

PROPOSED BASHE DIARY & FEEDLOT FARM PROJECT, UYUI FARM, TABORA REGION



**BASHE DIARY FARM PLANNING, LAYOUT DESIGN, FODDER MANAGEMENT, FARM
MANAGEMENT & PROJECT COST PROFILE**

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- i. Farm Management
- ii. Consultants – Veterinary, Agronomy and Extension Services
- iii. Animal Handlers / Casuals

DAIRY & FEEDLOT GUIDE

FACTORS OF PRODUCTION (RESOURCE ALLOCATION)

LAND

CAPITAL

HUMAN RESOURCE CAPITAL

ENTERPRISE

LAND

Land Size Available : 1000 Acres – 404.686 Ha

Farm Structures : 100 Acres – 40.47 Ha

Fodder Production : 900 Acres – 364.2 Ha

CAPITAL

Farm Planning – Layout and Designs

Farm Establishment – Construction (Cow Barn, Heifer Barn, Calf Pen, Milk Parlor, Milk Processor Feedlots, Slaughterhouse, Sheep/Goat Pens, Offices, waste management,)

Herd Placement – Replacement & Restocking

Fodder Production – Maize, Lucerne, Desmodium, Sugar-graze, Pearl Millet, Lucerne

Animal Nutrition – Fodder, Pasture, Concentrates, Mineral Salts

Animal Health – Drugs, Deworming Drugs, Multivitamins

Animal Breeding – Artificial Insemination and Breeding Program

Agro Inputs Purchase – Seeds, Fertilizer, Agro Chemicals

Irrigation System – Pivot or Rain Gun(Reel) Irrigation

HUMAN RESOURCE CAPITAL

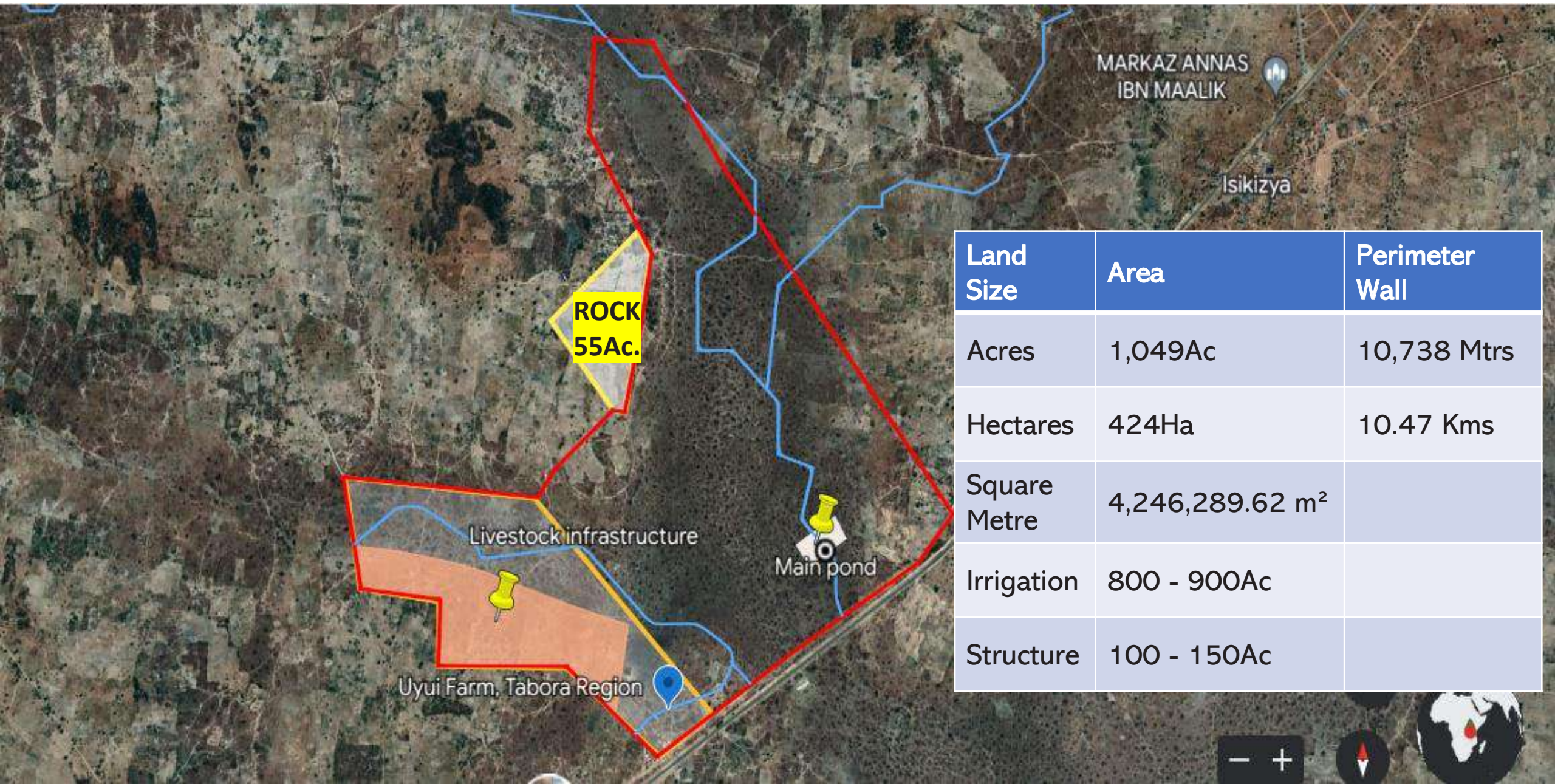
1. Farm Management
2. Factory Workers
2. Consultants – Veterinary, Agronomy and Extension Services
3. Animal Handlers / Casuals

