

REPORT

Central Térmica de Temane Project - Cultural Heritage Impact Assessment Report

Moz Power Invest, S.A. and Sasol New Energy Holdings (Pty) Ltd

Submitted to:

Ministry of Land, Environment and Rural Development (MITADER)

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Executive Summary

This specialist report presents the cultural heritage baseline and impact assessment study for the proposed CTT project, located in Inhassoro District, and southern Mozambique. Baseline data gathering was undertaken in January 2015 and June 2018, encompassing the proposed power plant site, new transport routes, the beach landing options, the transmission line, the associated gas/water pipeline and ten villages within c 2.5 km of these footprints. The baseline was supplemented by baseline information gathered by Golder Associates and Rrequal Ltd & Ancient Ltd for Sasol's PSA and LPG Project during May 2014.

The study has been undertaken in accordance with national Mozambican legislation and in alignment with international guidelines (World Bank Group Performance Standards).

The study of cultural heritage encompasses all elements as defined by Mozambican law including: archaeology, historic sites, graves and sacred places as well as related traditional practices and immaterial (intangible) heritage. Although there are no statutory protected sites within the study area, project-related disturbance has the potential to permanently remove unique cultural heritage features protected by Mozambican law.

Baseline data gathering undertaken in 2015 identified 36 potentially significant cultural heritage sites within the study area (plus 10 outside), primarily comprising archaeological surface scatters of Iron Age date, suggestive of seasonal hunting/fishing activity, and cultural sites, including graves and religious or locally sacred places. An additional seven cultural sites (burials, cemeteries and churches) were identified within the study area in 2018. A total of 44 sites from the 2014 survey were also recorded in the study area of the CTT project. A total of 87 sites were therefore identified within the study area.

During construction there is potential, in the worst-case scenario and without mitigation, for high significance impacts on cultural heritage receptors (both archaeological and cultural) as a result of changes to land surface. With mitigation, in the form of a Cultural Heritage Management Plan (CHMP; including a specific Chance Finds Procedure (CFP)), potential impacts on archaeological sites are reduced to low significance impacts. Selection of the preferred northern access transport route and sensitive re-alignment of the electricity transmission route will avoid impacts to known cultural sites. A potential moderate significance impact on intangible cultural heritage is predicted (without mitigation) during construction as a result of demographic changes, in particular influx of construction workers. This will be mitigated through the CHMP.

During operations, a moderate significance impact is anticipated at burial sites along the proposed electricity transmission route, without mitigation, as a result of changes in environmental setting (from noise and visual intrusion). This will be mitigated through sensitive re-alignment of the proposed transmission line.

Table of Contents

1.0 INTRODUCTION	1
2.0 DESCRIPTION OF THE KEY PROJECT COMPONENTS	3
2.1 Ancillary Infrastructure	5
2.2 Water and electricity consumption	7
2.3 Temporary Beach Landing Site and Transportation Route Alternative	7
3.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK	10
3.1 Mozambique Legislation	10
3.1.1 Statutory Protected Features in Mozambique	12
3.2 International Guidance	12
3.2.1 World Bank Group Performance Standards	12
3.2.2 The Convention for the Safeguarding of the Intangible Cultural Heritage	12
4.0 BASELINE CONDITIONS	12
4.1 Scope of study	12
4.2 Study methodology	15
4.2.1 Desktop review of available information	16
4.2.2 Field study method	16
4.2.3 Cultural heritage community consultation methodology	17
4.2.4 Limitations	17
4.3 Results and Findings	18
4.3.1 Literature Review	18
4.3.1.1 Archaeology of the South Eastern African region/Mozambique	18
4.3.1.2 Archaeology of Central Mozambique	19
4.3.1.3 Prior Investigations	20
4.3.2 Archaeological Field Survey	21
4.3.2.1 Archaeological Remains	21
4.3.2.2 Archaeological Summary	26
4.3.3 Community Consultation and Cultural Survey	30
4.3.3.1 Settlement History and Oral History	30
4.3.3.2 Cemeteries and Burials	30
4.3.3.3 Churches and Mosques	31

4.3.3.4	Sacred Places	31
4.3.3.5	Intangible cultural heritage	39
4.3.3.6	Cultural Site Summary	41
4.4	Cultural Heritage Site Valuation	44
4.4.1	Archaeological Site Valuation	44
4.4.2	Cultural Site.....	44
5.0	IMPACT ASSESSMENT	54
5.1	Assessment methodology and rating criteria	54
5.2	Identified impacts	57
5.2.1	Construction phase impacts.....	57
5.2.2	Operational phase impacts	61
5.2.3	Decommissioning phase impacts	62
6.0	ENVIRONMENTAL ACTION PLAN	62
7.0	CONCLUSIONS	63
8.0	SPECIALIST RECOMMENDATION	63
9.0	GLOSSARY	63
10.0	REFERENCES	64

TABLES

Table 1:	Prehistoric chronology in Southern Africa	19
Table 2:	Well documented cultural heritage investigations in wider area	20
Table 3:	Archaeological sites with the Study Area identified during 2015 field survey	25
Table 4:	Cultural sites identified during community consultation (2015 and 2018)	34
Table 5:	Centres of traditional medicine identified during 2015 community consultation	40
Table 6:	Cultural Heritage Site Valuation Summary	45
Table 7:	Scoring system for evaluating impacts	55
Table 8:	Impact significance rating	55
Table 9:	Types of impact	56
Table 10:	Potential construction phase impacts to cultural heritage	57
Table 11:	Impact assessment table – construction phase	61
Table 12:	Impact assessment table – operation phase.....	62
Table 13:	Environmental Action Plan	62

FIGURES

Figure 1: Project Location	3
Figure 2: Examples of gas to power plant sites (source: www.industcards.com and www.wartsila.com)	4
Figure 3: Conceptual layout of CTT plant site	5
Figure 4: Typical beach landing site with barge offloading heavy equipment (source: Comarco)	6
Figure 5: Example of large equipment being offloaded from a barge. Note the levels of the ramp, the barge and the jetty (source: SUBTECH).....	6
Figure 6: Heavy haulage truck with 16-axle hydraulic trailer transporting a 360 ton generator (source: ALE)	7
Figure 7: The three beach landing site options and route options at Inhassoro	8
Figure 8: The two main transportation route alternatives from the beach landing sites to the CTT site	9
Figure 9: Cultural Heritage study area.....	14
Figure 10: Surface scatter at Site AR-109 (Adamowicz, 2015).....	21
Figure 11: Early Iron Age pottery artefact recorded from Site AR-111 (Adamowicz, 2015)	22
Figure 12: Pottery from Site AR-103 (Adamowicz, 2015)	22
Figure 13: Pottery from Site AR-105 (Adamowicz, 2015)	23
Figure 14: Pottery scatter at Site AR-110 (Adamowicz, 2015).....	23
Figure 15: Site AR-112 (Adamowicz, 2015)	24
Figure 16: Shell midden deposit at AR-114 (Adamowicz, 2015).....	24
Figure 17: Pottery recorded at Site AR-115 (Adamowicz, 2015)	25
Figure 18: Archaeological sites identified by baseline study	28
Figure 19: Archaeological sites within study area	29
Figure 20: Church of St Ana, on EN1 south of Maimelane (Adamowicz, 2015)	31
Figure 21: Site SP-107 sacred place near Chipongo village (Adamowicz, 2015).....	32
Figure 22: Site SP-103 place for male circumcision (Adamowicz, 2015).....	33
Figure 23: Site SP-105 sacred place (Adamowicz, 2015).....	33
Figure 24: Entrance to site SP-107 (Adamowicz, 2015)	34
Figure 25: Produce at clinic MP-101 (Adamowicz, 2015)	40
Figure 26: Cultural sites identified by baseline study	42
Figure 27: Cultural sites within study area.....	43

APPENDICES

APPENDIX A

Patrimoz Serviços de Consultoria Field Notes

APPENDIX B

Gazetteer of all sites

ACRONYMS / ABBREVIATIONS

Acronym or Abbreviation	Full Term
AD	Anno Domini
ARPAC	Arquivo do Património Cultural [National Institute for Socio-Cultural Heritage]
BC	Before Christ
CPF	Central Processing Facility
CTT	Central Térmica de Temane
CTRG	Central Térmica de Ressano Garcia
CFP	Chance Find Procedure
CHMP	Cultural Heritage Management Plan
DNPC	Direcção Nacional do Património Cultural [National Directorate of Cultural Heritage]
EDM	Electricidade de Mozambique E.P.
EIS	Environmental Impact Study
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
ENH	Empresa Nacional de Hidrocarbonetos [National Oil Company of Mozambique]
EPDA	Environmental Pre-feasibility Studies and Scope Definition
GA	Gabinete de Arqueologia [National Archaeology Department]
GPS	Global Positioning System
ha	hectare
IFC	International Finance Corporation
KV	Kilovolt
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MW	Megawatt
Mya	Million Years Ago

Acronym or Abbreviation	Full Term
PSA	Production Sharing Agreement
SNE	Sasol New Energy Holdings (Pty) Ltd
TEC	Temane Energy Consortium (Pty) Ltd

1.0 INTRODUCTION

The Mozambican economy is one of the fastest growing economies on the African continent with electricity demand increasing by approximately 6-8% annually. In order to address the growing electricity demand faced by Mozambique and to improve power quality, grid stability and flexibility in the system, Moz Power Invest, S.A. (MPI), a company to be incorporated under the laws of Mozambique and Sasol New Energy Holdings (Pty) Ltd (SNE) in a joint development agreement is proposing the construction and operation of a gas to power facility, known as the Central Térmica de Temane (CTT) project. MPI's shareholding will be comprised of EDM and Temane Energy Consortium (Pty) Ltd (TEC). The joint development partners of MPI and SNE will hereafter be referred to as the Proponent. The Proponent propose to develop the CTT, a 450MW natural gas fired power plant.

The proposed CTT project will draw gas from either the Sasol Exploration and Production International (SEPI) gas well field via the phase 1 development of the PSA License area, covering gas deposits in the Temane and Pande well fields in the Inhassoro District and the existing Central Processing Facility (CPF) or from an alternative gas source. Consequently, the CTT site is in close proximity to the CPF. The preferred location for the CTT is approximately 500 m south of the CPF. The CPF, and the proposed site of the CTT project, is located in the Temane/Mangugumete area, Inhassoro District, Inhambane Province, Mozambique; and approximately 40 km northwest of the town of Vilanculos. The Govuro River lies 8 km east of the proposed CTT site. The estimated footprint of the CTT power plant is approximately 20 ha (see Figure 1).

