



**GOVERNMENT OF PUNJAB
ENVIRONMENTAL PROTECTION AGENCY**



Environmental Assessment Checklists and Guidelines

Marble Processing Units

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1. Introduction

1.1 Background

The marble industry is an important component of the mineral and construction sectors in Punjab, supplying dimension stone and finished products for residential, commercial, industrial, and infrastructure development. Marble processing units convert raw marble blocks into slabs, tiles, and customized products through activities such as block cutting, sawing, polishing, edge finishing, sizing, and packaging. These units contribute significantly to employment generation, value addition, and economic development.

The operation of marble processing units involves the use of cutting and polishing machinery, water for cooling and dust suppression, electricity, and various finishing materials. These activities generate marble slurry, wastewater, solid waste, dust, noise, and, in some cases, hazardous waste such as used lubricants and waste oils. If these wastes are not properly managed, they may adversely affect land, water resources, air quality, drainage systems, occupational health, and the surrounding environment.

Most marble processing units are established within industrial estates or designated commercial areas; however, some operate in close proximity to residential settlements and agricultural land. Therefore, appropriate site selection, pollution control measures, resource-efficient technologies, and effective environmental management are essential to minimize environmental impacts and ensure compliance with applicable environmental laws and regulations.

1.2 Purpose of Guidelines

These guidelines have been prepared to assist project proponents, environmental consultants, and regulatory authorities in identifying, assessing, and managing the potential environmental impacts associated with the planning, design, construction, operation, and maintenance of bus terminal projects. The guidelines provide practical guidance for the preparation of Initial Environmental Examination (IEE) reports, implementation of appropriate mitigation measures, environmental monitoring, and preparation of Environmental Management Plans (EMPs). They are intended to facilitate compliance with the applicable environmental legislation, regulations, and standards in Punjab while promoting environmentally sustainable development of marble processing units.

1.3 Scope of the Guidelines

These guidelines are applicable to the future developments of marble units in the province of Punjab having a total cost of less than Rupees ten million.

Note: These guidelines are not applicable to mining of marble.

1.4 How to use these Guidelines

The project proponent is to fill in an environmental assessment form. The following steps are to be taken in this regard:

Step 1: Provide information on project [use **Section I**]

Step 2: Determine Applicability (Are you sure that IEE or EIA is not required?) [use **Section II**]

Step 3: Describe the physical, biological and social environmental [use **Section III**]

Step 4: Assess potential impacts and applicable mitigation measures
[use **Section IV**]

Step 5: Provide undertaking to the EPA on mitigation measures and compliance [use **Section V**]

Completed form is to be submitted to the Environmental Protection Agency Punjab for evaluation. EPA Punjab may request for additional information or decide to undertake visit to the proposed project site in order to assess the environmental impact of the proposed project.

1.5 Glossary

Act: means The Punjab Environmental Protection Act 1997 (Amended 2017)

Coagulation: means the use of chemicals (the coagulants) to make suspended solids to gather or group together to form larger masses or flocs, which can settle to the bottom.

Dust: are fine powdery material such as dry earth or pollen that can be blown about in the air.

Environment means (a) air, water and land; (b) all layers of the atmosphere; (c) all organic and inorganic matter and living organisms; (d) the ecosystem and ecological relationships; (e) buildings, structures, roads, facilities and works; (f) all social and economic conditions affecting community life; and (g) the inter-relationships between any of the factors in sub-clause (a) to (f).

Environmental Assessment a technique and a process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the planning authority in forming their judgments on whether the development should go ahead.

Filtration means subjecting any effluent to pass through a membrane or a layer of sand or gravel to separate the suspended particles.

Impact on Environment means any effect on land, water, air or any other component of the environment, including any effect on the social and cultural environment or on heritage resources.

Liquid Effluent is the used water coming out of the stone crushing unit.

Lime is the common name for oxides of calcium.

Mitigation Measure means a measure for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure.