ENTERPRISE

Dairy & Feedlot Integrated Farm

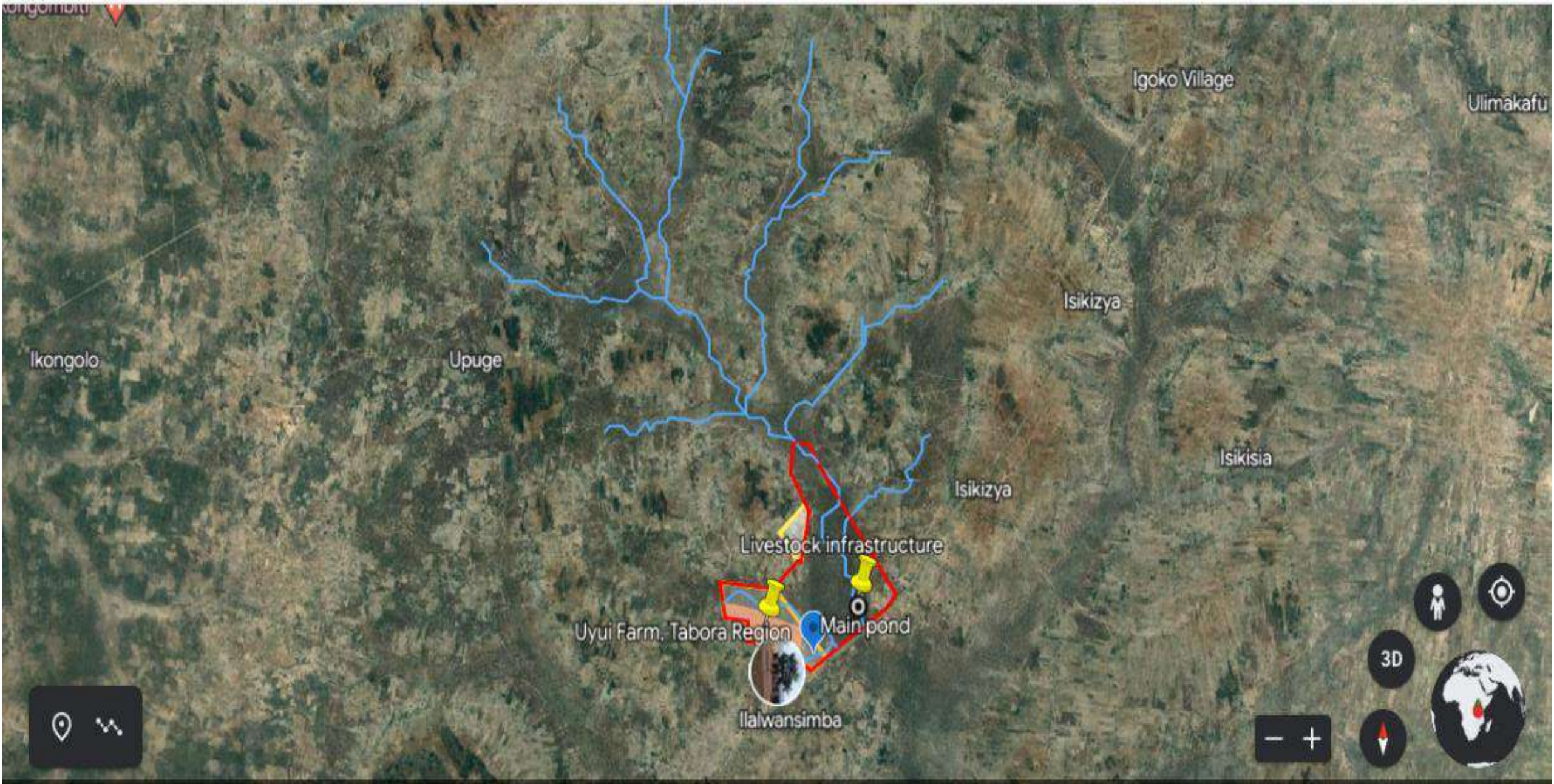


Land Size



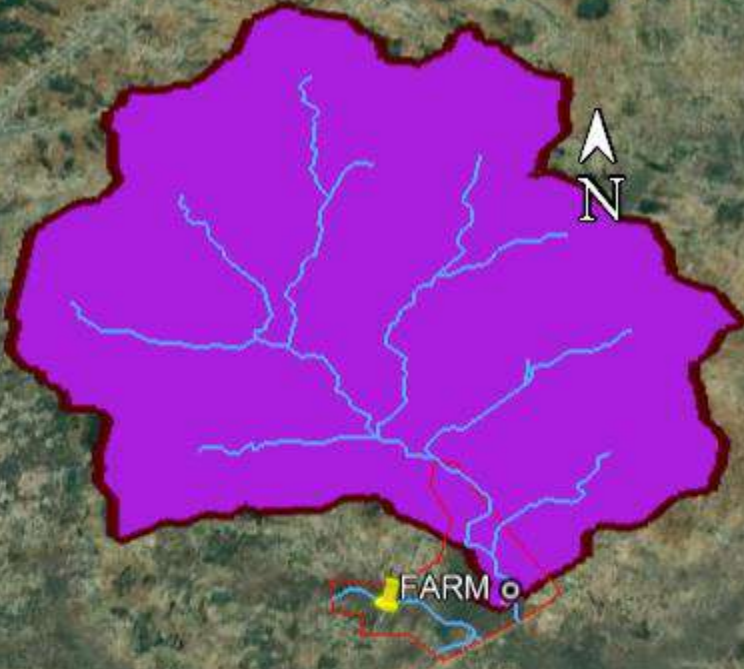
Land Size	Area	Perimeter Wall
Acres	1,049Ac	10,738 Mtrs
Hectares	424Ha	10.47 Kms
Square Metre	4,246,289.62 m ²	
Irrigation	800 - 900Ac	
Structure	100 - 150Ac	

