APPENDIX E

Socioeconomic Data Collection Phase: Background Information Flyer and Meeting Presentations

The ESIA Process

The EMCA, 1999 provides detailed guidelines on Environmental Impact Assessments (EIAs) in Kenya. The Act states that all new projects that are likely to affect the environment in any way must undertake an EIA, and the EIA report should then be submitted to NEMA for review and approval.

The objective of this ESIA study is to investigate and identify the positive and negative impacts of the pipeline construction and operations. The study will then generate feasible mitigation measures for adverse impacts through and Environmental and Social Management Plan. This will be done through field investigations, document review, professional analysis and stakeholder engagements.

Stakeholder Engagement Process

This stakeholder engagement process – as a requirement of the Kenya Environmental Impact Assessment Guidelines is being undertaken to provide opportunities for communities, potentially affected and interested people to participate by raising issues, concerns, asking questions and contributing local knowledge.

Stakeholders' participation in the process will help to clearly identify and address their concerns early in the project design phase.

Stakeholder contributions collected during this process will be recorded and made publicly available in a Comment and Response Report (CRR) for people to verify that their contributions have been recorded correctly.

Special efforts will be made to engage potentially directly affected people including women, the youth, as well as local, regional and national educational and religious organisations, research institutions, NGOs, and other key organisations.

Public meetings/workshops will be held to record comments and suggestions from the public.

This ESIA process commenced March 2019 and will be completed in March 2019. Availability of reports, times, and location of public meetings will be advertised in local media and via site notices. The final EIS update will be made available in public places, for review.

Stakeholders will be informed throughout the stakeholder engagement process of this ESIA. Any queries and concerns can be raised at any time through the contacts provided in this document.

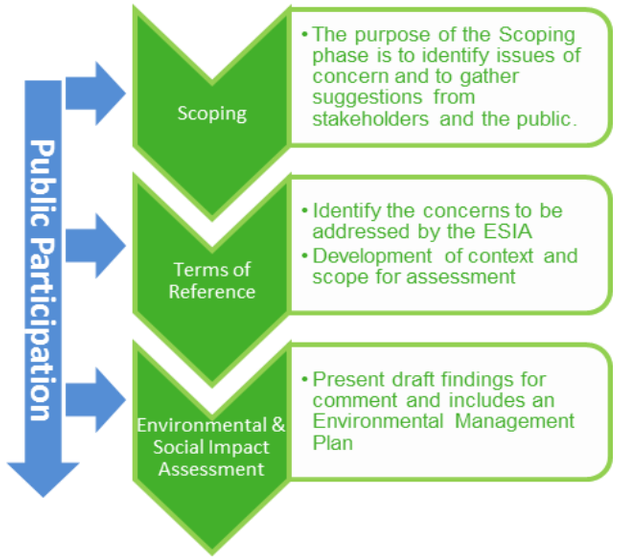
Your comment is important!

Stakeholders are invited to register as interested and affected parties and to contribute issues of concern, questions, local knowledge or enhanced benefits by completing the registration and comment sheet or by contacting the Stakeholder Engagement Office (see details on the right). Your comments will enrich the ESIA and the decision-making process!

The ESIA process will entail:

- **Scoping Study** – Initial field and baseline data reviews as well as early stakeholder engagement to define the scope of the ESIA
- **Terms of Reference (ToR)** – During this phase the framework and proposed methodology for the assessment of environmental and social impacts are developed. The ToR phase includes a presentation of the project, proposed ESIA update process and the public consultation process.
- **Environmental Impact Study** – This phase entails impact assessment and to address the issues raised during the ToR phase. A Draft EIS Report will be developed and presented to the public for review and discussion. The EIS is then finalized and submitted to NEMA for approval (the decision making phase).

The ESIA permitting study should be completed by March 2019.



