

# Sub-sectoral Environmental Guidelines and Checklists on Dairy Farms and Slaughter Houses



Environment  
Assessment  
Services



IUCN Balochistan Programme

# Sub-sectoral Environmental Guidelines and Checklists on Dairy Farms and Slaughter Houses

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# Sub-sectoral Environmental Guidelines and Checklists on Dairy Farms and Slaughter Houses

## 1. INTRODUCTION

IUCN Pakistan was asked to develop Sub-sectoral Environmental Assessment Guidelines for small initiatives in different sectors by the Balochistan Environmental Protection Agency (BEPA). The guidelines were meant to address projects that do not qualify for an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA), according to the screening guidelines (Schedules A, B and C) of the IEE/ EIA rules of the Pakistan Environmental Protection Act of 1997 (PEPA'97). The Balochistan Environmental Protection Agency (BEPA) and relevant line departments will use these guidelines to make smaller initiatives in the region more environment-friendly. A series of checklists to complement the guidelines are also included.

## 2. BACKGROUND

The Pakistan Environmental Protection Act of 1997 (PEPA'97) requires that an IEE or EIA be conducted of any development project that is likely to have adverse impacts on the environment. As a result, IEE/EIA rules and regulations, guidelines and screening criteria were developed.

However, these rules and regulations primarily govern larger initiatives and do not address smaller ones that also have the potential to adversely affect the environment. In addition, several development initiatives undertaken in Balochistan are small in scale and do not qualify for an IEE or EIA under the established screening criteria. It was, therefore, considered necessary to develop sub-sectoral guidelines and checklists for such initiatives. These guidelines and checklists are an effort to make the development process in Balochistan more environment-friendly. Guidance for these guidelines and checklists

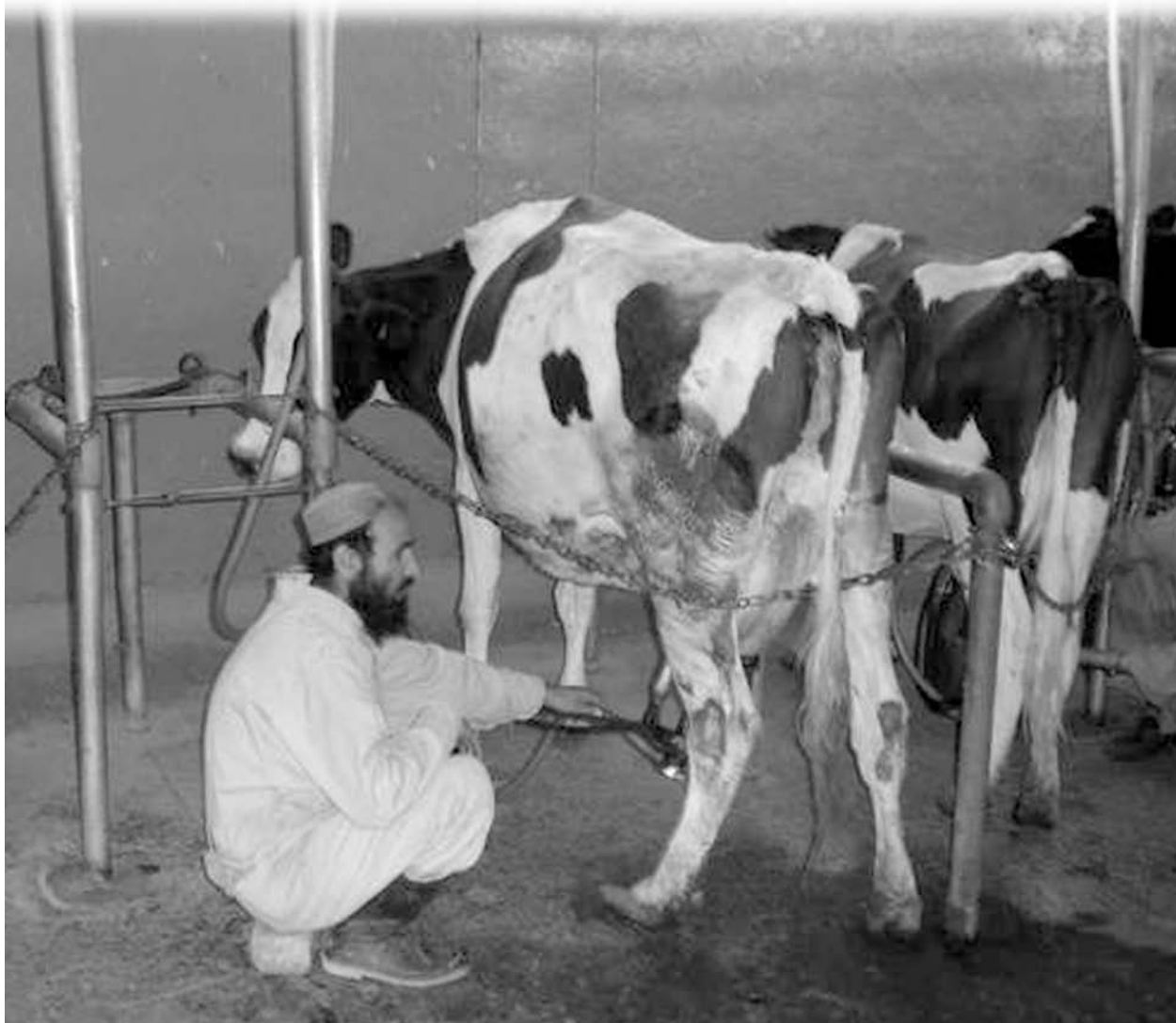
has been taken from the Sub-sectoral Guidelines and Checklists developed for NWFP EPA by Hagler Bailly and commissioned by IUCN Pakistan.