Water Catchment Map



Catchment area

Area = 78.88 square km



8 km

Topographical Map

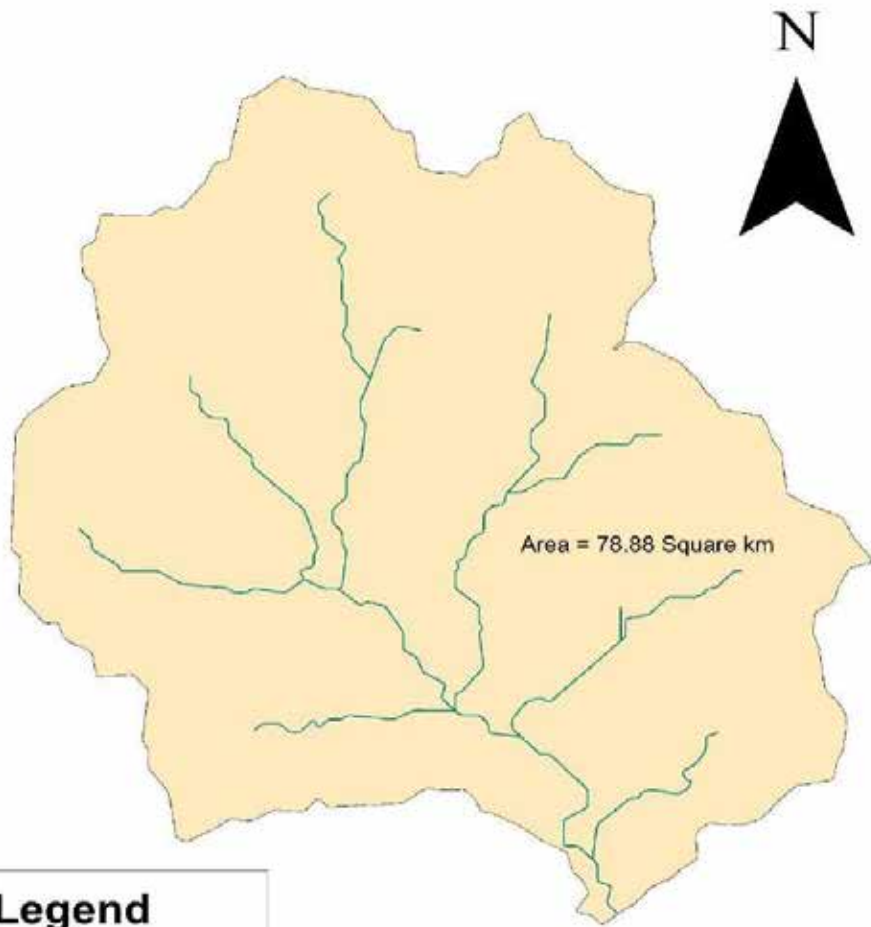


Figure 2: Catchment area of the project

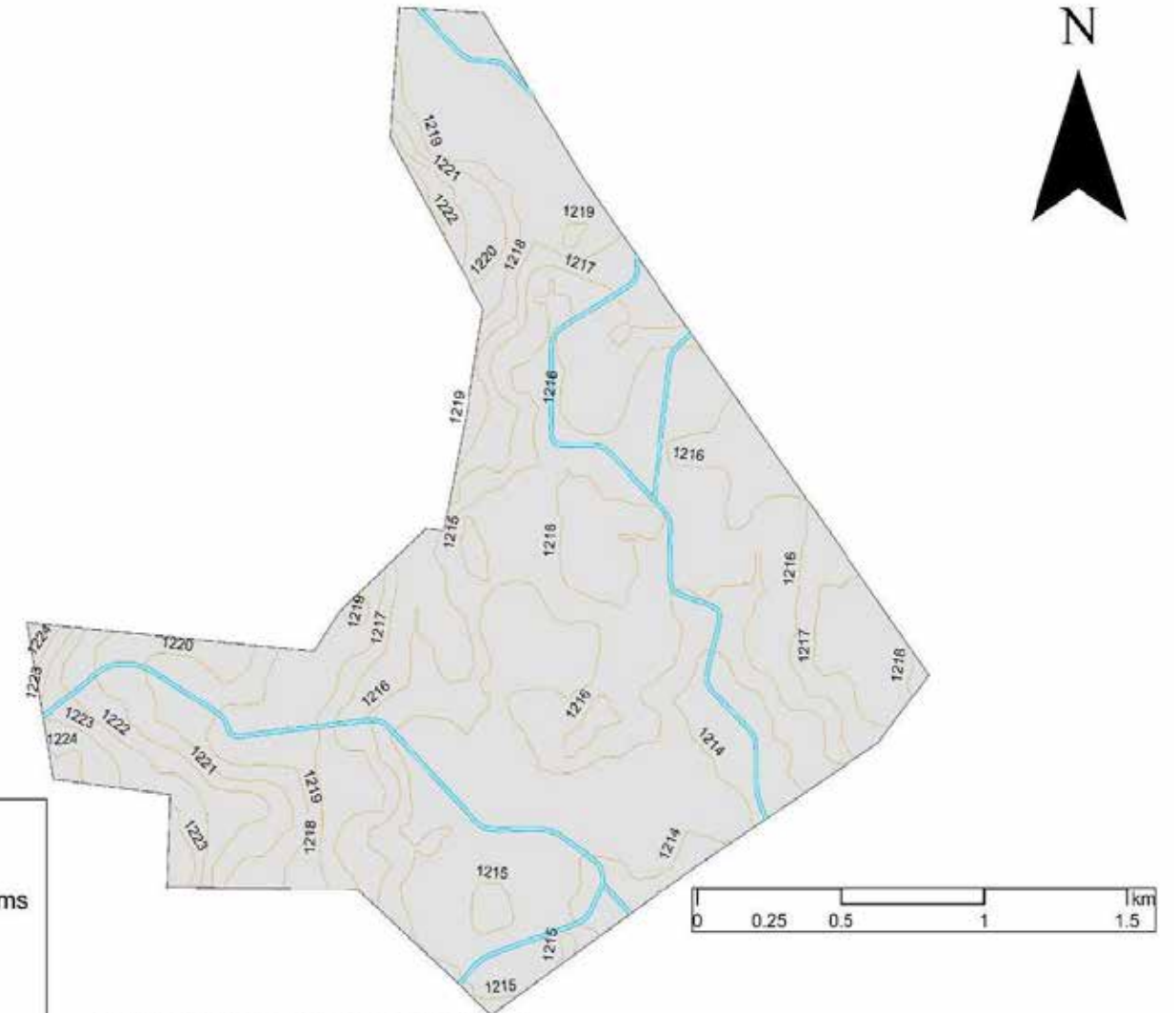


Figure 1: Farm Topographical Map

Farm Masterplan Design



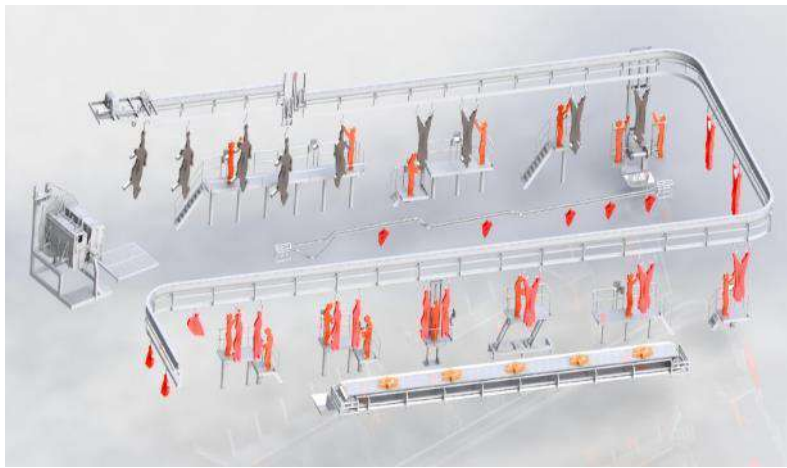
Farm House



Dairy Farm



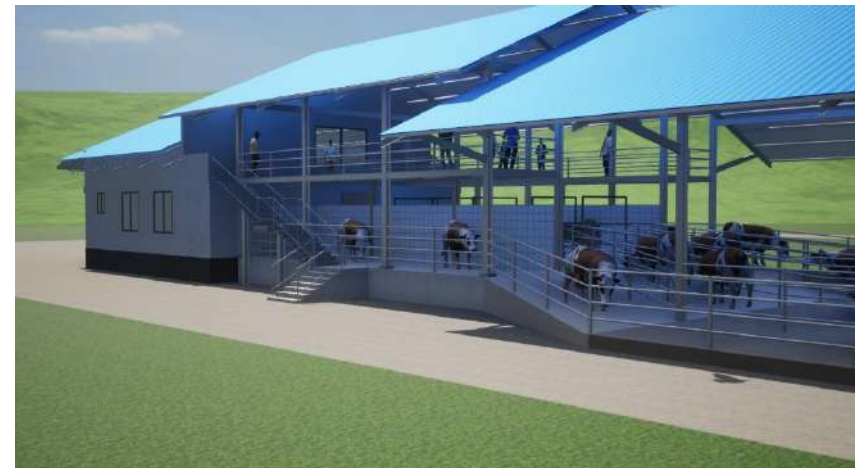
Beef/Feeder Unit



Slaughter House Unit



Goats & Sheep Pens



Milking Parlor System

Livestock Profile



Holsteins



Dairy Crosses



Borans



Sahiwals



Galla + Boar Goats



Black Persian + Dorper

Irrigation Masterplan Design