Associated infrastructure and facilities for the CTT project will include:

- 1) Electricity transmission line (400 KV) and servitude; from the proposed power plant to the proposed Vilanculos substation over a total length of 25 km running generally south to a future Vilanculos substation. [Note: the development of the substation falls outside the battery limits of the project scope as it is part of independent infrastructure authorised separately. Environmental authorisation for this substation was obtained under the STE/CESUL project. (MICOA Ref: 75/MICOA/12 of 22nd May)];
- 2) Piped water from one or more borehole(s) located either on site at the power plant or from a borehole located on the eastern bank of the Govuro River (this option will require a water pipeline approximately 11km in length);
- 3) Access road; over a total length of 3 km, which will follow the proposed water pipeline to the northeast of the CTT to connect to the existing Temane CPF access road;
- 4) Gas pipeline and servitude; over a total length of 2 km, which will start from the CPF high pressure compressor and run south on the western side of the CPF to connect to the power plant or from an alternative gas source;
- 5) Additional nominal widening of the servitude for vehicle turning points at points to be identified along these linear servitudes;
- 6) A construction camp and contractor laydown areas will be established adjacent to the CTT power plant footprint; and
- 7) Transshipment and barging of equipment to a temporary beach landing site and associated logistics camp and laydown area for the purposes of safe handling and delivery of large oversized and heavy equipment and infrastructure to build the CTT. The transshipment consists of a vessel anchoring for only approximately 1-2 days with periods of up to 3-4 months between shipments over a maximum 15 month period early in the construction phase, in order to offload heavy materials to a barge for beach landing. There are 3 beach landing site options, namely SETA, Maritima and Briza Mar (Figure 7). The SETA site is considered to be

the preferred beach landing site for environmental and other reasons; it therefore shall be selected unless it is found to be not feasible for any reason;

- 8) Temporary bridges and access roads or upgrading and reinforcement of existing bridges and roads across sections of the Govuro River where existing bridges are not able to bear the weight of the equipment loads that need to be transported from the beach landing site to the CTT site. Some new sections of road may need to be developed where existing roads are inaccessible or inadequate to allow for the safe transport of equipment to the CTT site. The northern transport route via R241 and EN1 is considered as the preferred transport route (Figure 8) on terrestrial impacts; however, until the final anchor point is selected, and the barge route confirmed, the marine factors may still have an impact on which is deemed the overall preferable route.

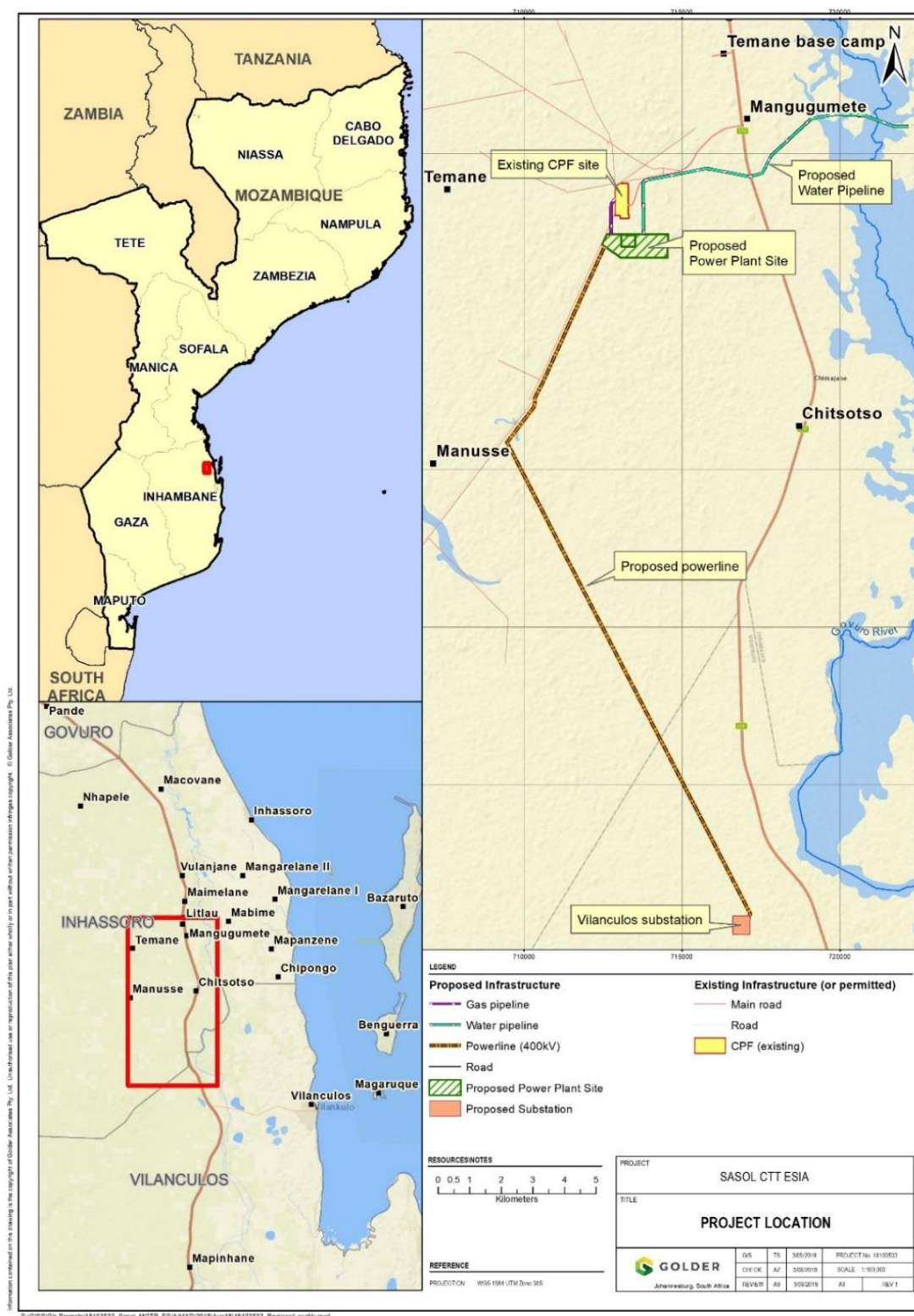


Figure 1: Project Location

2.0 DESCRIPTION OF THE KEY PROJECT COMPONENTS

The CTT project will produce electricity from natural gas in a power plant located 500m south of the CPF. The project will consist of the construction and operation of the following main components:

- Gas to Power Plant with generation capacity of 450MW;
- Gas pipeline (± 2 km) that will feed the Power Plant with natural gas from the CPF or from an alternative gas source;
- 400kV Electrical transmission line (± 25 km) with a servitude that will include a fire break (vegetation control) and a maintenance road to the Vilanculos sub-station. The transmission line will have a partial protection zone (PPZ) of 100m width. The transmission line servitude will fall inside the PPZ;
- Water supply pipeline to a borehole located either on site or at borehole located east of the Govuro River;
- Surfaced access road to the CTT site and gravel maintenance roads within the transmission line and pipeline servitudes;
- Temporary beach landing structures at Inhassoro town for the purposes of delivery of heavy and oversized equipment and infrastructure to build the power plant. This will include transshipment and barging activities to bring equipment to the beach landing site for approximately 1-2 days with up to 3-4 months between shipments over a period of approximately 8-15 months;
- Construction camp and contractor laydown areas adjacent to the CTT power plant site; and
- Temporary bridge structures across Govuro River and tributaries, as well possible new roads and/or road upgrades to allow equipment to be safely transported to site during construction.



Figure 2: Examples of gas to power plant sites (source: www.industcards.com and www.wartsila.com)

The final selection of technology that will form part of the power generation component of the CTT project has not been determined at this stage. The two power generation technology options that are currently being evaluated are:

- Combined Cycle Gas Turbine (CCGT); and
- Open Cycle Gas Engines (OCGE).

Please refer to Chapter 4 of the main ESIA document for further details on the technology option.

At this early stage in the project a provisional layout of infrastructure footprints, including the proposed linear alignments are indicated in Figure 1. A conceptual layout of the CTT plant site is shown below in Figure 3.