## 3. METHODOLOGY

A five-step methodology was used to develop the sub-sectoral guidelines and checklists:

- The first step focused on an extensive survey of literature. The search was undertaken using the internet, by visiting libraries, and going through relevant documents.
- The second step involved a visit to Balochistan and meeting relevant people in different departments and concerned organisations.
- The third step involved a visit to select dairy farms and slaughterhouses in Quetta to achieve a better understanding of the existing environmental conditions in the two sectors and the measures that can be taken to improve the situation.
- The fourth step focused primarily on the development of the guidelines and checklists.
- The fifth step involved the circulation of the guidelines and checklists to relevant people and departments to obtain their feedback. The same step also involved presenting the guidelines in a multi-stakeholder workshop to obtain more comprehensive feedback.
- The sixth step entailed incorporation of this input into the guidelines and checklists and the production of a final document to be put into operational use by relevant departments in Balochistan.

# Section 1: Dairy Farms



# Guideline for Dairy Farms

## BACKGROUND

Dairy is one of the most rapidly expanding sectors in Balochistan. Most dairy farms are small establishments which serve as providers of raw, unprocessed milk. Contractors collect most of the milk produced and either sell it to various processing industries or disburse it amongst local consumers. A very small percentage of the milk is processed by the dairy industry itself into other dairy products such as butter, cheese, etc.

Small dairy farms are often sited inside the main city, close to or within residential and commercial areas, and service a small number of residents. Cows are milked twice a day. The milk produced is placed in containers until the contractor arrives. The smaller establishments do not possess cooling facilities and contractors collect the milk within 15 minutes of it being produced. Non-milking animals are slaughtered. Foot and mouth disease is common and diseased cows are isolated from the rest of the herd to prevent the spread of the infection. However, as most dairy farms are located very close to each other, the disease is transmitted quickly from animal to animal. Hormone injections e.g. the "Boston" shot, is a regular practice among small dairy farmers, as these make animals produce larger quantities of milk.

There is one government-operated farm in Quetta with 180 Friesen cows. A hundred cows and one bull were imported from Denmark and their numbers have now expanded sufficiently to open six more farms in Balochistan. Here milking is mechanized and the average cow produces about 12 litres of milk per day. The daily quantity of milk produced on the farm ranges from 500 to 600 litres. The milk is chilled, sealed and supplied to a select clientele. Butter is only produced when milk is in surplus e.g. in the winters, but is not generally feasible due to the high demand for milk. Waste is drained using water. It is transported via pipe to a paddock where it is dried. The manure thus produced is collected and sold to waste contractors. Cows are vaccinated seven times a year. Outbreaks of foot and mouth disease at the government establishment are rare and animals are quarantined if infected. The bulls are sold for breeding purposes only.

The industry has a high potential for growth. However, attention needs to be focussed on investment in dairy development, breed improvement, hygiene, disease prevention and care, and quality animal feed production. There is also a need to build the capacity of local dairy farmers in vaccination and the treatment of simple ailments. Ideally, all dairy farmers, milk carriers, dairy food manufactures, distributors and retailers should be a part of an integrated food safety and quality management system.