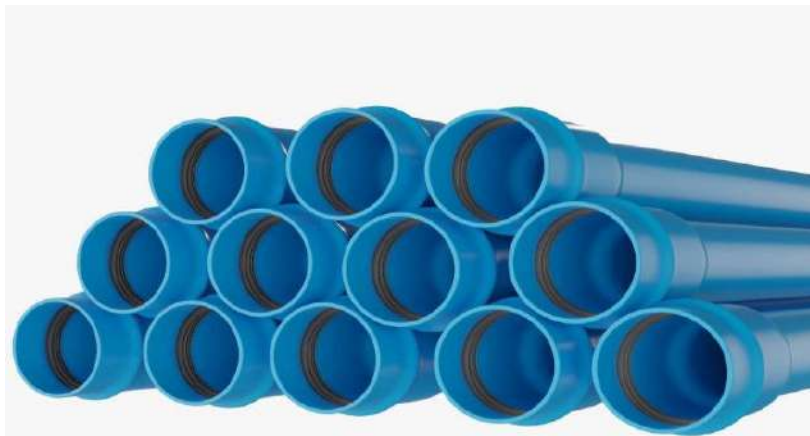
Water Reservoir



Pivot Irrigation Unit



Reel Irrigation Unit



Water System



Bio-Fertilizer Unit



Boreholes

Fodder, Pasture & Feedmill Management



Corn



Boma Rhodes



Lucerne



Rye Grass & Clovers



Concentrates



Super Napier & Sugar-graze

Farm Machinery & Equipment



Tractors



Silage Forager



Feed Mill Unit



Feed Mixer Wagon



Hay Baler, Mower, Rake



Bales Processor

FARM LAYOUT PLANNING

i. Farm Visit & Farm Survey

This is very crucial for project managers and the project owners as it gives an in-depth insight about the project.