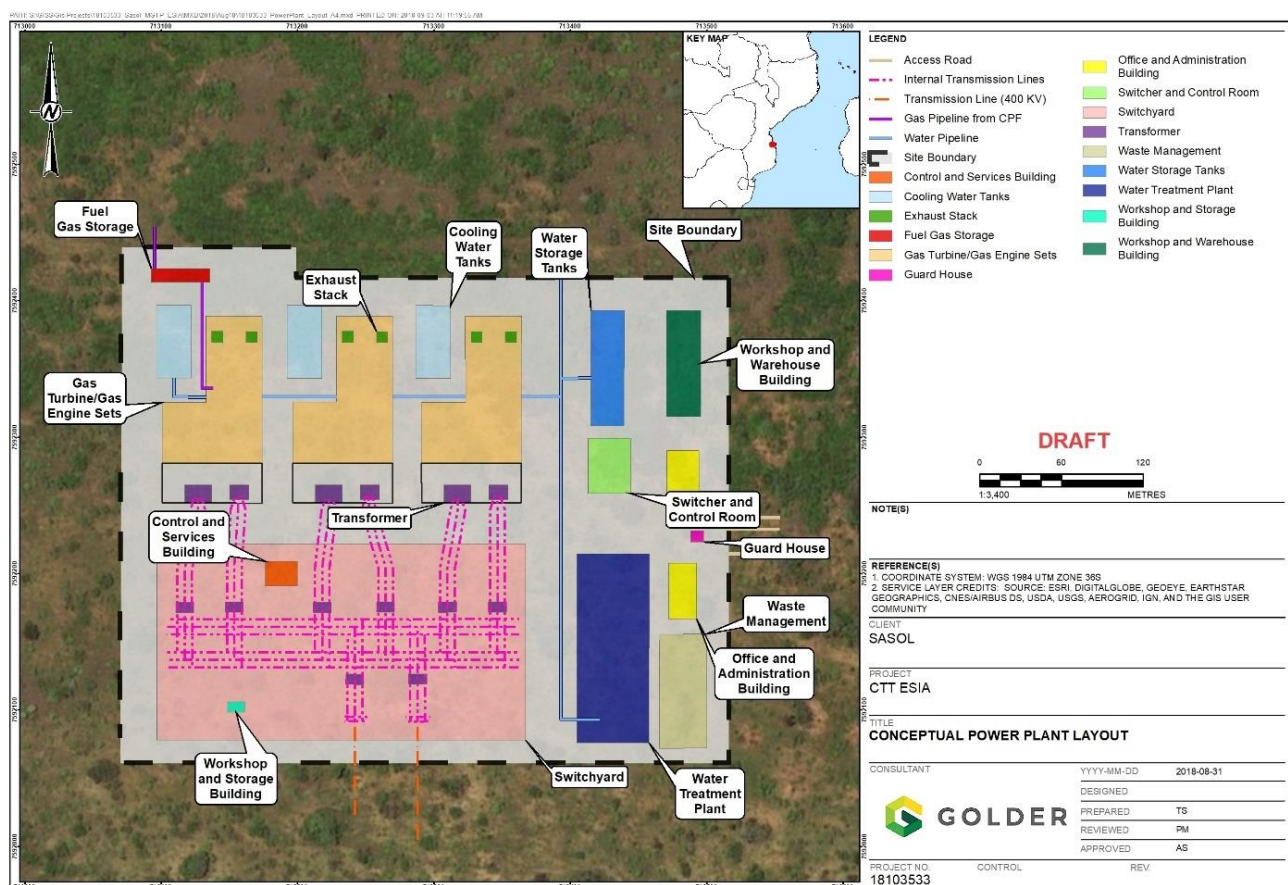


Figure 3: Conceptual layout of CTT plant site

2.1 Ancillary Infrastructure

The CTT project will also include the following infrastructure:

- Maintenance facilities, admin building and other buildings;
- Telecommunications and security;
- Waste (solid and effluent) treatment and/or handling and disposal by third party;
- Site preparation, civil works and infrastructure development for the complete plant;
- Construction camp (including housing/accommodation for construction workers); and
- Beach landing laydown area and logistics camp.

The heavy equipment and pre-fabricated components of the power plant will be brought in by ship and transferred by barge and landed on the beach near Inhassoro. The equipment and components will be brought to site by special heavy vehicles capable of handling abnormally heavy and large dimension loads. Figure 4, Figure 5 and Figure 6 show examples of the activities involved with a temporary beach landing site, offloading and transporting of large heavy equipment by road to site.

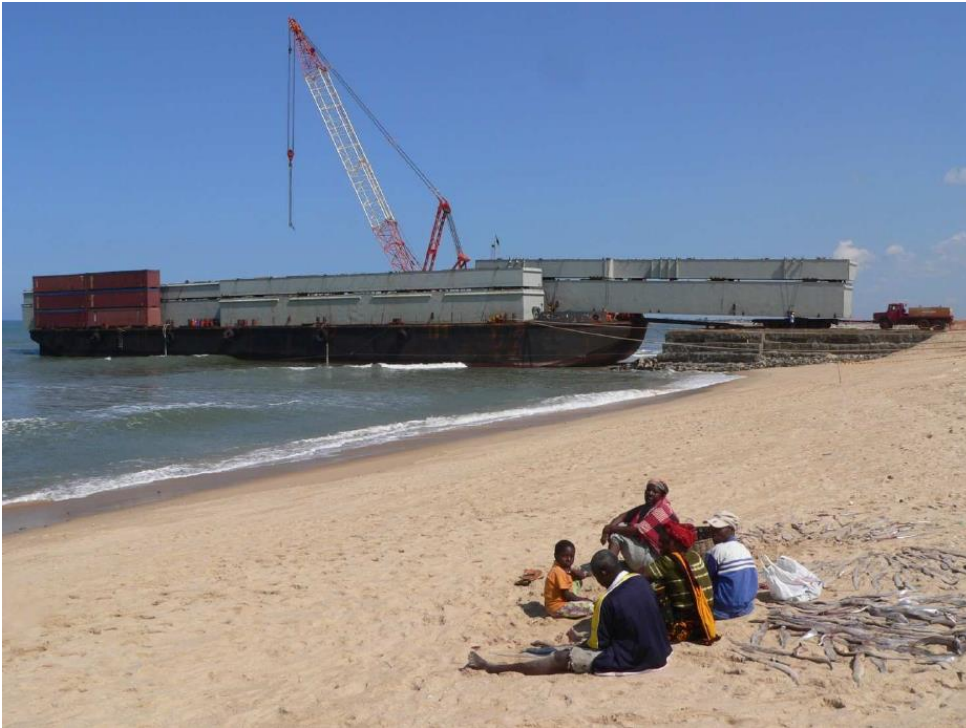


Figure 4: Typical beach landing site with barge offloading heavy equipment (source: Comarco)



Figure 5: Example of large equipment being offloaded from a barge. Note the levels of the ramp, the barge and the jetty (source: SUBTECH)



Figure 6: Heavy haulage truck with 16-axle hydraulic trailer transporting a 360 ton generator (source: ALE)

2.2 Water and electricity consumption

The type, origin and quantity of water and energy consumption are still to be determined based on the selected technology to construct and operate the CTT plant. At this stage it is known that water will be sourced from existing boreholes located on site or east of the Govuro River for either of the technology options below:

- Gas Engine: $\pm 12 \text{ m}^3/\text{day}$; or
- Gas Turbine (Dry-Cooling): $\pm 120 - 240 \text{ m}^3/\text{day}$.

2.3 Temporary Beach Landing Site and Transportation Route Alternative

As part of the CTT construction phase it was considered that large heavy equipment and materials would need to be brought in by a ship which would remain anchored at sea off the coast of Inhassoro. Equipment and materials would be transferred to a barge capable of moving on the high tide into very shallow water adjacent to the beach to discharge its cargo onto a temporary off-loading jetty (typically containers filled with sand) near the town of Inhassoro. As the tide changes, the barge rests on the beach and off-loading of the equipment commences.

Currently, the SETA beach landing site is the preferred beach landing site together with the road route option to be used in transporting equipment and materials along the R241 then the EN1 then via the existing CPF access road to the CTT site near the CPF. Figure 7 and Figure 8 indicate the beach landing site and route transportation option. The alternative beach landing sites of Maritima and Briza Mar are still being evaluated as potential options, as well as the southern transport route, which would also require road upgrades and a temporary bridge construction across the Govuro at the position of the existing pipe bridge. As part of the transportation route, the Govuro River bridge may need to be upgraded / strengthened to accommodate the abnormal vehicle loads. Alternatively, a temporary bypass bridge will be constructed adjacent to the existing bridge.