## SCOPE

These guidelines are applicable to all small, medium, and large size dairy farms.

## ENVIRONMENTAL/ SOCIAL / HEALTH / SAFETY ASPECTS

Dairy farms can have significant impacts on the surrounding environment. Issues include discharge of contaminated wastewater, potential of groundwater contamination, improper housekeeping, product hygiene, bad odour and noise, etc. The key issues are discussed below:

## SITE LOCATION

Most dairy farms are located within city limits, often inside residential areas, causing aesthetic and pollution related problems. The smell, noise and waste generated from such establishments are a major nuisance for neighboring residents. The government dairy farm and newer establishments are sited on the outskirts to avoid impact on the surrounding population.

## LAND CONTAMINATION

Dairy farms operations do not contaminate land in the detrimental fashion industrial processes do. The use of chemicals is practically non-existent for dairy products, however, caustic soda, hydrogen peroxide, hydrogen

chloride, nitric acid etc. may be used for the cleaning and disinfecting of utensils and equipment.

For the most part, the waste produced is organic in nature consisting of wasted feed, animal by-products etc. In the rural areas, this waste is useful as manure to help enrich the soil. However, contamination is a major issue in the urban centres, where small dairy concerns are sited within residential areas. Here contamination is more of an aesthetics issue than one of pollution.

## **WATER CONTAMINATION**

A large volume of discharge and pollution loading from various dairy processes characterizes the generation of wastewater at dairy industries. Dairy wastewater is characterized by high alkalinity, organic matter in terms of BOD and COD, sulphates etc. Dairy products present in the wastewater are rich nutrient for bacteria which biodegrade these compounds aerobically and deplete the dissolved oxygen content of water, making it unfit for aquatic species. The increase in bacterial contamination can result in health problems since the wastewater may contain pathogens from contaminated materials or production processes. Generally, wastewater facilities have not been established at dairy farms and the water is discharged without any treatment. Improper disposal of waste also causes groundwater contamination.

## **AIR EMISSIONS**

Only a few dairy farms in Balochistan have cold storage facilities, so leakage of cooling agents such as Freons (R12 and R22) is not a major source of air pollution. However, odour caused by the improper disposal of waste and decomposition of excess feed is a major problem for surrounding populations.

## **SOLID WASTE**

Most of the solid waste produced by dairy farms is organic in nature, consisting of fecal matter and wasted feed, and can be recycled if collected. The waste produced is not hazardous in nature, but its proper disposal is a matter of concern.

## **NOISE**

Noise from the dairy farm can be a nuisance for neighboring communities. Major sources of noise are the animals themselves, particularly at milking time, and vehicular movement to transport milk (twice a day) from the dairy farm to the markets.

## **HEALTH, HYGIENE AND SAFETY**

Lack of hygiene is a major issue. The dairy farm staff does not always practice sanitary methods and is often not careful about personal hygiene. Milking equipment and utensils are not kept clean and appropriate systems to separate milk from diseased animals are not in place. Due to the absence of cold storage facilities at most small farms, the milk can get spoiled before the contractors come to pick it up.

Product safety during transportation is also a significant issue. Due to unhygienic and inappropriate transportation and preservation methods, milk can get spoiled before reaching its destination. Usually, ice prepared from contaminated water is used to keep the milk chilled. This practice not only adds impurities to the milk, but also adulterates it through the addition of excess water.

## **MITIGATION MEASURES**

### **Site location**

- Dairy farms should be located outside populated areas, preferably outside the city premises;
- The location and previous use of the dairy farm and the activities of neighbouring properties should be considered in order to minimize the risk of environmental contamination of milk;
- Dairy farms should not be located on the banks of a river or any other water body.

### **Land contamination**

- Animal holding areas should be kept clean and maintained in a manner that minimizes the risk of pollution;



Inside a dairy farm.

- Animals should be parked in a paved area with a liquid collection system. However, for the safety of animals it should be ensured that the floor is not slippery;
- An appropriate effluent disposal system should be in place to keep all dairy shed waste on the farm and out of streams/drains that leave the property;
- If waste needs to be stored before disposal, it should be collected, preferably in an aerated area, to minimize biodegradation and foul smell and avoid issues of an aesthetic nature; and
- The waste storage area should be sprinkled with crushed limestone (calcium carbonate) for disinfection purposes.

