NWFP Environmental Protection Agency

Environmental Assessment Checklists and Guidelines

Flour Mill

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1. Introduction

The mills to grind wheat to produce flour are part of a vital industrial sector in the country.

1.1 Scope of the Guidelines

These guidelines are applicable to all new flour mills to be established in NWFP.

1.2 How to These Guidelines

The project proponent (the local government, municipal government, city government or the cantonment board) is obliged to use these guidelines. The project proponent has to fill in an environmental impact 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 environment [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 NWFP Environmental Protection Agency for evaluation. NWFP EPA 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.

1.3 Glossary

Act means the Pakistan Environmental Protection Act, 1997

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, as well as on wildlife harvesting, and includes any effect on the social and cultural environment or on heritage resources.

Liquid Effluent is the used water coming out of the flour mill unit

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.

Rodents relatively small gnawing animals having a single pair of constantly growing incisor teeth specialized for gnawing e.g. mouse

Regulations means the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2000

Sedimentation means settling of particles by gravity

2. Industry Profile

2.1 Description

A flour mill operation usually involves following processes:

- Materials receiving
- Wheat storage
- Wheat milling (grinding)
- Packaging
- Product transportation
- The structures that are usually put up include loading and unloading facilities for bulk or bagged wheat and flour, storage facilities in bulk bins or silos or in the form of godowns for bagged material, milling building, office, warehouse, and access roads. The milling buildings (and silos) are typically equivalent to 4-5 floor (~50ft) tall buildings.
- Wheat from the storage area is conveyed to the cleaning operations via bucket elevators where it is separated, destoned, scoured and polished. It is then fed to the mills where it is milled, separated and sifted, and bagged as flour, bran and semolina. The product is warehoused and distributed.

2.2 Environmental Aspects

Materials receiving

Grain is generally received overland. Hence increase in traffic in the vicinity of the mill, and concomitant noise are the main environmental aspects of this activity.

Wheat storage

Stored grains require proper environment to maintain quality. Preservatives may be used to extend the stored life. Similarly grain needs to be protected against insects and rodents that may render the grain unfit for human consumption. Chemicals are deployed to achieve these objectives. Thus there are two environmental aspects in the storage area. The fact that chemicals are used and therefore improper selection, use and storage of the materials could lead to an environmental impact. Secondly that rodents, insects and other disease promoting vectors may contaminate the grain which if not segregated and disposed off properly may lead to a health and environmental impact.

Wheat milling (grinding)

The main environmental aspects of milling are generation of dust and noise. Bucket conveyors and grinding machines can be noisy and pneumatic conveying systems, hoppers and cyclones that are not well maintained can leak and cause lots of dust to spread.

Packaging

Packaging operation can also lead to dust emissions and workers in the area can be impacted.

Product transportation

Transportation activity will increase in the vicinity of the Mill for grain and product movements and can be the cause of both congestion and increased noise levels faced by the surrounding receptors. If trucks are allowed to queue up in the vicinity of the mills then engine exhaust fumes could also accumulate in the area and create nuisance for any local residents.

Staff Quarters

Office and mill staff and transport crews will generate sanitary wastewater in toilets, dining and washing rooms.

2.3 Mitigation Options

Materials receiving

Proper planning and scheduling of the grain transporting vehicles must be carried out so as to minimize congestion and prevent conflicts with local rush hours. Approach roads to have sufficient width to accommodate two-way traffic for the type of vehicles likely to be used for transport (farm trolleys, multiple axle trucks etc). Sufficient space needs to be allocated for the parking of the required vehicles inside the premises. Drivers to be instructed to refrain from gunning of the engines, use of pressure horns and to drive slowly when passing through residential or other sensitive areas.

Wheat storage

A plan for preserving and maintaining the quality and contaminant free state of the grain in the storage area should be prepared and its implementation monitored. Only approved chemicals and processes should be employed for the preservation and fumigation of the stored grain. The chemicals should also be stored as per the manufacturers instructions.