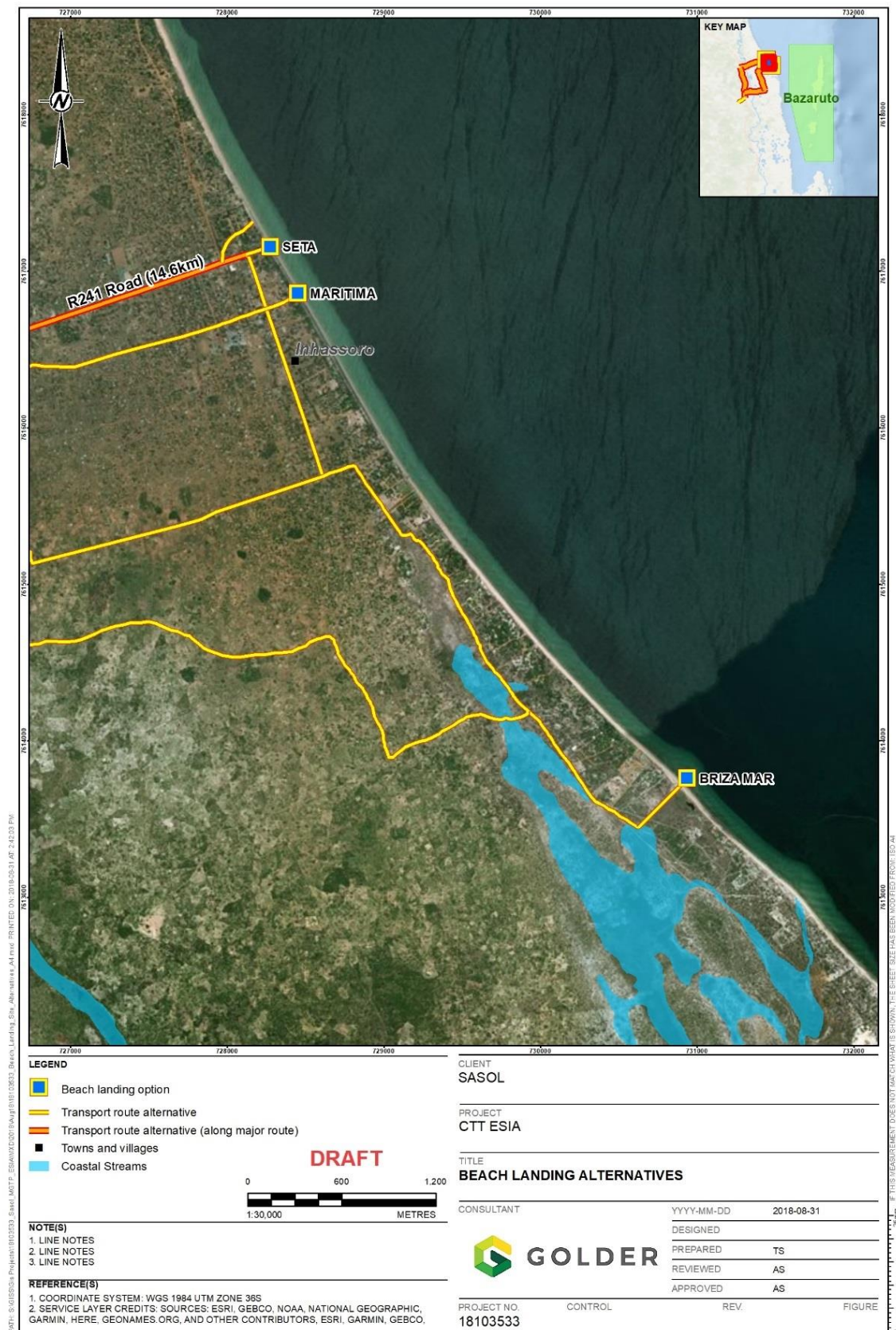


Figure 7: The three beach landing site options and route options at Inhassoro

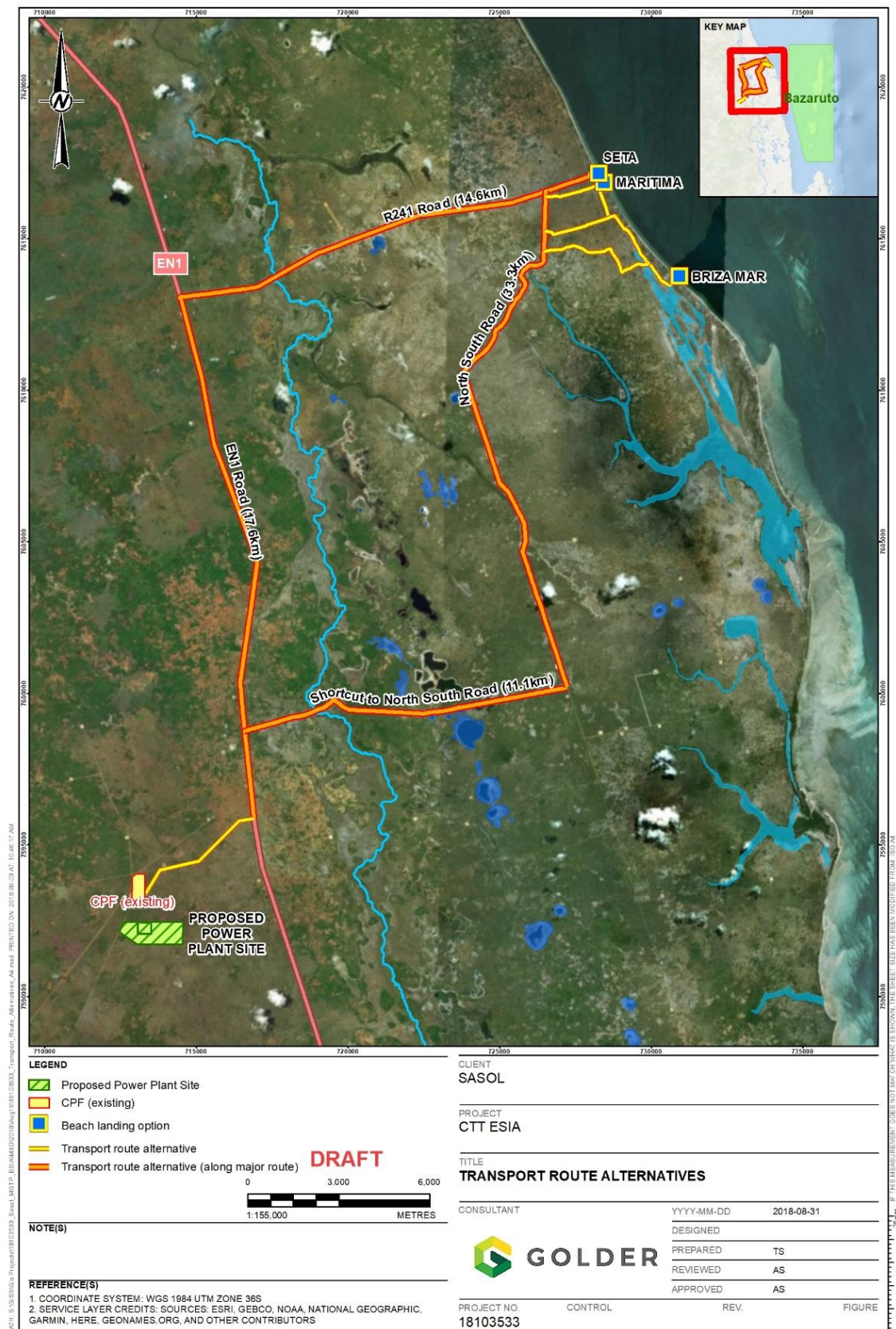


Figure 8: The two main transportation route alternatives from the beach landing sites to the CTT site

3.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 Mozambique Legislation

The proposed project has been determined as 'Category A' in terms of Mozambique's environmental law (Decree 54/2015 of 31 December, which has been in force since April 2016). For 'Category A' projects, an Environmental and Social Impact Assessment (ESIA) must be prepared by independent consultants as a basis for whether or not environmental authorisation of the project is to be granted, and if so, under what conditions. The final decision maker is the Ministry of Land, Environment and Rural Development (Ministério da Terra, Ambiente e Desenvolvimento Rural (MITADER) through the National Directorate of Environmental Impact Assessment (DNAIA). MITADER consults with other relevant government departments prior to making a decision.

This document represents the Cultural Heritage Impact Assessment undertaken to support the ESIA. The following national legislative instruments are applicable to this impact assessment:

- Environmental Law (Decree 20/1997 of 1 October);
- Decree 54/2015 of 31 December, approving the Regulation on the Process for the Environmental Impact Assessment (EIA);
- Law 10/1988, of 22 December, Law on the Protection of Cultural Heritage, which specifies the legal protection of all 'material and immaterial' assets of the Mozambican cultural heritage (10/1988);
- Decree 27/1994, of 20 July, Archaeological Heritage Protection Regulations;
- Decree 24/2004 Regulations on Petroleum Operations;
- Decree 56/2010 of 22 November on Petroleum Operations;
- Land Law (Law 19/1997 of 1 October) and Land Law Regulations (Decree 66/1998);
- Law no. 13/2009, of 25 February, which establishes the system for the protection of the Assets pertaining to the National Liberation Struggle;
- Law 10/1999 on the Protection of Forests and Wildlife (Decree 12/2002);
- Resolution 11/2010, which approves policy applicable to Museums;
- Resolution 12/2010, which approves policy applicable to Monuments;
- Resolution 17/1982 Approves the Convention Concerning the Protection of the World Cultural and Natural Heritage, BR no. 44, I Serie, 13/11/82.

The Law on the Protection of Cultural Heritage (1988) is implemented by the Ministry of Culture through the National Board of Cultural Heritage. The National Board of Cultural Heritage is the primary advisory body on heritage in Mozambique and is composed primarily of representatives of relevant institutions and independent experts.

The Law on the Protection of Cultural Heritage (1988) was established to ensure the legal protection of material and immaterial assets of Mozambican cultural heritage. For the purposes of the law, Cultural Heritage is defined as *"the set of material and immaterial assets created or integrated by the Mozambican people throughout*

*history, with relevance to the definition of the Mozambican cultural identity”*¹. The law qualifies all cultural heritage assets discovered in Mozambican territory as State property.

Article 10 of The Law on the Protection of Cultural Heritage (1988) outlines the cultural heritage assets that are considered as inalienable property of the State, namely, archaeological localities and objects, rock paintings, and buildings or other structures that are representative of the pre-colonial societies, such as stone walls, “zimbabwes”, “aringas”, mining centres and centres of power, population settlements, trading hubs and worship sites. Localities with special ecological characteristics are also included in the list of cultural assets (Article 3.4.c). Article 13 defines that, in the event of discovery of any places, buildings, objects or documents susceptible of being classified as cultural heritage assets, the closest administrative authorities must be informed. It states that *“Any archaeological works or the opening of caves, rock shelters and geological formations for the purpose of carrying out anthropological or paleontological research is subject to prior authorisation by the relevant authorities”*.

In 2010 two new policies were approved (*Resolução Nr. 11, 2010 and Resolução Nr. 12, 2010*). The Museum Policy and the Monument Policy are complementary to each other, defining the management of archaeological monuments and associated elements.

Furthermore, The Law on the Protection of Forests and Wildlife (Decree 12/2002), makes provision for the existence of ‘Zones of Use’ and of ‘Historical-Cultural Value’, for purposes of protecting forests with a religious interest and other sites of historical importance and cultural use, in line with the traditional norms and practices of the various communities.

The Proponent has specific legal responsibilities in the event that features of archaeological significance are recovered on the project site. In summary, The Archaeological Assets Protection Regulations (27/94), which apply to both “immoveable” and “moveable” assets, require the finder of any accidental archaeological elements (through prospecting and/or excavation) to communicate this finding within 48 hours to the local authority. The Archaeological Assets Protection Regulations also state that, in the event that the discovery occurs during any project-related activity, the Proponent will be responsible for all expenses required to protect and safeguard any archaeological findings, as determined by the relevant authorities.

The Archaeological Assets Protection Regulations sets out the following (Articles 3 and 4):

- *“It is forbidden to carry out archaeological excavations and surveys without a certifying license issued by the relevant authority”; and*
- *“Authorisation and issuing of licenses for archaeological works are the prerogative of the National Board for Cultural Heritage and museums and other public national bodies indicated by the Ministry of Culture which include in their working programs research and protection of the archaeological heritage”*

Furthermore, the Archaeological Assets Protection Regulations establish that *“Licenses shall be granted only to applicants with a proven scientific background...trained archaeologists with proven experience in the area and who must be registered in the Ministry of Culture through the National Board for Cultural Heritage”*.

The Archaeological Assets Protection Regulations state that any project involving excavation and/or large scale earth-moving, must involve preliminary prospecting for cultural heritage assets under threat (to initiate salvage, as necessary). Provisions must also be made, as a budget line item, to cover cultural heritage requirements, at no less than 0.5% of the total project cost (Archaeological Assets Protection Regulations (27/94)).

¹ The Law on Protection of Cultural Heritage, Article 10, 1988

3.1.1 Statutory Protected Features in Mozambique

There are a number of cultural heritage sites recorded on the National Archaeological Database in Mozambique (i.e. sites protected by the National Board of Cultural Heritage). As of December 2014, these include seven industrial sites; 27 rock art sites; 87 Stone Age sites; 128 sacred sites; 205 historical sites; 371 Early Iron Age Sites; and 451 Late Iron Age Sites.

