

Somali Regional State
Environmental Protection and Rural Land
Administration Bureau

Report on Inspection and Monitoring of
Stone Crushers in the Vicinity of
Karamardha Mountain/Hill Side



Environmental protection department

Jigjig Ethiopia

8-17-2022

1. Introduction and background

Stone crushing industry is an important industrial sector in the country engaged in producing crushed stone of various sizes depending upon the requirement which acts as raw material for various construction activities such as construction of roads, highways, bridges, building, canals.et

The number expected to grow further keeping in view the future plans for development of infrastructure of roads, canals and buildings that are required for overall development of the country. The sector is estimated to be providing direct employment to over 500,000 people engaged in various activities such as mining, crushing plant, transportation of mined stones and crushed product...etc. Most of these personnel are from rural and economically backward areas where employment opportunities are limited and therefore it carries greater significance in terms of social importance in rural areas. It is a source of earning for uneducated poor unskilled rural people

Somali Regional State is one the developing regions in the Ethiopia. Jigjiga city council is the capital city of Somali region that economically and socially are fast growing such as infrastructures, roads, bridges.. Etc. on the other hand, there are a large number of stone crushers located the periphery of jigjiga or in the vicinity of major construction projects that have a huge negative impacts in the society and plants around the stone crusher sites.

Therefore, Somali Regional State, the Environmental Protection and Rural Land Administration Bureau sent a team led by the head of the Bureau; Mr Muhiyadin; and two deputy heads; Mr Abdiqadir and Mr Mohamed Aden; to supervise and inspect the stone crushers in the vicinity Karamara Mountain and to find out the problems that they have caused to the Environment and Social that live in the vicinity of stone crushers along karamara Hills.

1.1 Objective of the report

1.1.1 General objective of the Supervision and Inspection of Stone Crusher

The general objective of the field visit in the Monitoring and Supervision of stone crushers in the vicinity of Karamardha Mountain was to assess the works and its negative impacts on the environment and society.

1.1.2 Specific Objective of the Supervision and Inspection of Stone Crusher

- To inspect and monitor the quarry sites of the stone crusher
- To measure and monitor the ambient air quality of the villages/residential areas
- To monitor and inspect the degraded areas as the result of heavy machinery working on the site like transportation, loading, and up-loading of resources

1.2 Scope of the Report

The scope of the report was inspection and monitoring all stone crushers on the Karamardha Mountain. Analysing the impacts of environment and society as the result of quarry sites of stone crushers on the karamardha hillside and short-term and long-term consequences of the environment and society.

According national environmental and social legal framework s of Ethiopia for the ESM(environmental and social management) the 1995 constitution is the base for the formulation of policies and strategies relevant to social development environmental protection and social impact **assessment and management articles 43,44, and 92 and article 40 ,41 42 ,80 and 90 51 and 456 refer to environment and social issues describes respectively refer for the proclamation 1/1995 and SRS EISA 111/2004 FDRE299/2000 swell's the environmental policy is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social economic development trough the sound management and use of resource and the environment as whole as to meet the needs of the present generation without compromising the ability of future generations to meet their awn needs while the environmental policy provide number of guidelines principles require adherence particular to insure environmental social impact assessment**

Considers impact on human and environment Provides for early consideration of environmental impact and program design Recognize public consultation Include mitigation plans Provides for auditing and monitoring No person shall or cause another person to pollute the environment by violating the relevant environmental standard.

According to **Somali Regional State EIA Proclamation** The Proclamation was issued as **No. 111/2004** by the Regional State and is basically a derivative of the Federal Proclamation No. 299/2002. Without any prejudice to Articles stipulated in the Federal Empowering the Regional Environmental Protection, Natural Resources and Energy Development Authority in authorizing projects (in the Region) whether or not EIA is Assessing the impacts of Project on the basis of the size, location, nature, cumulative Approving EIA of Regional Projects; required; effects with other concurrent impacts or

Cultural Policy of Ethiopia **Article 51/3** of the constitution of the FDRE declares the Federal government 'shall establish and implement national standards and basic policy criteria for the protection and preservation of cultural and historical heritage'. Based on this, the Council of Ministers of FDRE endorsed the cultural policy of Ethiopia in October 1997 and issued the Research and Conservation of Cultural Heritage Proclamation No.209/2000. Protection and conservation of cultural heritage from manmade and natural hazards is one of the goals of the Authority for Research and Conservation of Cultural Heritage. Article 42 of the same proclamation states under "Reserved Area" that the Authority has the power of issuing building permission for any work to be carried out in an area declared reserve by the Council of Ministers. There is also an article that states the removal of any cultural ruins is to be carried out under strict supervision of the responsible authority,

