JUNE 2012

REPUBLIC OF RWANDA

RWANDA ENVIRONMENT MANAGEMENT AUTHORITY (REMA)

Sector Specific EIA Guidelines for Slaughterhouse Projects in Rwanda

DRAFT REPORT

COWI

ADDRESS COWI Ltd
Crusader House, 2nd Floor,
Plot No. 3, Portal Avenue
P.O. Box 10591
Kampala
Uganda

TEL +256 41 434 30 45
FAX +256 41 434 32 43
WWW cowi.co.ug

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ACRONYMS

AIS	Analysis of Initial State
BOC	Biodegradable Organic Compounds
CBOs	Community Based Organization
EDPRS	Economic Development and Poverty Reduction Strategy
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EWSA	Energy, Water and Sanitation Authority
GoR	Government of Rwanda
IL1, IL2 and IL3	Impact Levels: 1, 2 and 3
ISAE	Institute of Statistics and Applied Economics
KCC	Kigali City Council
MINAGRIC	Ministry of Agriculture and Animal Resources
MINCOM	Ministry of Commerce, Industry, Investment Promotion, Tourism and Cooperatives.
MINERA	Ministry of Environment and Natural Resources
MININFRA	Ministry of Infrastructure
MINLOC	Ministry of Local Government
MINISANTE	Ministry of Health
MSc	Master of Science
NGOs	Non-Government Organizations
NSRs	Noise Sensitive Receptors
PPP	The Polluter Pays Principle (PPP) is an environmental policy principle which requires that, the costs of pollution be borne by those who cause it.

PME	Powered Mechanical Equipment
PASTA	Strategic Plan for Agriculture in Rwanda
PSF	Private Sector Federation
RAB	Rwanda Agricultural Board
RBS	Rwanda Bureau of Standards
REMA	Rwanda Environment Management Authority
RHA	Rwanda Housing Authority
RURA	Rwanda Utilities Regulatory Authority
ToRs	Terms of Reference

DEFINITIONS

Authority	Means the Rwanda Environment Management Authority, REMA in abbreviation.
Bye-products	Abattoir wastes from the carcass, other than the carcass and edible offal during the slaughter process.
Decommissioning	A process that entails the retiring of a facility that is no longer necessary.
Developer	Any person who has proposed or has undertaken to implement a project in the public or private sector.
Environment	The physical factors of the surroundings of the human being including land, water, atmosphere, climate, sound, odour, taste and the biological factors of fauna and flora and includes the cultural, social and economic aspects of human activity, the natural and built environment.
Environmental Audit	Means the systematic documentation and periodic and objective evaluation of protection and management of the environment and the conservation and sustainable use of natural resources.
EIA Experts	Refers to Environmental Impact Assessor or any physical or moral person that is technically competent, fulfils the requirements of the Environmental Impact Assessment guidelines and is recognized by REMA to conduct an Environmental Impact Assessment or studies in accordance to the Ministerial Order.
Environmental Impact Assessment-EIA	A systematic way of identifying environmental, social and economic impacts of a project before a decision of its acceptance is made.
Environmental Impact Report	A report produced after conducting an Environmental Impact Assessment.
Environmental Monitoring	Means the continuous or periodic assessment of the actual and potential impact of any activity on the environment.
Evisceration	To disembowel and remove entrails of a carcass.

Lairages	Resting paddocks where animals rest before slaughter.
Lead Agency	Means any public office or organisation including every Ministry or Government department which has functions for the protection of any segment of the environment and the conservation and sustainable use of natural resources.
Leachate	Liquid produced from the decomposition of waste.
Mitigation	Actions to prevent avoid or reduce damaging impacts.
Public Hearing	A way of getting ideas from the people or institutions who or which might be affected directly or indirectly by the project with a view to protecting their rights before a project gets authorization.
Public Participation	A systematic way of involving public or relevant institutions in project planning, development and in decision making process on a development project.
Scoping	The process of establishing the principal issues to be addressed in an environmental impact assessment.
Screening	The process of determining if a project should be subjected to a detailed EIA. The main considerations being project type, size and the environmental sensitivity of project location.
Slaughterhouse	A facility where animals are killed and processed into meat and its products.
Stakeholders	Refers to individuals, communities, government agencies, private organizations, non-governmental organizations or others having an interest or “stake” in both the Environmental Impact Assessment (EIA) process and outcomes of the project.
Sectoral	Implying for a sector e.g. agriculture
Viscera	The soft internal organs of the body that are usually contained in the abdominal and thoracic cavities, the intestines.

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1 Introduction

1.1 Background

Article 67 of the Rwanda Organic Law No. 04/2005 of 08/04/2005 stipulates that, development projects which are likely to have negative impacts on the environment are required to undergo Environmental Impact Assessments (EIAs) prior to their commencement. To guide this process, REMA developed general EIA Guidelines which are aimed amongst others, to provide uniformity in conducting EIA studies. In addition, REMA has also produced EIA Regulations which are further meant to give guidance on compliance with the EIA process and practice in Rwanda. Furthermore, Annex to the Ministerial Order No. 004/2008 of 15/08/2008, establishes the list of works, activities and projects that have to undertake an environmental impact assessment which includes construction of slaughter houses.

Despite these developments, EIA practice and process in Rwanda is still faced with a number of challenges which include amongst others:

- Generally, the quality and content of EIA reports are still below REMA's required standards;
- The review process for EIAs is not done in a standard and uniform manner since there are no standard formats to guide the process;
- There are no clear specifications for experts who undertake EIAs in which case, EIA teams tend not to be responsive to the tasks of projects; and
- Furthermore, the development of Terms of Reference (ToRs) for EIA studies is still a challenge to the Developers as they do not have the capacity.

It is realized that the preparation of EIAs for slaughterhouse projects among others, tends to present challenges to EIA practitioners. The end result has shown that, the quality of EIAs for such projects tends to be low despite such projects presenting a number of environmental and social challenges. Against this background, REMA commissioned a consultancy to develop sector specific EIA guidelines for slaughterhouse projects which are aimed at streamlining the EIA process for slaughterhouse projects.

1.2 The Objective of EIA

EIA can be defined as a systematic process of identification, prediction and analysis of significant environmental impacts (positive or negative) of a proposed project or activity and its practical alternatives on the physical, biological, cultural and socio-economic characteristics of a particular geographic area in order to provide information necessary for enhancing decision making.

The objective of EIA is fourfold:

- to provide a national standardized process for development authorization,
- to protect Rwanda's natural environment from potentially significant and avoidable impacts caused by development projects,
- to invoke environmental consciousness and responsibility for all development activities in Rwanda, and
- to facilitate efficient and modern development activities whilst considering the needs of present and future generations. The aims of EIA are divided into two categories of planning, namely:
  - *Immediate Aim*: To inform the process of decision-making by identifying potentially significant environmental effects and risks of development proposals;
  - *Long-Term Aim*: To promote sustainable development by ensuring that development projects do not undermine critical resources and ecological functions or the well-being, lifestyle, and livelihood of communities and people who depend on them.

1.3 Purpose and Objectives of the Guidelines

The purpose of these Guidelines is to assist stakeholders participating in or conducting EIAs for slaughter houses and related projects to ensure compliance of the projects with environmental and social provisions as per Rwanda Organic Law provisions and the Constitution of the Republic of Rwanda.

The objectives of the Guidelines are:

a) To assist planners, developers, and EIA practitioners preparing environmental briefs and EIA studies for slaughterhouse related projects to conform to existing regulatory framework;

b) Provide stakeholders in the meat industry with a reference tool for assessing biophysical, social, health and cultural impacts of meat related projects; and

c) To ensure integrated approach to sustainable production of meat related projects within the agricultural sector.

1.4 Linkage with the Rwanda National EIA Guidelines

The Rwanda Guidelines for EIA serve as a general guide on all matters of EIA process for all development projects that are likely to have significant impacts on the environment. They provide a framework under which, these sectoral EIA Guidelines for slaughterhouse projects have been developed. Therefore, these Guidelines are linked to the general EIA Guidelines and likewise, they emphasize the early adoption and integration of environmental assessments in the planning, formulation, design, as well as in the implementation of slaughterhouse related development projects.

It is proposed that, in implementing these Guidelines, REMA shall work closely with stakeholder institutions such as Ministry of Agriculture and Animal Industry (MINAGRI), Rwanda Agriculture Board (RAB), Rwanda Bureau of Standards (RBS), relevant urban and local authorities, as well as market management agencies who have the required specialized sectoral knowledge and mandates on matters of animal production and products. Areas of such collaboration will be in terms of review of Environmental Impact Statements (EISs) for slaughterhouse projects.

1.5 Document Organization

The document is presented in chapters and annexes. This chapter is the first, it contains introductory and background information. Chapter 2 introduces slaughterhouse operations and designs. Chapter 3 explains the EIA process from project inception up to issuance of an EIA Certificate. Chapter 4 describes the key laws, policies, instruments and institutional framework governing slaughterhouses in Rwanda. Chapter 5 provides guidance information to an EIA Team on how to assess impacts as well as typical mitigation measures for slaughterhouses. Chapter 6 provides information about the public hearing process. The annexes provide detailed information that is briefly presented in the mentioned chapters.

2 Slaughterhouse Design, Operations, and Projects

2.1 Design Details Required for the EIA Process

In providing a description of the project development, issues such as site layout, design and size or scale, as well as any existing development on site should be considered. Therefore, the Developer should provide the following to the EIA Practitioner to aid in the EIA process:

2.1.1 Site Layouts for Ruminants Slaughterhouses

This description is based on the slaughter of cows, goats and sheep. The description of the slaughterhouse project will include:

- Location of the development – local and site context;
- Distance of development to other significant features on and off-site;
- Extent of the proposed development in relation to existing features;
- Extent of site coverage / use and size of site;
- Plan of the existing site accompanying the proposed site plan at an appropriate scale.

Good site investigation, selection and design can substantially reduce impacts caused by slaughterhouse development. Important factors for consideration include:

- geological conditions – permeability and uniformity of strata;
- proximity to sensitive surface or ground water bodies including drinking water resources; and
- Desirability of having clay to prevent seepage of gas or leachate.

One of the key considerations in the siting of slaughterhouses include amongst others the following:

- Not having the facility in isolated areas without good access and vulnerable to vagaries;
- Avoid being too close to residential areas and structures due to the risk of gas accumulation, fires, and explosions;
- Should be away from ecologically sensitive areas (wetlands, forests, etc);
- Good transport links;
- Optimization of potential economic values from waste recovery or from methane gas extraction; and
- Consideration of potential current and future land use conflicts (e.g. tourism).

2.1.2 Description of Ruminants Slaughterhouse Design

In providing a description of the significant physical characteristics of a slaughterhouse facility, the following aspects should be included:

- Layout of the development on the proposed site;
- Shape, surface and characteristic features of each element;
- Principle activities proposed; and
- Associated or secondary developments.

Slaughterhouse design for ruminants should follow the following principles:

- Determining the nature of waste to be disposed of and its variability in order to establish site design and operation that minimizes the environmental risks;
- Where relevant, enabling the prior separation and recovery of materials;
- Eliminating risks of ground and surface water contamination;
- Providing wastewater treatment or sewerage facilities for slaughterhouse effluent;
- Odour removal facility (air quality concerns);
- Providing adequate space for delivery and operational vehicles;
- Measures enabling site restoration and reuse after closure; and
- Application of RBS, urban and local authorities, and MININFRA procedures for slaughterhouse operational and environmental control.

2.1.3 Sizes and Scales of Ruminants Slaughterhouse Facilities

The description of the proposed slaughterhouse in terms of size and scale indicates the magnitude or intensity of the development when in operation, and includes such issues as:

- Area, length, width, and height of each major development;
- Relative size and scale of the development in its context;
- Extent of the slaughterhouse activities proposed;
- Volume, magnitude, or intensity of slaughterhouse process; and
- Number of features clearly indicated where relevant such as proximity to nearest dwelling.

2.1.4 Construction of Ruminants Slaughterhouses

The description of ruminants' slaughterhouses development considers all aspects in terms of design, construction, commissioning, operation and any changes to the proposed facility. In general, the construction phase of a slaughterhouse will involve the following aspects:

- Land use requirements
- Land- take;
- Soil characteristics, class, or profile;
- Drainage diversions and areas affected – roads / hard standing area; and
- Storage and containment – fuel and hazardous chemicals.

Construction activities

- Site sourcing, site preparation and pre–construction activities;
- Construction of parking, office, canteen, and storage;
- Disposal of condemned carcasses;
- Duration, phasing or sequencing of construction activities; and
- Major temporary features, construction equipment, holding ponds, stockpiles;

Environmental protection measures to be included:

- Noise management
- Lighting
- Greenery

- Monitoring;
- Firewater containment;
- Operational procedures; and
- Contingency measures.

2.1.5 Inspection and Approvals of Ruminants Slaughterhouses

The operations of slaughterhouse facilities in Rwanda are allowed upon being licensed and approved by the Director General of Livestock Services. Approval and licensing of the facility follows inspections of the establishments. The inspection follows a set procedure standardized through checklists and performed by MINAGRI, RBS and RDB. Slaughterhouse processes, equipment, meat inspectors health records should be evaluated. Approved establishments are issued with a certificate/license as evidence of compliance and such a license is renewable annually based on performance and compliance. The authorities should then issue certificates of fitness for use of the slaughterhouse and thereafter, commission its usage.

2.1.6 Ruminants Slaughterhouse Operations

The extent and detailed nature of environmental impacts during the operational phase depends upon the scale of the site, design of the facility, sensitivity of surrounding area (presence of potential receptors and pathways), types of wastes deposited, and the operational management practices adopted. Slaughterhouse operations and issues should be described in general terms which are summarized as follows:

- Transportation, handling, storage of animals;
- Type/class and its size;
- Slaughter process;
- Disposal methods of waste residues and emissions;
- Location and design of animal lairage and its management;
- Storage areas for meat, by-products and wastes;
- Health hygiene and safety management;
- Distances from residences, boundaries, water table, surface water and, underground public utilities;
- Disposal of diseased animals and condemned carcasses;
- Security and control of access

- Capacity and life span of the facility;
- Management procedures, equipment, staffing;
- Litter, scavenging, pest, and bird nuisance control measures;
- Odour control strategies;
- Animal health and disease control issues;
- Environmental monitoring and maintenance programme; and
- Wastewater treatment and disposal.

2.1.7 Typical Ruminants Slaughter Process

Delivery and Inspection

Animals are received on trucks at the reception area and are offloaded. An ante-mortem inspection is then conducted in the reception area to determine the animals' conditions. Healthy animals are sent to the lairages while animals with questionable health (e.g. animals that are sick) are sent to the isolation pens for monitoring. Animals that arrive dead are sent to the post-mortem area for destruction. Animals that arrive injured are either sent to the emergency slaughter area or if unfit to the post-mortem area for killing and destruction. Animals are taken from the lairages and emergency slaughter area to where bleeding takes place.

Animal Slaughtering

Once killed, the animals are passed from the dirty area to the clean area where the following take place:

- Removal of heads and feet;
- Removal of hides or skins;
- Evisceration;
- Carcass is split;
- Primary meat inspections; and
- Secondary meat inspection.

Blood is collected through a trough and taken to a storage tank where it is boiled and later on sundried and sold to animal feed processing plants. If the carcasses pass the primary meat inspection, they pass through a final washing process then are sent for hanging, transportation or chilling. This process is summarized in Table 2-1.

Table 2-1: Summary of Slaughter Process

	Step	Description of Activity	Potential Issues/Risks
01	Animal Receiving	• Livestock arrive at slaughter house. • Ante-mortem inspection done • Checking animal identifications and movement authorizations. • Animals held to allow them rest and relieve stress prior to slaughter	• Physical injury to animals and personnel. Injury to animals may have occurred during transportation. • Presence of sick animals (disease transmission). Some animals may not have been obviously sick prior to travel. • Build-up of faecal waste in lairage
02	Stunning and Shackling	• Animals restrained and humanely made unconscious prior to slaughter.	• Physical injury to animals and personnel if process is not well managed.
03	Bleeding/Sticking	• Jugular vein and thorax cut to bleed animals. • Sticking in case of pigs	• Blood – may harbor pathogens • Objectional odors • Clogging of pipes/drains • Contamination of equipment/carcass, etc.
04	Head and Shank Removal (ruminants)	• Head, hooves are removed from slaughtered animal.	• May harbor pathogens • Dirt • Physical injury to personnel (cuts)
05	Scalding, singeing, shaving, polishing (pig)	• Pig placed in hot water in aide removal of hair by shaving.	• Injury to personnel (burns, cuts) • Dirt • Hair • pathogens
06	Removal of heads	• Head removed and taken to separate room/chamber for inspection	• Physical injury • Pathogens from head • Some Blood/liquor
07	Removal of Hides/Skin (ruminants)	• Hide split and stripped off animal	• Pathogens • Some blood/liquor • Hide quality • Physical injury to personnel • Contamination of carcass
08	Cutting of brisket and evisceration	• Removal of viscera without puncturing the viscera • Removal to separate chamber/room • Separation and cleaning of viscera in the viscera room	• Pathogens • Contamination of carcass • Paunch manure and liquor • Physical injury to personnel.
09	Splitting carcass	• Carcass is cut in half down spine and removal of spinal cord	• Contamination • Pathogens

		• Final inspection and trimming of carcasses • Final wash	• Physical injury
10	Dispatch/chilling	• Carcasses and edible parts passed as 'fit for human consumption' dispatched to butchers and meat processors • Temporary storage prior to dispatch	• Maintenance of quality of products as fit for human consumption
11	General Aspects	• Staff Training • Codes of Conduct and Practice	• Occupational hazards • Occupational hazards, sanitation, animal welfare and public/personnel safety
12	Infrastructure	• Slaughter • inspection	• clogging of drains • bad odors • spread of disease • contamination of production • public health
13	Equipment	• Cutting and holding instruments • Moving carcasses	• Dirt • contamination

Note: Though the slaughter process has been described concurrently for both ruminants and pigs, the actual process will be done in separate facilities.

2.1.8 Certification of Meat and Meat Products for Human Consumption

In Rwanda, by law, all meat and meat products should undergo ante mortem (inspection of live animal) and post mortem (carcass) inspection by a competent veterinary and public health specialist and passed if fit for human consumption before being made available to the consumer. When meat that has gone through this process and the inspectors pass it as fit for human consumption, it's given a certificate. This certification involves stumping with a special mark **"PASSED"** which should be placed on such carcasses or cuts by the meat inspectors.

2.1.9 Maintenance of Ruminants Slaughterhouse Facilities

Slaughterhouse facilities generate a lot of public health concerns relating to odours, wastewater management and effluents, solid wastes (horns), dead and condemned carcasses and foetuses, animal hair, skins, and hides. In addition, slaughterhouses tend to have a number of people and therefore a need for public health facilities (toilets and urinals). The operators of the facilities are to put in place measures to ensure hygienic and acceptable standards for operation of slaughter facilities.

Such measures include amongst others:

› Routine cleaning and floors scrubbing with soaps;

› Space for burying condemned materials;

- Incineration facilities;
- Collaboration with support industries that process by-products from slaughterhouse e.g. tanneries, animal feeds factories (taking up blood and bones);
- Manure composting farmers; and
- Collaboration with urban authorities to provide solid waste skips.

2.2 Key Health and Safety Aspects in Slaughterhouse Facilities

To ensure health and safety in the entire slaughterhouse facility, the EIA Practitioner should review the following measures in the design of the slaughterhouse and propose their inclusion in the proposed design to the Developer:

2.2.1 Erection of Perimeter Fencing

It is important that, a perimeter fence is erected around a slaughterhouse facility. This keeps intrusion and security risks in the facility by preventing access of unauthorized persons, the public, dogs and other animals around the slaughterhouse area. The fencing should have contact with the ground at the lower edge and should be high enough to prevent access to the grounds.

2.2.2 Installation of Security Lightings

Apart from perimeter fencing, security in the slaughterhouse areas can be improved through installation of security lights in strategic locations around the premises. This improves visibility in the night.

2.2.3 Installation of a Gate

Once a perimeter fence is erected, the Developer should also put in place a gate mannered by a guard who controls access to and from the facility. Visitors to the facility will be subjected to security checks as designed by the Developer.

2.2.4 Ventilation

Workplaces need to be adequately ventilated. Fresh, clean air should be drawn from a source outside facility. Ventilation should also remove and dilute warm, humid air and provide air movement which gives a sense of freshness without causing a draught. Slaughterhouses should be as open to the air as possible and the building designed so that even a light breeze will produce a ventilating draught. The openings should not be glazed, but should, along with grills in the roof ridging, be screened to prevent the entry of insects. The grills allow the warm air to escape and cooler air to be drawn in through the windows

2.2.5 Temperatures in Indoor Workplaces

Risk of heat stress arises, for example, from working in high air temperatures, exposure to high thermal radiation or high levels of humidity. Cold stress may arise, for example, from working in cold storage areas of the facility. It is recommended that, an assessment of the risk to workers' health from working in either a hot or cold environment needs to consider both personal and environmental factors.

2.2.6 Lighting

Lighting should be sufficient to enable people to work and move about safely. Lighting and light fittings should not create any hazard. Automatic emergency lighting, powered by an independent source, should be provided where sudden loss of light would create a risk.

2.2.7 Cleanliness and Waste materials

Every workplace and the furniture, furnishings and fittings should be kept clean and it should be possible to keep the surfaces of floors, walls and ceilings clean. Cleaning and the removal of waste should be carried out as necessary by an effective method. Waste should be stored in suitable receptacles.

2.2.8 Room Dimensions and Space

Each aspect of slaughterhouse operations ought to have enough free space to allow people to move about with ease and this should be based on standard specifications for such facilities as advised by RBS and MINAGRI.

2.2.9 Traffic Routes

There should be sufficient traffic routes, of sufficient width and headroom, to allow people and vehicles to circulate safely with ease. To allow people and vehicles to move safely, the best approach is to keep vehicles and pedestrians apart by ensuring that they use entirely separate routes. Loading bays should have at least one exit point from the lower level, or a refuge should be provided to avoid people being struck or crushed by vehicles.

2.2.10 Floors

For sanitary reasons, floors and walls should be easily cleaned, impervious to water and rodent-proof. Concrete floors should be finished smoothly, but not to the extent of being slippery and sloped towards the open drains along the walls. All joints should be smoothly finished and wall and floor junctions should be much easier to keep clean if they are finished with a cove.