No statutory protected features exist within the immediate project vicinity. There are five protected sites in the wider area (within the Vilanculos and Govuro Districts) these are well beyond the study area for cultural heritage²: Mambone (AR-101); Chibuene (AR-106); Nhachengue (AR-107) (which is under temporary protection); Nhamimela 1 (AR-108); and Manyikene (AR-113). These sites are discussed further in Section 4.0, and a gazetteer of all sites is included in Appendix B.

3.2 International Guidance

This impact assessment has also been undertaken in accordance with World Bank Group operational policies and general environmental health and safety guidelines. In particular, the World Bank Group Performance Standards (OP 4.03) have been considered and incorporated throughout this assessment.

3.2.1 World Bank Group Performance Standards

The most pertinent Performance Standard (PS) is PS 8: Cultural Heritage (2012). PS 8 defines cultural heritage as “(i) *tangible forms of cultural heritage, such as tangible moveable or immovable objects, property, sites, structures, or groups of structures, having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values; (ii) unique natural features or tangible objects that embody cultural values, such as sacred groves, rocks, lakes, and waterfalls; and (iii) certain instances of intangible forms of culture that are proposed to be used for commercial purposes, such as cultural knowledge, innovations, and practices of communities embodying traditional lifestyles*”. The PS requires the investor to identify and reduce or avoid adverse impacts upon cultural heritage resources. The PS provides guidance which specifies the participation of affected communities in the identification of, and potential mitigation of, cultural heritage resources recommending appropriate strategies for impact reduction and long-term cultural heritage management (e.g. implementation of a Cultural Heritage Management Plan and a Chance Find Procedure).

3.2.2 The Convention for the Safeguarding of the Intangible Cultural Heritage

Mozambique has been a signatory to the United Nations Educational, Scientific and Cultural Organisation's (UNESCO's) Convention for the Safeguarding of Intangible Cultural Heritage since 2007. The Convention seeks to raise awareness of threats to intangible heritage and encourages member states in the identification, protection and management of such assets, ensuring respect for those individuals and communities concerned.

4.0 BASELINE CONDITIONS

4.1 Scope of study

The purpose and scope of this specialist study was to collect scientifically defensible, high quality data of sufficient breadth that could be used to characterise the baseline cultural heritage environment in the area that may be potentially be affected by the CCT project, in particular the Inhassoro and Vilanculos Districts, Inhambane Province, southern Mozambique. The baseline conditions have been used to undertake an assessment of the CCT project's potential impact upon cultural heritage.

The study area for the baseline study was defined as the land likely to be directly impacted by, and immediately adjacent to, the proposed project components, as depicted in Figure 9. The wider area (i.e. Inhassoro and

² All identified archaeological sites included in the baseline study have been given a Site ID with the pre-fixed “AR”

Vilanculos Districts) surrounding the development was incorporated as appropriate, in order to adequately assess the potential for cultural heritage receptors to exist in this area and to provide context for those sites identified within the immediate vicinity.

The study area includes:

- Beach landing options and lay down areas in the vicinity of Inhassaro;
- Transport routes to the CTT power plant site from the beach landing options (including 20 m buffer);
- Proposed power plant Site;
- Transmission line route;
- Gas/Water pipeline route over the Govuro River (including 20 m buffer); and
- The settlements within close proximity (<2.5 km) to the project, comprising Inhassoro, Maimelane, Litlau, Mangugumete, Mangarelane, Mapanzene, Mabime and Manusse.

The project components and survey locations are depicted on the study area map, Figure 9.

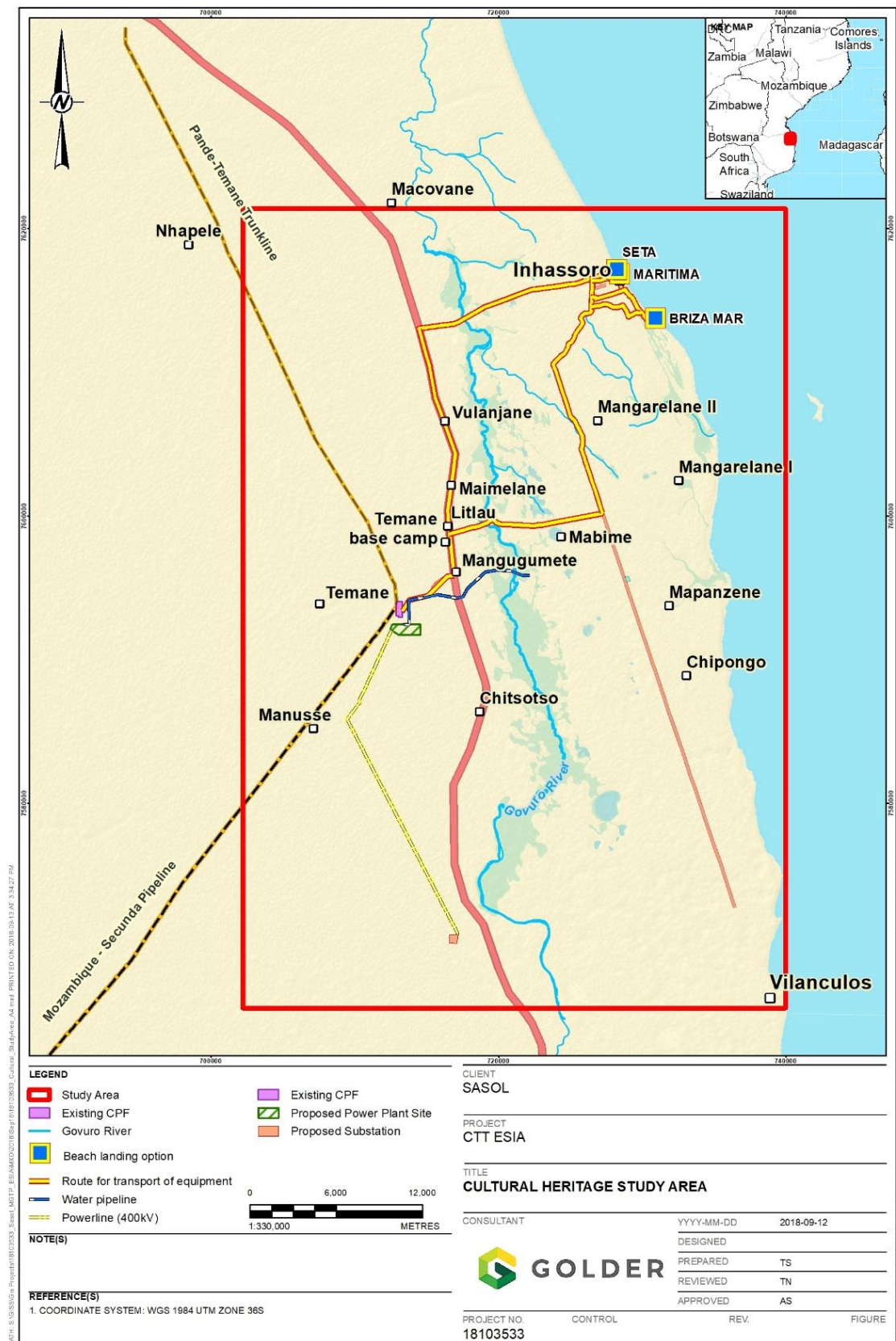


Figure 9: Cultural Heritage study area

The cultural heritage assessment has been undertaken in accordance with World Bank Group PS 8: Cultural Heritage (2012), which seeks to protect cultural heritage from the adverse impacts of project activities, support its preservation and promote the equitable sharing of benefits from the use of cultural heritage. With reference to the definitions of cultural heritage detailed in PS 8 (as presented in Section 3.2.1) and the Mozambican Law on the Protection of Cultural Heritage 10/88 (1998) (as presented in Section 3.1) the assets that were considered in collation of the baseline environment comprise:

- Archaeological sites and artefacts;
- Historic structures and districts;
- Palaeontological sites;
- Cultural landscapes;
- Cultural or religious sites; and
- Intangible heritage practice.

The baseline scope of work for cultural heritage consequently included:

- A detailed cultural heritage survey, covering the full range of cultural heritage assets (as defined above), comprising both desk study and field survey;
- Recording, by means of written, photographic, aural and GPS records, of each identified tangible site and/or artefact to allow the location, scale, form, function, date and relative importance of each to be ascertained; and
- Recording, by means of written, aural and photographic evidence, elements of unique and intangible cultural heritage practice related to a) tangible sacred sites and b) the communities local to the project.

For each cultural heritage asset identified, an assessment of its value has been made (Section 4.4). All sites identified are summarised in the cultural heritage gazetteer (Appendix B).

The impact assessment includes an assessment of both direct and indirect impacts to identified cultural heritage receptors and, where relevant, their setting. Impacts have been assessed for the construction, operation and decommissioning phases of the development. Where impacts have been identified, a mitigation strategy has been developed, and the residual impact quantified (Section 4.0)

4.2 Study methodology

The baseline study initiated with a work plan that was prepared to set out the proposed methodology for cultural heritage baseline data collection (Golder Associates, 2013). This determined a three staged approach to identifying, recording, and assessing cultural heritage assets that were likely to be affected by the project, comprising:

- i) A desk study and literature review of existing cultural heritage information pertinent to the project area;
- ii) A targeted field reconnaissance survey to capture sites and features of archaeological and historic interest; and
- iii) Community consultation survey to capture sites and elements of local cultural and religious activities, including intangible cultural heritage.

Baseline data for the CTT project has been gathered in two phases of survey, in 2015 and 2018. The January 2015 survey primarily focused on identifying and recording both visible, tangible cultural heritage resources and

any associated intangible practices within the defined study area (Section 4.1). In adherence with Mozambican law, the on-site work was completed by locally licenced cultural heritage experts - Professor Leonardo Adamowicz of Patrimoz - Consultores (Cultural Heritage Services), assisted by Ercídio Jaime Jeremias Nhatule - under the appropriate license (No. DNPC 5/2014), managed by Golder Associates who provided the Work Plan for study. The local experts are familiar with the archaeology, culture and language of the region.

Following this first survey, a decision was made to temporarily postpone the impact assessment. The project has now been resumed by the Proponent and a second survey conducted in June 2018 to confirm if the baseline conditions remained the same as in 2015 and to record any new sites not captured by the initial survey.