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BACKGROUND INFORMATION

BACKGROUND INFORMATION DOCUMENT

LLCOP: LAMU CRUDE OIL PIPELINE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY (ESIA)

May 2018

LAPSSET · TULLOW OIL PLC · AfricaOil Corp. · TOTAL · GOLDER · ESF Consultants Environmental Management Consultants

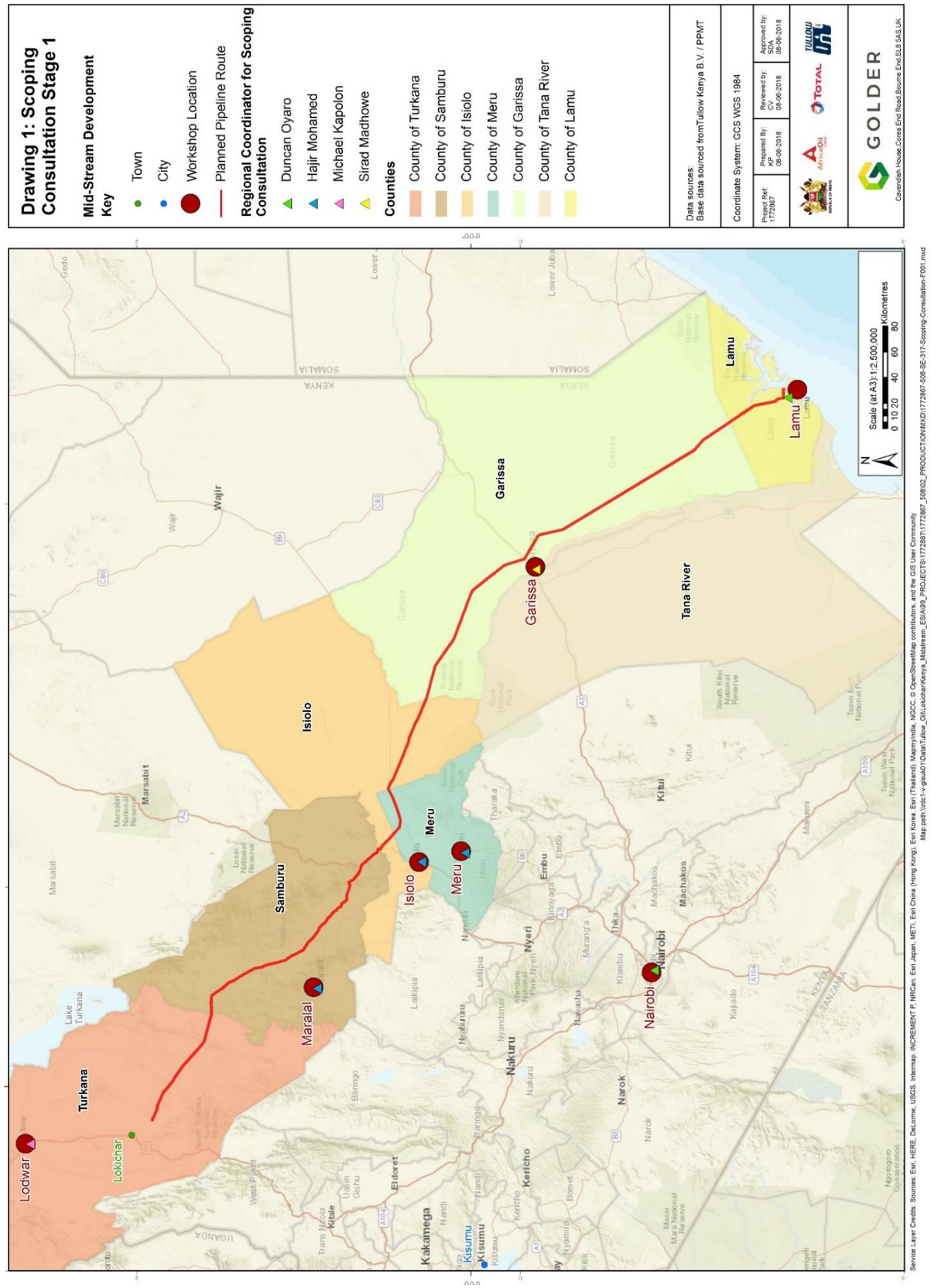


Figure 1: Project Location

Introduction

The purpose of this Background Information Document is to provide stakeholders with information about the proposed Lokichar-Lamu Crude Oil Pipeline and an opportunity to comment or ask questions.

All development projects are subject to an Environmental and Social Impact Assessment (ESIA) process in terms of the Environment Management and Co-Ordination Act (1999). The ESIA report will be submitted to the National Environment Management Authority (NEMA) for approval.