2.2.11 Sanitary Conveniences and Washing facilities

Suitable and sufficient sanitary conveniences and washing facilities should be provided at readily accessible places. They and the rooms containing them should be kept clean and be adequately ventilated and lit. Washing facilities

should have running hot and cold or warm water, soap and clean towels or other means of cleaning or drying. It is important that, showers be provided in slaughterhouses for workers to freshen up after involvements in slaughter processes.

2.2.12 Accommodation for Clothing and Facilities for Changing

Adequate, suitable and secure space should be provided for in the slaughterhouse to store workers' own clothing and special clothing. As far as is reasonably practicable the facilities should allow for drying clothing. Changing facilities should also be provided for workers who will change into special work clothing. These facilities should be made separate for both men and women.

2.2.13 Facilities for Rest and to Eat Meals

Suitable and sufficient, readily accessible rest facilities should be provided. Seats should be provided for workers to use during breaks. These should be in a place where personal protective equipment need not be worn. Rest areas or rooms should be large enough and have sufficient seats with backrests and tables for the number of workers likely to use them at any one time, including suitable access and seating which is adequate for the number of disabled people at work.

Where workers regularly eat meals at work, suitable and sufficient facilities should be provided for the purpose. Such facilities should also be provided where food would otherwise be likely to be contaminated. Work areas can be counted as rest areas and as eating facilities, provided they are adequately clean and there is a suitable surface on which to place food.

2.2.14 Other Environmental Best Practices

- Environmental labels, caution/warning signs and signals displayed at appropriate locations;
- Adequate rails and barriers to protect the workers in walkways inside the facility;
- Clean and dirty areas and functions should be separated, and no cross flow between clean and dirty areas and functions should occur; and
- Personnel engaged in the slaughterhouse should be medically fit, with good personal hygiene, trained and provided with protective gear.

2.3 Potential Slaughterhouse Projects

Slaughterhouse operations and its related activities generate waste and associated by-products that have the potential to be converted into products of

economic value. Such potential convertible products from slaughterhouses include; horns, bones, blood, skins and hides, hoofs and visceral waste.
Possible projects that can be developed under slaughterhouse projects include:

- **Animal feeds:** Sterilized bone meal is a major raw material for the manufacture of mineral licks for livestock; meat meal and blood meal are basic ingredients for cheap stock feed, foods for dogs and fish.
- **Leather processing:** Hides and skins can be tanned into leather and such industries can bring employment to the locals and income for the GoR.
- **Manure compositing:** Large amounts of intestinal and rumen contents can be turned to compost and sold to farmers to improve agriculture production.
- **Sausages factory:** Value addition in terms of processing of sausages and associated meat products can be established close to slaughterhouses.
- **Adhesives factory:** Hides and skin trimmings, sinews and tendons are excellent for making glue which is useful in stationery establishments.
- **Crafts:** Crafts can be made from horns, skins and hides for bags and related leather products.
- **Brushes** can be made from ears and tail hair as well as bristles.

3 Environmental Impact Assessment Process for Slaughterhouse Projects

3.1 Background

As provided for in Article 67 of the Organic Law, a project cannot receive authorization for implementation unless issued with a certificate stating that an EIA is not required or, basing on an Environmental Impact Report, REMA has approved the project. The EIA process involves the following four stages, namely: the Environmental Impact Initiation phase involving screening and scoping. Following this is the Impact Study Phase, which includes impact identification and analysis, development of mitigation measures and preparation of the report. The decision-making and authorization phase entails review of Environmental Impact Reports and to either approve or disapprove a project. Lastly, environmental management and follow-up phase deals with monitoring aspects of the project during its implementation.

Environmental Impact Assessment (EIA) for slaughterhouse projects is to be linked with the overall EIA process in Rwanda and will equally involve all the phases. These phases are illustrated in annexes 3 and 4.These Guidelines are therefore hinged on the existing framework on EIA cycle as follows:

3.2 Project Application and Registration by REMA

The first step of the EIA process is for a Developer of a slaughterhouse project to submit an application for an EIA of the proposed project to REMA in form of a Project Brief (Annex 1). REMA registers the Project Brief as the Developer's formal application for an EIA. The purpose of a Project Brief, prepared as prescribed by the EIA Regulations and in accordance with Annex 1 to this Guidelines is to provide sufficient information on the project to enable the Authority and Lead Agencies establish whether or not the proposed activities are likely to have significant environmental impacts, and also enable to determine the level of EIA required (screening). If adequate mitigation measures are identified in the Project Brief, REMA can proceed to issue approval for the slaughterhouse project with or without implementation conditions.

3.3 Screening

Screening is undertaken during project identification. The purpose of screening is to assist to categorize the type of EIA required for a given slaughterhouse project i.e. does it require a full EIA, a Project Brief or no EIA at all is required. This is important as it enables the application of appropriate EIA level to be assigned to given projects based on their anticipated levels of significant impacts.
The screening process will enable the categorization of slaughterhouse projects into the following categories in line with the National EIA Guidelines.

3.3.1 Classification of Slaughterhouse Projects

The basis on which slaughterhouses are classified is primarily based on the potential waste and pollution load. The classification of slaughterhouses takes into account the combination of the following factors:

a. **Animal types slaughtered** in consideration of the fact that each type animal at slaughter process generates different amounts of waste (notably faeces, blood, paunch manure/fat, etc.) as well as religious considerations. For instance, the slaughter of pigs is not permitted in slaughterhouses that also slaughter ruminants.
b. **The number of animals slaughtered per day**: this affects the volume of waste produced per day and the loading effect on the facilities.
c. **Frequency of slaughter per weekly basis**.
d. **Level of urbanization**. This takes into account the population density around the abattoir, ability of the environment to absorb the waste without negative significant impacts on environmental health, and sanitation.

Thus, the following categories of slaughterhouse projects have been identified in table 3-1 below and subsequently, appropriate type of EIAs need to be conducted as explained in subsequent sections.

Table 3-1: Categories of Slaughterhouses

Category[1]	Species	Max. No. of Animals Slaughtered per Day[2]	Frequency of Slaughter per Week[3]	Maximum load for festive days[4]	Level of the Urbanisation[5]	Minimum Slaughterhouse Requirements[6]
IL 1	Cattle	3	1	5 per week	villages, small roadside markets	gantry hoist under shed
	sheep/goats	5	1	5		
	Pigs	2	1	2		
IL 2	Cattle	10	Daily	10	rural agglomeration, roadside markets,	slaughter slab
	sheep/goats	15	Daily	15		
	Pigs	5	Daily	5		
IL3	Cattle	<10	Daily	<10	Peri-urban agglomeration, municipalities and cities	abattoir
	sheep/goats	<15	Daily	<15		
	Pigs	<5	Daily	<5		

Note:

a. **Category:** Reference has been made to organic law requirements for EIA
b. **Maximum Number of Animals that can be Slaughtered per Day:** This describes the maximum number of animals that can be slaughtered in the described facility in consideration of population density in the vicinity, potential local demand for the product, likelihood of cold storage facilities and potential levels of water supply available for use in the facility.

c. **Frequency of Slaughter per Week:** The frequency of slaughter per week bears load on the waste loading in the sites' waste disposal facilities bearing in mind time required for biodegradation.

d. **Maximum Load for Festive Days:** Allowance has must be made for occasional periods when the demand for animal products is likely to peak, for example during religious festive days.

e. **Level of Urbanization:** The population density around the slaughterhouse as well as urban building regulations and the likely impact of the waste disposal requirements and other forms of slaughter pollution on the environment (where human health factors high).

Minimum Slaughterhouse Requirements: This refers to the minimum infrastructure requirements to handle the mentioned number of animals slaughtered per day in lieu of the national regulations to produce a carcass that meets the minimum requirements for human consumption.

3.3.2 Project Impacts Levels Categories

IL1 Projects not requiring further environmental analysis

Slaughterhouse projects in this category are believed to have minimal negative impacts, which can easily be identified through a Project Brief (Annex 2) which adequately covers the likely negative environmental and social effects of such proposed facilities in sufficient detail to enable the Authority to determine whether an EIA is required or not. Potential impacts of such slaughterhouse facilities and their mitigation measures can be integrated into the designs of such projects without necessarily requiring a detailed EIA.

IL2 Projects not requiring a full EIA but necessitate further level of assessment

This category represents slaughterhouse projects which are believed to likely have adverse, but not irreversible environmental impacts and mitigation and management measures which can be readily designed and incorporated into the project. The EIA process for this category of slaughterhouse projects will likely be similar to that of IL3 projects.

IL3 Slaughterhouse Projects requiring full EIA

This category includes slaughterhouse projects for which it is evident that there will be significant and adverse environmental impacts whose mitigation measures cannot readily be prescribed, and thus, must undergo a complete EIA process.

In all, it is important to note that, categorisation of slaughterhouse project impact levels and their extent of EIA studies is to be determined by REMA. For example, if an EIA is not required, the project will be exempted from further compliance with the EIA process in which case, REMA will issue a certificate to that effect and advise the Developer and relevant licensing authority of the exemption. On the other hand, if an EIA is required, REMA will accordingly inform the Developer that a full EIA study must be undertaken.

3.4 Scoping for Slaughterhouse Projects

Scoping is the first step in the EIA process for slaughterhouse projects and is designed to inform the public, interest groups and government agencies of the project (including opportunities for public involvement) and also to present the proposed actions, alternatives and impacts for the public and line agencies for review early in the process. The purpose of the scoping exercise is to determine the range of alternatives and identify the potentially significant issues to be analyzed in depth during the EIA. The scoping process in slaughterhouse projects is also intended to eliminate those issues that are not significant as well as those issues that have been addressed by prior studies. The scoping process includes public meetings with stakeholders and reconnaissance tours of the sites. The scoping exercise also focuses on the need to consider project alternatives.

The scoping exercise determines among others, the following:

- Suggested delineation of the boundaries of the scope of the study to be considered in the EIA;
- Key questions about the slaughterhouse project which should be answered through the EIA;
- Preliminary identification of the potentially significant impacts of the project which will require further attention in the EIA;
- Alternatives to the proposed project;
- A full range of key stakeholders to be consulted and suggestions for full public involvement in the process;
- Identification of full range of stakeholders who may be affected or are interested in the proposed project;
- How the proposed project conforms to existing national and regional laws, policies and regulations, including those of other development partners with interest on matters of slaughterhouse projects; Scoping is a necessary step in formulation of detailed ToRs for impact assessment by the Developer; and

› Any other outstanding issues, impacts and considerations involved relating to slaughterhouse projects that need to be addressed in the EIA work.

If during the screening exercise, it is established that a slaughterhouse project requires a partial environmental assessment (IL2) or a full EIA (IL3), then ToRs for appropriate EIA level will be developed. At the end of this scoping exercise, the scoping report and the ToRs produced will be submitted to REMA for review.

3.5 Preparation of Terms of Reference for EIA for Slaughterhouse Facilities

One of the main outputs of the scoping exercise is the preparation of Terms of Reference (ToRs) for EIA for the proposed facility. Taking into account findings from the scoping exercise, the Developer prepares ToRs for an EIA of the slaughterhouse project which is then submitted to REMA. REMA reviews the ToRs in consultation with Lead Agencies and relevant stakeholders on slaughterhouse projects such as MINAGRI, RAB, RBS and any other relevant Lead Agencies before the EIS Study is conducted. Any relevant comments raised by the public after the review of the Scoping Reports for IL-2 and IL-3 projects are also incorporated in the Terms of Reference. The review process for the ToRs ensures that, the EIA is conducted in a collectively agreed-upon and focused manner.

The ToRs should amongst others cover the following:

› Objectives of the EIA study;

› description of the specific work tasks for the EIA Experts;

› stakeholders to be consulted; and

› Expertise required for the impact study.

Once the ToRs are approved by the Authority, they are sent to the Developer as authorisation to commence the EIA study for the proposed slaughterhouse project. Based on the tasks specified in the ToRs, the Developer will then hire appropriate and a multi-disciplinary team of EIA practitioners from REMA approved list of EIA consultants to undertake the tasks specified in the ToRs for slaughterhouse project.

3.6 Environmental Impact Study

Environmental Impact Study phase is the investigative stage of the EIA process for which a Developer hires EIA experts. This phase begins with the Developer of a slaughterhouse project selecting expert(s) among a list of EIA experts approved and provided by REMA. If REMA disapproves the Developer's selected expert(s) due to a number of reasons which may include their expertise not suited to the scope of the proposed slaughterhouse project, the Developer shall have an opportunity to choose another set of experts and if the Developer's second choice is disapproved by REMA, then REMA shall appoint

for the Developer its set of EIA expert(s) it considers best suited to undertake the EIA. REMA therefore ensures that, the right set of experts is selected for a given scale of a slaughterhouse project. The EIA study for slaughterhouse facilities will include the following aspects:

3.6.1 Analysis of Initial State/Baseline Survey

During the environmental impact study for slaughterhouse projects, the EIA experts undertake initial analysis of the environment for use as a comparative basis of impacts during the life of the project. Analysis of initial state should include a record of baseline environmental and social conditions of the project. During this analysis, the EIA experts may utilise scientific data, photographs of the area, or any other geo-physical recordings. This information may be kept on record at the Authority for historical reference.

3.6.2 Policy, legislative and institutional considerations

In the EIA process, the undertaking include review and discussions of Rwanda's environmental policies, laws, regulatory and administrative frameworks that are relevant to the slaughterhouse projects with the objective of identifying areas where compliance of the project with such legal and policy instruments is required. The institutional considerations are of relevance to identify the sectoral agencies that are responsible for implementing aspects of the slaughterhouse projects.

3.6.3 Impact Assessment

The impact of the slaughterhouse project has to be evaluated considering planning, construction, and its operation stages and this should cover social, ecological, and environmental issues. Identification of impacts should include positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts, unavoidable or irreversible impacts. Trans-boundary issues are also considered in the assessments of some of the relevant factors including water quality and air quality. The assessment of the potential impacts include, but are not limited to, pollution of ground water aquifers, landscape impacts of excavations and construction, loss of nature features habitats and species by construction and operation, soil contamination impacts, odour substances, noise pollution, soil waste, wastewater and sludge disposal, and socio-economic and cultural impacts.

Socio-Economic Impact Assessment

People are an integral part of the environment. Human activity alters the biophysical environment and, in turn, these impacts are translated into social effects. Social impacts include changes that affect individuals, groups, communities and populations as well as the interactions between them. They are alterations in the way people live, work, play, relate to each other and organize their communities and institutions to meet their needs and guide their collective actions, as well as changes in their characteristic values, beliefs, norms, traditions and perceptions of quality of life and well being. Social impacts can be divided into four main types:

- Demographic impacts such as changes in population numbers and characteristics (such as sex ratio, age structure, in-and-out migration rates and resultant demand for social services, hospital beds, school places, housing etc);
- Cultural impacts including changes to shared customs, traditions and value systems (e.g. language, dress, religious beliefs and rituals) archaeological, historical and cultural artifacts and to structures and environmental features with religious or ritual significance;
- Community impacts including changes in social structures, organizations and relationships and their accompanying effect on cohesion, stability, identity and provision of services; and
- Socio-psychological impacts including changes to individual quality of life and well being, sense of security or belonging and perceptions of amenity or hazard.

The socio-economist or sociologist should therefore identify and evaluate the impacts associated with slaughterhouse projects including:

- The identification of all socio-economic impacts (direct and indirect, positive and negative) that are linked to the slaughterhouses.
- The measurement (and where possible, monetization) of socio-economic impacts, including the following:

› The numbers and characteristics of people affected (number of property owners, affected people and/or those subjected directly to changes in their socioeconomic conditions and living environment);

› Changes in people's access to, or changes in the status of employment, commercial, recreational, cultural and social services and facilities;

› Direct loss of land, or change in people's access to land;

› Social patterns and linkages: changes in how areas function as a community with respect to levels of social interaction; personal relationships; feeling of belonging to the area or aspects relating to self-identification; and

› General amenity (perceived and actual) and change in the physical conditions that affect the quality of the environment and residential amenity; change in aesthetic values; change in recreation development and opportunities

Health Impact Assessment

Health impacts can be a significant aspect of slaughterhouse projects. However, adverse health impacts can also occur as a result of development projects, either directly from changes to the biophysical environment (such as exposure to pollutants) or indirectly as a secondary result of other changes; for example, the creation of habitat conditions favourable to the spread or intensification of disease vectors.

3.6.4 Consultation of Stakeholders during EIA

The EIA consultants for slaughterhouse projects should identify key stakeholders e.g. RAB, RBS, MINAGRIC, MINISANTE as well as other groups that are likely to be impacted by the project activities and draw mechanisms of consulting them with regard to the planned project. Stakeholder consultations should be by notifying the public, soliciting their and experts comments, holding public and community meetings, and asking specific individuals for their input not merely by telephone calls (unless one to be consulted has proposed so).

The EIA Report shall contain:

- Details of those consulted (institutions where they work or associated with, names, contacts, designations, and signatures);
- Venues, dates, and time of the consultations;
- Issues or concerns discussed during consultations;
- Major outcomes of such consultations; and
- Information on how such concerns should be addressed based on stakeholders perceptions.

3.6.5 Environmental Impacts Prediction

Predicting and describing significant environmental (biophysical, health, social-cultural and economic) of impacts of a slaughterhouse project is a fundamental stage in EIA. The impacts should be presented in a non-technical manner that can be easily understandable to the general public.
Predicting environmental impacts of slaughterhouse projects principally involve two main elements:

- Anticipating, modelling, predicting, or forecasting potential changes that are brought about by the slaughterhouse project at all its life stages and this is often compared against the baseline and prediction of potential changes without the project; and
- Explaining, in a rational, consistent, impartial and in a transparent manner, the likely significance of the changes likely to be brought about by the slaughterhouse project.

The most common environmental impacts related to slaughterhouse projects are summarized in Annex 10.

3.6.6 Assessing the Significance of Impacts

Impacts of slaughterhouse projects should be assessed in detail taking into account the following considerations:

- The views and concerns of the stakeholders,
- The consistency with national, regional, and international commitments;

- Their socio-economic consequences on vulnerable groups where applicable;
- Their compliance with national standards and regulatory thresholds (e.g. discharge levels for effluents); and
- Their overall consistency with the environmental objectives and policies, and their implications for sustainable development.

Impact description helps in the formulation of additional, project-specific mitigation measures to reduce them to acceptable levels, or to compensate for them where this is not possible. Description of potential impact of slaughterhouse projects involves an appraisal of its characteristics, together with the attributes of the receiving environment. Relevant impact characteristics include whether the impacts are:

- Adverse or beneficial;
- Direct or indirect;
- Short, medium, or long-term in duration; and permanent or temporary;
- Affecting a local, regional or global scale; including trans-boundary; and
- Cumulative impact, the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions.

Consideration of the above gives a sense of the relative **magnitude** of the impact. The **sensitivity** of the receiving environment is determined by specialists based on the baseline data collected during the EIA of slaughterhouses projects.

3.6.7 Impact Significance for Slaughterhouse Project Activities

In order to provide a relative significance of different impacts, it is useful to assign numerical descriptors to the impact magnitude and receptor sensitivity for each potential impact during the EIA of slaughterhouse projects. Each impact is assigned a numerical descriptor of 1, 2, 3, or 4, equivalent to very low, low, medium or high. The significance of impact is then indicated by the product of the two numerical descriptors, with significance being described as negligible, minor, moderate, or major. This is a qualitative method designed to provide a broad ranking of the different impacts of a project (Annex 9).

3.6.8 Formulation of Mitigation Measures

Mitigation measures are geared towards prevention or minimization of adverse negative impacts of a slaughterhouse project as well as enhancing the positive ones. EIA Experts conducting the study develop mitigation measures for IL-3 projects, basing on findings of the environmental impact study. Mitigation

measures for IL-2 projects should be based on the nature of the project, its components and input of the review committees. The EIA experts prioritise mitigation measures, organizing them on hierarchal basis of importance with highest priority given to measures that prevent adverse significant environmental or socio-economic impacts.

3.6.9 Analysis of Alternatives

EIS study slaughterhouse projects should identify and assess alternatives to the project. Analysis of alternatives should be taken in the context of and sometimes a combination of technological, economic, social and, cultural dimensions. In all, only the best alternative (one with the least adverse impacts) is selected based on less negative impacts and cost-benefit analysis. Alternatives suggested are evaluated by the Technical Committee during the decision-making process. The EIA consultants also analyze the "no project" option which helps the Developers to measure the impacts of the project against those which would have taken place if the proposed slaughterhouse project had not been implemented.

In all cases, alternatives based on different approaches to the realization of the planned slaughter house project being studied are considered. For each alternative, the environmental costs and benefits are quantified to the extent possible, economic values should be attached where feasible, and the basis for the selected alternative should be stated.

For slaughterhouse projects, the following alternative options may be considered:

- No project option; this could be relative to the need of the project;
- Alternative locations for the planned slaughterhouse project. For instance, could it be better to locate slaughterhouse projects in the countryside then transport meat and its products to the urban centres. This can ensure wastes are easily taken as manure on the farms;
- Different scales for the project and the flexibility of its size; and
- Alternative technology to be used in the planned slaughterhouse projects (taking into account, socio-cultural dimensions).

3.6.10 Decommissioning Plan

Slaughterhouses usually operate over many years and during this time it may be possible to restore parts of the site. Completed sites and parts of sites may be used for a number of purposes such as recreation, agriculture or construction. Consequently, the project description must include a detailed account of the decommissioning proposal, and in terms of:

- Rehabilitation and restoration strategy
- Post closure land use capability

- Post closure monitoring / management
- Post closure treatment (gases).

3.6.11 Environmental Management Plan

The Environmental Management Plan (EMP) is one of the documents to be produced in an EIA for a slaughterhouse project. It details actions to be implemented by the Developer and the stakeholders to minimize adverse impacts throughout the slaughterhouse project cycle. The EMP should further assign responsibilities and commitments as well as propose time schedules and costs for the implementation of the mitigation measures. The EMP has to be designed to ensure that, the mitigation measures and recommendations of the EIA are feasible and realistic.

The EMP should have preferably a table summarizing slaughterhouse activities, a concise description of their potential impacts, measures for enhancement of mitigation measures, costs of mitigation measures enhancement in line with Polluter-Pay Principle, responsibility for the implementation of the proposed measures, frequency of implementation as well as verifiable indicators; monitoring and other components of environmental management. Furthermore, the EMP should include the roles and responsibilities of stakeholder, Lead Agencies, as well as some interest groups (NGOs, local government authorities, local committees and individuals). In some instances, the EMP needs to outline institutional capacity building measures for effective implementation of mitigation measures which can be through training of staff who may be directly involved in the implementation of the EMP and provision of equipment (computers, field survey and measurement equipment for operations of slaughterhouses).