Authority for Research and Conservation of Cultural Heritage Research and conservation of Ethiopian Cultural Heritage are regulated by proclamation No.209/2000 of Ethiopia. The defines cultural heritage broadly as "anything tangible or intangible which is the product of creativity and labour of man in the pre-history and history times, that describes and witnesses to the evolution of nature and which has a major value in its scientific, historical, cultural, artistic and handcraft content". Protection and conservation of cultural heritage from man-made and natural hazards is one of the duties of the Authority for Research and Conservation of Cultural Heritage (ARCCH). Prior approval of the Authority for Research and Conservation of Cultural Heritage is required to remove an immovable cultural heritage from its original site, (**Art. 21/1**). Whenever a registered movable cultural heritage is encountered during the execution of the project it is possible to remove such property by notifying the

Authority in advance (Art. 21/2). However, it is also stated that the removal of any cultural ruins is to be carried out under strict supervision of the responsible authority, Any person who destroys or damages cultural heritage intentionally shall be punished with gregarious imprisonment not less than 10 years and not exceeding 20 years (Art. 45/2/). Article 42 of the same proclamation states under 'Reserved Area' that the Authority has the power of issuing building permission for any work to be carried out in an area declared reserved by the Council of Ministers. Any person who without obtaining authorization from the authority of the relevant regional environmental agency or make false presentations in environmental impact assessment study report commits in offence and shall be liable to in of les than filthy thousand and more not than hounded thousand

The Criminal Code of Ethiopia

The 2005 Criminal Code of Ethiopia has a provision that is devoted to protect the environment in article 519-521 which states:

1) Environmental Pollution (Article 519)

(1) Whoever, in breach of the relevant law, discharges pollutants into the environment, is punishable with fine not exceeding hundrend thousand Birr, or with rigorous imprisonment not exceeding five years. Ministry of Finance and Economic Cooperation of Ethiopia, Environmental and Social Management Operational Manual

2. Major negative environmental and social impact karamarda stone crushures

Findings of inspection and monitoring of stone crushers on karamardha Mountain

During fieldwork, the Team from the Environmental department together with the Bureau head; Eng Muhiyadin, and two deputy bureau heads were by inspected, and monitored **5 stone crushers** on the Karamardha Mountain/hillside that caused a great problem on the mountain in terms of deforestation and public health.

5 stone crushers were namely:-

- 1. Ziyad Mohamed stone-crusher**
- 2. Haji Ahmed stone crusher**
- 3. CCCC stone crusher**
- 4. Eng Ahmed stone crusher**
- 5. ERA stone crusher**

All these stone crusher companies take resources from the Karamardha Mountain while some of them are placed on top of the mountain that has become a problem for the rural society and animals.



Photo - 1. Stone Crushers on Karamardha Mountain

The process of assessing, in a structured way, the case for proceeding with a project or proposal, or the project's viability.

During the Appraisal phase, any preparatory studies as may be required are initiated by the public body. Relevant project ideas are developed into project plans. This phase is also often called the Project Formulation Process, referring to the process of formulating specific project plans. The particular stress during the formulation phase is on ascertaining the feasibility, sustainability and quality of the suggested intervention and project plan

Project appraisal (qiimaynta mashruuca)

- Aspect of project appraisal
- Social aspect
- Economic aspect
- Environmental aspect
- Administrative management aspect
- Commercial aspect
- Technical aspect

3. Environmental problems in stone crushers in karamardha mountain

3.1.1 Source of Emissions

- All quarrying and stone processing operations including surface mining, crushing, screening, material handling and transfer operations were potential sources of, particulate emissions and these sources were categorised as either process sources or fugitive dust sources. The Most factors effecting emissions from either source was the type, quantity and the moisture content of the rock processed, the type of equipment and operating practices employed as well as topographical and climatic factors.

3.1.2 Environmental, Health, and Safety Problems due to Emissions

- The environmentalist team from EPRIAB found during the assessment of health and safety problems due to emissions caused by stone crushers on

the Karamardha Mountain were dust problems. Such as airborne emissions were carried away to the surroundings by winds currents, dust that settled on the plants got airborne again due to the vehicular movement or by wind and acts as a secondary source of emission.

- Also Dust emissions from the stone-crushers were affected by the climate, damaging the material, human health, and vegetation.
- In General, the more rural society that live on the edge of the karamardha mountain was very susceptible to human health problems due to the physical properties of atmosphere that may affect human health either by allowing penetration of the lung and causing irritation to the internal membrane, or by transporting absorbed toxic gases and vapors deeper into the lung than they would normally travel.