Furthermore, a baseline cultural heritage survey undertaken on behalf of Sasol for a different project in the same region in 2014 (the PSA and LPG ESIA Project) has also been incorporated into this study to supplement the baseline dataset and enable greater understanding of the local cultural environment. The 2014 archaeological survey was undertaken by local heritage experts from Rrequal Ltd and Ancient Ltd, managed by Golder Associates, whilst Golder's Community and Environmental Team provided complementary data on cultural sites and intangible heritage.

4.2.1 Desktop review of available information

The literature review included examination of the existing dataset on Mozambican heritage, focusing on the Inhambane province in particular. It sought to identify archaeological, paleontological and historical sites previously recorded within, and adjacent to, the study area. This review included a search of the list of monuments protected by the National Board of Cultural Heritage; the District Board of Cultural Heritage; and the Circle of Interest of Cultural Heritage. It specifically targeted appropriate libraries and archives at the University Eduardo Mondlane in Maputo as well as unpublished papers, records, archival and historical documents through public libraries and other archives. A review of available mapping and previous relevant survey was also undertaken to further establish areas of high potential (e.g. favourable for ancient settlement) which would be targeted by the archaeological field survey team.

4.2.2 Field study method

The field survey completed for the study comprised the archaeological team walking over targeted areas looking for visible surface material (e.g., pottery sherds, stone tools, slag) and any structural remains (e.g., historic buildings, evidence of past settlement). Areas of the project's proposed development were targeted, as well as those of archaeological potential, as previously identified during the desk study phase (and earlier relevant reconnaissance missions – e.g. 2015 survey results informed the 2018 survey). Vehicle access to drop off points was afforded by existing roads and trails, after which the team surveyed on foot. Following the identification and recording of a site, the team spent more time in the vicinity to check for the presence of additional sites.

A hand-held GPS was used to navigate and record the routes taken. The GPS points and routes were downloaded to a computer, together with digital photographic images and videos. Each archaeological site was given a unique identifier (e.g. prefixed by 'AR' for archaeology) and its GPS co-ordinates were recorded (longitude and latitude or UTM). The field notes made by Patrimoz - Consultores are presented in Appendix A, whilst a full list of sites is presented in the cultural heritage gazetteer (Appendix B).

This work was carried out with adherence to the guidelines set out in Law 10/1988 of 22 December, which prescribes the legal protection of all material and immaterial assets of the Mozambican cultural heritage and under license No. DNPC 5/2014. There was no intention to undertake any below-ground investigations, although limited manual clearance of vegetation was necessary in places. It was beyond the scope of this survey to remove surface objects *en masse* from sites; this will be undertaken during further stages of work, if necessary. The archaeological team retained small representative samples of pottery sherds (x32 in total) for

detailed recording and photography. These were drawn and photographed then deposited with the District Board of Cultural Heritage.

4.2.3 Cultural heritage community consultation methodology

The cultural heritage community consultations for the CTT project were completed in conjunction with the archaeological field surveys in 2015 and 2018. Key Informants were identified in ten villages within the study area, comprising Vulcanjane, Malmelane, Mangugumete, Manusse, Chipango, Mangarelane I, Mangarelane II, Guvuro, Inhassaro and Mabime. Key Informants were elder members of the community, often village leaders, selected for their knowledge of local traditions and sites, and their willingness to share with the survey team. One to one interviews were held (in the appropriate local dialect e.g. Xitswa) in order to ascertain the likelihood for places of religious and cultural importance to occur.

Where possible, these areas were sensitively mapped and recorded with the approval of the local community. Each cultural site was given a unique identifier and the relevant GPS co-ordinates were recorded (longitude and latitude). Notes were taken with regard to any related intangible heritage practices e.g. rules/taboos that may govern certain spaces. The field notes made by Patrimoz - Consultores are presented in Appendix A, whilst a full list of sites is presented in the cultural heritage gazetteer (Appendix B).

4.2.4 Limitations

The extent of the cultural heritage study area was defined in consideration of the breadth of the project footprint. Any subsequent design changes and/or alterations may require new surveys to be conducted (e.g. if the proposed infrastructure layout is changed substantially).

The site work and the survey coverage were, in parts, subject to the constraints imposed by:

- Health and safety considerations (including the presence of landmines, poisonous snakes);
- Adverse weather;
- Poor ground visibility (bush cover); and
- Inaccessibility (dense vegetation, flooding, remoteness).

These constraints are typical of baseline field data collection and as a whole did not negatively impact on the objectives of the survey. Gaining site access in particularly rural areas of dense vegetation was a considerable issue and it should be noted that there remains a limited potential for (as yet unrecorded) features of archaeological interest across the study area. For example, there were a number of sites known locally through oral tradition (particularly sacred sites) which were located in very remote areas, within the study area but seemingly well beyond the proposed infrastructure locations.

It should also be reiterated that the archaeological survey comprised ground inspection only, no intrusive, below-ground, activity was undertaken, and those sites identified during the baseline field survey include only those readily visible on the surface i.e. as indicated by artefactual material. It is possible therefore that other, more significant remains may survive in sub-surface deposits, or in areas inaccessible at the time of survey.

A number of sacred sites identified by the community were also relatively indistinct and unidentifiable without local guidance. In these instances, it was noted that members of the community struggled to identify particular 'sites' associated with oral history, these places are indicated through spiritual means and seen as important, intangible, local assets. Consequently, there was found to be a strong relationship between oral history and specific areas despite the fact that the definition or 'boundaries' of that 'place' may be hard to define or are ephemeral. The importance of oral history within the study area has also meant that written records are fragmentary or not commonly kept (e.g. in relation to settlement history).

The information gathered in relation to traditional cultural places and intangible heritage is also limited to that which the community was willing to share with the field team. Although the sites recorded were not considered to be 'secret', and access was freely granted, there may be places known only to a small section of the community and/or some which are too sensitive to share. This probability is emphasized by the differences in cultural data sets gathered by different consultants within the same villages in May 2014 and January 2015. Some sites may be more important to (and only known by) particular individuals and the data will be biased according to both who is asking the questions (and their relationship with the interviewee) and the knowledge of that interviewee. Consequently, there is a potential for unidentified features of cultural importance within the study area.

4.3 Results and Findings

4.3.1 Literature Review

The CTT Site is situated in an important area in relation to Iron Age social formation and settlement along the Indian Ocean coast of southern Africa. Knowledge of Mozambique's archaeological heritage is however restricted by a lack of research and locally trained professionals (Adamowicz, 2015). The following section seeks to summarize the literature review undertaken in order to establish the cultural heritage background and context of the both wider region and the immediate project area.

4.3.1.1 Archaeology of the South Eastern African region/Mozambique

The archaeology of south eastern Africa has provided insight into human origins and pre-historic societal development from the early Stone Age or Palaeolithic period (2.5 million years ago (Mya)), with a rich tapestry of cultural remains dating right up to the 19th Century. Some of the oldest identified hominid fossils ever found (dated to 2.5 - 2 Mya), along with evidence of discernible material culture, were located at the Olduvai Gorge, northern Tanzania. Similar material culture has been found at sites throughout the southern African region, including the Tete province, in north western Mozambique. These communities appear to have exploited ecotonal environments, such as lakesides and savannahs, taking advantage of the abundant resources and elevated biodiversity associated with such locales to support their hunter-gatherer lifestyle.

The later Stone Age in Mozambique is almost entirely unknown, there are 19 recorded sites in total, none of which are within the project area. These early sites were identified by surface artefacts (microlithics) during the Anthropological Missions to Mozambique, led by Santos Júnior, between 1936 and 1957 (Senna-Martinez, Martins, Castelo and Evangelista, 2013). Consequently, it must be acknowledged that there may be gaps in the explored archaeological record resulting from the unfavourable conditions under which collection took place, depositional processes and an uncertain chronology. More recent investigations have been undertaken but are limited to the Zimbabwe border area and the Mabote District (Adamowicz, 2011).

Sites in the wider southern Africa region, dated to throughout the Middle Stone Age and into the Late Stone Age, provide evidence used to chart the rise of modern man, *Homo sapiens*, and the subsequent development of societal complexity. In southern Africa this includes the well documented expansion and development of independently innovated lithic industries and a diversification in subsistence strategies. The Prehistoric chronological sequence (Table 1) is generally similar all over the region. The Middle Stone Age period is characterized by the use of cores and the production of stone flakes to produce large bifacial tools and hand axes. Late Stone Age technology is dominated by microlithic (small) tools and blades (e.g. quartz, flint), often associated with rock art and (occasionally) burials. The Late Stone Age period in Mozambique thus provides a link to later historical times (Deacon & Deacon 1999).

Table 1: Prehistoric chronology in Southern Africa

Years Before Present	Description
2,000	Iron Age - Historic
22,000 – 2,000	Late Stone Age
250,000 – 22,000	Middle Stone Age
2,500,000 – 250,000	Early Stone Age

The evolution of modern man occurred within the context of the climatic volatility of the Pleistocene, with cyclical variations in precipitation inducing shifts in vegetation, resulting in population movements and subsistence changes. Ultimately, these changes resulted in a 'revolution' in subsistence, with greater sedentism and an increased reliance on cereals which in turn led to the agricultural-based societies. Associated with this transition are the developments of pottery traditions and the eventual emergence of metallurgy. Evidence from the Matola area of southern Mozambique provides one of the earliest dates for the Iron Age in southern Africa and the inherent development of metallurgy (dated to c. 70 AD) (Morais, 1988).

Coastal settlements with exotic trade goods, such as that at Chibuene (7th Century AD) and Bazaruto Island (9th-10th Century AD), show the emergence of trade, both across the Indian Ocean and between indigenous groups, evidencing further increases in social complexity and the growth of burgeoning maritime societies.

4.3.1.2 Archaeology of Central Mozambique

The archaeological study of the Mozambican coastal plain was a focus for research post-1975 independence enabling a chrono-stratigraphic framework to be developed. The framework considers sites in 'clusters' or 'traditions' assuming that the pottery assemblages are similar to each other in terms of form and decoration (Sinclair 1986 and Adamowicz, 2006).

During the early Iron Age, Bantu-speaking people gradually immigrated to southern Africa from the Congo and Cameroon through Central and equatorial East Africa during the first and second century AD. The movement of people from the interior and from further north, as well as migrating populations from the region itself, forced different cultures to interact and exploit the same spaces. This resulted in some groups co-habiting, specifically different types of agriculturists, but hunter-gatherer groups were generally forced to move or adopt a new subsistence strategy.