Table 3-2: Sample Format for an EMP Matrix Slaughterhouse Project

N°.	Project Component	Activities	Impacts	Mitigation Measures	Results indicators/reference situation/baseline	Period	Surveillance		Cost (RWF)
							Responsible entity	Frequency	
Total EMP Implementation costs									**RWF**

3.6.12 Preparation of Environmental Impact Report

The EIA experts hired to consult on EIAs for slaughterhouse projects at the end of the study shall compile all their findings into a report termed an ***Environmental Impact Report***. The Environmental Impact Report should be comprehensive enough to provide REMA with sufficient information on the environmental and social aspects of the slaughterhouse project to objectively appraise and either approve or disapprove the slaughterhouse project. The EIA Experts submits the Environmental Impact Report to the Developer who then has the responsibility of submitting it to REMA. An Environmental Impact Report for slaughterhouse projects shall have its content as outlined Annex 2. It is important that, Environmental Impact Report should be concise and address only pertinent slaughterhouse project issues based on objectives and logical analysis and conclusions.

3.6.13 Environmental Impact Report Addendum

Upon review of the Environmental Impact Report by the Developer, he or she may find out that, some of the information in the document is insufficiently covered thereby requiring clarifications or additions to further guide the Authority take a decision on the slaughterhouse project. In such circumstances, the Developer is encouraged to attach a supplementary addendum to the Environmental Impact Report before submitting it to REMA. Such an Addendum addresses specific changes in mitigation measures and/or plans for monitoring. The addendum indicates changes to specific parameters, measurements, or mitigation requirements in the Environmental Impact Report and proposes alternatives. Each change to the Environmental Impact Report has a short description and a concise reason justifying it.

3.6.14 Submission of Environmental Impact Report to the Authority

Once the Developer of a slaughterhouse project has reviewed the Environmental Impact Report and, if necessary, written an addendum, the documents which should be signed by the EIA experts, are submitted by the Developer to REMA. The Developer shall submit at least five copies of the Environmental Impact Report to the Authority. When submitting EIA documents to the Authority, the Developer shall indicate any information, which he/she wishes to remain confidential regarding the project and such confidential information shall only be privy to the Developer, the EIA experts and the Authority.

The Authority shall ensure that for a slaughterhouse project to be ready for review, its three principal documents must be in place, namely;

i) Environmental Impact Report (EIR);

ii) Environment Management Plan (EMP);

iii) Developer's Environmental Impact Report Addendum (where applicable).

Where applicable, a Public hearing report must be in place before review process can commence. It is important to note that, REMA should not start the review process if any of the above documents is missing.

3.6.15 Environmental Monitoring

Monitoring refers to regular collection of environmental data at the project site while environmental auditing is a systematic documentation, periodic and objective evaluation of protection and management of the environment. The objectives and the purpose of the Environmental monitoring of slaughterhouse projects are to:

i. Measure the extent, changes and benefits or severity of the environmental impacts on components predicted to be adversely affected;

ii. Ensure early detection of unexpected impacts and development of measures to remedy such concerns;

iii. Determine the efficiency of the mitigation or enhancement measures to reducing or improve impacts and to allow periodic review and adjustment of measures;

iv. Describe the sampling programmes, including the parameters to be measured; sampling strategies, frequencies, locations and times of sampling, personnel and equipment requirements and estimated costs;

v. Provide indications on assessment of the monitoring data and how this can be utilized technically and procedurally to improve mitigation and environmental management;

vi. Assess the adequacy of environmental monitoring such as selected monitoring locations, schedule, monitoring methods, as well as required supervision, and to suggest improvements, if appropriate, in the light of the results;

vii. Ensure that environmental management is being performed effectively in accordance with technical requirements and relevant laws and regulations; and

viii. Where applicable, identify possible capacity building needs amongst agencies that are responsible for training.

Both REMA and the Developer of the slaughterhouse project shall be responsible for environmental monitoring. During monitoring, the Authority intends to ensure that mitigation measures and recommendations of the environmental impact study are implemented to avoid adverse environmental impacts and costs a Developer would incur in restoration if environmental degradation occurred.

Preparation and Contents of a Monitoring Report

The Developer and REMA shall implement and monitor environmental aspects of the project in accordance with the impact mitigation plan described in the Environmental Impact Report, in which case, each entity prepares its own monitoring report with the following information:

- Name or title of Developer;
- Address of Developer;
- Name of Project;
- Details of environmental parameters/ indicators monitored;
- Results of monitoring exercise;
- Specific parameters not in compliance; and

› New measures for improved environmental conservation (in cases where monitoring results show worse conditions than predicated in the Environmental Impact Assessment).

Recommended Monitoring Plan

Environmental monitoring is the timely and proper survey of the significant environmental impacts of a project during all project phases. Monitoring results help judge the success of mitigation measures in protecting the environment. They are also used to ensure compliance with environmental standards, and to identify necessary changes in the project design or operation. The Environmental Monitoring plan sets out a framework for monitoring the environmental situation at all project sites. In order to ensure that the reality complies with the demands of the EMP environmental, monitoring should be carried out concerning the following aspects:

1 Groundwater monitoring

2 Effluent Monitoring

3 Ambient Air Emission Monitoring

4 Solid and Hazardous waste Monitoring

5 Noise Level Monitoring

A monitoring program has to be prepared for the project. This program provides details regarding monitoring parameters, monitoring locations, number of tests/ samples, method/equipment for testing, frequency and responsibility for monitoring and preliminary costs. Environmental Monitoring Reports are prepared on monthly basis and complete records are maintained at the site office. The environmental monitoring reports are submitted to REMA on quarterly basis.

3.6.16 Compliance

The Authority shall ensure that all slaughterhouse projects comply with the environmental regulations. Compliance of slaughterhouse projects is when they fulfil all necessary mitigation, remediation, monitoring and conditions (or any of their amendments) specified by REMA before project implementation.

3.6.17 Environmental Audit

The purpose of the audit is to compare the actual and predicted impacts, and assess the effectiveness of the EIA, as well as its appropriateness, applicability and success. Thereafter, REMA may require additional audits to be made as circumstances warrant. Environmental audit of slaughterhouses aims at detecting the weaknesses in the process or identify the procedures which need to be developed to ensure the protection of both the social and natural environment. The Developer is required to keep such records and reports for submission to the REMA inspectors.

3.6.18 EIA Report Review, and Decision-Making

Review of the EIA documents for slaughterhouse projects submitted to REMA enables subsequent decision-making on either approval or disapproval of a project.

3.6.19 Public hearing

REMA is responsible for conducting public hearings during the EIA process. The purpose of a public hearing for slaughterhouse projects is to furnish interested and affected parties and the public with an opportunity to comment on, or raise issues relevant to an application for environmental authorization. During public hearing, participation should be inclusive ranging from individuals, government ministries likely to have their areas of responsibilities affected by the project, a local government with jurisdiction over the area where a project is proposed, environmental committees in the planned slaughterhouse area, trade associations, public, local communities, non-governmental organisations and the Developer.

During a public hearing, the Developer is given time to deliver a presentation to stakeholders, describing the project, perceived impacts and proposed mitigation measures. For completeness, the Developer may also discuss findings of the impact assessment study. If a public hearing is held during scoping, the Developer should be available to describe the project, potential impacts and proposed mitigation measures to stakeholders. Developer of slaughterhouse projects may have their own legal counsels or EIA experts as either principal or secondary speakers during presentation at public hearings. On completion of this process, REMA compiles a public hearing report.

3.6.20 Review by the Lead Agencies, Local Governments and the Community

Once EIA documents for slaughterhouse projects are received by REMA, copies are forwarded to relevant Lead Agencies such as MINAGRIC, RDB, RBS, and to the local governments and general public for them to provide comments that could be useful for making a final decision about approval of the planned slaughterhouse project. Within REMA itself, EIA documents are reviewed by two committees, namely; a Technical Committee and an Executive Committee whose roles are summarized under the following sections.

3.6.21 Review by Technical Committee

Slaughterhouse EIA documents submitted by the Developer to REMA are first reviewed by a Technical Committee. The Technical Committee which is appointed by the Director General of REMA, reviews technical aspects of the EIA report documents, Public Hearing Report and if applicable, the Environmental Impact Report Addendum. Depending on nature, location and impact level of the slaughterhouse project, the Technical Committee constitutes experts drawn from the following institutions:

i) The Authority (EIA Department);

ii) Lead Agencies;

iii) Academic institutions; and

iv) Recognized experts in the field of project.

In reviewing the addendum, the Technical Committee makes an informed decision on the validity of proposed changes made to the EIA Report by the Developer of the proposed project and the rationale for any adopted changes are then explained in the committee's Technical Summary Report.
Upon completing the review, the committee chair (a member of the Authority) shall draft a Technical Summary Report to include the following:

i) A summary of the project;

ii) A decision of the Technical Committee concerning acceptability of the project;

iii) Rationale for adopting changes in the EIA report addendum; and

iv) Any other information suggested by the Technical Committee.

The Technical Summary Report shall be signed by all the Technical Committee members and submitted to the Executive Committee for final review. Where one or more members are not in agreement with the general position of the Technical Committee, these members shall present their views in a separate document to be submitted with the Technical Summary Report to the Executive Committee. If a project is to be approved with conditions, the Technical Committee shall incorporate them in the terms and conditions for implementation.

3.6.22 Review by Executive Committee

The Executive Committee makes the final decision on acceptability of a proposed project. The committee shall comprise three members; the Director General of REMA (as the Chair), Authority's Director of EIA Department and a representative of a relevant Lead Agency. The review by the Executive Committee shall dwell on implications of identified impacts, their mitigation measures and input from public hearings. For impacts, the review focuses mainly on considerations and choice of alternatives, while for mitigation measures, the decision would be based on their effectiveness. A unanimous agreement of the Executive Committee is required for project approval. Once the slaughterhouse project is approved, conditions are prepared detailing, where applicable, terms to be abided by during project implementation.

3.6.23 Record of decision

Once the review of the EIA documents is completed, REMA shall decide to either approve the project with or without conditions, or reject it. A Record of Decision shall be prepared by the Authority (Executive Committee) and issued to the Developer. If the slaughterhouse project is approved, the Developer is issued with an EIA Certificate of Authorization, which permits implementation of the project in accordance with mitigation measures in the EIA Report and any additional conditions as the Authority might consider necessary.

3.6.24 Implementation and Operations Order (IOO)

Upon arriving at a Record of Decision approving project implementation, the Director in charge of EIA in REMA shall issue the Developer of a slaughterhouse project with an Implementation and Operations Order (IOO). This legal order specifies compliance terms and conditions to be met during the slaughterhouse project implementation and operation. These conditions shall be based on information from the EIA Report and Public Hearing Report and shall indicate requirements for implementation, impact mitigation and environmental monitoring of the slaughterhouse project. An EIA Certificate of Authorization granting permission to begin development of the Project shall not be issued until a Developer agrees to these conditions.

3.6.25 EIA Certificate of Authorization

REMA shall issue a Certificate of Authorization after a proposed slaughterhouse project is approved. This document is legally binding and authorizes the Developer to implement a proposed project, subject to any terms and conditions stipulated. Except in cases of appeals, the Authority is the final decision-making agency with power over issuance of EIA Certificates of Authorization.

3.6.26 Appeal against Authority's Decision

If REMA rejects to approve a proposed slaughterhouse project after reviewing an environment impact report, some Developers can altogether abandon the project or undertake to revise the Environmental Impact Report and resubmit a revised version to REMA or appeal to the Minister for Environment as follows:

i) The Developer shall appeal in writing, stating all facts and grounds of the appeal.

ii) All relevant documents or their copies, which are certified by a Commissioner of Oaths as true documents, must accompany the appeal.

iii) The Minister shall, after considering all relevant facts and supporting documents uphold the original decision outright, with modification or reverse the decision.

If the Developer successfully appeals against the Authority's decision, the Authority is obliged to issue a revised Record of Decision to the Developer.

4 Policy, Legal and Institutional Framework

4.1 Introduction

In reviewing the policies and laws that pertain to slaughter house projects, a selection is made of the instruments most pertinent to the subject matter under consideration. The institutions engaged in matters related to slaughter house activities and other concerned stakeholders are highlighted. The review is informative and offers guidance but is not exhaustive of all related instruments. The particularities of each project should be taken into account on a case by case basis when an EIA is undertaken.

4.2 Policy Framework

4.2.1 The National Environment Policy of Rwanda, 2003

The National Environment Policy sets out overall and specific objectives as well as fundamental principles for improved management of the environment both at the central and local government level. The policy sets out institutional and legal reforms with a view to providing the country with a coherent and harmonious framework for coordination of sectoral and cross-cutting policies. It further introduces innovations include, the establishment of a Rwanda Environment Management Authority and provincial and district or town committees responsible for environmental protection.

The overall objective of the Environment Policy is the improvement of man's well-being, the judicious utilisation of natural resources and the protection and rational management of ecosystems for sustainable and fair development. One of the guiding principles of the Policy is that environmental impact should be analyzed during consideration of developmental projects. The Policy lays a solid foundation for the establishment of a legal framework for improved management of the environment, as well as the right principles for the participation of the population in general, and women and the youth in

particular. It provides a framework for the reconciliation of the three pillars of sustainable development, namely; environment, social and economic issues.

Pollution in all its forms was recognised as a major problem in Rwanda that has to be addressed in policy reform. Pollution comes from various sources including domestic and industrial solid waste, agro-pastoral activities and waste water. Though not many, Rwanda's industries are almost all built in or near wetlands and dispose all their effluents and by-products in water without any prior treatment. Industries also emit fumes in the atmosphere and pollute air. Uncontrolled cohabitation of industrial establishments and non-separation from residential areas constitute a threat to human health and environment. Almost all the industries, garages and workshops are located in valleys or marshes bordered by heavily populated areas.
The protection and management of the environment are among the pillars of Rwanda's Vision 2020. The objective of the Government is that by 2020, it will have built a nation in which pressure on natural resources, particularly on land, water, biomass and biodiversity, has significantly been reduced and the process of environmental pollution and degradation has been reversed. Environment is one of the first priorities identified by the Poverty Reduction Strategy in Rwanda and is among the leading fundamental programmes selected within agricultural transformation and rural development. Agricultural transformation and rural development must be accompanied by environmental protection activities such as earthworks, reforestation, water management and rational use of wetlands.

4.2.2 The Economic Development and Poverty Reduction Strategy, 2007

The Economic Development and Poverty Reduction Strategy (EDPRS) is the Government of Rwanda's medium-term strategy for economic growth, poverty reduction and human development, covering the period 2008 to 2012. It provides a medium term framework for achieving the country's long term development aspirations as embodied in Rwanda Vision 2020, the seven year Government of Rwanda (GoR) programme, and the Millennium Development Goals. The EDPRS aims at the sectoral allocation of public expenditure in a manner that will maintain momentum in the social sectors of education, health and water and sanitation while also targeting agriculture, transport and Information and Communication Technology, energy, housing and urban development, good governance and rule of law, proper land use management and environmental protection.

In agriculture, the main programmes include the intensification of sustainable production systems in crop cultivation and animal husbandry; building the technical and organisational capacity of farmers; promoting commodity chains and agribusiness, and strengthening the institutional framework of the sector at central and local level. Environmental and land priorities involve ecosystems, the rehabilitation of degraded areas and strengthening newly established central and decentralised institutions. Special attention will be paid to soil and water conservation, reforestation, preservation of biological diversity and adaptation and mitigation against the impact of climate change. The successor to the EDPRS is an important policy document that would give guidance on intended agricultural infrastructural developments.

4.2.3 Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II (PSTA II), 2009

The PSTA II covers the four year period 2009-2012, terminating at the same time as the Economic Development and Poverty Reduction Strategy (EDPRS). The Government's role in addressing the market needs has and should continue to focus on creating the necessary incentives and improving infrastructure. It is recognised that Rwanda's agricultural sector faces unique challenges which must be addressed within the precincts of the environment management regime; thus environmental sustainability is an essential guiding principle of the Plan. While livestock has been identified as an important potential source of income, livestock numbers remain relatively low.

The overall objective of the PSTA II is: *"Agricultural output and incomes increased rapidly under sustainable production systems and for all groups of farmers, and food security ensured for all the population"*. The specific objective for the Strategy is to: *"Increase output of all types of agricultural products with emphasis on export products, which have high potential and create large amounts of rural employment; this under sustainable modes of production"*. Under this Strategic Plan agendas for action under the aegis of four interrelated programmes were developed: intensification and development of sustainable production systems; support to the professionalisation of the producers; promotion of commodity chains and agribusiness development; and institutional development.

The PSTA II carries forward the initiatives in PSTA I in a bid to transform the agricultural sector in Rwanda and thereby increase household incomes. The PSTA III is in the process of formulation and it is anticipated that it will be concluded by the end of 2012 and cover the period 2013-2016; and carry forward the agenda of agricultural transformation. Accordingly the development of agricultural infrastructure such as slaughter houses must take into account the policy direction given in the PSTA applicable at the date of the EIA Study. PSTA II is anchored in the Ministry responsible for agriculture.

4.2.4 Sectoral Policy on Water and Sanitation, 2004

Rwanda recognizes the importance of water and sanitation for the improvement of the living conditions of its population. Thus, better water resources management inevitably contributes to the reduction of poverty and to socio-economic development of the country. Water, used by all sectors of socio-economic life, plays a major role in the socio -economic development of any given country and is indispensable to human and animal health.

The major obstacles facing the development of water and sanitation in Rwanda as at the date of the policy, include lack of a strong institutional framework for water resources and sanitation management; water pollution due to industrial activities and population pressure; lack of appropriate infrastructure for instance collection systems for solid wastes and sewage waters. The principles upon which the sector is premised include rational water use which should take into account environmental concerns; respect for the quality and quantity standards of water; application of the polluter pays principle in terms of polluters having to pay for any damage occasioned to water resources by their actions or omissions.

The vision of the Policy includes the need for each town or urban area to acquire waste water and solid waste treatment units. The specific objectives of the policy are; the rational and sustainable management of water resources, the development of sanitation and promotion of hygiene, water for environmental protection. The strategies include the establishment of a regulatory and institutional framework for rational water resources management.

4.3 Legal and Institutional Framework

4.3.1 The Constitution of the Republic of Rwanda, 2003

The Constitution is the supreme law of Rwanda and all others laws that are inconsistent with it are void to the extent of the inconsistency. The law is sovereign in all matters. Organic laws govern all matters reserved for them by this Constitution as well as matters the laws in respect of which require related special laws. An organic law may not contradict the Constitution. An ordinary law or decree-law may not contradict an organic law and a decree may not contradict an ordinary law. International law is given prominence in the Constitution and upon their publication in the official gazette; international treaties and agreements which have been conclusively adopted in accordance with the provisions of law shall be more binding than organic laws and ordinary laws except in the case of non compliance by one of parties. Unwritten customary law remains applicable as long as it has not been replaced by written laws, is not inconsistent with the Constitution, laws and regulations, and does not violate human rights, prejudice public order or offend public decency and morals.

In terms of administrative units, the territory of Rwanda is divided into provinces, districts, cities, municipalities, towns, sectors and cells. Public administration shall be decentralized in accordance with the provisions of the law. Decentralized organs shall fall under the Ministry having local government in its functions which currently is MINALOC. Districts, municipalities, towns and the City of Kigali are decentralized entities with legal status and administrative and financial autonomy and are the foundation of community development.

Every person has a right to private property, whether personal or owned in association with others.

Private property, whether individually or collectively owned, is inviolable. The right to property may not be interfered with except in public interest, in circumstances and procedures determined by law and subject to fair and prior compensation. Private ownership of land and other rights related to land are granted by the State. The law specifies the modalities of acquisition, transfer and use of land. Every citizen is entitled to a healthy and satisfying environment. Every person has the duty to protect, safeguard and promote the environment. The State shall protect the environment. The law determines the modalities for protecting, safeguarding and promoting the environment.

4.3.2 Environmental Laws

The Organic Law Determining the Modalities of Protection, Conservation and Promotion of Environment in Rwanda No. 04/2005 of 08/04/2005

The law aims at conserving the environment, the people and their habitats. It lays emphasis on equal rights for present and future generations, and guarantees to all the people of Rwanda sustainable development which does not harm the environment and social welfare of the population. It sets up strategies of protecting and reducing the negative effects on the environment, while seeking to restore the degraded environment.

Environmental conservation is based on the principles of protection; sustainability and equal opportunities among generations; the polluter pays principle; the principle of information dissemination and community sensitization in conservation and protection of the environment; and the principle of cooperation. The law shall be implemented by REMA whose specific functions are spelt out in the *Law Establishing REMA, Law No. 16, 2006 of 03/04/2006*. Committees responsible for conservation and protection of the environment are established at provincial, City of Kigali, district, town, municipality, sector and cell levels taking environment right up to the grass roots.

Ministerial Order No. 003/2008 of 15/08/2008 sets out the requirements and procedure for EIA including the selection of experts to conduct the EIA study. *Environment Impact Assessment Guidelines, 2006* (also referred to as the *General Guidelines and Procedures for Environmental Impact Assessment)* gives guidance on the EIA process from project application and registration by REMA through to screening, scoping and terms of reference, the environment impact study and report, review of the report and decision making, environmental auditing and monitoring, and project decommissioning or relocation.

EIA reports were initially examined and approved by REMA. The law permits REMA to give written authorization to any other person to carry out these functions. Examination and approval of the EIA in accordance with *Cabinet Directive 2009 (Resolution of 25/03/2009, Minute 3)*, is currently the function of the Rwanda Development Board (RDB). The monitoring of the EIA certificate and environmental audits are within the mandate of REMA which retains responsibility for environmental legislation and policy. The EIA is carried out at the cost of the developer by experts approved as EIA Practitioners by REMA. An approved list of practitioners is published and available to the public. The developer must consult the members of the public in the affected areas and include their comments in the study report. Once the final report is received by RDB, public consultations are held with key stakeholders. According to *Ministerial Order 005/2008*, a public hearing can be held if in the view of REMA it is necessary for instance in projects that may lead to resettlement of a large number of people, or irrigation which can affect the ecosystem.

Organic Law No. 53/2008 of 02/09/2008 Establishing Rwanda Development Board and Determining its Responsibilities and Functioning

The Rwanda Development Board (RDB) is established as a specialized organ with the main purpose of fast tracking development activities in Rwanda. It issues certificates of incorporation for those setting up companies in Rwanda. Following the establishment of the company and the acquisition of the relevant operating licences, a company may apply for an investment certificate which RDB will grant if it meets the conditions precedent including a minimum working capital of USD 100,000/- for a local company, and USD 250,000/- for a foreign company.