This is the first permitting study undertaken for the proposed Lokichar-Lamu Crude Oil Pipeline project. A number of related studies have been undertaken and include:

- Strategic Environmental Assessment for the LAPSSET Corridor project; and
- Environmental and Social Impact Assessment Study for the Kenya Upstream Oil Development project.

Golder Associates Africa, in partnership with ESF Consultants, Kenya, have been appointed to undertake the ESIA study.

Project description

The Lokichar-Lamu Crude Oil Pipeline project is a development initiative under a joint partnership between the Kenya Government and the oil companies' consortium of Tullow Oil Kenya B.V., Africa Oil Turnana Ltd and Total Oil (formally Maersk Oil). The project spans six regions across Kenya, and will commence at a flange point in Turkana county, south east of the Lokichar Oil fields and cut across Samburu, Isiolo, Meru, Garissa and Lamu counties terminating as a marine export terminal at the Port of Lamu along the Kenyan coast (see map).

The project will be executed in a phased manner. The construction of the pipeline will entail excavations of two meter deep trenches along the proposed pipeline route. The pipeline will be buried. There will be a total of 24 above-ground installations (either co-located or standalone), which will include equipment such as:

- Pumping stations
- Pressure reduction stations; and
- Generators.

The waxy and heavy nature of the crude oil will require trace heating, which will be done through a Long Line Trace System. The pipeline will be insulated. As indicated, a marine terminal will be constructed at the port of Lamu. The terminal will comprise storage facilities (1, 5 million barrels capacity), a loading line and marine platform with breasting and mooring structures.

The proposed pipeline is intended to transport the heavy and waxy crude oil from the production fields in the Lokichar basin to the port of Mombasa for storage and onward exportation to international markets. This ESIA is being undertaken to acquire the necessary permits to implement the proposed project.

- A conventional trench and backfill process will be applied.
- It is envisaged that six different teams will be used and a number of laydown and accommodation camps developed along the way as construction of the pipeline progresses.
- Activities will start with the clearing of a Right of Way (ROW) followed by pipe stringing (placing dropping pipes along the ROW, trench excavation using excavation equipment, welding of the pipes, inspection, lowering and backfill.
- 3X 500,000 barrel tanks for storage will be constructed at the port terminal.
- The construction of the pipeline will take approximately 24 months. The production phase is expected to last for 30 years.

Figure 1: Indicative Camp Locations

Mid-Stream Development

Key

- Indicative Camp Location
- KP *(Kilometre Point)*
- County Town
- Planned Pipeline Route

Counties

- Turkana
- Samburu
- Isiolo
- Meru
- Garissa
- Lamu

DRAFT

Data sources:
Base data sourced fromTullow Kenya B.V. / PPMT/ Wood Group.

Coordinate System: GCS WGS 1984

Project Ref:	Prepared By:	Reviewed by:	Approved by:
1772867	KP 10-10-2018	CV 10-10-2018	SDA xx-xx-xxxx

[redacted]
Cavendish House,Cores End Road,Bourne End,SL8 5AS,UK

Lodwar
Lake Turkana
Lokichar CPF
KP 0
KP 100
KP 200
Maralal
KP 300
KP 400
Isiolo
Meru
KP 500
Garissa
KP 600
KP 700
KP 800
Lamu Port
KP 821
Lamu

N
Scale (at A3):1:2,500,000
Kilometres
0 10 20 40 60 80

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

Map path:\\rdc1-v-gisuk01\Data\Tullow_Oil\Lokichar\Kenya_Midstream_ESIA\99_PROJECTS\1772867\Sketches\02_PRODUCTION\MXD\1772867_Sketch_Scope_399_Camp_Locations_County_SK001.mxd

Lokichar to Lamu Crude Oil Export Pipeline

a component of
The LAPSSET Corridor

The purpose of the Pipeline is to enable evacuation of the Crude Oil in the South Lokichar Basin to market in a cost effective way, thereby forming the basis for the development of the fields