## Water contamination

- Dairy farm should have a liquid waste collection system to avoid any water discharges outside the premises;
- The waste collection system should carry the effluent to a retention pond tank sited away from the milking shed for later discharge;
- Phosphorus-based cleaning agents should be avoided; and
- Milking animals should not be allowed to consume or have access to contaminated water sources.

## Air emissions

- Proper aerated storage areas should be built to minimize the build up of odour;
- Odour controls (such as absorbents/biofilters etc) should be installed where necessary to achieve acceptable odour quality for nearby residents;
- Trees should be planted around the slaughterhouse to provide a barrier against the spread of foul smell or noise originating from the facility; and
- Vehicles used for transportation/ distribution purposes should be well maintained to minimise emissions.

## Solid waste

- Waste should be stored in open areas to avoid the build-up of smell inside the facility;
- Waste storage areas should be sprinkled with crushed lime (calcium carbonate) for disinfection and also to curtail foul smell; and
- Waste products should be collected for use in low-grade products such as animal feed or manure, where this is feasible.

## Noise

- Where possible, trees should be planted around the dairy farms to block the noise emitted from it;

- Dairy farm walls should be at least seven feet high; and
- Dairy farms should avoid noisy activities such as vehicular movement during after hours.

## Health, hygiene and safety

- Only animals of known health status should be bought and their introduction into the herd controlled;
- Cattle transport on/ off farm should be monitored to ensure that it does not introduce disease - cattle should be vaccinated before and after moving them inter-provincially or from farm to farm;
- People's access to the dairy farm and milking shed should be limited;
- Cattle should be regularly checked for and vaccinated against disease;
- A welfare dispensary for dairy farm employees should be set up at the farm site;
- Cattle handlers should undergo a regular medical checkup;
- The dairy farm premises and milking equipment/ utensils should be regularly sterilized. The management should ensure proper insect and rodent control inside the production area;
- Contamination during primary production should be minimized and milk should have a microbiological load as low as possible;

- Cow udders/teats should be cleaned and disinfected regularly;
- Cows should be milked at regular times during the day;
- Housed animals should be provided with adequate ventilation to remove excess heat, moisture, dust etc and allow them sufficient space to lie down;
- Person(s) involved in milking should be healthy. They should not have any open wounds nor suffer from infectious disease;
- Suitable clean clothes should be worn during milking and hair should be covered;
- Milk should be stored in hygienic conditions, while awaiting pickup;
- Milk from sick animals should be separated;
- The milk containers used during transportation should be regularly cleaned and disinfected/sterilized;
- During transportation, milk should be cooled by putting ice around the containers instead of in the milk itself;
- Competent stockmanship is essential and appropriate training should be provided to dairy farm staff; and
- Milk cooling and storage equipment should be properly installed and maintained.



Animal refuse piled up outside a dairy farm.

# Form I: Project Description

File No \_\_\_\_\_

(To be filled by EPA)

Date \_\_\_\_\_

## General Information

1. Project Name \_\_\_\_\_
2. Project Proponent (Department or Organisation) \_\_\_\_\_
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 farm \_\_\_\_\_

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

15. Number and type of qualifications of required staff to run the project? \_\_\_\_\_
16. What will be the expected water requirement for the project? \_\_\_\_\_ m3/d

17. What is the proposed source of water? \_\_\_\_\_
18. Where will the wastewater from the unit be disposed? \_\_\_\_\_
19. Please describe the planned treatment system for the wastewater, if any. \_\_\_\_\_
20. Please describe the solid waste expected during operation. \_\_\_\_\_

## Construction

21. What is the present use of the land? \_\_\_\_\_
22. Are there any trees on the proposed site?  Yes  No
23. Will any tree be removed?  Yes  No
24. Period of construction (start and end dates) \_\_\_\_\_
25. Is any construction work planned during the night hours?  Yes  No

# Form II: Screening

1. Is the proposed project listed in Schedule A or B of EIA Rules and Regulations?

Schedule A

Schedule B

2. 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 (IEE) or an Environment Impact Assessment (EIA). Refer to the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2000 for the appropriate category.