RDB approves the whole EIA process from screening, preparation and approval of terms of reference to review and issuance of the EIA approval certificate. In approving an EIA report, RBD takes into account social impacts and the mitigation measures proposed. Monitoring of the EIA implementation and any other interventions are undertaken by REMA.

4.3.3 Animal Health Laws

Ministerial Order No. 012//11.30 OF 18/11/2010 on Animal Slaughtering, Meat Inspection

This law determines the modalities of animal slaughtering and meat inspection in Rwanda. A butcher must seek authorisation to practice his/her trade from the district authority by making a declaration in which the intended location of the slaughter house and any annexes is stated and applying for a permit. The district shall issue a permit to the applicant if satisfied with the application. The permit shall be specific to the location for which it is issued. The butcher is required to submit to the district, monthly returns on his operations in terms of the animals slaughtered. The order is applicable to cattle, goats, sheep, pigs, horses as well as all wild animals belonging to the category of big game.

The Order lays down the requirements for public safety and hygiene within slaughter houses. All meat within a district must be subjected to sanitary inspection by veterinary surgeons or, in their absence, related professionals.
Further instructions are contained in the *Ministerial Orders Amabwiriza ya Minisitiri w'ubuhinzi n'ubworozi n° 005/2006 Arebana n' ibisabwa mu Gufungura no Gukoresha Ahacururizw a Inyama Mbisi N'izitunganyijwe*; and *Amabwiriza y a Minisitiri w'ubuhinzi n'ubworozi n° 004/2006 Arebana n' ibisabwa Kwuzuzwa mu Gufungura no Gukoresha Amabagiro mu Rwanda*.

The Ministry of Health (MINSANTE) through its department responsible for environmental health carries out inspection of slaughter houses in accordance with a check list which takes into account issues of hygiene and sanitation in slaughter houses, inspection of meat, disposal of condemned carcasses, transportation of animals and disposal of waste. Inspection is carried out in collaboration with local government and MINAGRI staff. An Environmental Health law that addresses issues of hygiene and sanitation has been proposed by the department and is still going through the law making process.

4.3.4 Urban Planning Laws

Law No.10/2012 of 02/05/2012 Law Governing Urban Planning and Building in Rwanda

The law applies to towns and other establishments with at least 10,000 inhabitants spread over an area of at least twenty square kilometers and occupied by at least residential houses, infrastructure, administrative buildings and buildings designed for socio-economic purposes; areas occupied by socio-economic and administrative infrastructure including a radius of two kilometers from such area if such areas are classified as economic zones by competent organs; areas classified as economically attractive by competent organs; and any other densely occupied area or in which various activities are carried out and determined by laws governing housing and rural development.

This definition includes slaughter houses in urban areas which include towns, municipalities and agglomerations. The purpose of building plans is to ensure the construction of safe, well maintained, well planned, environmentally sound and fit-for-purpose buildings that conform to economic and social development policies of Rwanda. A city is defined as a town that has at least two hundred thousand (200,000) inhabitants; an agglomeration as a town with at least ten thousand (10,000) inhabitants but less than thirty thousand (30,000) inhabitants; and a municipality as a town with at least thirty thousand (30,000) inhabitants but less than two hundred thousand (200,000) inhabitants.

The institutions responsible for urban building and planning are the Ministry in charge of urban planning and building; the decentralized entities with legal personality; the Rwanda Housing Authority (RHA). The mandate of each of these institutions is provided for in the law.

The law stipulates the documents that are required to assist in urban planning to include master plan for land management and urban planning; local land development plans; specific land development plans; and land subdivision plans. An Order of the Minister in charge of urban planning and building shall provide for regulations designed to complement the documents mentioned above. The City of Kigali and districts shall have master plans for land management and urban planning in conformity with the pattern of rational land use in Rwanda. The provisions of the local and specific development plans shall be compatible with those of the master plan for land management and urban planning. Urban planning operations shall be started in conformity with the requirements of the urban planning master plan, those of the local and specific development plans. The details of the various plans are further elaborated in the law. *The City of Kigali Conceptual Master Plan, 2007* would need to be taken into consideration in planning slaughter houses in addition to the plans of other urban centres.

The Urban Planning law in its preamble takes cognizance of the Organic Law on the Environment. Within the substantive provisions, it is stipulated that the aim of urban planning shall be progressive and provisional development of agglomerations within the framework of economic and social development policy, rural planning and environmental protection.

4.3.5 Water and Sanitation Laws

Law No.39/2001 of 13/09/2001 Establishing an Agency for the Regulation of Certain Public Utilities

The law establishes a body to be called "The Rwanda Utilities Regulatory Agency" (RURA) responsible for the regulation of public utilities. “Public utilities” is defined to include natural persons, enterprises or organizations which provide services such as water and the removal of waste products from residential or business premises. The functions of RURA include carrying out the general and specific regulatory duties laid down by the relevant legislation enacted in respect of each public utility and any administrative work associated with these duties; having due regard to the preservation and protection of the environment, the conservation of natural resources and the health and safety of users. RURA has the power to impose sanctions in case of violation of the regulations governing public utilities mentioned in this law.

A service provider for water and sanitation is created under *Law Nº 43/2010 of 07/12/2010 Establishing Rwanda Energy, Water and Sanitation Authority (EWSA) and Determining its Responsibilities, Organisation and Functioning.* Details of the administrative establishment of EWSA are stipulated in the *Prime Minister’s Order Nº41/03 of 20/05/2011 Determining the Structure and Summary of Job Positions for Rwanda Energy, Water and Sanitation Authority (EWSA).*

RURA has issued a number of guidelines to aid in the performance of its functions. *The Guidelines on Required Minimum Service Level for Water Service Provision, 2009* seek to set the basic standard for water services. In similar vein, guidelines on liquid waste (*Directives on Minimum Requirements for Liquid Wastes Disposal and Treatment, 2009*) make provision, among matters, for tolerance levels of discharge of liquid waste into sewers, and for transportation of liquid waste. The solid waste management guidelines - *Amabwiriza Kubakora Umurimo wo Gukusanya Imyanda,Gutwara Imyanda, Gutunganya Imyanda, Gushyiraho no Gucunga Ibimoteri, 2009*; and *Standards on the Management of Waste Disposal Site (Landfill), 2009* were issued. The Landfill Standards apply to the establishment, maintenance, and operation of solid waste disposal sites (landfill sites) within the country. Construction, operation and maintenance of landfills are a function of the local government.

REMA’s *Practical Tools on Solid Waste Management of Imidugudu, Small Towns and Cities: Landfill and Composting Facilities, 2010 (Tool and Guideline 11.1)* provides practical information on the siting and construction of landfill and composting facilities of imidugudu, small towns and cities; and should be taken into consideration in addressing slaughter house waste management issues. The relevant standards issued by the Rwanda Bureau of Standards must be taken into account and this includes: RS 461:2009 on Water Quality – tolerance limits of discharged industrial waste water; RS 543:2011 EAS 751:2010 on Air Quality Specification; RS 544:2011 Air Quality – tolerance limits of emission discharged to the air by factories.

4.4 Institutions and Stakeholders

Various institutions and stakeholders have a role to play in slaughter house approval, construction and operations. These range from formal institutions and agencies to members of the public; a reflection of the EIA process as a tool for sustainable development and poverty reduction. A stakeholder is defined in the EIA Guidelines to include individuals, communities, government agencies, private organisations, non-governmental organisations or others having an interest or "stake" in both the EIA process and outcomes of the projects. Through this participatory approach, EIA fosters commitment for environmental conservation. From a social standpoint, EIA incorporates the interests of public and private stakeholders, residents and communities in the planning and approval process of projects. This ensures that development policies, plans and activities take into consideration the voice of even the most marginalized members of society.

In terms of approval of slaughter house construction, the local authority all of whom function under the general guidance of the ministry responsible for local government MINALOC must provide a permit that authorizes the establishment of a slaughter house within the jurisdiction of the local authority. A similar procedure applies to the City of Kigali.

The construction must be in compliance with the building plans for urban areas (if within an urban area) and subject to the approval of the relevant authorities including the local authorities, Rwanda Housing Authority (RHA), and Rwanda Development Board (RDB) if within a free trade zone. All housing matters in urban areas lie within the mandate of the ministry responsible for urban planning and building. In considering the application for a permit, the local authority must take into account the requirements laid down by the ministry responsible for agriculture MINAGRI and its related agencies including the Rwanda Agricultural Board (RAB) and work with its technocrats. Agricultural regulation, environmental health and hygiene requirements are enforced through joint missions led by MINAGRI and its agencies with the collaboration of the ministry responsible for health MINSANTE (department responsible for environmental health), the local authority and the police where necessary.

The environmental requirements for environment impact assessment must be complied with to the extent that is applicable to the nature of slaughter house under consideration. In that respect REMA and RDB would be engaged. MINIRENA, the ministry responsible for environment gives policy direction and oversight to REMA. Issues of waste management, which are an integral part of slaughter house activity that must be addressed to ensure compliance with environmental regulation, are regulated by the Rwanda Utilities Regulatory Agency (RURA) that is responsible, amongst other things, for water and sanitation regulation in the country. The Energy Water and Sanitation Authority (EWSA) is an operator that provides water supply and sanitation services. The local authorities and City of Kigali manage waste disposal facilities within their respective jurisdictions. The utilisation of by-products of slaughterhouse activity is a matter of interest to the ministry responsible for trade MINICOM.

In undertaking an EIA, the developer is the key entity in terms of the sponsorship of the proposed project. To aid the EIA process, the developer must appoint EIA experts to carry out the EIA; such experts must be approved by REMA and appear on the official list of EIA Experts in Rwanda. Lead agencies - any public office or organisation including every Ministry or Government department which has functions for the protection of any segment of the environment and the conservation and sustainable use of natural resources - advise developers on the need for an EIA; contribute to and participate in the EIA process. In addition, they ensure that their own projects adhere to EIA requirements, and that private-sector projects in fields over which they have jurisdiction comply with EIA requirements. Some lead agencies in slaughter house projects have been identified above.

If the project is funded by an international funding agency like the World Bank or the African Development Bank, the developer will have to comply with the requirements of the agency such as safeguard policies applicable to the proposed project. Local Governments provide information or advice to developers and EIA Experts when consulted during the EIA process; assist in organising and hosting public hearings and individual consultations; and gather written comments from the public and transmit them to REMA. Additional roles of the local government (including the City of Kigali) have been alluded to earlier.

Socio-religious issues are an important consideration in developmental initiatives. As regards slaughter houses, the dictates of the Islamic faith play a major role in terms of the requirements of the Qur'an (Chapter 5 verses 3-4) concerning halal meat. Accordingly the Office of the Mufti of Rwanda, his Supreme Council, the Imams of the District and mosques have a role to play in the operations of a slaughter house. Views of religious and other social institutions are collected during the initial stages of the EIA process right through to the public hearing. Other members of the public, the communities to be affected by the project, non-governmental organisations and academic institutions have an input in the EIA process. Their advice should be taken into account and their interests considered before a final decision is rendered on the application made by the developer. By incorporating socio-cultural issues into environmental management and economic development, public involvement promotes the concept of sustainable development.

This EIA Practitioner shall identify agencies, departments, and institutions responsible for the licensing, monitoring and enforcement of legal requirements related with slaughterhouses. The Practitioner shall present preferably a summary of policies, laws, regulations, standards, and guidelines relevant to slaughterhouses. Where possible, the specific sections and clauses of the relevant laws shall be quoted for easy reference. A sample of the key policies and laws related to slaughterhouse projects are presented above.

5 Slaughterhouse Impacts and Their Mitigations Measures

5.1 Overview

The scope of the EIA describes various components of the environment of the area(s) to be affected or created by the alternatives under consideration. Data and analyses in the EIA are commensurate with significance of the impacts. The EIA should include discussions of direct and indirect effects and their significance; possible conflicts between the proposed action and land use plans, polices and controls for the areas concerned, and conservation potential of alternatives and mitigation measures. For each significant adverse impact, the section identifies some of the impacts and their proposed mitigation measures.
Other details of impacts related to slaughterhouse projects are in Annex 10. The assessment of impacts of waste from slaughterhouse projects comprise the following:

a. Analysis of activities and waste generation during the Construction Phase shall cover the following:

› Waste from site preparation;

› Waste from maintenance of slaughterhouse plant and equipment; and

› Waste from daily activities.

b. Analysis of activities and waste generation during the Operation Phase shall include:

› Waste from animal slaughtering;

› Waste from maintenance of plant and equipment;

› Sewerage sludge from the waste treatment facilities;

› Waste from daily activities.

c. Proposals for waste management during both phases above and their respective sources should be in terms of :

› Reduction, reuse and recycling;

› Disposal options.

5.2 Impacts of Slaughterhouse Projects

5.2.1 Construction Stage

The following activities are typical in the construction phase of a slaughterhouse and should be included in the impact assessment by the EIA Practitioner:

› Construction of the access roads;

› Preparatory works at the location of the slaughterhouse and excavation works;

› Transport and disposal of surplus excavated material;

› Construction of the structures of the slaughterhouse (civil works, use of heavy machinery and vehicles);

› Disposal of construction waste;

› Installation of the slaughter equipment;

› Construction of accommodation facilities for the workers if required (water supply, sewerage, waste disposal).

Air quality impacts during construction

Fugitive dust emission is anticipated when the following activities are undertaken during the construction phase of the Project. A detailed impact assessment for dust impacts should be conducted by the EIA Team.

› Site clearance;

› Excavation;

› Foundation works;

› Vehicle movement on unpaved haul roads;

› Material handling; and

› Wind erosion from the site.

Impact on water quality

Potential sources of water quality impacts associated with the construction phase of a slaughterhouse include construction runoff and drainage, general construction activities, sewerage generated from the on-site construction workers. Run-off and drainage from the Site may contain suspended solids and other contaminants. Potential sources of water pollution from Site runoff to be evaluated by the EIA Expert include:

› Runoff from exposed bare soil and earth, drainage channels and stockpiles;

› Release of grouting and cement materials with rain wash;

› Waste from any concrete batching plant;

› Wash water from dust suppression sprays and vehicle wheel washing; and

› Fuel, oil and lubricant from maintenance of construction vehicles and mechanical equipment

5.2.2 Operation Stage

In this phase, the following impacts are to be captured:

Odour

Odour arising from the operation of the slaughterhouse is the major air pollution source. Potential odour sources within the slaughterhouse include animal faeces in the holding area, and odour during slaughtering, evisceration and packing. Odour also arises from waste storage and from the on-site wastewater treatment.

Potential Odour Mitigation Measures

The EIA Team may propose the following mitigation measures depending on location, features, and design of the respective slaughterhouse:

- Floors and equipment in the slaughtering and evisceration areas should be cleaned frequently by water spraying;
- Offal and hair should be collected and transferred to designated temporary storage area immediately after slaughtering and evisceration processes;
- Regular maintenance of plant and equipment should be undertaken to ensure ventilation systems and associated equipment are operating properly and achieving expected performance.
- Offal, hair, dead poultry, and other odourous materials shall be stored in refuse bins with close-fitted lids. All refuse should be collected by waste collectors and disposed of frequently (e.g. daily);
- Equipment such as bar screens, containers and tanks should be frequently cleaned to prevent odours from accumulation of organic debris;

- Screened materials and sludge should be stored in enclosed containers in order to minimize odour escape; and
- Sludge, greases and floating solids should be regularly removed in order to prevent putrefaction of accumulated organics in the tanks.

Slaughterhouse Wastewater

Slaughterhouses generate substantial volumes of wastewater as a result of cleaning operations. Slaughterhouses generate wastewater mainly in the slaughtering process, in the washing of equipment and facilities. The consumption of water per slaughtered animal varies according to the animal and the process employed in each industry, and typically ranges from 1 to 8.3 m^3. Most of this amount is discarded as wastewater, with volumes from 0.4 to 3.1m^3 per slaughtered animal being reported in the literature.
The waste water quality from red meat abattoirs could be broadly summarized as follows:

› pH: 5.7 - 8.4

› COD: 2380 - 8942 mg / L

› Suspended solids: 189 - 3330 mg / L

› TDS: 595 - 2805

› Total Kjeldahl Nitrogen: 0.71 - 24 mg / L

Discharge of wastewater to surface waters (e.g. rivers) may likely affect the water quality in two ways:

› The discharge of biodegradable organic compounds (BOC's) may cause a strong reduction of the amount of dissolved oxygen, which in turn may lead to reduced levels of activity or even death of aquatic life.

› Macro-nutrients (N, P) may cause eutrophication of the receiving water bodies. Excessive algae growth and subsequent dying off and mineralization of these algae, may lead to the death of aquatic life because of oxygen depletion.

Assessment and Mitigation Methods

The EIA Waste Management Specialist during environmental assessment of slaughterhouse projects should:

- Estimate the quantity of wastewater that is to be generated (annual and monthly volumes) and the source (e.g. meat washings etc);
- Describe how wastewater is to be captured, stored, treated and disposed of so that it does not pollute the environment (i.e. preventing contamination of groundwater, aquifers etc); and
- Describe how waste water is to be treated and disposed off.

Solid Wastes

Sources of solid wastes generated at slaughterhouses include:

- Animal holding areas;
- Slaughterhouse and processing areas;
- Waste treatment plant; and
- Unwanted hides or skins, feathers and pieces, and unwanted carcasses and carcass parts.

Manure is generated in animal holding areas. Materials not suitable for rendering, such as unwanted carcasses, come from the processing areas, along with paper, cardboard and plastics. Primary and secondary effluent treatment sludges are generated in the treatment ponds. These are sources of foul smell and can attract scavengers into the area. The scavengers can be a problem to domestic birds in the vicinity especially in the rural settings.

Greenhouse Gases and Other Potential Gases

Animals produce methane gas (a greenhouse gas) during the process of digestion which is released to the atmosphere during processes such as defecation. Little can be done to prevent or reduce the amount of methane produced. Chlorofluorohydrocarbons (CFCs) may be used in refrigeration and freezer plants. CFCs are ozone depleting gases and their production and use is subject to national and international regulation.

Potential Mitigation Measures

- Refrigerators in cold rooms that use ozone depleting gases can be replaced with those that do not utilize ozone depleting gases.
- The amount of fuel used could be minimized by heat conservation and re-use strategies to limit the emission of greenhouse gases.

Diseases

In slaughterhouses, there is a large potential for the transmission of zoonotic diseases such as Q-fever, anthrax to humans, and Brucellosis.

Mitigation Measure

The only mitigation is through strict inspection and quarantining.

Dead Animals in Slaughterhouses

Dead animals in slaughter process can arise through transportation or some sick animals can be transported to slaughterhouses where their condition deteriorates and they end up dying. The EIA should attempt to provide guidance on general handling of such animals in terms of:

1 Transportation of Dead Livestock

Dead animals must be transported according to existing laws or best environmental and public health practices. Based on best environmental health practices, condemned animal carcasses must be transported in a covered vehicle, the bed or tank must be constructed so that no drippings or seeping from the carcass can escape from the vehicle. Animals that are suspected to have died of a highly contagious, infectious, or communicable disease should not be transported except by specific methods approved by the Rwanda Ministry of Agriculture in conjunction with other relevant ministries.

2 Disposal of Dead Animals or Condemned Carcasses

Methods and processes of dealing with slaughterhouse solid waste and dead animals have always been and continue to be a concern in all animal production operations, both large and small. Proper disposal methods or systems are especially important due to the potential for disease transfer to humans and other animals, and the pollution of soil, air, and ground water.

Burial of Dead Animals

Burial has long been the common on-farm approach to disposing of dead animals. This is a viable alternative. An adult dairy cow burial requires a hole approximately 2 feet x 7 feet x 8 feet deep. Burial of dead livestock in slaughterhouse areas should be done as follows:

- It should be buried within 6 hours of the animal's death;
- A carcass must be buried to a depth so that no part of it is nearer than three feet to the natural surface of the ground;
- Based on environmental best practices, burial must be no less than 6 feet deep with a minimum of 30 inches of soil cover.
- Burial must be in well drained soils and be at least 2 feet above the highest groundwater elevation.
- The pits should also have a berm to divert rainfall and runoff from the site.
- Burial must also be at least 40m from a private well, 200 feet from a public well, 20 m from an adjacent property line, 150m from residences, and more than 30m from a stream, lake or pond. Burial cannot be in a wetland, floodplain or shoreline area.

Constructed Disposal Pit

Constructed disposal pits are most commonly used in the poultry industry but also for disposal of condemned meat for the case of cattle, goats, sheep, and pigs. The method is commonly applied for offal disposal. Typically, they are open bottom septic tanks with an opening to insert condemned meat. These

units must also have at least 2-3 m of separation between the bottom of the pit and the water table. Condemned meat is dropped into the pit and left to decompose. These pits, just as earthen pits and trenches, have the tendency to fill with water, thus, causing potential groundwater contamination. Also, they may be quite odorous.

Incineration

Incineration is a viable alternative in the disposal of dead animals mostly of smaller animals. Additionally, most incinerators are not constructed to handle carcasses as large as a cow. Where incinerators are employed for dead animals' disposal, they must:

- Where possible, be located so that prevailing winds carry exhaust fumes away from neighbours;
- Have sufficient capacity so that all odour levels stay within tolerable limits;
- Be 50 m (160 ft) minimum from wells or domestic water intakes;
- Be fire safe; and,
- Consume all material fed into them.

For the proper design of an incinerator for dead animal disposal, qualified professionals should be consulted. An incineration for condemned meat should typically be operated to meet the maximum requirements of 0.5 hour retention time in the chamber at 1400-1600^{o}F and a stack height of minimum of 7 ft above the ground.

All incineration disposals of dead animals should also have a plan for collecting and disposing of the ash material remaining after incineration. The mitigation measures should include an ash collection box or bucket and disposal of the ash on the land or in a manner acceptable by REMA.

Wells springs, and surface water courses should be protected from any incinerator by-product. An incinerator should typically be located at least 20 feet from any building to prevent spontaneous combustion. The incinerator should also be located on a concrete slab. Consideration should also be given to enclosing the incinerator in a block house structure with a roof or roof protection to extend the life of the unit.

Operation of the incinerator should be strictly adhered to as specified in the owner's manual as improper loading can result in the production of heavy black smoke and objectionable odour. Operation of the incinerator according to the manufacturer's recommended practice should result in little to no smoke or objectionable odour. The use of the incinerator to dispose of waste oil, hazardous waste, or any other waste chemical should be prohibited. The use of the incinerator should be strictly limited to dead animal disposal only unless otherwise approved by REMA.