Noise is defined as unwanted sound; sound that is loud, unpleasant or unexpected.

Regulations means The Punjab Environmental Protection (Review of IEE and EIA) Regulations, 2022.

Suspended Solids are solid particles suspended in water that can be removed by filtration or settlement.

Sedimentation means settling of particles by gravity.

2 Project Profile

2.1 Project Description

Marble industry is an important industrial sector in the country engaged in producing finished goods such as tiles, tableware and decoration pieces. The marble crushing units can be seen in the vicinity of almost all major cities and towns.

Marble processing is a simple process. Raw marble block, weighing several tones, is transported to the factory by road through trucks or tractor trolleys. It is unloaded in the storage are using fork- lift or through pulleys. The marble block is then cut into smaller pieces or slabs on cutting machine. Both dry and wet cutting machines are used. Using various smaller machines and manual process the marble is finally brought to the desired shape depend on the product. Polishing is the last step in which various polishing buffs are used. Smaller pieces and waste from the process is crushed to make marble chip used in floor finishing. Marble dust is also marketed for use as abrasive.

3 Environmental Impacts

3.1 Improper location

3.2 Traffic congestions

Raw marble block, weighing several tones, is transported to the factory by road through trucks or tractor trolleys, improper location coupled with parking of vehicles along roadsides may lead to traffic jams, air pollution and nuisance for the general public.

3.3 Air and Noise Pollution

Dry cutting and grinding of the marble result in not only the noise but also cause air pollution in the area. Marble grinding units, if work on add timings can result in severe objections by the nearby residents

3.4 Process Wastewater

Wastewater is generated during wet cutting of marble stones. This wastewater contains fine suspended particles and usually disposed of in sewers and nearby drains. Sedimentation of these suspended particle result in heavy load pf sediments in sewers and drains. This practice leads to blockade of sewer, ponding of wastewater in close vicinity of area, nuisance for general public and reduction in flow carrying capacity of drain.

Drying up of this ponded wastewater may lead to escape of marble powder in environment, when subjected to wind currents and traffic movements.

3.5 Noise

Cutting, grinding and polishing of marble rocks, slabs and stones result in objectionable noise for the communities.

3.6 Occupational Safety

Poor working conditions may lead to health issues for workers. These may include inhalation of fine marble dust, eye damages and physical injuries.

4 Environmental Mitigation Measures

4.1 Improper Location

Careful selection of the site for the marble processing unit. Attention must be given to the government policies for installation of such units.

4.2 Traffic Congestion

Location of plant has to be such that ingress of heavy vehicles does not block the traffic. Evening and late night operation is to be avoided if passage is through residential areas.

4.3 Air and Noise Pollution

i. Air Pollution Control measures

- Employ wet cutting and arrange effluent collection and treatment system.
- Avoid dry cutting and grinding in open area but in closed room with air pollution control system.

ii. Noise Pollution Control measures

- It is the responsibility of the factory owners to ensure that the operation of the marble factory does not cause nuisance for the community. Proper siting can eliminate many of the noise related issues.
- If the factory is located in industrial area, it is less likely that sensitive receptors would be present in the surroundings.
- If the proposed site of the factory is not in an industrial area, maintain a distance of at least 500 m from communities is desirable.
- If the required distance cannot be maintained, or the land around the proposed site is designated for communities or other sensitive receptors, noise walls may require to prevent noise from the factory disturbing the existing or future communities.
- Ensure to carryout noisy operations in properly designed thick walls to avoid nuisance for local community.

4.4 Liquid Effluent Treatment

- Effluent generated as a result of wet cutting be collected in sedimentation tank to settle

down the suspended particles under gravity.