Teams will exchange ideas on project feasibility and project implementation matrix.



FARM MASTER PLAN & FARM STRUCTURE CONSTRUCTION

i. Farm Layout Design

ii. Farm Structures Design (Architectural & Civil Designs)

iii. Bill of Quantities Preparation

iv. Project Implementation – Construction

After the teams have agreed on the feasibility and project implementation matrix, a project life cycle is developed to break down the activities.

The farm structures are planned and designed and estimated cost established.

These structures are; cow barns, heifer barns, milk parlor, offices, spray-race, stores, silage bunkers, feed-mill unit, roads, garage waste management system.



WATER RESOURCE MANAGEMENT

•Water Reservoirs, Borehole and Tanks

Farms are major users of water. A reliable, high quality water supply is essential to dairy farms. Water is used for animal consumption, milk cooling, cleaning and sanitizing equipment, cow cooling, irrigating crops, producing value added products, moving manure and cleaning the barns via flush systems.

Water is an essential nutrient for dairy cattle and a key factor in milk production. Water has a direct influence on the quantity and quality of milk production. A dairy cow needs at least 3 litres of water in order to produce 1 litre of milk. High performance dairy cows drink 100 litres of water every day.

Cattle need to be able to easily access their water troughs. If there is insufficient space or slow trough refill the dairy cows will become distressed and this will impact milk production, general health, and well-being.

For consistent fodder production, water plays a vital role in ensuring that a dairy farm is self-sufficient all year round with enough feeds for the cows.

To ensure sufficient water supply in the farm; water reservoirs, boreholes and water tank will be needed at the farm.



FARM MACHINERY

- Farm Machinery
- Dairy Farm Machinery

Farm Machinery are classified in two categories: farm machinery and the dairy farm machinery. Though the 2 units will tend to close share most of the machinery like tractors.

Farm machinery will include; tractors, loaders, back hoe etc

Dairy farm machinery will include; feed mixer wagon, etc.



FARM EQUIPMENT/TOOLS

- Farm Equipment
- Dairy Farm Equipment

Farm equipment/ tools are accessories that are used or run with the farm machinery. They are classified into two categories, that is, farm equipment and dairy farm equipment.

Farm equipment will include: silage choppers, balers, ploughs, harrow disks, trailers etc.

Dairy Farm Equipment will include; milking equipment, milk coolers etc.

FODDER & PASTURE MANAGEMENT

- Forage / Fodder Establishment

IRRIGATION MODEL

- Land Surveying
- Irrigation System Modelling

AGRO INPUTS MANAGEMENT

- Planting Materials – Maize, Sorghum, Super Napier, Lucerne, Boma Rhodes, Oat, Foxtail Grass
- Farm Inputs – Fertilizers, Herbicides, Pesticides etc

Fodder is a vital component in a dairy farm. To establish fodder water is needed in sufficient amount. To establish fodder a good study of the geographical area is done. Land surveying is then done to apportion the crops enough production space in terms of acreage. Land surveying help in designing an efficient irrigation system.



FEEDMILL MANAGEMENT (TMR)

- Silage, Hay and Forage Management
- Livestock Concentrates Management
- Total Mixed Ration for the Livestock

Total Mixed Ration Complete mix of all feed ingredients; forages, grains, by-products protein feeds, minerals and vitamins.

A good TMR is important as it increase milk production, improves fertility/reproduction, improves herd health and lowers feeds wastage.



LIVESTOCK MANAGEMENT

- Livestock Breed
- Herd Health Management
- Herd Nutrition
- Breeding Management

The Dairy Unit will have either of the following breeds; Friesian, Ayrshires, Brown Swiss, Kiwi, Girolando, and Fleckvieh. They are easy to manage in terms of health, nutrition and breeding.

The Beef/Feedlot Unit will have the following breeds: Boran, Sahiwals,Angus, Sessex, Dairy Beef Bulls/Cows, Local Cattle.

Holstein (Dairy Cows)



Cross-Breeds (Dual Purpose Cows)



Boran & Sahiwals (Beef Cows)



MILK PARLOR MANAGEMENT

- Type of Parlor – Herringbone System
- Milk Coolers
- Parlor Management
- Milk Post-Harvest Management
- Milk Processing

Milking Parlor play a vital role in a dairy farm. A well-designed milk parlor will have cow comfort and farm workers comfort.

Accessibility to the parlor by milk trucks is also critical as the trucks are not supposed to reverse once the milk is loaded.

Clean Water should always be available as milk is a very sensitive product.