Land Filling

Depositing dead animals in the local landfill is a practice that has been used by some slaughterhouses. This option is most commonly used for carcass disposal due either to the occasional death of a large animal or to the catastrophic death of many animals. If land filling is the chosen method of dead animal disposal, the producer should check to confirm that the local land fill receives these animals.

6 Procedure for Conducting Public Hearings for Slaughterhouse Projects

This section provides the procedure for conducting public hearings on Environmental Impact Reports for slaughterhouse projects and to obtain their input to guide REMA in decision-making about the projects.

6.1 Introduction

Public hearing is vital in conducting an effective, balanced and streamlined EIA process and it benefits not just the public but also Developers of slaughterhouse projects. The Authority considers public participation as a valuable source of information on potential impacts, mitigation measures and viable alternatives.

6.2 Who to Involve in Public Hearings

The range of individuals, agencies and organizations to be involved in public hearings should include as a minimum: government ministries likely to have their areas of responsibilities affected by the proposal, local government bodies responsible for the area where a project is proposed, private sector organizations such as trade associations, general public, local communities and NGOs.

6.3 Public Involvement

6.3.1 Public Consultation before Commencing an EIA Study

After receiving the Project Brief from the Developer, REMA, in consultation with the lead agency, shall determine whether a public hearing is necessary. At this time, REMA notifies the Developer of a slaughterhouse about its intent of publishing the Project Brief (or its summary) together with relevant supporting documents in a Public Notice. Objections and comments from the public and other stakeholders are then be submitted to REMA and to a relevant Lead Agency. In certain circumstances, it may be necessary to meet stakeholders or local communities expected to attend a public hearing so as to explain procedures and issues that may be brought up during the public hearing. Such

pre-hearing meetings and consultations should be held at least three days before the date of a public hearing.

6.3.2 Public Consultation during an Environmental Impact Study

During an environmental impact study of a slaughterhouse project, the EIA Experts seek views of persons who may be affected by the project. This is done particularly during the scoping process and at any other crucial stages considered necessary by REMA. Consulting the public during the impact study is important as it helps in identifying issues and impacts considered important by local communities.

6.3.3 Public Consultation after Completion of the EIA report

After submitting an EIA report to REMA, it is be a public document and any person can access it, except for that information which a Developer asked to be maintained confidential. REMA publicizes the report (excluding the confidential portions) to the public together with locations where it would be available for public viewing. REMA also makes copies of the EIR for relevant stakeholders.

6.3.4 Notification of Public Hearing to the Public

Prior to the public hearing, REMA notifies the public about the proposed development, Environmental Impact Report (EIR) and impending public hearing. Notice to the public is made through the following means:

- Posting public posters in strategic places around the proposed slaughterhouse project site;
- Publishing a notice about the project for one week in a nationwide newspaper;
- Announcements of the notice in *Kinyarwanda*, English and French on national radio at least once a week for two consecutive weeks;
- Holding at least three public meetings with the affected parties and communities to explain the project and its effects in order to receive their comments; and
- Sending appropriate notices at least once per week prior to the meetings concerning venue and time of the meeting in order to ensure that the specified time is acceptable to the affected stakeholders.

6.3.5 Methods for Public Participation

While methods of public participation depend on circumstances of each EIA, the following are considered appropriate:

- Public review of Environmental Impact Report,

- Informal group meetings with local community groups and leaders,
- Workshops,
- Public displays or bulletin boards posted in communities,
- Public notification and calls for written comments on proposed project/activities,
- Participation in scoping processes,
- Survey of groups or individuals who are representative of the various interests being affected by a proposal,
- Consultation with focus groups to identify issues specific to certain stakeholders,
- Comment and review of the EIA,
- Distribution of relevant documents to the interested members of the public.

6.4 Public Hearing Process

6.4.1 Categories of Public Hearings

Public hearings may occur as a single meeting or as a series of meetings in various venues. Below are outlined two categories of public hearings depending on nature of the slaughterhouse project.

Slaughterhouse projects by private Developers

This includes slaughterhouse projects that are undertaken by non-governmental organisations and private sector entities and are normally subjected to complete public review during their EIA process. Public hearings for these projects are facilitated by REMA and relevant Lead Agencies.

Slaughterhouse projects by a Lead Agency

Where a Lead Agency is the Developer of a slaughterhouse project, all public hearings are conducted by REMA. The Lead Agency has no role in conducting such public hearings.

6.4.2 Locations for Public Hearings

Depending on size and scope of the slaughterhouse project, multiple public hearings may be held across a wide area (e.g. region of the country or at national level). Where a single public hearing is held, it occurs within the community nearest to the slaughterhouse proposed site. In rural settings, public

hearings should occur in a location where attendance by stakeholders is relatively easy and the variety of views by stakeholders can be maximized. This location may be a local community centre, a central market area, government administrative building or a variety of possible outdoor venues suitable for supporting large numbers of people.

6.4.3 Speakers at a Public Hearing

Parties and stakeholders interested in presenting at a public hearing are required to submit their written requests to the presiding chair of the public hearing at least three days prior to the meeting. Requests should indicate the name, address and affiliation of the presenter. Executors of these requests are considered "*registered presenters*". Persons wishing to present or speak at the public hearing who do not register three days prior to the hearing are considered "*informal presenters*" and are allotted time for presentations after the registered presenters.

Registered presenters are assigned to a time slot prior to the public hearing and are notified of their time slot upon arrival to the public hearing. Registered presenters who do not appear in time at the public hearing are moved to the end of the presentation list. Informal presenters may register their time slots at any time during the first half of the public hearing. All speakers are limited to a single time slot per interest group or per stakeholder, unless time allows for further discussion.

6.4.4 Format of a Public Hearing

Public hearings are presided over by a REMA-appointed presiding chair. Hearings should not be judicial proceedings, but rather comprised of presentations, question and answer sessions and discussions based on cases presented.

6.4.5 Roles of Participants during Public Hearings

Table 6-1: Panel Composition and their Roles in a Public Hearing

Person	**Agency**	**Role(s)**
Presiding Chair	REMA	Presides over all decisions at public hearing sessions.
Secretary	REMA	Records minutes, registers presenter list, act as timekeeper responsible for monitoring presentation times allocated to speakers.
EIA Specialist	REMA	Outlines findings of the environmental impact study.
Developer or Representative	Developer	Gives presentation on project, responds to presentations, and answers questions.
Representative	Lead Agency	Responds to presentations and questions.
Translator	Developer	Translates from *Kinyarwanda*, French and English to facilitate communication during the hearing.

6.4.6 Summons

The presiding chair may issue a request to the Director General of REMA to formally summon a witness, relevant documents or items considered to be essential for public knowledge at a public hearing. Stakeholders may submit requests for summons to the presiding chair, who at that time decide with consultation from the Director General the relevancy of said person/items to be summoned. Requests for summons by stakeholders must be submitted to the presiding chair at least three weeks before the public hearing.

6.4.7 Presentation by the Developer

A Developer is allocated time to deliver the first presentation to the public and stakeholders describing the project, potential impacts and planned mitigation measures. The presenter may also wish to discuss details of the EIR. This presentation shall be limited to 15 minutes.

6.4.8 Presentations by Stakeholders

After the Developer's presentation, registered presenters present their views, followed by informal presenters in their order of signing up. Stakeholders may wish to simply use their time for questions and answers or provide presentations in the form of a speech, expert testimonial or legal counsel address. Stakeholder presentations shall be limited to 10 minutes per person.

6.4.9 Response from the Hearing Panel

After each stakeholder presentation, the Developer is permitted to respond. Where relevant, issues brought up by the stakeholder are noted down by the presiding chair and reiterated to the Developer for systematic response during this time.

6.4.10 Final Question and Answer Session

After all registered and informal speakers have finished their presentations, a 30-minute session of questions and answers from the general audience shall be allowed. By show of hands, the presiding chair shall choose members in the audience to speak.

6.4.11 Alternative forms of input during Public Hearings

It is recognized that not all stakeholders might be able to attend a public hearing. Additionally, some stakeholders may not wish to attend a public hearing but still desire to have their views considered during the final EIR review and decision making process. Below are alternative forms through which stakeholders can communicate their views to the Authority.

6.4.12 Written statements

Stakeholders are allowed time from the publication of the EIR to submit concerns or comments. Alternatively, after the public hearing process, stakeholders may submit written concerns and comments to REMA or the presiding chair.

6.4.13 Independent Consultations

In circumstances where stakeholders are unable to correspond in writing with REMA, an independent consultation period is facilitated at the site of the public hearing the following day by the presiding chair and secretary. Here, stakeholders come to present their concerns and questions. This option gives stakeholders who are at risk of being marginalised because they are a minority voice, illiterate, unable to attend the public hearing, uncomfortable addressing authority in public or require privacy to voice their concerns, a chance to express their views. Information gathered from these sessions is recorded by the secretary and considered by presiding chair in the final report.

6.4.14 Transcripts and Summary of Proceedings

The secretary in attendance at a public hearing is responsible for recording and subsequent transcribing of the proceedings. This transcript is kept on record and approved by the Ministry charged with oaths and authentication. The transcript accompanies the presiding chair's final report. A copy of the transcript is immediately made available for review by the Director General of REMA, head of the relevant Lead Agency and the Developer.

6.4.15 Public Hearing Report

After completion of independent consultations and a transcribed account of the public hearing has been finalised, the presiding chair produces a final report to REMA, lead agency/ies and the Developer. The Public Hearing Report (PHR) will be passed to the Technical Committee of REMA. The report should contain a summary of proceedings of the public hearing including all facts, concerns and views presented. The report should also include recommendations made by the presiding chair to the Technical Committee basing on outcome of the public hearing. The report includes a list of persons in attendance on the hearing panel, a list of names and affiliations of all stakeholders including ones who gave both registered and informal presentations. This document remains confidential until after the Technical Committee has produced their record of decision (RoD).

6.4.16 EIR Decision Making and Pursuant Requirements

When REMA publicises an EIA report for public review, the public forwards written comments to the Authority and if it is satisfied with the written comments, REMA after consultation with the Lead Agencies, takes them into consideration when reviewing the EIR. Once REMA is satisfied with particular concerns of the public, it shall require the Developer to carry out a more in-depth study of specific aspects of contention in order to take into account all the

necessary measures to address the issues raised by the public. Where a Lead Agency or government ministry/department is the Developer, the same process and requirements holds. REMA presents the written requirements concerning necessary steps to address issues of mitigation and compliance to the ministry/department undertaking the development project.

6.4.17 Administrative issues

Presence of Legal Counsel

During a public hearing for a slaughterhouse project, any stakeholder who wishes to include a legal counsel or EIA expert as either the principal or secondary speaker of a presentation may do so. This privilege is also extended to members of REMA, Lead Agencies and the Developer.

Adjournments and Extensions

The presiding chair reserves the right to adjourn or extend a public hearing. Once a public hearing is adjourned it may, by decision of the presiding chair or REMA, be reopened at any time before the final submission of the Public Hearing Report to REMA. After submission of the Public Hearing Report to REMA by the presiding chair, no other public hearing is held. Although the presiding chair reserves the authority for adjournment, no public hearing shall conclude in less than three hours.

Media Coverage

Unless objected to by the presiding chair through a written statement to REMA, full media coverage of public hearings by print media, radio and television is permitted. In cases where the presiding chair feels that television or radio coverage may inhibit presence or presentation by stakeholders, these media devices are prohibited. However reporters do not leave the public hearings. Newspaper reporters are allowed unfettered access to public hearings unless their presence causes undue distraction to the proceedings. All media interviews with stakeholders or members of the hearing panel (REMA, Lead Agency and the Developer) are limited to break periods and after the hearing is adjourned.

6.4.18 Constraints to Public Participation

Although the principal goal of public participation in EIA process is to ensure that views of stakeholders are addressed, certain constraints may inhibit full public participation. Situations may occur where special provisions need to be made in order to get input from disadvantaged or minority groups. Where minority groups are identified but provisions cannot be made for their

involvement, this lack of input should be considered during review of the EIR and when taking decisions regarding the project.

Factors[1] that may lead to an unbalanced or constrained public participation are:

- Poverty – involvement means time spent away from income-producing tasks. This favours the wealthy.
- Remote and rural settings – In dispersed settlement, distance makes communication more difficult and expensive.
- Illiteracy – involvement may not occur if print media is used.
- Local values/culture – behavioural norms or cultural traditions can inhibit public involvement or exclude those who do not want to disagree publicly with dominant groups.
- Languages – in Rwanda, stakeholders in rural areas may not have a working knowledge of French or English, potentially making communication difficult.
- Interest Groups – can bring conflicting and divergent views and vested interests.
- Confidentiality – may be important for the Developer, and may weigh against early involvement and consideration of alternatives.

It is important that persons or entities organizing and conducting public hearings are aware of such constraints and their impact on the level of stakeholder input.

[1] EIA Training Resource Manual; UNEP, 1996.

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ANNEXES

Annex 1: Outline for a Project Brief for Slaughterhouse Projects

1. Name and address of the Developer

2. Name, purpose, objectives and nature of the project in accordance with the categories identified in the EIA Regulations;

- Name
- Purpose
- Nature of the project
- Category of the project

3. Description of the project site and its surroundings where the project is to be located (including Global Positioning System (GPS) coordinates, Commune; Sector; and district);

- Location of the project

    i. Google map
    ii. Location in relation to Rwanda
    iii. Site specific location (village, commune)

- Physical Environment

    iv. Geology
    v. Topography
    vi. Climate
        - Rainfall
        - Humidity
        - Sunshine
        - Wind speed
    vii. Air quality

- Biological Environment

    i. Flora or vegetation
    ii. Fauna or animals information
    iii. Protected areas
    iv. Wetlands

- Human Environment

    i. Demographic data
    ii. Settlements
    iii. Economic activities
    iv. HIV/AIDS Prevalence
    v. Gender dimensions
    vi. Social infrastructures (schools, health centers, markets)

4. Policy, Legal and Institutional Framework
    - Policy
    - Legal
    - Institution

5. Description of project
    - Project activities
    - Project design
    - Project Equipment
    - Operations of the project (Process flow)
    - Products
    - Bye-products

6. Description of equipment to be installed and any buildings or related facilities;

7. Description of the materials and input that the project shall use;

8. Description of the products and by-products, including waste to be generated;

9. Description of any likely environmental impacts of the project, and how they will be eliminated or mitigated during the implementation of various phases/stages of the project;

10. Description of any other alternatives, which are being considered (e.g. siting, technology, construction and operation procedures, sources of raw materials, handling of wastes etc.);

11. Any other information that may be useful in determining the level of EIA required by REMA;

12. Decommissioning and restoration plans for closure and restoration of the site to productive post-closure use.

13. REFERENCES
14. PERSONS CONSULTED
15. ATTACHMENTS

15.1 Land ownership
15.2 Clearances from authorizing institutions agencies

Annex 2: Format for an Environmental Impact Report for Slaughterhouse Projects

ACRONYMS
EXECUTIVE SUMMARY

1. INTRODUCTION
- 1.1 Background
- 1.2 Project justification and purpose
- 1.3 Project location.

2. DESCRIPTION OF THE PROJECT ENVIRONMENT

This section provides a brief description of the main physical, biological and human (social, cultural and economic) conditions prevailing in the study area.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This chapter summarizes the policy, legal and administrative framework within which the ESIA was carried out, including the relevant environmental and social requirements as in Rwanda laws. Also, it identifies relevant international environmental/social agreements that may be related to the project.

4. EIA APPROACH AND METHODOLOGY

This Chapter must set out the approach and methodology used in the EIA study and how the data and information collected was analyzed and incorporated in the findings and recommendations:
- 4.1 General Approach
- 4.2 Geographical or mapping units
- 4.3 Environmental quality indicators
- 4.4 Public Consultations and Public Disclosure
- 4.5 Assumptions, uncertainties and constraints

5. ANALYSIS OF ALTERNATIVES

6. IMPACT IDENTIFICATION AND EVALUATION

Cumulative effects and interaction between effects could form additional subject headings to ensure that these aspects are not overlooked. Table and diagrams should be used to summarize and clarify findings in this section.

7. ENVIRONMENTAL IMPACTS MITIGATIONS

8. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN.

9. ENVIRONMENTAL MONITORING

10. CONCLUSIONS AND RECOMMENDATIONS

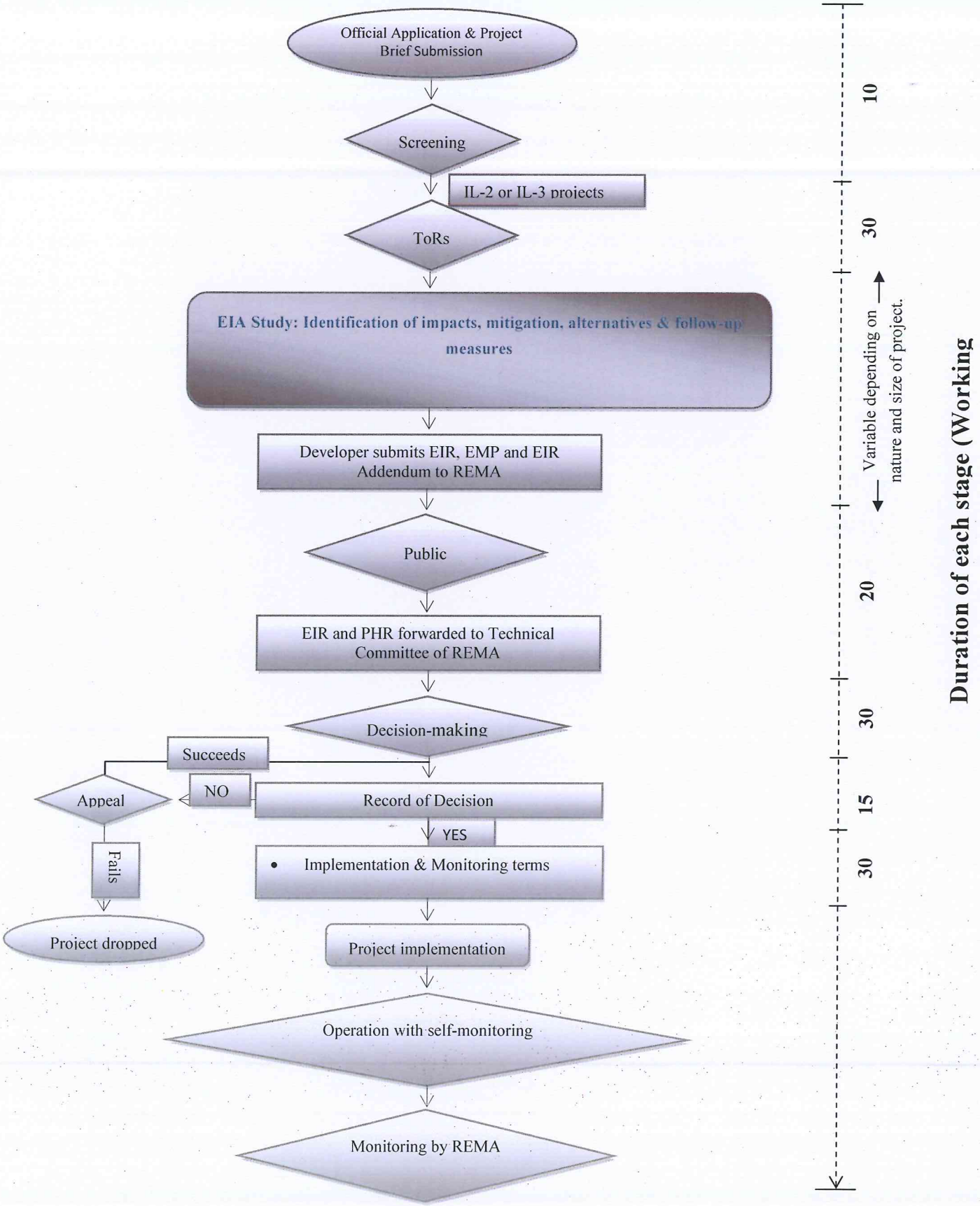
This section must present a clear statement of the conclusions and recommendations on actions to be taken to ensure that environmental issues are adequately addressed in subsequent project preparation, implementation, monitoring and evaluation phases.

11. REFERENCES

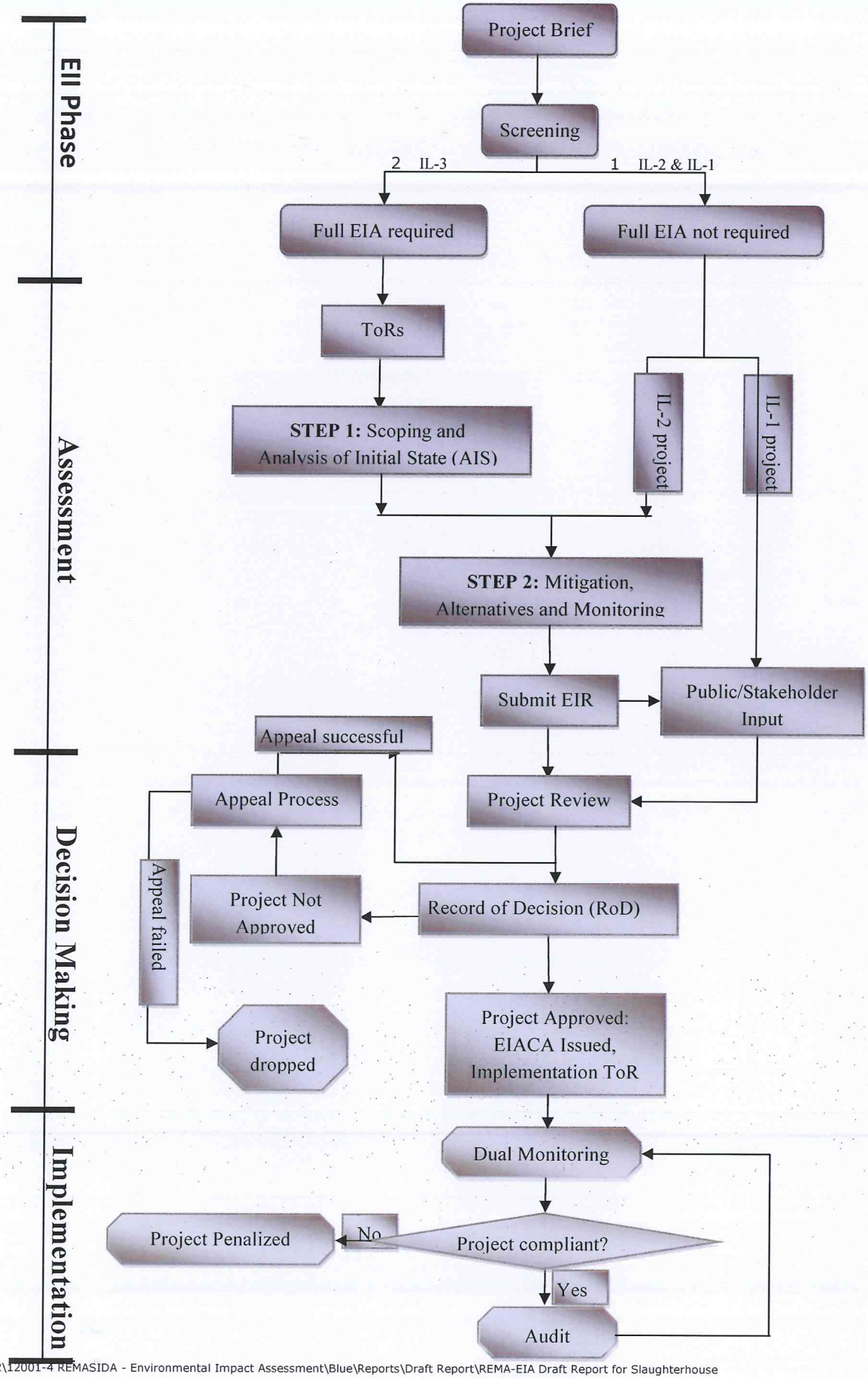
12. TECHNICAL APPENDICES:

- List of stakeholders consulted
- List of stakeholders consulted or engaged
- Terms of Reference
- Land ownership
- Related Approvals
- Test Results for water and soils

Annex 3: EIA Procedures and Timelines



Annex 4: EIA Procedure flowchart



Annex 5: Sample EIA Terms of References for Slaughterhouse Projects

1. Background

The Introduction indicates the purpose of the EIA, present an overview of the proposed project to be assessed, as well as the project's purpose and needs. It shall also briefly mention the contents of the ESIA Report and the methods adopted to complete the assessment. In addition, the consultant gives background information on the slaughterhouse project as well as the need for the EIA in line with national environmental policies and legislations. This equally include sections that indicate the purpose of the ESIA, present an overview of the proposed project that was assessed, as well as the project's needs.