# Form III: Checklist for Dairy Farms

Aspects of EIA	Checklist Questions will the project:	Yes	No	Additional Data needs
<b>Site Location</b>	1. Convert land that supports conservation worthy ecosystems, flora or fauna (e.g. tropical forests, wilderness areas, critical habitats, endangered species); or areas that are of historical or cultural importance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Be located close to or within populated areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Be located close to or in an area previously or currently used for activities that may result in environmental contamination of milk?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Induce unplanned development through the construction of access or feeder roads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Land Contamination</b>	1. Present a risk of contamination of land due to improper disposal of dairy farm waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Water contamination</b>	1. Be constructed near or next to water bodies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Present a risk of pollution due to runoff from dairy farm or disposal of waste, to water bodies that support conservation worthy ecosystems or species, or commercially significant fish stocks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Present a risk of intensive eutrophication or bacterial infestation due to indiscriminate discharge of effluent from dairy farm into water bodies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Present a risk of contamination of groundwater resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Air emissions</b>	1. Cause air pollution due to foul odour originating from dairy farm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in foul odour due to decomposition and improper disposal and storage of dairy farm waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Solid waste</b>	1. Present a risk of pollution due to improper disposal of and storage of solid waste originating from the dairy farm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Aspects of EIA	Checklist Questions will the project:	Yes	No	Additional Data needs
<b>Noise</b>	1. Lead to a significant increase in traffic congestion and noise that would adversely affect local inhabitants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in disturbance to local inhabitants due to farm-related activity e.g. excessive traffic?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Health, hygiene and safety</b>	1. Result in disease transmission due to lack of hygienic standards or poor vaccination regime at the dairy farm?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Cause public health risks due to contamination of milk during primary production or inadequate cooling/storage facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Cause public health risks from discharge of wastes, noise and foul odour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Be likely to require mitigation measures that may result in the project being financially or socially unacceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments</b>				

# Section 2: Slaughterhouses



# Guideline for Slaughterhouses

## BACKGROUND

The metropolitan population of Balochistan has grown in recent years, and environmental problems are intensifying at an alarming rate due to city growth and the inadequacy of the present urban infrastructure. For one, the nutritional needs of the population have multiplied and efforts are being made by the municipal committees to meet the increasing demand. .

Traditionally, slaughtering is done at the individual or family level in Balochistan and formal slaughterhouses are a recent phenomenon. They have been set up by the municipalities to discourage scattered slaughtering, particularly in urban centres like Quetta. All establishments are required to meet certain standard requirements that would provide hygienic meat to the community and help curtail the spread of pollution.

The slaughterhouse in Quetta meets the needs of a small segment of the population because the idea has not gained public acceptance in Balochistan. A new slaughterhouse was constructed a few years ago but is still not functional. The waste generated from the operational slaughterhouses is either collected as municipal waste by sweepers, sold to waste vendors, or allowed to decompose outdoors. Slaughterhouse effluent which contains animal remains, blood, and animal waste is discharged directly into the open grounds and eventually finds its way to the water bodies (surface and ground water) through open drains.

Most slaughterhouses in Balochistan do not have a management plan and administration of the establishment is usually limited to slaughtering animals, without any attention being paid to dealing with the waste generated.

## SCOPE

These guidelines are applicable to all slaughterhouses constructed in Balochistan.

## ENVIRONMENTAL / SOCIAL / HEALTH / SAFETY ASPECTS

Slaughterhouses can have a significant impact on the surrounding environment. Although the waste originating from slaughterhouses is organic in nature and is recyclable, if it is not handled properly, it can affect the surrounding environment negatively. Some key issues in this regard are listed below:

### SITE LOCATION

The new slaughterhouses are located outside city limits to avoid adverse impact on the surrounding population. In Quetta, the slaughterhouse was built outside the populated area to avoid any adverse effect on neighbouring communities. The presence of such establishments within populated areas can cause aesthetic and pollution related problems.

### LAND CONTAMINATION

Slaughterhouses do not contaminate the land the way that other industrial operations can and do. The main reason for this is that slaughterhouses do not use any chemicals that can have a detrimental effect on the environment. In fact, waste originating from slaughterhouses helps enrich the soil and makes it more productive. Land contamination resulting from slaughterhouse waste is more an aesthetics issue than one relating to pollution.

### WATER CONTAMINATION

The waste originating from slaughterhouses can end up in water bodies, polluting water resources. The main pollutants are blood, animal dung, and body parts. No chemicals are used in slaughterhouses. Although the contaminants are not toxic in nature, they can introduce bacterial contamination and increase nitrates, phosphates, and sulfates concentration in water, leading to health problems.