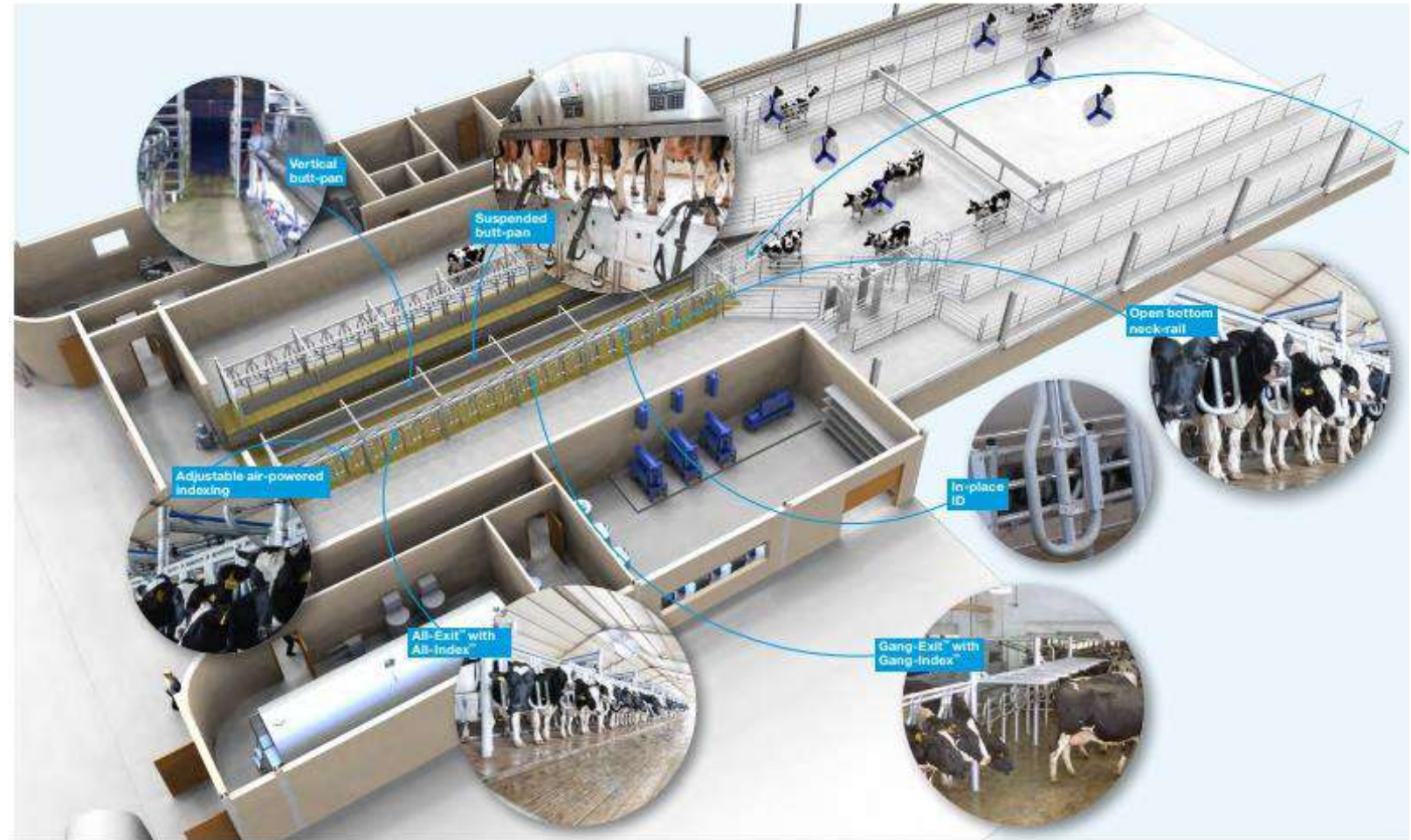
High levels of hygiene should be observed at the parlor. Workers should have a changing room.

Cleaning detergents should always be available as they are used daily.

The parlor and the milking systems should be cleaned after every use.

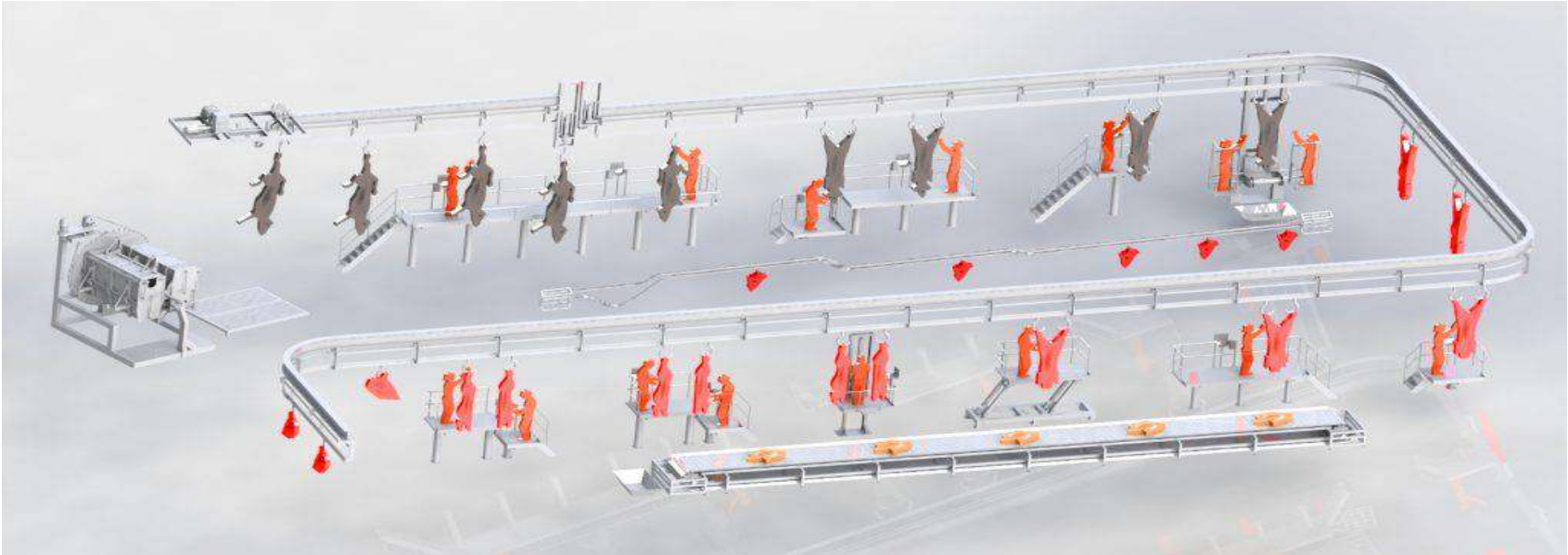
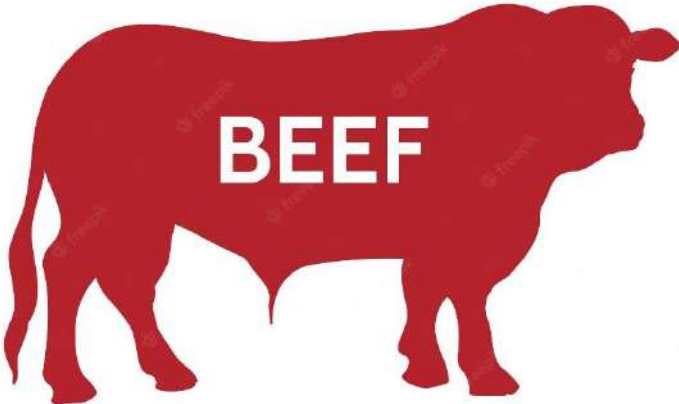
Milk tanks should be thoroughly cleaned before milk is put.