- Coagulants, if necessary, can be added to agglomerate fine particles. A settling tank be provided after coagulation to remove agglomerated particles. Nevertheless, this treatment is expensive as compared to the sedimentation process yet it is more efficient.
- Effluent of settling tanks can be recycled or reused.
- Settled material must be removed from bottom of settling tanks and disposed of in landfill after

4.5 Occupational Safety

- Ensure Personal Protective Equipment (PPE) ear plugs, face masks, glasses, helmets and gloves etc. for protection against hearing loss, eyes injuries, head and hand injuries respectively.
- Ensure use of PPEs by laborer without any excuse.
- Arrange training and awareness session for workers.
- Display pictorial instructions for use of PPEs by workers.

Environmental Assessment Checklist

Section I: Project Description

File No _____ (To be filled by EPA)

Date _____

General Information

1. Project Name or Title _____

2. Project Proponent (Department or Organization) _____

3. Address _____

4. Telephone _____

5. Fax _____

6. E-mail _____

7. Representative of the Proponent _____

8. Designation _____

9. Name of the person who conducted this assessment _____

10. Designation _____

11. Qualification _____

Project Information

12. Project Location _____

13. Cost of the Project _____

14. Area of the proposed land for the plant

Total _____ m²

Proposed covered _____ m²

Open space _____ m²

15. Brief description of the plant _____

Please attach a plot plan of the proposed project site showing the location of the key structures, access, utilities, units, etc.

16. List key equipment of the plant _____

17. Design production capacity of the unit _____

18. Number and qualification of required staff to run the unit? _____

19. What will be the expected water requirement for the unit? _____ m³/d

20. What is the proposed source of water? _____

21. Where will the wastewater from the unit be disposed? _____

22. Describe the type of material that will be discharged with the wastewater? _____

23. Please describe any treatment system for the wastewater planned? _____

24. Type and quantity of raw material for the unit? _____

25. What is the expected source of the raw material? _____

26. What are the expected operating hours? _____

27. Is night shift planned? _____

28. How many vehicles carrying raw material and finished product are likely to enter or

leave the unit daily? _____

Construction

29. Who owns the proposed land for the project? _____

30. What is the present use of the land? _____

31. Are there any squatter settlements on the land? _____

If yes, please specify

Number of settlements _____

Will any compensation be paid to them? _____

32. Are there any structures on the proposed site now? ☐ Yes ☐ No

33. If yes, will any structure be demolished? ☐ Yes ☐ No

34. If yes, where the demolition waste will be disposed? _____

35. Are there any trees on the proposed site? ☐ Yes ☐ No

36. Will any tree be removed? ☐ Yes ☐ No

If yes, how many? _____

37. Period of construction (start and end dates) _____

38. What major construction equipment (dozer, grader, crane, etc.) will be used?

39. Is construction work during the night planned? ☐ Yes ☐ No

Section II: Screening

Is the proposed project located in an ecologically sensitive area?

☐ Yes ☐ No

Is the total cost of the proposed project Rupees 10 million or more?

☐ Yes ☐ No

If the answer to any of the above questions is yes, then the project would require an initial environmental examination or an environment impact assessment.

Refer to the Punjab Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2022 for appropriate category.

Section III: Environmental Profile

1. Describe the terrain of the project area:
- ☐ Flat or Level (Slope < 3%)
- ☐ Level to moderately steep (Slope 3%-30%)
- ☐ moderately steep to mountainous (Slope > 30%)
2. Are there signs of soil erosion or landslide anywhere within 500 m of the proposed site?
- ☐ Yes
- ☐ No

If yes, please describe (where, nature) _____

3. Is there any surface water body (river, canal, stream, lake, and wetland) within 1,000 m of the proposed site?
- ☐ Yes
- ☐ No

If yes, describe each water body:

Name (including type, ie, river, canal or stream)	Dimensions	Status and Uses (Is it polluted? Is domestic or other wastewater discharged to it? What are its uses, eg, agriculture, domestic, industrial, washing, fishery)

4. Is there any groundwater well on the proposed site or within 500 m of the proposed site?

☐ ☐ Yes

☐ ☐ No

If yes, describe each well:

Type (Dug well, tube well, hand pump)	Location (Village, road, mohalla, etc. and distance from the site)	Depth and Yield	Uses (Drinking, agriculture, domestic, industrial, washing, livestock)

5. Based on the interview of the surrounding population or a wildlife expert, is any form of wildlife found on, or around the proposed site of the project?