Photo: - 2. Safety, and health problem in karamardha mountain

Impact of persons life properties and damage

- The most of the peoples properties and livelihood affected by the project are house houses agricultural land and grassing area Still all persons affected by the

project in karamarda crusher have not yet received compensation payment for their loses

- Also there are number of persons who have not considers their lose sand damages of their properties karmarda of agricultural land areas and loses their of agricultural lands dueto source of water diversion and residential houses damaged by heavy machinery vibration
- There are alarge number of persons effect the crunchier project are houses agricultural land and grassing area
- Still the all community affected bythe project in karamarda have not yet received compensation payment for their lost
- There isno agreement b/n contractors and residence
- Also there are anumber of persons who have not considered their loses and damages of their properties and persons affected by the crunchier still complaining for their properties damages and losesinkara marda weradagriculture al land areas andlosesfor agricultural lands dueto source of water diversion and residential housesdamaged by heavy machinery vibrations transmited by shacking residential houses in karamarda
- There is also misuse and dead of animals cawses ases dueto drink water in b arrowpits

Impact of soil erosion and gully formations

- ✓ Discharge of water from ofthe drainage structures tothe dawn streamssides willbring land degradation soil erosion and formation gully insame area inkaramardha and jigjiga city administration thjat requires protection measures such as retaining and gabion walls and soil water conservation activities
- ✓ There are existing hill side land slides that will be extended toward the city that require implementation of protection and rehabilitation measures
 - There are destruction of livestock grazing and traditional agriculture particular ly flood recession agriculture and disturbance to natural vegetation above cut slops in same areas **Impact from Quarry sites, Borrow Areas and Detour Roads**

➤ **Impact from Quarry sites, Borrow Areas and Detour Roads**

- There are more borrow pits sites establish by the contractors between the .
- Large number of different trees species have been cleared and deforested in the quarry sites and borrow pit areas that requires re-forestation and plantation of appropriate tree species (indigenous trees) and grasses to recover/regenerate the original vegetation, after backfilling and reinstating quarry and borrow sites.
- The Quarry mining sites and borrow pits changed/removed parts of the existing landscape and surface water flows and further bring formation of Gully and changes of water shade system of the area, that requires implementation of protection measures such as Retaining & Gabion walls and soil and water conservation activities. Ponds developed in a quarry can serve as breeding ground for water born disease and mosquitoes,
- Children who swim in quarry ponds could draw down and die and can be a threat to animals,
- The vertical cliffs can cause death to animals and human live,
- Land slide and land fall,
 - Production of dust
 - Overburden disposal accumulation,
 - Affecting farm land or cause land use change

➤ **Impacts of Camp Establishment and Demolishing**

- The camp sites were established in natural forest areas and large amount of natural forest have been removed in and around the camp sites in the two woredas
- There is no any plantation activities carried out by the contractor's Camp site located in kidinbur woreda.
- The contractor shall take all necessary measures to avoid any nuisance or disturbance arising from the camp sites, Generators, quarry sites to inhabitants around the camp sites.
- Camp rehabilitation plan is required during demolishing the camp sites in order to rehabilitate degraded vegetations and forests in the sites to its original states

- Implementation of plantation and reforestation of indigenous tree seedlings in and around the camp sites are also required from all contracts implementing the projects.

➤ **Impact of Solid and liquid Waste Management**

- All solid and liquid wastes generated from the road construction activities were not managed properly as required.
- Other wastes such as tree cuttings , cleared sands and stones and left in road sides and camps site areas
- There are no any proper storage of chemicals / solid waste materials dumped undertaken in the project area.
- Waste oils from various plants and equipment disposed and dumped into suitable areas in the camp sites

➤ **Impacts of Socio-Economic Conditions of Local People**

- The project was not created employment opportunities for the local people around the project area
- Most of the works of the project such as labourers and non technical staff are not from the local communities living around the project location.
- Thus, this is clear that local people was not given first chance for the employment process according to their qualification and experience as per the requirement of contract documents of the project.
- Therefore, it is required from the contractor to give first chance for the local communities living around the project location as per the requirement of contract documents of the project. The project twas not created employment opportunities forthe local people around project area
- Social economic impact falling living standarparticularly of the poor could risk the start various circle that could produce further environmental degaradation living and working may deterior as aresult such procesasresetelment cultural shock risk to health inkaramarda site

Landscape and Visual Pollution

- Visual pollution is more of an aesthetic issue and can disturb visual areas of people by creating negative changes in the environment. The Project site that is going to be used for structure installation somehow brings change in landscape from 'natural architectural designed' to human architectural designed that become hectic to the naturalists. Excessive outdoor advertising is also another form of visual pollution and brings eyes corruption of the public. Open storage of garbage, telephone towers, electric wires, buildings, many vehicles etc. in the nature based park are forms of visual pollution that become eyesore for many eco-tourists.