In the archaeological record this is marked by the emergence of new pottery styles in the region, with cultural similarities in terms of decoration. Cattle ownership was particularly important and can be seen by the appearance of ritual burials of clay cattle figurines and cattle bones in human grave burials. Evidence of these early farming communities are known as sites of Matola-tradition, named after a site on the Matola River.

The early Iron Age period is primarily based on radio carbon dates from the Hola Hola site (see Table 2 below) and witnessed the beginning of a significant change in culture in Central Mozambique. A number of sites within the Mozambican coastal plain have been dated to the 1st – 4th centuries AD and as a cluster represent the earliest known farming communities in southern Africa (Adamowicz, 2015). Pottery recovered from these sites is similar to Kwale ware found in Tanzania (Cruz and Silva, 1980, Sinclair et al, 1979 and Soper, 1982).

The interaction between these different groups increased societal complexity and may have even developed hierarchies within communities, making subsistence strategy symbolic of status. This culminated in the development of very substantial structures (in the Great Zimbabwe tradition – the Late Iron Age, stone-walled, royal palace spanning 700+ hectares). The most notable of these structures in Mozambique is at Manyikeni

(AR-113) 52 km west of Vilanculos, dating from the 12th Century AD. Chibuene and Manyikeni are listed as a tentative World Heritage Site (<http://whc.unesco.org/en/tentativelists/919/>).

4.3.1.3 Prior Investigations

In general, the Inhassoro District is considered to have high archaeological potential due to its strategic setting along coastal trade routes (both inland and along the shoreline) and the Govuro and Save Rivers. However, the immediate project area was largely unexplored archaeologically prior to the Proponent's activities in the area. Most archaeological work within the province has been concentrated in four regions: Vilanculos; Mabote; Govuro; and Inhassoro Districts (encompassing both Sofala and Inhambane Provinces). The most important sites are listed in Table 2.

Table 2: Well documented cultural heritage investigations in wider area

Site Name	Site Location	Date	Description
Mambone – AR-101 & AR-102	c80 km north of Vilanculos, Inhambane. Mouth of the Save River.	Early – Late Iron Age	Statutory protected site. Disturbed by Save River.
Chibuene – AR-106	c6 km south of Vilanculos, Inhambane.	6th-13th centuries	Statutory protected and a tentative World Heritage Site. Coastal trading settlement with artefacts, such as glass beads, evidencing trade links across the Indian Ocean. Pottery with shell stamp motifs. Shell midden extending 100 m
Nhanchengue – AR-107	Nhanchengue, Inhambane.	Unknown	Statutory protected site. Shows evidence of Gokomere-Ziwa ceramic tradition.
Nhanimela 1 – AR-108	c100 km north of Vilanculos, Inhambane.	Late Iron Age	Statutory protected site. Late Farming Community, Zimbabwe tradition settlement. Ruinous stonewalled enclosure. Probably similar residential and cultural pattern as in Manyikeni.
Manyikeni – AR-113	c52 km north of Vilanculos, Inhambane.	1170±80 - 1610±70	Statutory protected site and a tentative World Heritage Site. Substantial site, possibly seat of a local 'ruling dynasty'. Pottery confirms association with Zimbabwe tradition. Consists of enclosing stone wall (~1.5 m thick, enclosing an area of 50x65 m) and farmers village. Artefacts include trade goods such as beads, gold, sea shells and ceramics indicating significance as a trading centre between coastal communities and those of interior. Three periods of occupation suggested. Provides useful sequence for region as a whole.
Ponta Dundo	Bazaruto archipelago	Unknown	Archaeological type site of Gokomere-Ziwa ceramic tradition. Shows ceramic products of first co-existing communities of shepherds and farmers.

Site Name	Site Location	Date	Description
Hola-Hola	Banks of Save River, Central Mozambique	10th Century AD	Hilltop settlement. First archaeological site of co-existing agricultural and fishing communities, with middens (27 in total) providing evidence of a productive, flourishing community. Some pottery similarities with Chibuenne and Nhanchengue.

4.3.2 Archaeological Field Survey

4.3.2.1 Archaeological Remains

Nine archaeological sites (pre-fixed “AR”) were identified within the study area during the archaeological survey in January 2015, the full details of these sites are presented in Appendix A and summarised below (Table 3). A further six archaeological sites were noted within the wider area, including four statutory protected sites. These comprise sites AR-101, AR-102, AR-106, AR-107, AR-108 and AR-113.

No additional archaeological sites were identified within the study area during the 2018 survey.

There are five archaeological sites that were identified for the PSA and LPG ESIA Project in 2014 that are located within the study area for the CTT project. These sites, AR-1 – AR-5, are incorporated within the impact assessment. Details of these sites is presented in Appendix B.

The locations of all archaeological sites identified are shown in Figure 18 and Figure 19.

Stone Age Sites

Site AR-109, located near Seeleman, approximately 8 km east of Mapanzene, is a potential Stone Age site. The site was found to be relatively disturbed and partly inaccessible due to thick grass cover however some lithics (quartz) were recorded in the vicinity (Figure 10). The site is approximately 2.5 km from the coast and may be indicative of a Late Stone Age camp in the vicinity as some Late Iron Age pottery was found. A singular Stone Age site was also recorded during the 2014 ESIA survey stage (AR-4). Three lithic artefacts (limestone) were observed on the surface. This site is situated inland, in proximity to the Govuro River and south east of Mangugumete.



Figure 10: Surface scatter at Site AR-109 (Adamowicz, 2015)

Iron Age Sites

All remaining sites located within the study area have been dated to the Iron Age. These include one Early Iron Age site (AR-111) and six Late Iron Age sites (AR-103 – 105, AR-110, AR-112 and AR-114 – 115). AR-111 is a pottery scatter site possibly indicative of a small farming community. The site is situated south east of Manusse, approximately 5 km west of the powerline route.



Figure 11: Early Iron Age pottery artefact recorded from Site AR-111 (Adamowicz, 2015)

The Late Iron Age sites are also evidenced by pottery scatter without exception. Iron slag was also observed at site AR-105 (adjacent to the transportation route at Temane) and a shell midden deposit was recorded at site AR-114 (coastal, east of Mapanzene).

Site AR-103 is situated along the proposed route for the transportation of equipment (existing EN1 road), approximately 5 km north of Litlau. Pottery sherds were recovered in the area, covering approximately 300 m². The depth of the deposit is presently unknown. The pottery itself is likely representative of a late Iron Age date farming community. Typical sherd decoration comprised double or triple parallel wavy incised lines with (Figure 12). The site may be associated with trade networks positioned along the coast.



Figure 12: Pottery from Site AR-103 (Adamowicz, 2015)

Site AR-105 comprises a small area of surface scatter, including Luangwa tradition ceramics, glass beads and some iron slag believed representative of a farming community settled in the 1st - 5th centuries AD. Although few artefacts are now visible on the surface, well-preserved below-ground remains have been investigated at similar sites in the region (Adamowicz, 2015).



Figure 13: Pottery from Site AR-105 (Adamowicz, 2015)

Site AR-110 is located with the south eastern most corner of the study area. The site was found to be heavily disturbed by agricultural activities though some sherds of Luangwa tradition pottery were observed over an extensive area (Figure 14).



Figure 14: Pottery scatter at Site AR-110 (Adamowicz, 2015)

Site AR-112 is situated approximately 3 km north of the proposed transport route north of Mabime. The site was relatively large in comparison to the others observed with pot sherds scattered over a wide area (Figure 15).



Figure 15: Site AR-112 (Adamowicz, 2015)

Site AR-114 is situated north of Seta, on the coast. Archaeological evidence was found to be limited at this location however, a shallow shell midden was observed (Figure 16).



Figure 16: Shell midden deposit at AR-114 (Adamowicz, 2015)

Site AR-115 was recorded during prospecting in 2000 and found to be severely disturbed (on the surface) by recent agricultural activities and erosion. Pottery observed on the surface is believed to date to the 12 – 16th centuries AD (Figure 17).



Figure 17: Pottery recorded at Site AR-115 (Adamowicz, 2015)

Additional Iron Age dated sites recorded during the PSA survey in 2014 included one Early Iron Age and three Late Iron Age sites comprising pottery surface scatter typical of the first settlements along coastal Mozambique and broadly dated to the 9th – 18th centuries AD, these sites are listed in Appendix A and mapped in Figure 18 and Figure 19.

Table 3: Archaeological sites with the Study Area identified during 2015 field survey³

Site ID	Location/Project Component	Description	Coordinates (UTM 36K)	Estimated Date
AR-103	Along route for transportation of equipment	Small settlement site. Representative of a LIA farming community. Pottery scatters on surface.	716719, 7601505	Late Iron Age
AR-104	c30 km west of powerline	Dispersed Luangwa tradition pottery. Disturbed by agriculture and erosion	706262, 7596848	Late Iron Age
AR-105	Adjacent to route for transportation of equipment	Small area with high concentration of Luangwa pottery.	716126, 7598079	Late Iron Age
AR-109	c9 km east of Mapanzene	Microlith quartz and LIA pottery, high grass cover, some agricultural disturbance	735064, 7594151	Late Stone Age?
AR-110	South eastern extent of study area	Lago Pecane. Some Luangwa pottery. In prominent and striking natural promontory location, some agricultural disturbance.	737374, 7567975	Late Iron Age

³ Additional survey carried out for the Project in 2018 recorded no new archaeological sites

Site ID	Location/Project Component	Description	Coordinates (UTM 36K)	Estimated Date
AR-111	c 5 km south east of Manusse	Pottery scatters.	708393, 7583982	Early and Late Iron Age
AR-112	c 5 km north of route for transportation of equipment	Malangojiva. Former settlement location - repeatedly mentioned in local histories as one of many former settlements (resettled as a result of recent industrial development)	723071, 7600815	Late Iron Age
AR-114	c11 km north east of Mapanzene	Limited evidence – shallow shell midden and some recent ceramic	736093, 7595224	Late Iron Age
AR-115	c.2 km north of beach landing option at Maritima	Pottery site almost entirely disturbed by agriculture	726481, 7619521	Late Iron Age

Areas Absent of Archaeological Evidence

The targeted field surveys highlighted areas where no archaeological evidence was recovered. This includes the following CTT project-related areas:

- Proposed power plant site;
- Water pipeline route across Govuro river;
- Transmission line route; and
- The three beach landing options.