☐ Yes ☐ No

If yes, please describe _____

Person Interviewed _____

6. Are there any existing trees or vegetation on the proposed site?

☐ Yes ☐ No

If yes, how many? _____

7. Are there any reserved forest or protected area within 1,000 m of the proposed site?

☐ Yes ☐ No

If yes, please describe? _____

8. Please provide the traffic count for all main roads adjacent to the proposed site or roads that will provide access to the site. The count should be based on data collected, for both directions, on at least three typical working days. Use the following format:

Road _____ Count Location _____

	6:00 am- 9:00 am	9:00 am- 12:00 noon	12:00 noon- 3:00 pm	3:00 pm- 6:00 pm	6:00 pm- 9:00 pm
Large vehicles (trucks, buses, tractor trolleys, Minibuses)					
Medium sized vehicles (Suzuki pickups, cars, jeeps, taxis)					
Small vehicles (Rickshaws, motorcycles, scooters)					
Slow vehicles (animal-driven carts, tongas)					
Others					

(Please add additional sheets for every road)

9. What is the present land use in the vicinity (roughly a radius of 500 m) of the proposed site?

	Residential (Thick, Moderate, Sparse)	Commercial (Office, Shops, Fuel Stations)	Open Land (Parks, Farmlands, unutilized plots, barren land)	Sensitive Receptors and Sites of Cultural Importance	Other
Description					

(Please attach a map of the proposed project site and indicate roughly the area that you have considered for this evaluation)

10. For any agricultural farmland on the proposed site and a radius of 500 m around it, provide the following information:

Main crop(s) and average yield _____

Source of irrigation water _____

Area affected by salinity or water logging _____

11. Please describe all the sensitive receptors within 500 m of the proposed site:

Type (schools, colleges, hospitals, and clinics)	Name	Size (Number of students or number of beds)	Location (Village, road, mohalla, etc.)	Distance from Site

12. Roughly, how many houses are within a radius of 500 m of the proposed site?

13. What proportion of the houses in the area are pukka, semi-pukka, and kutcha? _____

14. How are the general hygienic conditions of the project area?

☐ ☐ Generally clean

☐ ☐ Fair

☐ ☐ Poor

15. Is there any bad odor in the project area?

☐ ☐ Yes

☐ ☐ No

What is the source of the odor? _____

16. What are the main sources of income of the surrounding community? _____

17. Is there any site of cultural importance (graveyard, shrine, mosque, archeological site) within 1,000 m of the proposed scheme?

☐ ☐ Yes

☐ ☐ No

If yes, please describe? _____

18. What other main sources of pollution exist within a radius of 500 m of the proposed site:

Name of the Source	Type of Pollution (Noise, air water)	Location (Village, road, mohalla, etc.)	Distance from Site

Occupational safety	☐	Workers will be provided with protective equipment	☐	
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Section V: Undertaking

I, _____ (full name and address) as proponent for
 _____ (name, description and location of project) do hereby solemnly affirm and declare:

1. The information on the proposed project and the environment provided in Forms I, II and III are correct to the best of my knowledge
2. I fully understand and accept the conditions contained in the Guidelines for _____ (name, number and version of the guidelines)
3. I undertake to design, construct and operate the project strictly in accordance with the project described in Form I, submitted with this undertaking.
4. I undertake to implement all mitigation measures and undertake monitoring stated in Form IV, submitted with this undertaking.

Date _____

Signature _____

Name _____

Designation _____

(with official stamp/seal)

Witnesses:

_____	_____	_____
Signature	Name	Address