2. Objectives of the ESIA Study

The main objective of the EIA should be stated. The environmental and social impacts study should take into consideration all environmental and social impacts of the proposed slaughterhouse projects works and identify the main environmental and social aspects that are likely to be raised by key stakeholders in order to optimize the project from the environmental and social point of view, by avoiding, minimizing, reducing or off-setting negative and enhancing positive impacts.

3. Prepare Executive Summary of the EIA

The consultant produces an EIA and it will amongst others have a concise Executive Summary with particular attention on the processes and procedures used in the EIA; baseline conditions; the alternatives considered; mitigation/enhancement measures; monitoring program; consultations with stakeholders; capabilities of environmental and social units and actions to strengthen those capacities; and cost implications.

4. Project Description

The consultant describes the proposed project and its geographic, ecological, social, economic and temporal context: project location, various project components, construction activities, facilities, staffing, working conditions, availability and source of raw materials, transportation and holding of slaughter animals, meat production processes, slaughter products, schedule of works, land tenure, land use system, potential beneficiaries, affected groups (directly and indirectly), and offsite investments that may be required as part of the slaughterhouse project.
Under this section, the consultant determines and characterizes the anticipated liquid, solid and gaseous discharges from the slaughterhouse processes, as well as the sources of nuisance such as; noise, odours, visual nuisances, etc.

It indicates the need for any resettlement plan or vulnerable groups' development plan. It at least includes a map showing the project location and its areas of influence. The consultant further provides detailed description of

the project focusing on those aspects that could potentially have an impact on physical, biological or social environment. The project description is presented using maps, figures, tables and other graphics as necessary.

Furthermore, description of the project includes amongst others, the following:-

- ***Pre-construction phase activities***: covering aspects such as relocation of facilities that are likely to be affected by the project works.
- ***Construction phase activities***: land clearing and site preparation works, construction of slaughterhouse facilities and its related support infrastructures;
- ***Operational phase activities***: cover aspects such as full operations of the slaughterhouse facility and its support facilities;
- ***Maintenance pla***n: in terms of public health and hygienic conditions; and
- ***Decommissioning phase activities***: indicating what is to be done at the end of the project life.

It is important that, the EIA study focuses on two aspects as highlighted below:-

- ***Direct Impact Area (DIA)*** or "primary impact zone" where impacts of slaughterhouse activities are most prevalent. DIA zone entails:-
- Slaughterhouse site and its adjacent communities (settlements, markets, public institutions and related utilities like water supply lines;
- Existing facilities and infrastructures in the area that could be affected by the construction process or the presence or operations of the slaughterhouse.

Description of Indirect Impact Area (INDIA) or "secondary impact zone "comprising:-

- Approach roads to the slaughterhouse and related utility lines; and
- Information from the host communities in the vicinity where construction materials may be extracted.

Provide Project Justification

The project justification should be based on combined economic, environmental and social assessments. To this end, this chapter describes the current situation in the sector, explains the problems or the needs to be satisfied by the project and presents the constraints associated with the project implementation.

5. Review Policy, Legal and Institutional Framework

The EIA for slaughterhouse facilities should attempt to provide in a concise and focused manner key policy, legal and administrative framework within which the planned project is to be carried undertaken. This is of importance as it places the project in the context of government policy, legal and institutional framework for its compliance. Which policies, laws and standards is the project required to comply with during its implementation process?

In addition, the EIA also presents the relevant social safeguards policies for key stakeholder financing institutions such as the World Bank, the African Development Bank (AfDB) that are likely to be triggered by the project.

6. Conduct Scoping Process

As part of the EIA process for slaughterhouse projects, the consultant conducts a scoping study with the objective to inform the public, interest groups and government agencies about the proposed project as present its proposed actions and impacts. The scoping process should include amongst others, public meetings at which stakeholders provide their views on the project as well as site reconnaissance tours of the proposed sites to capture key baseline social, ecological and environmental issues.

7. Production of ToRs for Slaughterhouse Projects

The consultant upon completion of the scoping process produces ToRs for detailed EIA and the ToRs for submission to REMA for review and approval before commencement of the detailed EIA.

8. Conducting detailed EIA Study

The consultant conducts detailed EIA study following standard social and scientific investigations which should be able to help gather baseline date in the social and ecological dimensions.

9. Collection of baseline data

The consultant determines the limits of the study area that need to be defined in order to encompass all project direct and indirect impacts. The description and analysis of the physical, biological and human conditions address relevant environmental and social issues within this area, including any changes anticipated before project implementation.

Within the human environment, key issues that the consultant should consider include population characteristics and trends, revenue disparities, gender differences, health problems, natural resource access and ownership, land use patterns and civil society organization level.
In addition, the EIA consultant for slaughterhouse project also addresses the interrelations between the environmental and social components and the importance (value) that the society and local populations attach to these components, in order to identify the environmental and social components of high value or presenting a particular interest. Particular attention is given to the rare, threatened, sensitive or vulnerable environmental and social components.
This information is relevant to REMA in terms of project location, design, operations as well as environmental and social management. Maps, figures and tables are prepared as well to better illustrate the various environmental and social components of the slaughterhouse project.

Based on the location of the proposed slaughterhouse facility, some the key aspects of baseline data collection include:

- Study of mammals, birds and invertebrates
- Plant ecological investigations and surveys

It is important that, areas which are close or in proximity of the slaughterhouse projects should be presented on a map depicting amongst others key issues such as:

- Wetland areas;
- Important Bird Areas (IBA sites where applicable);
- Forests and vegetation areas—forests, woodlots or plantations; and
- Archaeological sites.

10. Estimation of Environmental Noise

EIA team for slaughterhouse facility should determine noise levels in and around areas of the slaughterhouse and advice on its implications on the environmental and social set ups in relation to the project. The consultant should identify the location and nature of nearby sensitive uses (e.g. houses, food preparation activities, tourist accommodation, schools, hospitals etc.) and should assess the following:

- Expected noise levels to be generated including noise from temporary and permanent fixed plant;
- Predicted vehicle and forklift noise level impact adjacent to sensitive land uses; and
- Existing background noise level impact adjacent to sensitive land uses.

11. Estimation of pollution prevention

It is anticipated that, the EIA consultant should:

- Describe the chemicals to be used, where they are to be stored and how accidental spills are to be contained, controlled, and cleaned up;
- Estimate the maximum rate of production, in tonnes per year, of meat or other products;
- Identify wastes to be generated (liquid and non-liquid) in a slaughterhouse project, where they are to be stored and how they are to be treated and disposed of;
- Describe practices to be used to minimize the risk of accidents in a slaughterhouse project that might pollute the environment (e.g. use of bunded storage areas for fuel); and
- Describe storm water management measurement facilities and any efforts to separate clean storm water (e.g. from roofs) from dirty storm water (e.g. from car park areas) and the form of treatment to be provided for dirty storm water.

12. Establish water demand and use in slaughterhouse projects

In addition, the EIA experts for slaughterhouse should:

- estimate the amount of water that the slaughterhouse may need per year in kilolitres;
- identify the sources of water to be used (e.g. borehole, tap water, etc);
- if the Developer intends to use borehole or river water, describe the quality of this water (e.g. bacterial and salinity levels);
- describe what the water is to be used for (e.g. domestic use (toilets, kitchen facilities), cleaning and wash down, as part of the slaughter process); and
- describe techniques to be used to minimize water demand and encourage careful use and reuse where practicable.

13. Soil Quality

In addition, the EIA should undertake:

- to describe soil characteristics including depth, texture and structure of all layers; depth to impeding clay layers or to layers highly impermeable to water or affecting rooting depth; and
- to indicate any areas prone to water logging, flooding and/or erosion at the proposed site
- Indicate slope of the area.
- Outline likely impacts on ground water, and the proximity of surface waters.

14. Conduct archaeological investigations

Where deemed relevant, the EIA consultant documents any histo-cultural information relating to the proposed slaughterhouse projects. Such information can be collected through consultations with the communities, academic institutions, national museums and field investigations. It is important that, the EIA proposes some measures for salvaging physical cultural materials in case of any chance finds. It is important that, such surveys should make reference to any available archaeological maps and first reference points on these aspects.

15. Hold public consultations

As part of the EIA, the consultant should identify key stakeholders and plan to meet them as part of its public consultative process. Identification of stakeholders for consultative process should be based on a combination of social, cultural, gender, political and sectoral and statutory considerations. For slaughter house considerations, key stakeholders include:

- MINAGRI;
- MINFRA
- relevant local and urban authorities;

- RAB
- RBS
- MoH
- EWSA
- Communities around proposed slaughterhouse establishments
- Transporters of livestock
- NGOs (especially those on environmental health and animal rights)
- Livestock cooperatives

Details of such consultative meetings should be captured in the EIA showing the persons met, date and venue of such meetings and key issues and outcomes of the meetings. It is important, the consultant attempts to the extent possible, to keep consultative issues within the premise of the study without extending to the wider and broader sometimes out of context aspects. The issues are documented from stakeholders including public officers, NGOs, etc.

16. Evaluate project alternatives

During the ESIA of slaughterhouse projects, the consultant should ***identify***, ***assess*** and ***evaluate*** the various feasible alternatives of the project, including the "the No Project Option". The evaluation of Alternatives should identify and describe the potential feasible alternatives that enable realization of the overall project objectives. Furthermore, the consultant should present comparisons of the potential alternatives on the basis of ***technical, economic, environmental*** and social criteria, as well as of public views and concerns.
In addition, analysis of alternatives are addressed amongst others; proposed location of the slaughterhouse project, technology to be used, design considerations, its operations and align these to potential environmental and social impacts and the feasibility of mitigating these impacts.
For each of the alternatives that are assessed, their environmental and social impacts are quantified as possible, including their economic values where feasible. The selected alternative is therefore the most environmentally and socially sustainable, taking into account the technical and economical feasibility.

17. Undertake Assessment of Slaughterhouse Project Impacts

Impacts and benefits of the proposed slaughterhouse projects should be determined based on the project phases in terms of; pre-construction, construction and operation and decommissioning phases of the project.

Potential impacts and benefits are characterized on the basis of the following:-

- Negative,
- Positive effects,

- Direct and indirect effects,
- Immediate and long-term effects,
- Reversible or irreversible/residual.

In addition, any opportunities likely to accrue from the project are identified. As far as possible, all identified impacts and benefits are assessed for significance based on ***magnitude, extent, duration, reversibility,*** etc. from the assessment of impacts and benefits, necessary mitigation and enhancement recommendations are prescribed.

Assessments of impacts utilize appropriate techniques and expert judgment to determine the significance of changes to the social, biological and physical environment. Consultants should employ tools to appropriately predict potential impacts of the slaughterhouses investments both in the short, medium and long term perspectives.

18. Identity and elaborate potential slaughterhouse projects' impacts and institute their mitigations measures

The consultant should conduct a detailed analysis of beneficial and adverse impacts of various components of slaughterhouse projects on the physical, biological and human (social, cultural and economic) environments and these should be based on analysis of project interaction with the baseline conditions. Appropriate mitigation measures are then identified to prevent, minimize, mitigate or compensate for adverse environmental and social impacts. It is also important that, enhancement measures for positive impacts shall be developed in order to improve project environmental and social performance. In addition, the roles and responsibilities in the implementation of the mitigation measures are clearly defined. It is also important that, the consultant provides costs of implementing such measures as well as the costs for environmental and social capacity building for effective implementation of mitigations measures by the respective agencies. The sources of such financial resources should be clearly outlined in the mitigation plan.

19. Prepare an Environmental Management Plan (EMP)

The EIA team prepares an EMP outlining the:

(a) Exact project activities and their impacts, the proposed mitigation measures, the impacts of the proposed mitigation measures, the institutional arrangements required for effective implementation of the proposed mitigation measures as well as for effective monitoring of the implementation of the mitigation measures, including timings when such measures are to implemented (especially based on project phases) and cost estimates for these activities,

(b) Recommendations pertaining to the strengthening of the institutions responsible for the implementation of the EMP.

The consultant describes the surveillance measures that aim at ensuring that the proposed mitigation and enhancement measures are effectively implemented during various phases of development and operations of the slaughterhouse

projects. The program defines as clearly as possible the indicators to be used to monitor the mitigation and enhancement measures that need to be assessed during project implementation and/or operation. The monitoring program also provides technical details on monitoring activities such as methods to be used, sampling locations, frequency of measurements, detection limits, and definition of thresholds that signal the need for corrective actions.

The EMP details the necessary actions for implementing the measures for environmental protection and includes but is not limited to the following:

- Occupational health and safety requirements for workers;
- Waste management and sanitation aspects;
- Noise levels;
- Odours
- Wildlife and ecological protection;
- Archaeological or cultural protection;
- Loss of vegetation, water and soil pollution; and
- Other critical areas identified during the study.

The EMP summary should sum up all the costs associated with environmental mitigations as well as costs associated with monitoring which shall all constitute part of project financing. To the extent possible, the environmental costs should not be more than the project costs.

The agencies responsible for the implementation of the various mitigation and monitoring measures, and the schedule for the implementation, are included in the EMP. The EMP also reviews the institutional arrangements for carrying out the mitigation and monitoring measures, including the nature, function and capacity of the environmental agencies at both local and national level. Where feasible, the EIA makes recommendations for the capacity development in such agencies including the training of line staff to allow implementation of the necessary measures and provide budgetary cost estimates. A sample outline of a possible EMP for slaughterhouse project is given below.

Annex Table 5-1: Summary of Environmental and Social Monitoring Plan for a Slaughterhouse Project

No.	Project • Phase Construction, • Operation, • Maintenance, and • Decommissioning	**Environmental/Social Issue**	**Monitoring indicators**	**Agency/Entity Responsible for Monitoring: (REMA, RAB, RBS, Local Government)**	**Monitoring Activities to be undertaken**	Frequency of Monitoring • Daily/Continuous • Weekly, • Monthly • Annually	**Unit Cost (RF.)**

Annex Table 5-2: Sample Detailed EMP of a Slaughterhouse

No.	**Monitoring parameter**	**Monitoring location**	**No. of samples**	**Method/ equipment**	**Standards/ guidelines**	**Frequency**	**Responsibility**
A. Construction Phase							
1.	Dust	- Construction Site - Contractor's Camp Site, - Nearest settlements outside the site boundary	1 1 4	Visually Visually Particulate Matter Measurement (PM 10)	National Standards	Quarterly	Developer
2.	Noise	**a) Ambient** - Construction Site - Nearest Settlements outside the site boundary **b) At Source** - Vehicle/ Equipment	1 3 3	Noise meter	National Standards	Weekly	Developer
3.	Vehicular Emissions - Smoke - CO	Vehicles at the Construction Site	 3 3	Gas analyzer/ detector	National Standards	Monthly	Developer
B. Operation Phase							
4.	**Gaseous Emissions Ambient Air** - CH_4 - CO - SOx	At the wastewater treatment plant and incinerator.	 1 1 1	Gas Analyzer/ Manual Observation	National Standards	Weekly	Developer

	- NH_3 - H_2S		1 1				
5.	**Groundwater Contamination** - Water Level - pH - EC - Major anions - Major cations -Heavy Metals (Arsenic, Barium, Cadmium, Lead, Mercury, Nickel	- From existing Boreholes around the Site - From proposed monitoring wells	3 6	From outsource Laboratory	Values observed at the start of the filling operation shall be taken as reference and compared	Twice in year For heavy metals once a year	Developer
6.	**Treated effluent** - pH - BOD_5 - COD - NO_3 - NH_3/ NH_4 - Oil & Grease - TSS - TDS - Cl - Mg - SO_4 - heavy metals - Nematode egg - Faecal Coliform	At effluent discharge point	2	From outsource Laboratory	Design criteria and RBS Effluent Discharge Standards	Monthly	Developer
7.	**Treated Sludge** - Nematode egg - Coliform	At the wastewater Treatment Plant	1	From outsource Laboratory	1 egg/100gm 1 MPN/100 ml	weekly	Developer

20. Prepare a contingency plan

It is important to note that, in some cases, during construction or operation of slaughterhouse facilities, unforeseen impacts during the EIA can become apparent. Under such circumstances, the EIA consultant should put in place a plan to address such impacts. The contingency plan should identify procedures to be followed and management roles and responsibilities for effective quick response to such unforeseen occurrences.

21. Provide Annexes to the Environmental Impact Report

Once the EIA is completed, the consultant should prepare its appendices which should amongst others include the following:

- List of persons contacted
- Copies of authority letters
- Architectural drawings for the facility
- Tests for soils (geo-technical investigations)

Annex 6: Review sheet for Environmental Impact Reports for Slaughterhouses Projects

Annex Table 6-1: Review Sheet for EI reports for Slaughterhouses Projects

1.0	**Description of the proposed slaughterhouse activities and its settings**	**Review Remarks (Yes, No, applicable/not applicable; Adequate/Inadequate)**
1.1	How clearly, preferably in non-technical language, is the project described?	
1.2	How clearly, preferably in non-technical language, is the environmental setting described?	
	To what extent…	
1.3	…are the likely direct links between the slaughterhouse project and the environment clearly identified in the description? (e.g. discharges to the environment; use of local resources, labour, etc.)	
1.4	…is a distinction made (if appropriate) between the construction, operation, maintenance and/or decommissioning phases of the proposed activity?	
1.5	…does the assessment of environmental effects refer to any environmental assessment provisions of the district and/or regional plans?(this would include noting that there are no particular provisions, if that was the case)	
2.0	**The approach to, and coverage of, the assessment of environmental effects…**	
2.1	Should alternative locations, technologies, operations or methods, for the proposed slaughterhouse activity be considered in the environmental effects (i.e. significant effects are likely)" [If yes, go to 2.1.1 If no, skip to 2.2]	
2.1.1	To what extent have alternatives been considered in the assessment of environmental effects?	
	To what extent…	
2.2	…is there evidence of the early and meaningful involvement of affected people, groups and communities in the assessment of environmental effects of the proposal?	
2.3	…is there evidence that a rational approach to scoping, and especially to impact identification, has been used in the EIA?	
2.4	…is the coverage of the AEE appropriate for the type and scale of proposal (i.e. there are no obvious, unexplained gaps in coverage)?	
2.5	…is there an appropriate balance between the biophysical (e.g. effects on water or air quality) and the social and cultural impacts of the proposal (e.g. effects on the neighbourhoods or the wider community, and/or health and safety issues)?	
2.6	…has baseline data been collected? [If not, skip to 2.7]	
2.6.1	…has baseline data collection been directed by the scoping process? (As opposed to a wide, unfocused collection strategy?	
2.7	…is there evidence of careful selection of indicator variables, both	

	for impact prediction and for monitoring, should the latter be necessary?	
2.8	If risk assessment is appropriate for the proposal, to what extent has it been provided in the EIA?	
2.9	If hazard assessment is appropriate for the proposal, to what extent has it been provided in the EIA?	
3.0	**Prediction, mitigation, and monitoring of effects.**	
	To what extent…	
3.1	…are clear and sound predictions made about possible impacts?[If no predictions are made, skip to 3.10]	
3.2	…(assuming predictions are made), is the basis of the prediction clearly stated (including methods, supporting data etc., as appropriate)?	
3.3	…do the predictions generally provide sufficient information about the nature, severity, likelihood and spatial extent of the impacts such that the implications of the impact can be understood?	
3.4	…is there an appropriate balance between adverse and beneficial impacts?	
3.5	…do the predictions take account of indirect impacts?	
3.6	…do the predictions take account of cumulative impacts?	
3.7	…do the predictions take account of long term impacts?	
3.8	…does the EIA consider possible mitigation measures for the likely impacts?	
3.9	…does the EIA seek to link, and integrate, impacts on different parts of the environment, to provide an overall picture of the impact of the proposal?	
3.10	Is monitoring appropriate for the proposal? [If yes, go to next question If no, skip to 4.1]	
3.10.1	To what extent has monitoring been dealt with, to a level appropriate for the proposal?	
4.0	**Significance evaluation**	
4.1	To what extent is there evidence in the EIA of a systematic approach to evaluating the significance of the identified impacts/effects of the proposed activity?	
4.2	How well, overall, are the attitudes of the affected individuals, groups and communities towards the identified impacts recognized in the EIA?	
4.3	To what extent does the EIA avoid undue reliance on the valued judgments of the impact assessors?	
4.4	Have technical methods been used in the EIA to evaluate the social significance of the identified impacts? [If yes, go to 4.4.1 If no, skip to 5.1]	
4.4.1	If technical methods have been used to evaluate the social significance of predicted impacts, to what extent have the methods been clearly explained?	
4.4.2	If technical methods have been used to evaluate the social significance of predicted impacts, to what extent have the people affected by the proposal been involved in the evaluation process?	
5.0	**Communication of impact information**	
	To what extent…	

5.1	…is the EIA clearly and simply organized, providing a coherent and useful study?	
5.2	…is the impact information summarized in a form that non-technical people can understand?	
5.3	…is the overall impact of the proposed activity on the environment (including reference to both beneficial and adverse impacts) clearly set out, in an understandable form?	
5.4	…is the discussion of the predicted impacts free from obvious bias (e.g. emphasis on benefits, downplaying negative aspects)?	
5.5	…is the assessment free of superfluous material (that can hide important information)?	
5.6	…have photographs and/or other graphics been used to aid the understanding of information in the assessment?	
	Overall EIA conclusion:	

Annex 7: Outline for a Public Hearing Presentation for slaughterhouse project

During a public hearing for slaughterhouse project, the Developer is to present EIA Report in the following format:

1. What is the project and this should include the title and the name of Developer;
2. The objectives of the project;
3. Justification for such a slaughterhouse project (why need the slaughterhouse (economic, social and environmental?)
4. The activities of the project. This is to highlight the activities that will be undertaken in all the project phases.
5. The products that are to produced in the slaughterhouse project;
6. The expected benefits of the project. The benefits should be categorized in terms of:
    a. Economic
    b. Social
    c. Environmental
7. What are the anticipated adverse negative impacts from the slaughterhouse project;
8. For each of the negative impacts, what measures are to be put in place to address such impacts?
9. What resources have been allocated for addressing such impacts?
10. What are the institutional arrangements for addressing such impacts? Which institutions are to be involved and what arrangements have been made for their effective involvement?
11. In case of any grievance over the project, what institutions have a role in slaughterhouse operations?