All contaminated or moldy grain unfit for consumption should be disposed off in manner such that it would not be used for food.

Wheat milling (grinding)

- Grinding machines that meet the criterion for noise levels in the workplace should be employed. Proper maintenance procedures must be enforced to ensure noise levels do not increase over time.
- Similarly the design of the conveying systems as well as the housekeeping procedures should ensure that leakage of dust is kept under control.

Packaging

- Dust control is the major challenge in this area. Efforts to capture the dust at source will be most effective. Use of high efficiency filters is recommended.

Product transportation

Same measures as listed under Material receiving above.

Staff Quarters

Sanitary wastewater must be disposed off in properly designed and located septic tanks.

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, organization, or owner) _____
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 project

    Total _____ m^2

    Proposed covered _____ m^2

    Open space _____ m^2
15. Brief Project Description _____

    _____

    _____

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 by products _____
_____
_____

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

19. What will be the expected water requirement for the project?_____m^3/d

20. What is the proposed source of water? _____

21. Where 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. Please describe all main vents and stacks of the proposed plant

No	**Name**	**Type** (Vent/Stack)	**Height and Diameter**	**Flue Gas Contents and Temperature**

25. Please describe the solid waste expected during operations:

No	**Waste**	**Expected Weekly Quantity**	**Proposed Disposal** (Municipal Dump, Waste Contractor, Recycle, etc.)

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
    If yes, will any structure be demolished? ☐ Yes ☐ No
    If yes, where the demolition waste will be disposed? _____
33. Are there any trees on the proposed site? ☐ Yes ☐ No
34. Will any tree be removed? ☐ Yes ☐ No
    If yes, how many? _____
35. Period of construction (start and end dates) _____
36. What major construction equipment (dozer, grader, crane, etc.) will be used?
    _____
37. Is construction work during the night planned? ☐ Yes ☐ No

Section II: Screening

Is the proposed project located in an ecologically sensitive area?:

☐ Yes ☐ No

If the answer to the above questions is yes, then the project would require an initial environmental examination or an environment impact assessment. Refer to the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2000 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, 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 _____
   _____

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	**Industrial**	**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 is the total population of the area? _____

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

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

    ☐ Generally clean

    ☐ Fair

    ☐ Poor

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

    ☐ Yes

    ☐ No

    What is the source of the odor?_____

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

18. 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?_____

19. 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**

Section IV: Impact Assessment

Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring*
Siting near sensitive receptor	☐	Plant is not located within ___ m of any educational institution or health facility	☐	
Noise	☐	Noise wall will be built	☐	
		Grinding machines that meet the criterion for noise levels in the workplace will be employed.	☐	
		Proper maintenance procedures will be enforced to ensure that noise levels do not increase over time	☐	
Interruption to local traffic	☐	Deliveries will be scheduled at times of light traffic load to avoid congestion	☐	
		Sufficient space needs to be allocated for the parking of the required vehicles inside the premises	☐	
		Plant is located such that ingress of heavy vehicles does not block the traffic	☐	
Dust	☐	Dust control bags will be installed	☐	
		Conveying systems will be designed to ensure that leakage of dust is kept under control	☐	
		High efficiency filters will be used	☐	

Continued…

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Potential Negative Environmental Impacts	*Tick, if relevant*	*Mitigation Measures*	*Tick, if proposed*	*Monitoring*
Chemical	☐	All chemicals will be handled and stored as per the manufacturer's instructions		
Wastewater	☐	Volume and strength reduction of the effluent is to be achieved by preventing mixing of waters from washing activities and processing activities	☐	
		Liquid effluent is to be treated by sedimentation process meaning subjecting the effluent to flow through settling tanks	☐	
		Effluent is to be treated by coagulation that is adding any coagulant to the settling tanks	☐	
		Effluent is to be treated by coagulation and filtration	☐	
Occupational safety	☐	Workers will be provided with protective equipments	☐	

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
1	_____	_____	_____
2	_____	_____	_____