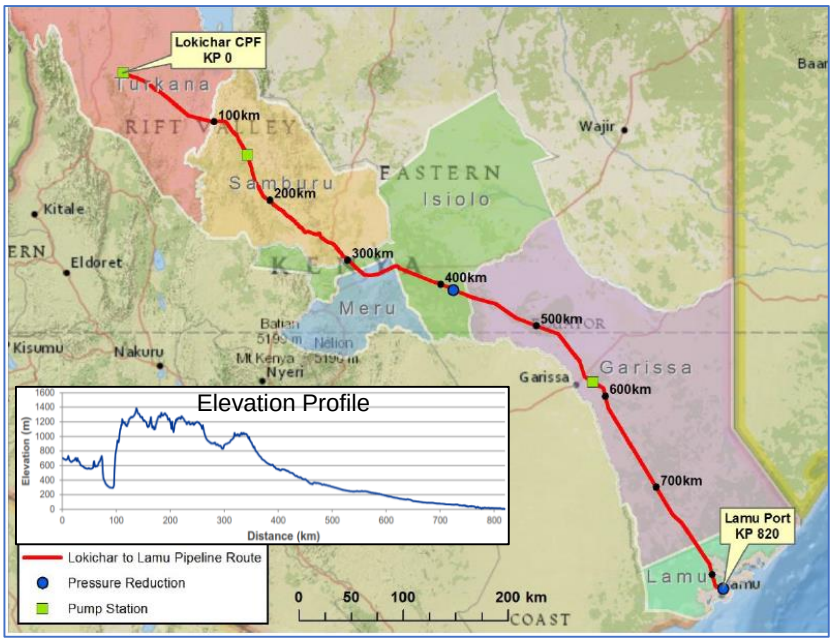
Key Parameters

- ~820 km long
- Heated and insulated
- Buried approx. 0.9 m deep
- Max Elevation 1350 m
- Approx. 100 km in mountainous terrain
- 14 major road/river crossings
- Avoids agricultural areas
- Proximity to towns is >2 km
- Route minimizes traversal of environmentally sensitive areas

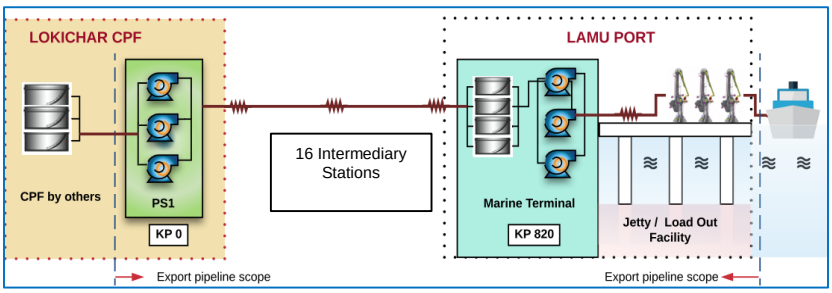
Pipeline and Land Delivery Principles

- Land required for the Pipeline made possible with LAPSSET leading the Stakeholder Engagement and Land processes
- Delivered through close collaboration between LAPSSET, PPMT, MOPM and NLC.
- PPMT will support LAPSSET and external activities will be LAPSSET-led.
- Ultimately, PipeCo will be a tenant/"leasee" to LAPSSET

Pipeline Route



System Schematic



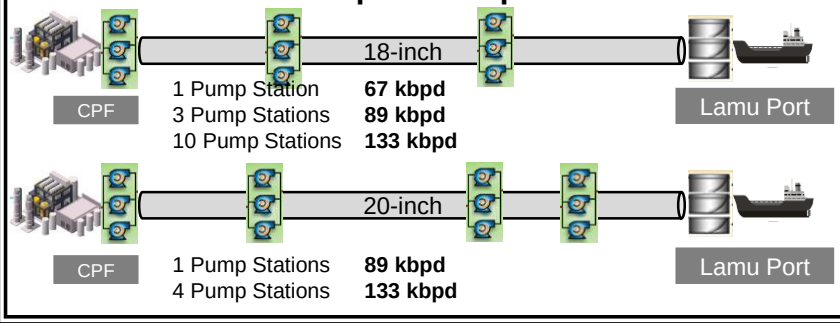
Key Achievements to date

- ✓ Front End Engineering and Design Phase 1 Complete
- ✓ Intermediate Stations optimised from 24 to 16
- ✓ Pipeline Route and Station locations – Optimised
- ✓ Environmental and social Impact Assessment Scoping report & Terms of reference submitted to NEMA for approval
- ✓ Engineering Surveys-Ongoing

Optimisation Options

- Pipeline size / Flow rates
- Onshore storage vs Offshore storage
- National Grid Connection