Annex 8: Rules of Procedure for the Public Hearing for Slaughter House Projects

1. The public Hearing shall be conducted at a venue which shall be convenient and accessible to those persons who are likely to be specifically affected by the project;

2. The date and venue of the Public Hearing shall be advertized through the mass media, so as to bring it to the attention of persons most likely to be affected by the project and those persons making comments;

3. The Public Hearing shall be presided over by a Presiding Officer who shall be appointed by REMA;

4. The Developer will be accorded reasonable time to make a presentation on the proposed activity and its environmental issues;

5. After the address by the Developer, the public and those present in the public hearing will be given an opportunity to react and express their views. Equal opportunity will be accorded to those who wish to put forward their views;

6. In this respect, those intending to speak shall indicate this by show of hands. Priority will be given to those who have formal presentations to make. It is important that, who wish to make formal presentation shall be required to make a formal presentation at the Registration Desk;

7. Once a presenter is called to make his/her presentation, he/she will be requested to mention his/her name, and in case he/she is speaking on behalf of any group, it is important that, the name of name of such a group, their contact and affiliation should be mentioned;

8. When one is making submissions, it is important he/she avoids making statements out of context of the project under the Public Hearing. The presentation should be restricted to the project activity under discussion;

9. Those making presentations in the Public Hearing are requested to be straight forward and concise on their issues so that opportunity can be given to other people to make their submissions as well;

10. Those making presentations will be given a maximum of five minutes to make your presentations. However, should one wish to use more than five minutes, under such circumstances, it is important that, prior notice is to be given to the Presiding Officer who may consider the request.

11. The Presiding Officer may limit or extend the duration of a presentation at the Public Hearing;

12. One may be permitted to present evidence to support issues under discussion and this is on the grounds that, the Presiding Officer is satisfied such evidence will result in a just and fair Hearing;

13. When permitted to present such evidence, the Presiding Officer may require one to give the evidence on oath or affirmation if in his/her opinion the giving of such evidence on oath or affirmation will lead to a fair and just conduct of the proceedings of the hearing;

14. In case one has not been given the opportunity to speak due to time constraint or otherwise, one can forward written submissions to the Registration Desks during the day of the Public Hearing; or within five days there from to REMA to be forwarded to the Presiding Officer;

15. If one has forgotten got any written material that he/she feels is useful information on the activity to be discussed, please feel free to bring this to the attention of the Presiding Officer;

16. Where written comment will have been submitted in advance, any oral presentation in relation to such matters shall be highlights of essential issues on such materials not a fresh presentation;

17. During the time when members of the public are reacting to the presentation by Developer, the Developer will be urged to note the issues being raised so that they can respond appropriately;

18. All questions raised during the Public Hearing shall be addressed to the Presiding Officer;

19. For those who shall have submitted written questions to REMA or to the Developer in good time prior to the Public Hearing, the Developer shall be required to provide written answers to such issues;

20. The audience will be urged to observe discipline and order and observe silence when someone is speaking and avoid unnecessary interruption;

21. At the close of the public hearing the Presiding Officer shall give the Developer the opportunity to reply to any questions or matters raised;

22. The response shall be made during the Public Hearing and in any case not later than seven (7) day after the close of the hearing; and

23. The Presiding Officer shall then make an overview presentation of the issues and responses raised at the Public Hearing.

Annex 9: EIA Experts for Slaughterhouses Projects

The EIA Experts for slaughterhouse projects shall comprise of the experts proposed herewith. It is important that, the EIA teams are constituted taking into account the prevailing conditions on the proposed sites.

1. Environmental Management Specialist (Team Leader)

Key Qualifications:

He/she should posses the following qualifications:

- At least an MSc. Environmental Management, Natural Resource Management or Environmental Engineering;
- Should have undertaken specialized trainings in Environmental Impact Assessment (EIAs) and Environmental Audits.
- Must have undertaken at least 5 EIA at the level of Team Leader position; and
- Should be registered with Rwanda Environmental Management Authority (REMA) as an Environmental Practitioner and also certified as a Team Leader;
- Should have done at least 2 environmental related works in Rwanda.

Tasks:

He/she will perform the following roles:

- Provide overall coordination and leadership to an EIA team;
- Take a leadership role in steering stakeholder consultations during EIA for slaughterhouse projects;
- Play an inter-phase role between client, REMA and other stakeholders on matters of EIA of slaughterhouse projects;
- Conduct site visits of planned slaughterhouse projects;
- Identify impacts of slaughter house activities on environment components like surface and ground water, soil and air;
- Participate in the elaboration of technical, legal and regulatory norms to comply with environmental requirements in all the chain of slaughterhouse activities;
- Identify, assess and propose environmental mitigation measures for the slaughterhouse project; and
- Prepare an EMP for the project.

2. Veterinary Public Health Specialist

Key qualifications:

- At least postgraduate training veterinary medicine with specialization in public health;
- Should have undertaken trainings in EIA and or Environmental Audits;
- Should have conducted at least 2 EIAs relating to slaughterhouse projects;10 year experience in veterinary medicine concerning livestock and fisheries;
- Registered REMA as an EIA Practitioner.
- A working knowledge of French and Kinyarwanda will be an advantage.

Tasks:

- Participate in stakeholder consultations of cattle trade institutions, livestock farmers, etc;
- Participate in site visits to slaughter house projects under construction or achieved and functioning to assess veterinary standards and related aspects;
- identify possible projects in slaughterhouse field and give criteria for their classification;
- provide veterinary input throughout the assignment;
- provide public health aspects in the assignment;
- Participate in development of all documents and the EIA guidelines for slaughterhouse projects; and participate in stakeholders' workshop.

3. Waste Management Engineer

Key qualifications:

- At least postgraduate training in environmental engineering, waste management;
- Must have training in OSH aspects;
- Have at least 5 years experience in environmental management, EIA and wastes management;
- Registered REMA as an EIA Practitioner.
- Fluent in French and English; and

- Has worked in the East African region and speaks Swahili and English.

Tasks:

- Take a lead in environmental impacts of slaughterhouse facilities in terms of its phases;
- Lead in stakeholder consultations with relevant stakeholders on matters of slaughterhouse projects;
- Participate in identification of impacts of slaughterhouse activities on environmental components especially related to waste emissions;
- Take a lead in provision of input on waste management throughout the assignment;
- Participate in the development of all reports and the EIA guidelines for slaughterhouse projects;
- Participate in the stakeholders' workshop.

4. Ecologist

Key qualifications:

- Must have a postgraduate training in natural sciences (forestry, botany or zoology);
- Must have undertaken an EIA training;
- Conducted at least 5 EIAs studies in development projects.

Tasks:

- Take a lead in the ecological investigations of the project;
- Consult with stakeholder institutions on ecological aspects of the project;
- Review the various legislation and regulations related to slaughterhouse projects relating to ecological aspects;
- Review various literature sources on ecological matters of slaughterhouse projects; and
- Participate in write up of environmental Impact Report for slaughterhouse project.

5. Socio-economist

Key qualifications:

- He/she should have undertaken postgraduate training in the fields of sociology, anthropology or social work or related social sciences;
- He/she must have attained trainings in EIAs;
- He/she should have conducted EIAs with experience of at least 5 years; and
- Must register with REMA.

Tasks:

- Take a lead in stakeholder consultations especially with the cattle farmers, local residents etc;
- Participate in site visits to slaughterhouse projects;
- Provide socio-economic input/expertise throughout the assignment;
- Lead in the formulation of social survey instruments;
- Participate in development of all reports;
- Participate in the stakeholder workshop; and
- Provide social input in the Environmental Impact Report.

Annex 10: Impacts Summary of Slaughterhouse Projects

Annex Table 10-1: Determination of Impact Significance for Slaughterhouse Projects

Significance			Sensitivity			
			Very low	Low	Medium	High
			1	2	3	4
Magnitude	Very low	1	1 Negligible	2 Minor	3 Minor	4 Minor
	Low	2	2 Minor	4 Minor	6 Moderate	8 Moderate
	Medium	3	3 Minor	6 Moderate	9 Moderate	12 Major
	High	4	4 Minor	8 Moderate	12 Major	16 Major

The Tables below give examples of the types of impacts that would be assigned the different grades of significance value.

Annex Table 10-2: Illustration of Impact Significance

Aspect	Impact	Significance
Legislative Compliance	Expected non-compliance with national regulatory standards.	> 9 Major
	Potential for non-compliance with national regulatory standards	6-9 Moderate
	Expected compliance with national regulatory standards or no regulations and standards apply.	< 6 Minor
Biophysical	Long-term (>10 years) and widespread changes to habitat or ecosystem features, structures or functions that reduce its integrity, affect the ability to sustain valued components and may require extensive intervention. The habitat/ecosystem may not recover to its baseline state. Major change to the visual quality, setting and feeling associated with the landscape. Widespread and permanent change to hydrology and hydrogeology.	> 9 Major

Aspect	Impact	Significance
	Changes to a habitat or ecosystem ecological features, structures or functions that reduce its integrity, but recovery to baseline state is expected within 5-10 years. Disturbance of a sufficient portion of the bio-geographic population of a species to cause a decline in abundance, distribution or size of genetic pool such that natural recruitment would not return the population of the species, and other species dependent on it, to former levels within several generations. Major change to the visual quality, setting and feeling associated with the landscape. Fundamental change to hydrology and hydrogeology within a catchment resulting in temporal changes to the water shed.	6-9 Moderate
	Reduction in ecosystem or habitat integrity, but recovery to baseline state is expected within 2-5 years with minimal intervention. Disturbance of a bio-geographic population or individuals of a species resulting in a decline in abundance or distribution over one or more generations, but that does not change the integrity of the population of the species or populations of other dependent species. A noticeable but not fundamental change to hydrology or hydrogeology.	2-4 Minor
	Some loss of ecosystem or habitat integrity, but recovery to baseline state will occur on completion of reinstatement activities. Localized short-term disturbance of individuals of a species, but does not affect other trophic levels or the integrity of the bio-geographic population. The development will fit the key characteristics of the existing landscape. A detectable change amounting to non-material changes to the hydrology and hydrogeology.	1 Negligible
	Change resulting in positive, desirable or beneficial effects on an ecosystem such as greater likelihood of maintaining ecosystem integrity, improvement of habitat for rare and endangered species, enhanced natural biodiversity, or increased population of valued species.	B
Social	Incident causing multiple fatalities, extensive property damage, affecting the livelihoods of people over a wide area, and damage to international corporate reputation.	>9 Major
	Physical resettlement of one or more households/businesses. Reduction in community and household assets, or access to assets, such that economic displacement	

Aspect	Impact	Significance
	affects five or more individuals, households or businesses. Changes likely to prejudice success of an existing policy or plan. Job losses in small communities with very limited alternative opportunities in near-medium term (within one year of job losses). Change that differentially adversely affect the livelihoods or life chances (access to health care/medicines) of vulnerable groups (disabled, elderly, female-headed households and those living below officially defined poverty or subsistence levels). Damage to corporate reputation. Increased public exposure to health threats that may increase mortality rates. Unplanned in-migration flows considered sufficient to cause exceedance of the capacity of at least one component of physical or social infrastructure. Increases of cultural conflict likely not to be contained within existing social control norms. Increases in rates of serious crimes involving violence and property theft. Development traffic will travel through very sensitive sites such as several built-up areas and/or areas including schools, pedestrian crossings, clinics, markets. Additionally has the potential to add unacceptable or prolonged loadings to roads unsuitable for such traffic level increases or proposed vehicles.	6-9 Moderate
	Job losses in a community able to adapt and provide alternative job opportunities in near - medium term (within one year of job losses). Reduction in community and household assets, or access to assets, such that economic displacement affects 1-4 individuals, households or businesses. Damage to local corporate reputation. Damage to a site of local or regional cultural importance. Short-term (<1 year) financial loss to owners of businesses where recovery is likely. Unplanned in-migration not expected to cause infrastructure capacity exceedance. Increases in incidences of cultural conflict, but expected to be contained within existing social control norms. Increases in rates of non-serious crimes. Increased public exposure to health threats that may increase morbidity rates. Decline in access to health care facilities and acquisition of treatment.	2-4 Minor
	Some owners of businesses to experience short-term	

Aspect	Impact	Significance
	financial loss. Temporary (<1 year) or intermittent changes to some aspects of the livelihoods and life chances of a limited number of individuals/households (including job opportunities, health status, income, access to education and infrastructure), but to which most individuals/households are expected to be able to adapt relatively easily. Incident causing treatable 'Lost Time Incident' injury to a member of the public with regard their work.	1 Negligible
	Increased ability of individuals, households or communities to maintain or improve livelihoods through enhancement of the following: • Financial and physical assets • Quantity, quality and availability of natural assets • Human and social assets (skills, knowledge, community support networks) • Improvement in health status • Job gains and increase in per capita income • Increased local business viability	B

Annex Table 10-3: Summary of Typical Slaughterhouse Construction Phase Impacts and their Mitigation

Project Activity	Aspects or impact Identification	Impact Description	Impact Magnitude	Severity	Mitigation Measures
Excavation	*Dust*	Contribute to air pollution directly and indirectly as synergists or carriers of other pollutants. Can affect health and local ecosystem.	4	2	Spraying water during the excavation phase
	Vehicles Emissions	Emissions of VOCs, NOx, SOx, CO_2 and particulate matter to atmosphere and thus	4	2	Reducing number of trips and frequency of operation of the vehicles

		contribute to air pollution, greenhouse gas production and global warming.			
	Soil Disturbance	Heavy machinery used will cause soil compaction.	2	4	Limiting the excavation area
	Destruction of plant cover	Plant cover present at the site will be removed leading to increased soil erosion.	1	4	Tree planting and landscaping to reduce soil erosion.
	Disposal of excavated materials	The excavated material will be used for landscaping, construction and deep rooted tree planting	2	4	Soil/clay reused for improving degraded agricultural soils.
	Noise	Excessive or prolonged exposure to noise (typically more than 8 hrs above 85-90 decibels) leads to hearing loss, which is not the case here. This will affect the workers on site.	3	3	Reduction of the frequency of noisy operation
Leveling	Dust	Contribute to air pollution directly and indirectly as	2	1	Spraying water while working

		synergists or carriers of other pollutants. It can affect health and local ecosystem.			
	Vehicle Emissions	Emissions of VOCs, NOx, SOx, CO_2 and particulate matter to the atmosphere and thus contribute to air pollution, greenhouse gas production and global warming.	3	1	Reducing number of trips, and frequency of operation of the vehicles
	Soil Disturbance	Heavy machinery used will cause soil compaction.	1	1	Limit leveling area.
Concrete Work	Solid waste Disposal	Concrete waste, carton, bags, wood, trees…etc.	3	4	All waste material should be transferred to an approved dump site.
	Workers' Safety	Risk of accidents and injuries	1	4	Follow safety instructions, workers should wear proper clothing and PPE
	Noise	Excessive or prolonged exposure to noise (typically more than 8 hrs above 85-90	3	2	Reduction of the frequency of noisy operation

		decibels) leads to hearing loss, which is not the case here. This will affect the workers on site.			
Electro-Mechanical Work	Energy Consumption	Combustion of fuel leads to emissions of VOCs, NOx, SOx, CO_2 and thus air pollution, acidification, greenhouse gas production, and global warming.	4	4	Regular testing of the air quality, due to different kinds of emissions
	Solid waste Disposal	Carton boxes, bags, metal, wood…etc.	3	4	All waste material should be transferred to an approved dump site.
	Noise	Excess noise at the construction site cause disturbance on the wildlife	1	2	Minimize the unnecessary use of vehicles and equipment.

Annex Table 10-4: Summary of Potential Slaughterhouse Operational Phase Impacts

Description of impact	Magnitude	Sensitivity	Significance	Mitigation measures	Magnitude	Sensitivity	Residual significance
Surface water contamination	Med 3	High 4	Major 12	• Treatment of the wastewater onsite by a 5- step process (screening, balancing, anaerobic digestion, activated sludge and disinfection with chlorine) before discharge. • Contain the wastewater onsite in concrete pits and transfer offsite for treatment	Very low 1	High 4	Minor 4
Decreased Ground water quality	Med 3	High 4	Major 12	• Construct solid waste pits at least 2 meters above the water table.	Very low 1	High 4	Minor 4
Air emissions	High 4	High 4	Major 12	• Ensure that project vehicles are in a mechanically sound condition. • Provide PPE and training to personnel working directly with dust-generating materials.	Low 2	Low 2	Minor 4
Noise emissions	Med 3	Med 3	Moderate 9	• Equip workers operating in noisy areas with noise protection gear. • Installation of acoustic insulating barriers can be implemented, where necessary.	Low 1	Med 3	Minor 3
Contamination of soil and reduced soil quality	High 4	High 4	Major 16	• Developer should develop a spill prevention and clean-up plan. • Use of safety data sheets at storage and containment facilities. • All repairs and maintenance works should be conducted in designated locations only; • Ensure all waste is source segregated, stored and disposed of by a licensed contractor or in accordance with respective legislation.	Low 2	Low 2	Minor 4

Description of impact	Magnitude	Sensitivity	Significance	Mitigation measures	Magnitude	Sensitivity	Residual significance
Occupational Health and Safety	Med 3	Med 3	Moderate 8	• Provide appropriate PPE to staff working in dusty and high noise areas; • Ensure that workers are trained on proper use of PPE; and	Low 2	Low 2	Minor 4

Annex 11: A summary of Slaughterhouse by-Products and their possible usages

Annex Table 11-1: Summary of Typical Slaughterhouse By-products and Uses

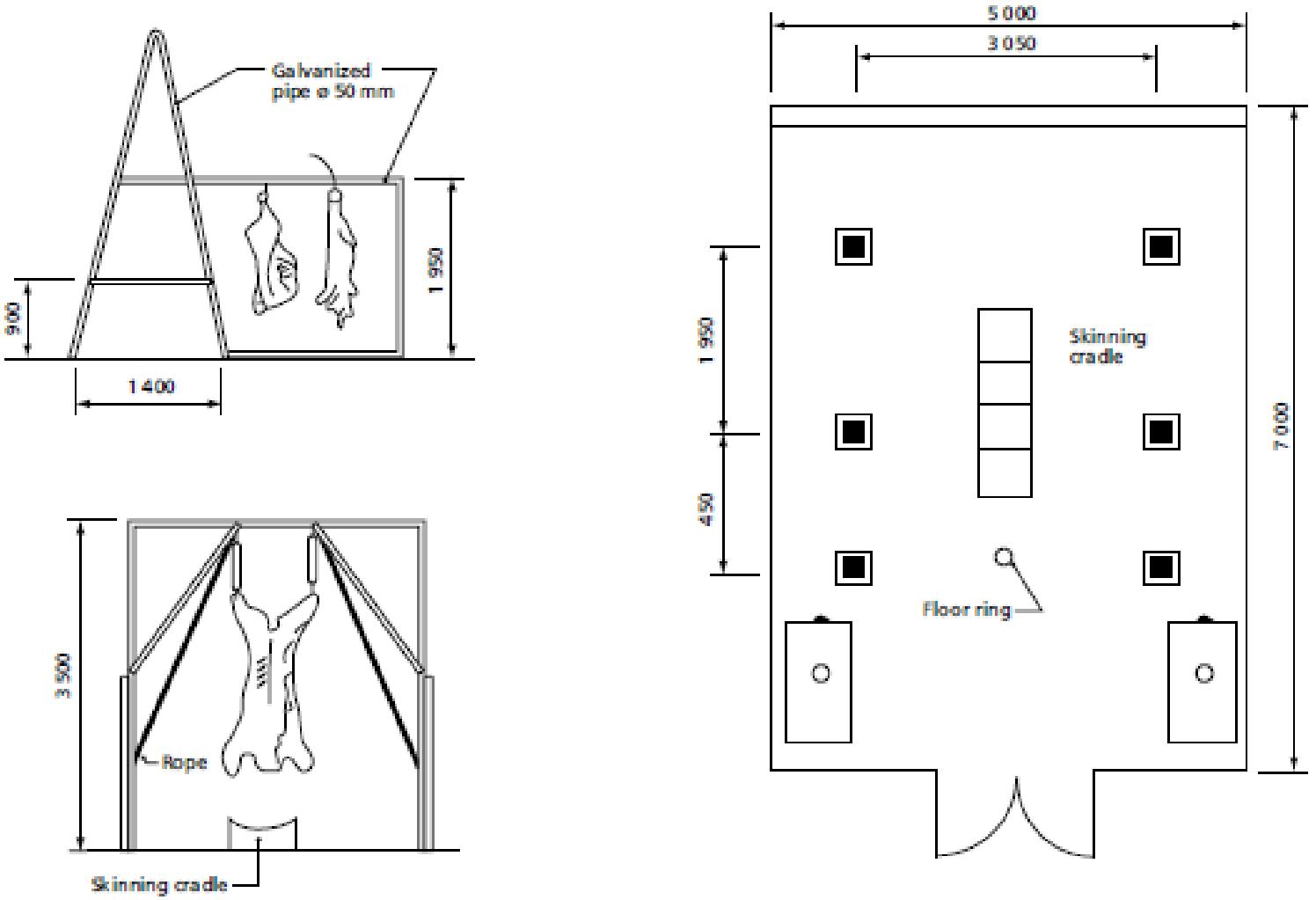
By-Products	Products/Use	Issues	EIA appraisal requirements
Blood	Stock feed Pharmaceutical products	• Should not mix with water • Decomposition (bad smell, becomes unpalatable to livestock) • Contamination (from dirt, etc)	• Appropriate infrastructure and equipment that ensures rapid collection and minimum contamination (e.g. separate drains, collecting tanks/vats) • Cold storage where blood is unlikely to be processed immediately (after more than a day). • Suitable infrastructure and equipment for required treatment method (e.g. cement platforms with raised edges for drying, commercial driers/cookers, etc), • Techniques used in processing and preservation.
Hides/Skins		• Maintaining of quality • Decomposition • Smell, • Limit damage due to Insects, handling • Contamination – manure, dirt, bacteria	• Hoisting facilities in slaughter hall for bleeding and skinning. • Appropriate infrastructure for flaying, washing skins and holding: e.g. skinning cradles, salting-drying sheds, air drying sheds that ensure hides/skins drain, not in contact with floor, not exposed to rain, etc. • Screened and well ventilated facilities