## AIR EMISSIONS

Slaughterhouses generally do not have cold storage facilities. Thus CFC emissions are not an issue, but the foul smell that pervades the area due to the presence of live animals and the decomposition of animal parts and other waste, is a significant issue for the surrounding populations. Due to improper waste handling, a significant proportion of the waste decomposes before being removed from the site by vendors. In addition, waste is often stored out in the open, which causes foul odour and is unpleasant aesthetically.

## SOLID WASTE

All waste originating from the slaughterhouses is marketable and can be sold to vendors for recycling purposes. Common waste products generated by slaughterhouses are hides, blood, bones, dung, fat and body parts, which may be used in the manufacture/preparation of leather, chicken feed, jelly, manure (compost/fertilizer) and cosmetics. Although the waste has a commercial value, a considerable amount of it is wasted because of poor handling, improper storage, and poor marketing.

## NOISE

Noise emanating from the establishment could be a nuisance for communities living in the immediate vicinity of the slaughterhouse. Major sources of noise are the animals, slaughtering activities, and vehicular movement to transport animals and meat to and from the slaughterhouse.

## HEALTH, HYGIENE AND SAFETY

Lack of hygiene is a major issue at existing slaughterhouses in Balochistan. Little or no care is taken to maintain hygienic standards. The staff handling the meat does not practice sanitary methods while at work and are not careful about their personal hygiene either. Due to the absence of cold storage facilities, meat can get spoiled in the summer months posing a danger to the health of consumers.

Due to the lack of training, absence/ non-availability of protective gear, and inadequate monitoring, safety is a

major issue in most of the slaughterhouses. Butchers/ staff get injured regularly while handling animals and in the process of slaughtering. The poor layout of slaughterhouses and inadequate facilities also complicate matters.

## MITIGATION MEASURES

### Site location

- Slaughterhouse should be located outside populated areas, preferably outside city limits;
- Slaughterhouse should be located downwind from the city; and
- Slaughterhouse should not be located on the banks of a river or any other water body.

### Land contamination

- Waste should not be stored outside the slaughterhouse premises for aesthetic reasons;
- Waste should be stored inside the premises, preferably in an aerated area to minimize biodegradation and foul smell;
- The slaughtering area should be paved and should include a blood collection system to avoid any wastage of by-products;
- The waste storage area and other adjacent areas should be regularly sprinkled with crushed limestone (calcium carbonate) for disinfection purposes or sprayed to avoid any spread of disease; and
- The animal parking area should be paved with a liquid collection system.

### Water contamination

- Slaughterhouses should have a liquid waste collection system to avoid any water discharges outside the premises; and
- The waste collection system should carry the collected effluent to the retention/ evaporation tank



Animal market outside a slaughter house.

for later discharge outside the slaughterhouse premises for irrigation or other purposes.

## Air emissions

- Proper aerated storage areas should be built to minimize any foul smell build up; Trees should be planted around the slaughterhouse to provide a barrier against the spread of foul smell or noise originating from the facility;

## Solid waste

- Waste handling should be improved to minimize losses;
- Waste should be stored in open sheds to avoid the build-up of smell inside the facility;
- Vendors should be asked to pick up waste on a daily basis to minimize degradation and smell;
- Waste should be recycled;
- Any waste that is no longer suitable for recycling purposes should either be handed over to the municipal committee or buried in an open earthen excavation pit; and

- Waste storage areas should be sprinkled with crushed lime (calcium carbonate) or sprayed for disinfection and to curtail foul smell.

## Noise

- Trees should be planted around the slaughterhouse to block the noise emitted from it;
- Slaughterhouse walls should be at least seven feet high; and
- Slaughterhouses should avoid activities including vehicular movement at late hours.

## Health, hygiene and safety

- Meat handlers should undergo a regular medical checkup;
- Meat handlers should be provided with protective gear like head cover, gloves, etc;
- Meat should be stored in hygienic conditions, preferably on hangers;
- The slaughterhouse premises should be regularly sterilized and treated for rodents, stray dogs and cats;

- Lighting inside the slaughterhouse should be adequate to ensure proper visibility;
  - Facility should be regularly sprinkled with lime and/ or sprayed for disinfection purposes;
  - Quarantine facilities for sick animals should be available; and
  - Meat should be transported in covered vehicles which are regularly disinfected.
  - The layout and design of slaughterhouses should be such that the risk of accidents is minimised;
  - Floors should be cleared regularly to ensure that they are not slippery, to help prevent accidents;
- Staff should be provided with protective gear;
  - Training should be provided to the staff on safety so that accidents can be avoided;
  - Regular monitoring of slaughterhouses should be undertaken to ensure that they comply with federal and provincial occupational health and safety rules; and
  - All necessary facilities/ infrastructure/ utilities should be provided.