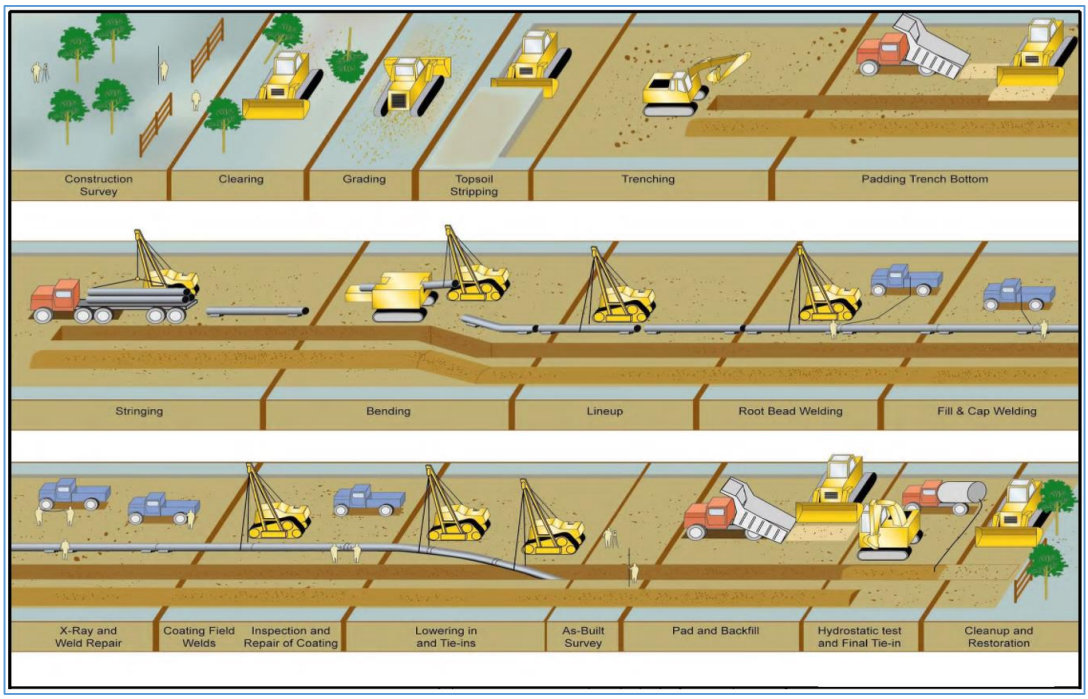
Pipe Size Options



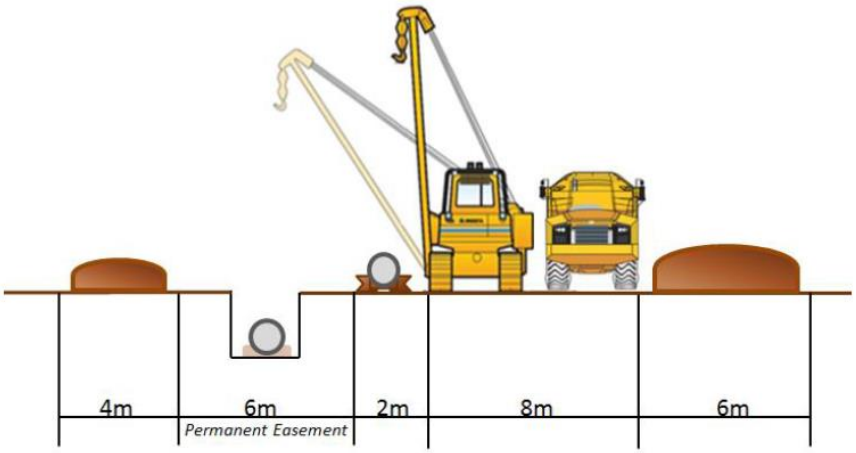
Pipeline being laid

Rev. 3 – Sept 2018

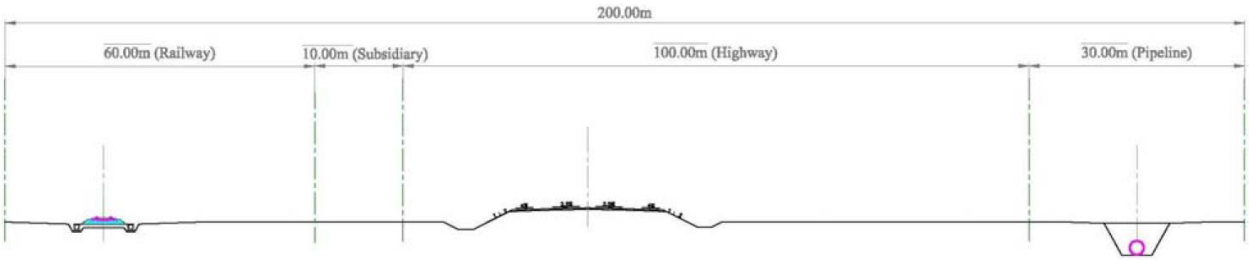
Construction Process



Typical Pipeline ROW along the route



Typical Alignment of LAPSSET Corridor Components



APPENDIX C

Posters

VIDOKEZO KUHUSU BOMBA LA MAFUTA

Bomba hili litasafirisha pipa elfu sitini ya mafuta ghafi kila siku kutoka Lokichar hadi bandari ya Lamu

MAMBO MUHIMU KUHUSU BOMBA

- **Itatkuwa na upana wa inchi 18 iliyotengenezwa kwa chuma thabiti takriban kilomita 821 kwa urefu.**
- **bomba litazikwa kwa kina kifaacho kakita sehemu mbalimbali angalau inchi mbili.**
- **Mashauriano yatasaidia kupambanua semehu kamili bomba litakapo pitia.**
- **Nyaya za umeme yenye nguvu zitazikwa pamoja na bomba ili kusambaza umeme kwenye stesheni za kupampu na kuthibiti mafuta mtawalia.**
- **Bomba litazuiliwa kisha kuhifadhiwa katika kiwango cha wastani wa joto.**
- **Baada ya bomba kutandazwa,watu waaweza kulisha mifugo juu yake bali hawataruhusiwa kupanda miti au kujenga nyumba juu yake.**
- **Stesheni kumi na sita zilizo juu ya ardhi zitajenga baada ya umbali mwafaka kwenye sehemu ya bomba lenyewe.**
- **Kila stesheni itakuwa na ukubwa wa takriban mita za ujazo wa ($150m^3$)**
- **Stesheni za kupampu mafuta zitatiwa ua ili kuzuia uharibifu kutokana na binadamu na Wanyama.**