Hair	Bristles for brushes etc. Digested for fertilizers	• Contamination with dirt, blood, etc. from abattoir • Waste water from washing	• Procedures for collection and storage at slaughter hall and on site. • Infrastructure and techniques used.
Horns	crafts	Occupational hazards	
Bone meal		• Disease spread • contamination	• Procedures for collection and storage at slaughter hall. • Infrastructure and techniques used. • Separation of fresh and processed bone meal. • Occupational hazards and public health requirements.
Glue Stock (i.e. hooves, bones, tendons etc that can be used to make glue/gelatine)	• Collection and holding/storage •	• Smell • decomposition	• Suitable infrastructure for collection, storage and prevention of contamination with dirt, etc. of glue stock. • Appropriate infrastructure – drainage, waste disposal.
Casings	•	• Decomposition • Contamination • pathogens	• procedures for collection and storage at slaughter hall and on site • Infrastructure and techniques used. • Sanitary handling • inspection
Ruminal Content/manure	• composting	• Odors • Flies, etc	
Fat	Fat recovery and refining	• Techniques used	• procedures for collection and storage at slaughter hall and on site • Techniques used
General Considerations	Processing and rendering of slaughter house by-products	• Cross-contamination • Pathogens • smell	• Slaughterhouse building and by-products plant even if on the same premises

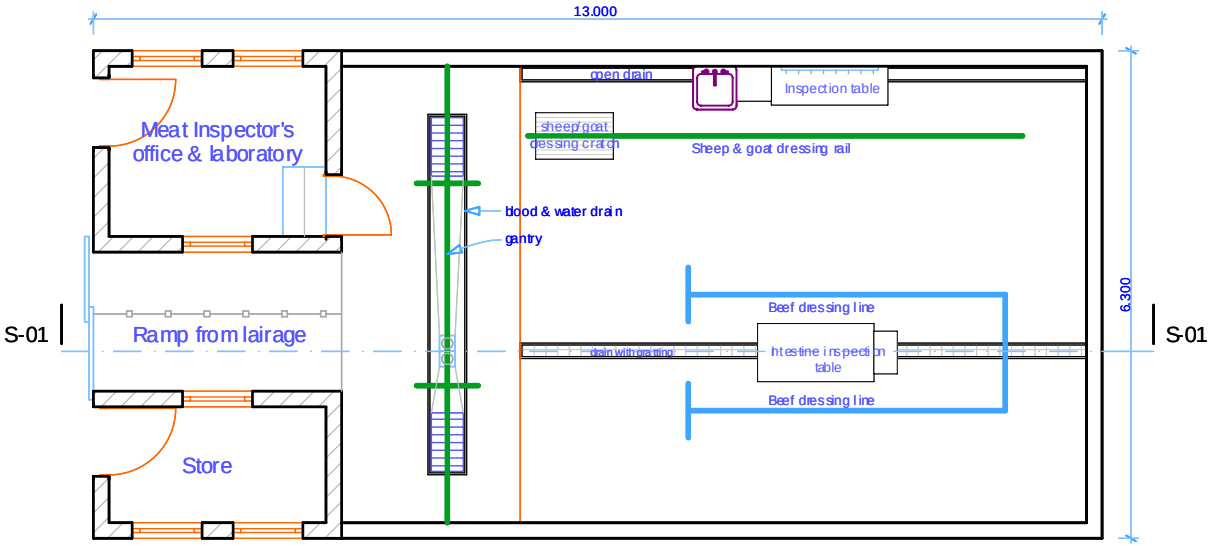
			must be physically and functionally operated separate. • If two are adjacent passage between the two should be paved and general slope should be from slaughterhouse to by-products plant. • Where applicable (large scale) use of chutes, conveyors from slaughterhouse • Sanitation • Ventilation • Prevention of nuisance) ordours • Suitable equipment

Annex 12: Ground Plans for Slaughterhouses

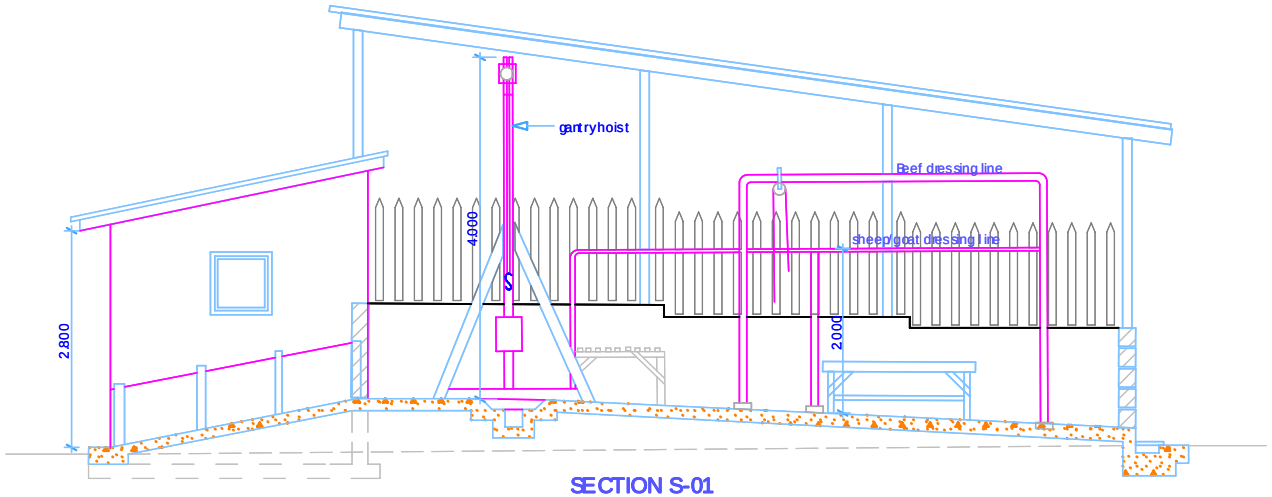
Annex Figure 12-1: IL1 Gantry Hoist Sketch Plan



Annex Figure 12-2: IL2 Slaughter Slab Sketch Plan

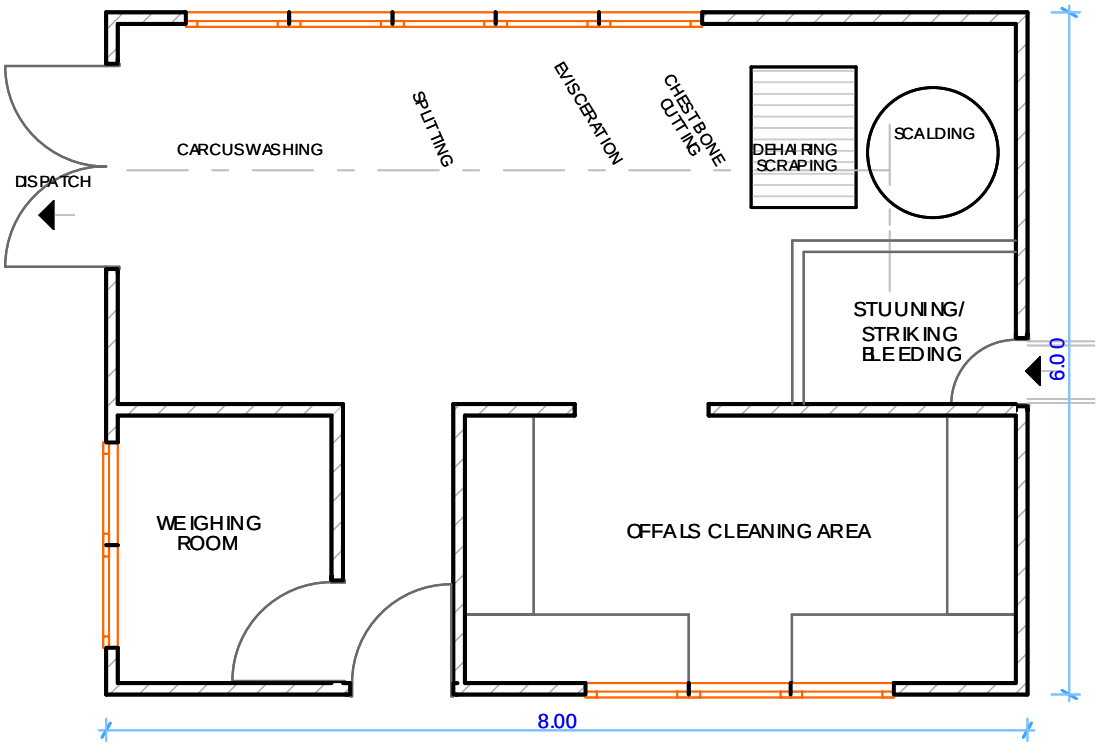


IL2 SLAUGHTER SLAB PLAN

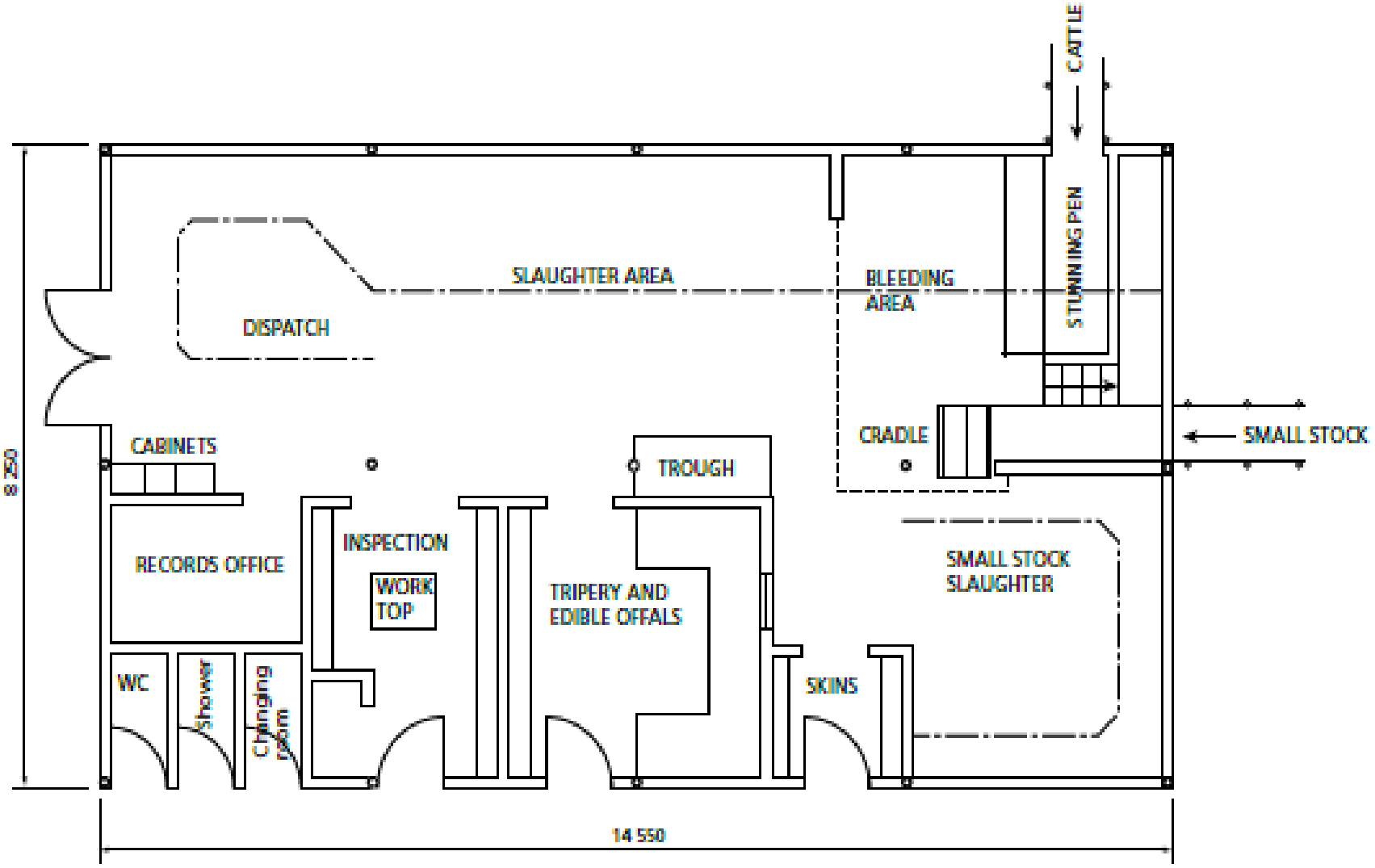


SECTION S-01

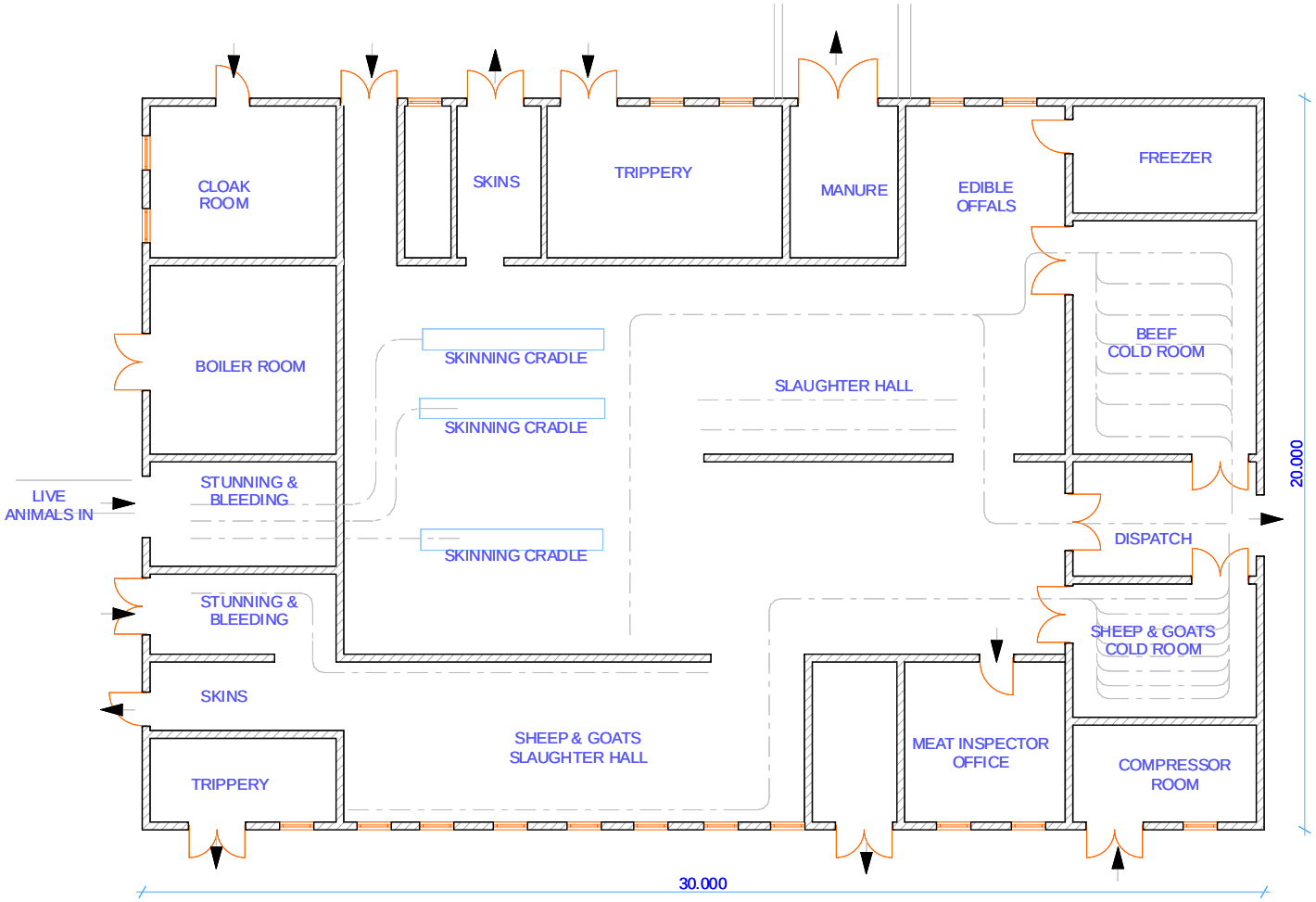
Annex Figure 12-3: IL3 Pig Slaughterhouse Sketch Plan



Annex Figure 12-4: IL3 Slaughterhouse Low Throughput Sketch Plan



Annex Figure 12-5: IL3 Slaughterhouse Medium Throughput Sketch Plan



Annex 13: List of Persons Consulted

No.	Names	Contact Address
1.	Mr Remy Norbert Duhuze,	Director/Environmental Regulation and Pollution Control Unit Rwanda Environment Management Authority Mob. Tel +250 788612725
2.	Mr. Mugabe Rugondo	Proprietor and Operator of Kicukiro slaughterhouse, Niboye Sector, Kicukiro District, Kigali Mob Tel +250788512371
3.	Mr. Murenzi Desire	Operator and Proprietor of Nyabugogo Abattoir, Mob Tel +250788540107
4.	Mr. Makuta Gonderwa,	Head of Nyabugogo Meat Transporters, Mob Tel+250788663720
5.	Mr. Nahima Pascal	Expert for Agri-business Expert, Kigali City Council, Tel +250788353080
6.	Mr. Mr. Jean Pierre BAZINEZA	Former head of Certification, Rwanda Bureau of Standards Tel +250788742317
7.	Mr. Dr Gafarasi Isidor,	Rwanda Agricultural Board (RAB) In charge of Livestock, Tel +250788503589
8.	Dr Rutangwenda Théogene ,	Director General, Ministry of Agriculture and Animal Resources Tel +25078830 3309 rutagwendat2006@yahoo.com
9.	Mme Mukabayire Valarie	Citizen neighbouring Kicukiro Slaughterhouse, Village Kinuno, Niboye Cell, Niboye Sector, Kicukiro District, Kigali City;
10.	Mr. Emile Niyozurugero,	Acting Environmental Officer, Kicukiro District, Kigali, +250788789896
11.	Mme Kuradusenge Annoncée	Acting Director for Entrepreneurship, MINICOM, Kigali; Mob Tel +250788430260
12.	Mr.Vincent Kanyamibwa,	Community Environmental Health Program Officer, Ministry of Health, Kigali, Rwanda +250788596019
13.	Mme Muraza Nadine	Meat Seller in Niboye Sector, Kicukiro Slaughterhouse, Kicukiro District, Kigali City, Rwanda
14.	Mme Inyura Trésphore,	Citizen Kagitare Cell, Base Sector, Gakenye District, Northern Province, Rwanda
15.	Mme Nyinawumukobwa Théophile,	Citizen sorounding Base slaughterhouse, Village Base, Rwamahwa Cell Base Sector, Gakenke District, Northern Province, Rwanda
16.	Hakizimana Aloys	Citizen surrounding Base slaughterhouse Village Base, Rwamahwa Cell, Base Sector, Gakenke District, Northern Province, Rwanda
17.	Mme Musabyimana Liberta,	Citizen surrounding Base slaughterhouse Nyamugari Village, Gatare Cell, Base Sector, Gakenke District, Northern Province, Rwanda
18.	Mukeshimana Johani,	Citizen neighbouring Base slaughterhouse, Base Village, Rwamahwa Cell, Base Sector, Gakenke District, Western, Province;
19.	Habimana Leonard,;	Cow trader, Mutina Village, Rwanahwa Cell, Base

		Sector, Gakenke District, Northern
20.	Sinamenye Dieu Donée,	Veterinary Officer, for RAB, attached to Base Sector, Gakenke District, Northern Province
21.	Munyamuburanga Jean Marie Vienne,	Pork Supplier to Germany Butcher, Kigali, Rwanda; Interviewed from Base Slaughterhouse Tel +250788527276
22.	Muhirwa Antoine,	Executive Secretary of Base Sector, Gakenke District, Northern Province,
23.	Mr. Abdul Karim Gahutu,	Mufti of Rwanda, Mob.Tel +250788403397
24.	Assuman Mutesa	Interpreter for Mufti of Rwanda Mobile: 0785 189723
25.	Mr. Eric Musizana	Beekeeping, Hides & Skins, Sericulture Agribusiness Officer, Rwanda Development Board +250788560429
26.	Minani Thoneste	Director of Water and Sewage Utility, EWSA, Kigali, Rwanda Tel +250788307412
27.	Sinamenye Dieu Donnée	Veterinary Officer for RAB, attached to Base Slaughter House (TURENGERUBUZIMA COOPERATIVE)
28.	Mr. Philbert Ciza	Ag. Head of Department, Environmental Health Ministry of Health (MINSANTE) Email: cizaphilbert@gmail.com Mobile: 0788 841626
29.	Ms Umurerwa Rita	Animal Products Business Development Officer Agriculture Development Department (+250) 788796418
30.	Mr Innocent Kalimba	Rwanda Housing Authority (+250)788685002
31.	Mr Franco Kamanzi	Rwanda Housing Authority francokamanzi@gmail.com

Annex 14: Terms of Reference for the Consultancy