A butcher's shop.



# Form I: Project Description

File No \_\_\_\_\_

(To be filled by EPA)

Date \_\_\_\_\_

## General Information

1. Project Name \_\_\_\_\_
2. Project Proponent (Department or Organisation) \_\_\_\_\_
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 slaughterhouse \_\_\_\_\_

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

15. Number and type of qualifications of required staff to run the project? \_\_\_\_\_
16. What will be the expected water requirement for the project? \_\_\_\_\_ m3/d

- 17. What is the proposed source of water?
- 18. Where will the wastewater from the unit be disposed?
- 19. Please describe the any treatment system for the wastewater planned, if any.
- 20. Please describe the solid waste expected during operation

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## Construction

- 21. What is the present use of the land?
- 22. Are there any trees on the proposed site?
- 23. Will any tree be removed?
- 24. Period of construction (start and end dates)
- 25. Is any construction work planned during the night hours?

<hr/>	
<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Yes	<input type="checkbox"/> No
<hr/>	
<input type="checkbox"/> Yes	<input type="checkbox"/> No
<hr/>	

# Form II: Screening

1. Is the proposed project listed in Schedule A or B of EIA Rules and Regulations?

Schedule A

Schedule B

2. 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 (IEE) or an Environment Impact Assessment (EIA). Refer to the Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environment Impact Assessment Regulations, 2000 for the appropriate category.

# Form III: Checklist for Slaughterhouses

Aspects of EIA	Checklist Questions will the project:	Yes	No	Additional Data needs
<b>Site Location</b>	1. Convert land that supports conservation worthy ecosystems, flora or fauna (e.g. tropical forests, wilderness areas, critical habitats, endangered species); or areas that are of historical or cultural importance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Induce unplanned development through the construction of access or feeder roads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Be located close to or within populated areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Land Contamination</b>	1. Present a risk of contamination of land due to improper disposal of slaughterhouse water and runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Water contamination</b>	1. Be constructed near or next to water bodies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Present a risk of pollution due to runoff from slaughterhouse or disposal of waste, to water bodies that support conservation worthy ecosystems or species, or commercially significant fish stocks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Present a risk of intensive eutrophication or bacterial infestation due to indiscriminate discharge of effluent from slaughterhouse into water bodies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Present a risk of contamination of groundwater resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Air emissions</b>	1. Cause air pollution due to foul smell originating from slaughterhouse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in foul smell due to decomposition and improper disposal and storage of slaughterhouse waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Solid waste</b>	1. Present a risk of pollution due to improper disposal of and storage of solid waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in a rodent infestation or attract stray animals due to improper disposal of waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Aspects of EIA	Checklist Questions will the project:	Yes	No	Additional Data needs
<b>Noise</b>	1. Lead to a significant increase in traffic congestion and noise that would adversely affect local inhabitants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in disturbance to local inhabitants and wildlife due to slaughterhouse-related activities e.g. excessive traffice, the slaughtering activities themselves, etc?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Health, hygiene and safety</b>	1. Result in accidents due to inadequate attention to occupational health and safety at the slaughterhouse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Result in disease transmission due to lack of hygienic standards at the slaughterhouse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3. Cause public health risks from discharge of wastes, noise and foul odour?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Require mitigation measures that may result in the project being financially or socially unacceptable?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments</b>				

# List of References

ADB, 1993. *Environmental guidelines for selected Infrastructure projects*

Byron, Helen. 2000. *Biodiversity and Environmental Impact Assessment: A Good Practice Guide for Road Schemes*. The RSPB, WWF-UK, English Nature and Wildlife Trusts, Sandy.

Government of Balochistan and IUCN, 2002. *Balochistan Conservation Strategy*, Planning and Development Department.

Government of NWFP and IUCN, 2003. *Environmental Assessment Checklists and Guidelines*, Hagler Bailly, Pakistan.

International Finance Corporation, 2001. *Environmental, Health and Safety Guidelines for Hospitals*, Washington D.C. September.