- **Kituo kitakuwa chini ya ulinzi saa ishirini na nne**

Kituo halisi itakavyoyo onekana kutoka angani

Ujenzi Wa bomba– Kuandaa ardhi

Bomba zinazosafirisha mafuta ghafi yamekuwa yakifanya kazi kwa usalama kwa miongo mingi kote duniani. Ujenzi hufanywa kwa uangalifu na usalama.

Kusafisha ukanda wa bomba katika sehemu nyingi itakuwa yenye upana wa mita thelathini ili kupatiana nafasi mwafaka wa kufanya kazi.

Mashini maalum ya kuchimba mitaro ya mabomba

Mashine yanachimbua mchanga ya juu, ambayo itarudishwa baadae.

Mtaro uliokamilika. –tazama mchanga wa juu,kushoto na udongo wa chini, kulia.

MLIPUKO

Itafanyika mahala pana jiwe ngumu. Onyo litatangazwa kwa wamiliki wa ardhi na wakaazi

Ujenzi Wa bomba– Kuandaa ardhi

Sehemu za bomba zinaletwa kwenye ukanda na kuambatanishwa na mtaro.

Sehemu za bomba zasifirishwa kwa barabara na kuwekwa karibu na ukanda.

Viungo kufungwa na karatasi za plastiki. (poly-ethene)

Sehemu za bomba zinaunganishwa na wataalamu.

Ikiwa bomba lina pitia sehemu yenye unyevunyevu, lita funikwa na saruji ili kuhakikisha halita elea.

Ujenzi Wa bomba–Kutandaza bomba

Baada ya sehemu za bomba kuunganishwa pamoja, bomba litatandazwa kwa makini kwenye mtaro na kuzikwa.

Mashine maalum yanatumiwa kujaza mtaro, kuanzia udongo wa chini kisha wa juu.

Kuzushwa kwa bombakwenye mtaro unafanywa kwa mashine maalum

Baada ya bomba kuzikwa, mchanga wa juu unalainishwa.