MILK PARLOR DESIGN

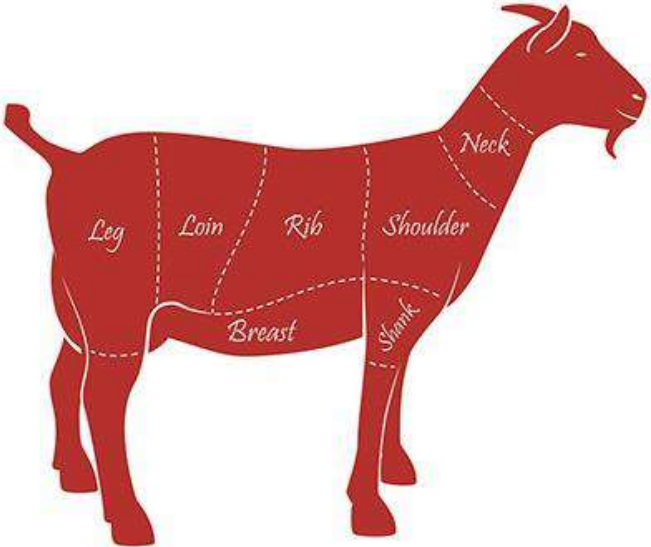
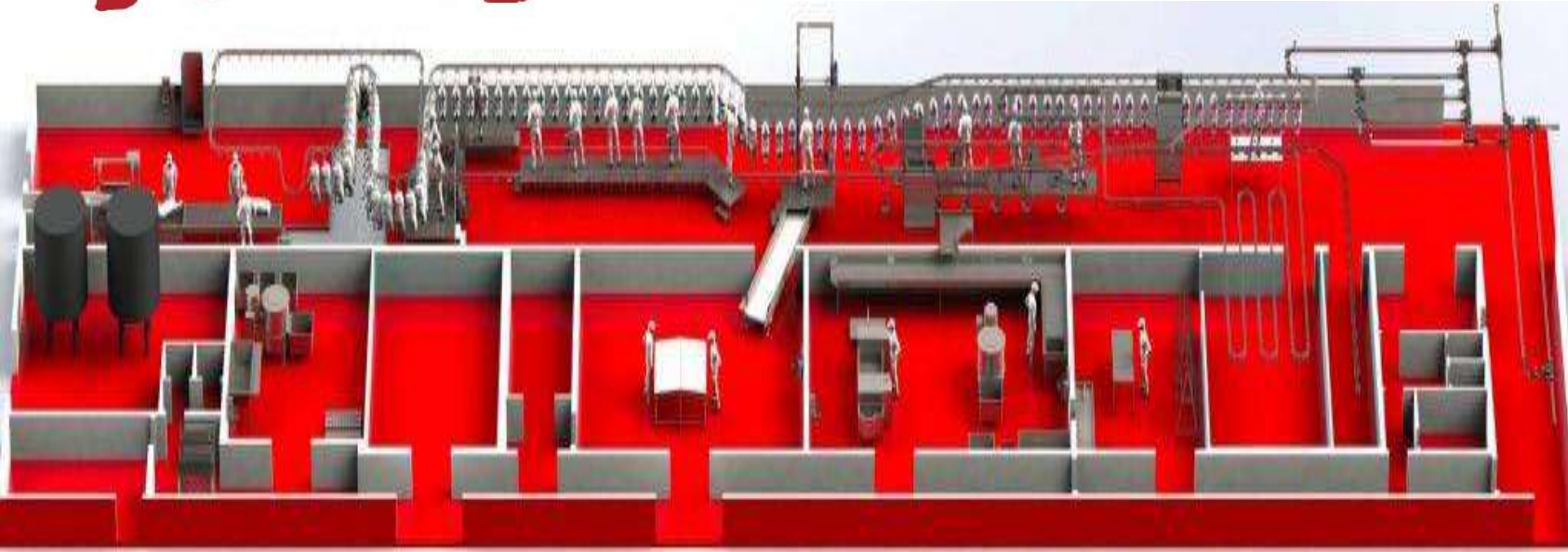


