mining licensees shall fill pits they dug and plant seedlings instead of trees they cut, observe other obligations stipulated under proper environmental laws and shall not be allowed to use mercury or similar materials in their operations.

The miners have to take leadership on Environmental management in responsible and sustainable manner. A licensee shall be obliged to undertake mining operations according to the environmental, health and safety standards, prescribed for artisanal mining in the relevant laws.

E. Local communities

- Should be consulted on the proposed Environmental management, give comments and be given awareness on disclosure of approved Environmental management Plan
- Involved in the job opportunity based on the criteria mentioned in the mining legislation
- Should participate and create conducive environment for rehabilitation activities
- Inform any wrong doing/unexpected issues seen by the artisanal mining activity to all concerned bodies

4. Mining Operations and Methodology

Mostly the Artisanal miners use simple instruments such as pan, shovel, hand held hammer etc. Mostly the licenses are granted not based on through geological assessment potential. The process used for extraction of minerals such as digging pits, trenches, grinding, sieving, panning and extracting minerals/Quarrying such as construction minerals loading unloading etc.

5. Conclusions

This guideline describes the foreseen scope and purpose of an Environmental Management covering the baseline identification, Environmental management plan preparation and implementation, as well as the roles of key stakeholders associated with Environmental management plans.

The guideline will be updated, it is a first draft and it does not replace legislation. It is therefore intended that this guideline be used in the spirit of continual improvement, to assist in promoting best practice in environmental management, in a manner that is pragmatic, efficient and cost-effective.

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6. Annex

Annex one

Environmental impacts of Artisanal mining

This part provides information about the environmental impacts posed by the Artisanal mining, including but not limited to:

- ✓ Deforestation/vegetation clearing
- ✓ Loss of top soil and vegetation
- ✓ loss of agricultural /farm land
- ✓ Diversion and Siltation of water bodies
- ✓ Water pollution
- ✓ Erosion and landscape change
- ✓ Land slide, rock falls/ collapse
- ✓ Pits and trenches exposed to different uses
- ✓ Waste generation (solid and liquid)
- ✓ Pressure on local resources (e.g. use of water and land etc.)
- ✓ Radiation due to the composition of the ore containing radioactive elements (e.g. Tantalite)
- ✓ Noise and Dust due to crushing
- ✓ Health and safety problems

Annex two

Mitigating measures

This section provides information about the mitigation measures for impacts posed by the Artisanal mining, including but not restricted to:

- ✓ Properly designed quarry face opening and management
- ✓ Minimize the number of trees cleared and re-vegetation
- ✓ Stoke pile the top soil and immediately proper back filling of dug pits and trenches
- ✓ Proper reserve estimation by the appropriate authority before mining/extraction activity
- ✓ Restriction of mining activity only to the proposed reserve estimated area
- ✓ keep the natural course of water and avoid disposal of mine waste to water bodies
- ✓ apply proper mining methods but if prone to Erosion build terracing
- ✓ Minimize waste generation at the source of mining
- ✓ Controlling and formalizing the influx of illegal miners
- ✓ Proper provision of health and safety equipment before and during mining activities;
- ✓ Use of Personal Protective Equipment and water spraying during crushing and grinding
- ✓ Health and safety problems data compilation and reporting immediately to the concerned authority
- ✓ Awareness creation for artisanal miners and local peoples
- ✓ Trained on environmental protection activities
- ✓ The artisanal miners will be allocate budget for environmental management
- ✓ The artisanal mining activities should bear in mind to follow the legal requirement that the allowed vertical excavations only up to a depth of 15 meters and not to carry out tunneling and other underground works.

Annex three

Site assessment – Artisanal Mining

Date of assessment..... Assessed by (miner, authority, other):.....

Table 1 The mine site

Location Coordinates Village Region Site name
Nearest responsible authority (locality, zone(small unit), kebele, district, zone, region)
Owner(s)
Pre mine inspection yes/no
Active mine yes/no
Opened date
Closed date
Mine details Pits Shafts Tunnels Dredges other
Plant/Mining techniques Panning Sluices Crusher Mills machines Others

Minerals
Estimated production
Permits
No. miners Male Female Children

Photos of site, see attached

Table 2. Environmental setting

Topography Hill Valley Plateau
Watercourses, water bodies, wetlands Names, size and distance to
Land cover Forest Grassland Farmland Shrubs

desert,...
Land use , type and distance to: Farmland Habitation Grazing Other

Photos of environmental setting, see attached:

Table 3. Environmental impacts

Area directly impacted by mining m X m
Area deforested Area partly deforested
Area indirectly impacted How is this impact?
Waste piles Material type Size
Pits Open closed
Polluted water Flowing

Stagnant Colour Amounts pH Samples
Mercury yes/no
Cyanide yes/no
Noise
Dust
Distance to water use, drinking water fishing washing, livestock bathing

Photos of impacts see attached

Table 4 Environmental management

Fences
Signs
Settling ponds
Collection drains

Water treatment
Waste collection
Closed pits Closed shafts
Profiled dumps
Trees planted
Other vegetation established
Pre-mining activities
Post mining activities
Other business or industry on site
Cost allocated for environmental management

Photos of installations, see attached

Table 5. Dissemination of information Authorities informed about activities and possible hazards to people or environment

When where they informed and by who?

Mining bureau/office

Environmental protection authority

Education bureau/office

Agriculture bureau/office

Association/Micro enterprise

Local or kebele administration