World Bank, 1994. *Environment, Health and Safety Guidelines*, Washington D.C.

[www.ebrd.com/about/policies/enviro/sectoral/main.htm](http://www.ebrd.com/about/policies/enviro/sectoral/main.htm)

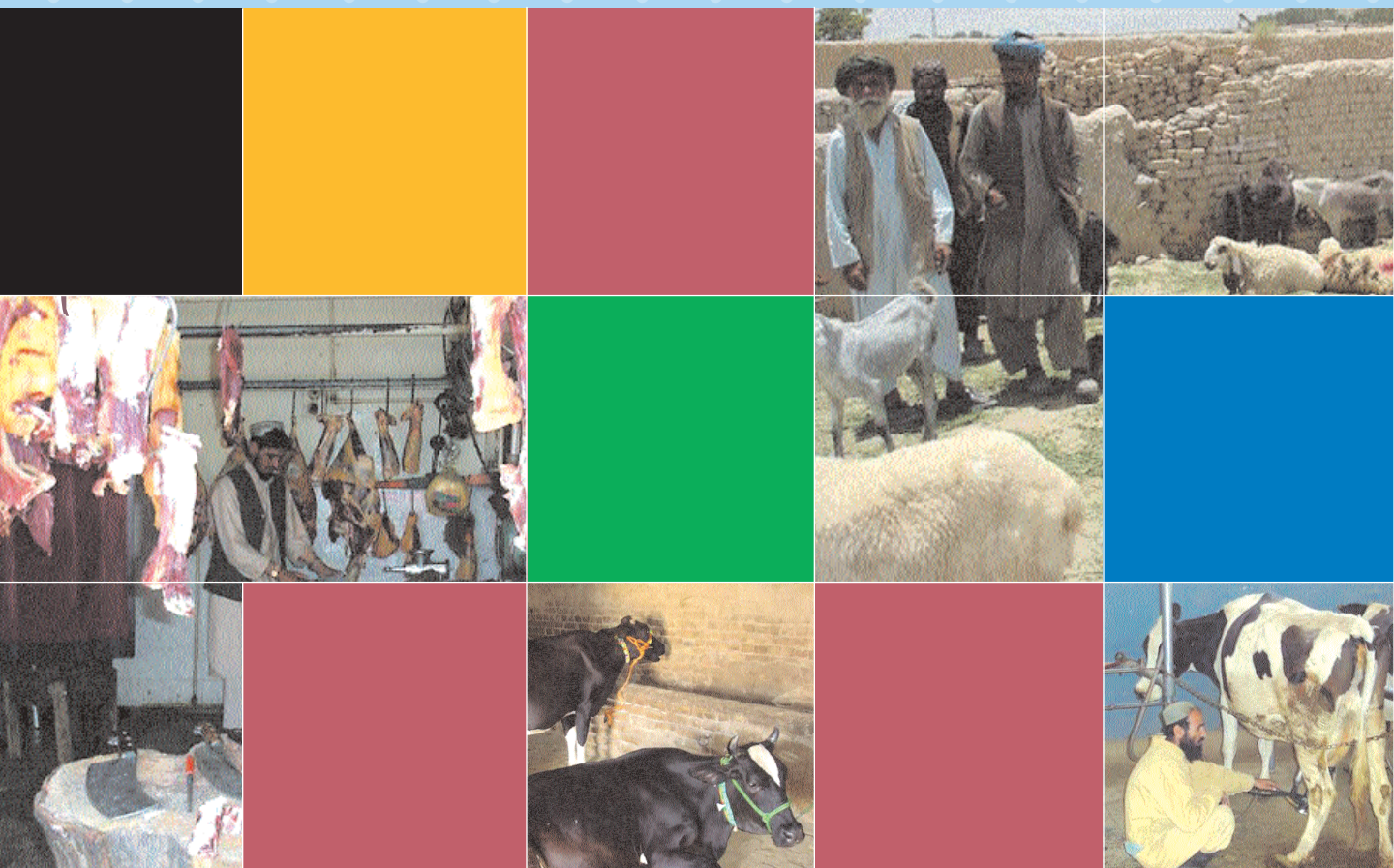
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As a Union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

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IUCN Pakistan has six programme offices in cities from the north to the south, multiple field offices and a large portfolio of projects. It is one of the seven Country Offices of IUCN's Asia Programme, covering 17 countries with a workforce of nearly 500.



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