SLAUGHTER HOUSE DESIGN

BEEF LINE



SHEEP & GOATS LINE



FARM WASTE MANAGEMENT

- Biogas Unit
- Slurry Management
- Manure Management

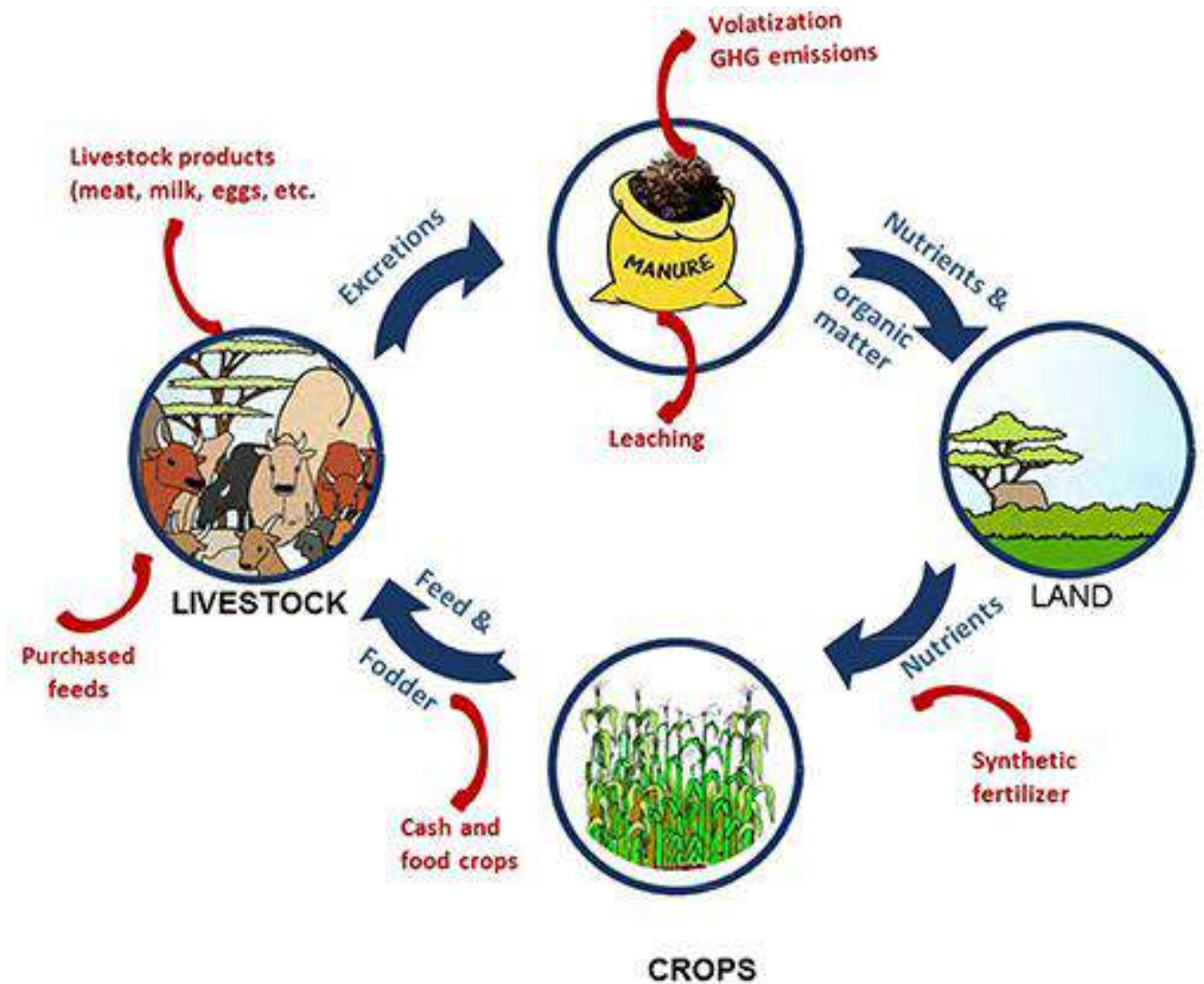
Dairy farm waste management system plays an important role in providing the farm with an alternative source of energy and replenishing soil nutrients.

The waste from the farm and the dairy unit is used to produce biogas which is used for heating water and cooking.

The slurry from the biogas is then taken through the dewatering system; two products are produced at this level; liquid fertilizer and solid manure. These products are then applied in the farm to replenish the soils, thus completing the waste management cycle.

These by-products can also be a source of income to the farm through sales of excess manure and liquid fertilizer.

FARM WASTE MANAGEMENT LIFE CYCLE



INTEGRATED FARM MANAGEMENT SYSTEM & FARM ICT (INFORMATION MANAGEMENT SYSTEM)

- Farm Management System
- Record Management System

The integrated farming aim is to achieve sustainable agriculture. It is a whole farm management system, which enables the farmers/investors to identify opportunities and threats and act accordingly, and, at the same time, consider consumer interest in their business.

Farm ICT system enables to farm to keep all records in the farm updated. The records include: financial, cropping, breeding, production, human resource, assets records.



FARM HUMAN RESOURCE MANAGEMENT

- Farm Management
- Consultants – Veterinary, Machine operators, drivers, Agronomy and Extension Services
- Animal Handlers / Casuals

Finally, for a dairy farm to be operational a wide range of human resource is required to run the farm activities at the dairy unit and the crop field.

DAIRY FARM INCOME CASHFLOWS

DAIRY SECTION

- i. Milk & Milk Products Sales
- ii. Sale of Pedigree Heifers
- iii. Sale of Pedigree Bulls
- iv. Sale of Cull Cows & Slaughter Bulls
- v. Sale of Dairy In-calf Heifers

DAIRY SECTION

- i. Training and Extension Services
- ii. Sale of Organic Packed Manure



FEEDLOT INCOME CASHFLOWS

BEEF / FEEDLOT SECTION

- i. Meat Products Sales
- ii. Meat By-Product Sales
- iii. Sale of Pedigree Heifers
- iv. Sale of Pedigree Bulls
- v. Sale of Cross Breeds
- vi. Sale of Cull Cows & Slaughter Bulls
- vii. Sale of Goats & Sheep

BEEF / FEEDLOT SECTION

- i. Training and Extension Services
- ii. Sale of Organic Packed Manure



FODDER FARM INCOME CASHFLOWS

FORAGE SECTION

- i. Sale of Baled Hay
- ii. Sale of Baled Lucerne
- iii. Sale of Fodder Seeds
- iv. Sale of Baled / Packed Silage
- v. Training and Extension Services



PROJECT CONSULTANTS





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