➤ **Noise and vibration impacts**

Noise and vibration result from construction activities in general but particularly from operation of heavy machinery. Other operations generating significant noise include concrete mixing plants, blasting in areas of rock excavation and stone crushing.

Noise and vibration sensitive sites encounter especially in urban centers crossed by the road OD of the project. The other stretches are less settled and no significant impacts may be felt.

Sustained noise levels during construction are expected to be much higher than the ambient noise level in the project area. If blasting of quarry sites and other construction works are carried out after sleeping hours at night it may affect/disturb the sleeping of the local community. Therefore, to minimize noise disturbance to the population around the sites, it is recommended not to undertake activities producing nuisance noise level during rest hours and during night time. The timing of blasting operations should be arranged with the local administration, and the surrounding dwellers informed prior to undertakings. As far as possible, blasting should be avoided at heritage sites, residential and town premises.

The guideline value set by the Environmental Protection Authority of Ethiopia will be observed as far as possible during project implement

Environmental rehabilitation measurements recommended

Therefore, the following recommendation was provided as rehabilitation, restoration of environmental impacted Areas, and Compensation of affected communities around the project locations based on findings from the Assessment conducted in project area:

I. Compensation of People Affected by the Project

- 1.
2. The project Owner is required to Pay compensation for the communities affected (lost, their properties, houses and farming land) in the project location.
3. Develop new or rehabilitation of grassing land for the local communities living in the project area for their livestock.
4. Relocation of displaced person as whole in the woredas
5. Also pay maintenance of chucked houses and cover the cost of maintenance
6. Reconsider the peoples complaining about being not included in the project affected persons

II. Implementation of Rehabilitation of Restoration of Environmental impacted Areas

a) Rehabilitation activities

1. The natural features of the site shall be maintained, restored or developed in response to community demand and this rehabilitation option can promote biodiversity.
2. Processes for introducing new species into a habitat designed to enhance biodiversity:
3. Introduction of native ecotypes by relocation, natural or assisted seeding, monitoring of hydrostatic levels, characteristics of waste rock and top soil, types of forestation and re-vegetation.

III. Quarry Site Maintenance and closure

Preparation of maintenance and restoration budgeted plan is be mandatory for safe return of the landscape.

1. A restoration program should began shortly and as quarrying proceeds up the hills, the lower lying areas should be leveled and planted with crops and trees.
2. Construction of hillside terracing using the wasted stones and soils.
3. Plantation of trees on the terraced land provides nitrogen and shade for the subsequent crops or vegetables.

IV. Topography Restoration

1. Re-filling and restoration of vegetation alone will likely be unsuccessful; erosion prevention and structural methods will also be needed.
2. Furthermore, the size and consistency of stone pieces used as refill can impact the speed of erosion and the ability for soil and vegetation to survive.
3. The proponent shall as much as possible complete the works in such a way that natural aesthetics shall be retained at the locations; and
4. Restoration shall be undertaken to ensure that the original setting is as much as possible retained.
5. Overburden Gravel and other raw materials extracted from the quarry hole, should be used to refill the quarry and restore topography. As such, other options exist to reclaim the site. Overburden, rock, or gravel from other sites can be used to fill the quarry hole.

v. Replanting and Reforesting

1. Firstly, Implementation of soil and water conservation Activities such Hill side Terracing, Caboi nCheck dam, stone check dam and soil band construction.
2. Second, Plantation of the site with indigenous plant and Species planted on slopes must grow quickly enough to prevent soil erosion.
3. Without a proper replanting and reforestation plan and budget, the local ecosystem could tip further off balance instead of returning to stasis.
4. Preservation and the replanting of trees within the facility compound would mitigate against loss;
5. The maintaining of any existing vegetation would be important in maintaining the integrity of these systems;
6. The maintaining and replanting of vegetation should be ongoing as the development proceeds Vegetation would also serve to protect any vulnerable slopes and guard against soil erosion.

VI. Solid Waste Management

1. The Proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal;
2. Monitoring and management of the area drainage to prevent flooding;
3. Solid Waste: Arrangement must be in place to ensure that solid waste and construction debris is properly disposed off;
4. Measures to ensure that waste materials from the project are disposed at suitable areas will be taken.

5. Ensure proper storage of chemicals / solid waste materials dumped in the project area.