Although no archaeological evidence was recovered from project-related areas, this does preclude the possibility of undiscovered archaeological remains existing within those areas.

4.3.2.2 Archaeological Summary

Dispersed pottery scatter was evident throughout the area surveyed with concentrations observed in areas of predicted historic (primarily Iron Age) agricultural and/or settlement activity. The number of archaeological sites inspected were found to have been damaged as a result of human (agricultural) or climate induced erosion. A small amount of lithic scatter was also recovered, indicative of typologies common across Prehistoric southern Africa.

The artefacts identified during the 2015 fieldwalking phase, namely pottery, shell and lithics, are considered to be typical of those well-known sites along the southern coast of Mozambique and are supplementary to and comparable with, the archaeological areas identified during the PSA survey in 2014.

The identification and analysis of tangible archaeological material (artefacts) was, however, limited to that recovered during surface inspection. The relationships (if any) between the surface scatters observed (lithics, pottery, shells) and any sub-surface remains (e.g. settlement and/or industrial activity) cannot be verified at this stage.

Further investigation will be required to determine whether these remains are indicative of past activity in the immediate project locality or purely representative of ephemeral, possibly migratory, landscape exploitation. There remains a potential for previously unidentified archaeological sites and artefacts to exist within the study area.

At present, the artefacts identified within the study area are categorised as 'Moveable' cultural heritage as defined by Mozambican Law (10/1988) and no features were found which could be classed as 'Critical' or 'Non-Replicable' cultural heritage, as defined by IFC (PS 8, 2012).

Figure 17 and Figure 18 shows the location of all archaeological sites identified.

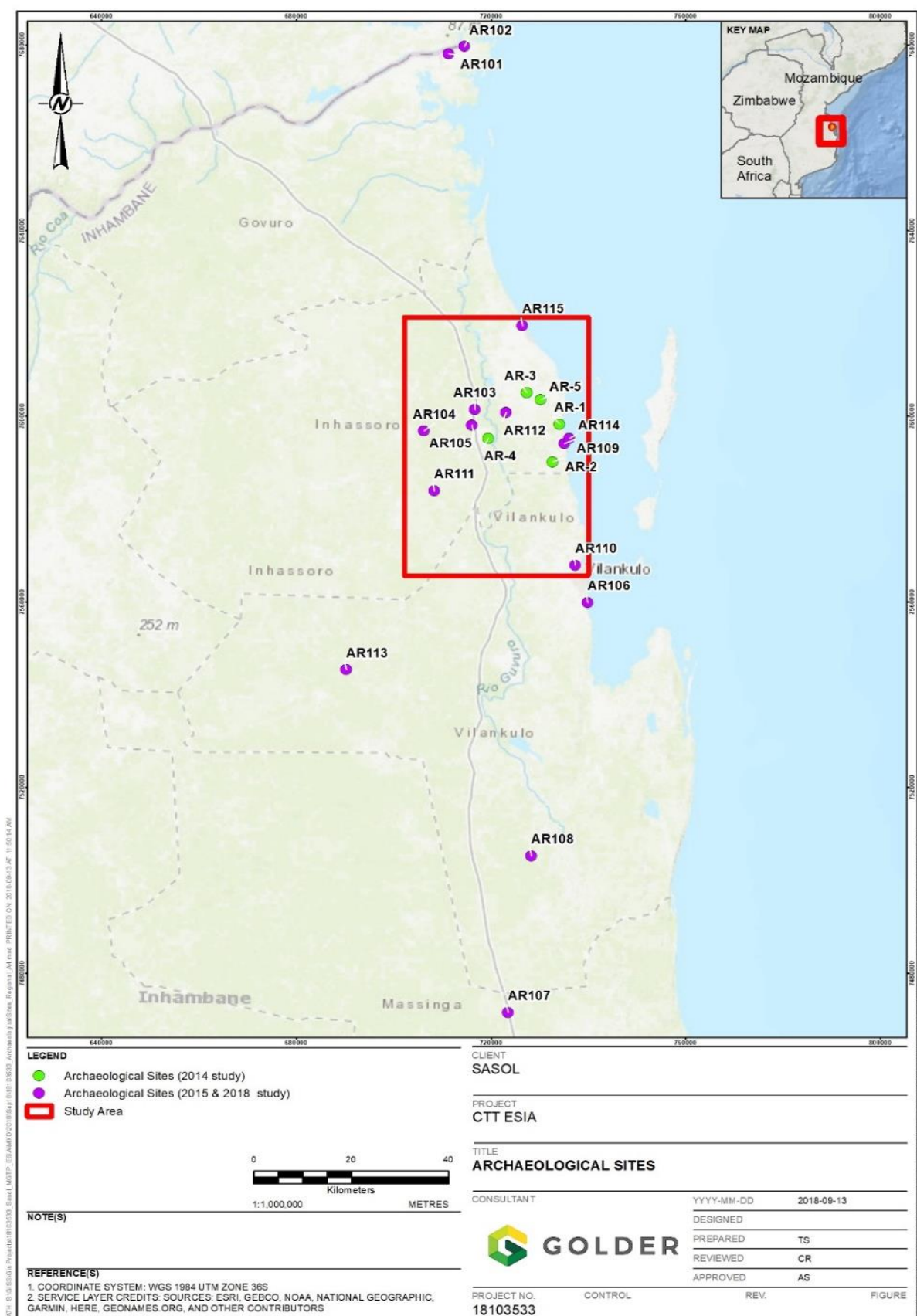


Figure 18: Archaeological sites identified by baseline study

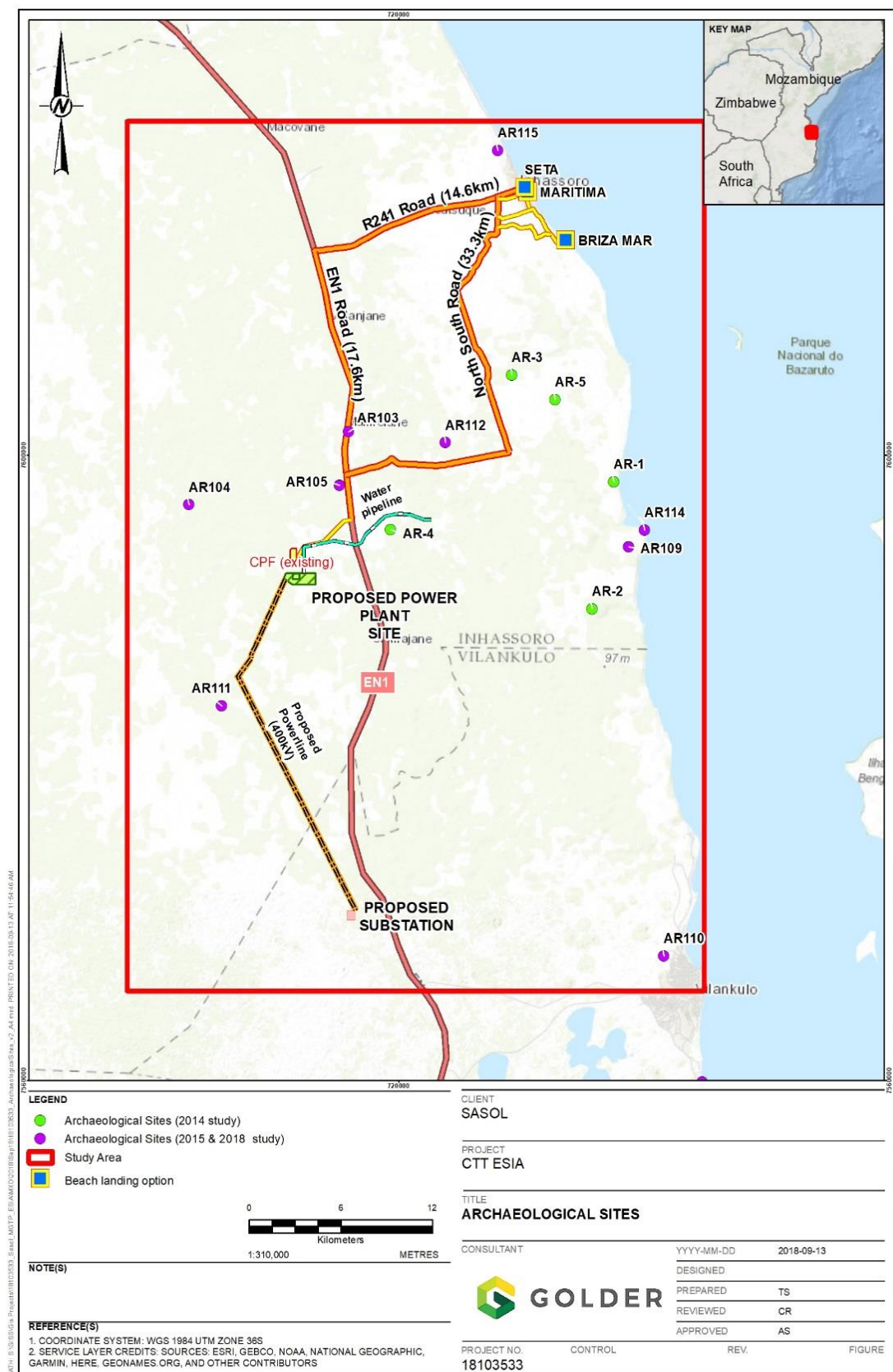


Figure 19: Archaeological sites within study area

4.3.3 Community Consultation and Cultural Survey

The results of the cultural survey are summarised in this section. The full details of the community consultation stage, including interview transcripts, are presented in Appendix A.

The community consultation survey results are discussed by site type and each individual site has been given a 'Site I.D' number, prefixed by the site sub-category, e.g. CE for cemetery, BU for burial, CH for church, MO for mosque, SP for sacred place and MP for medicinal plant. These are shown on Figure 26 and Figure 27.

4.3.3.1 Settlement History and Oral History

The oral tradition was found to be a strong feature among the Xitswa-speaking communities within the study area. The natural landscape and fishing customs are associated with stories, legends, songs and pottery, passed from one generation to the next (Adamowicz & Sinclair 1981, 1984, Adamowicz, 2015). These elements of intangible heritage are highly valued by the local communities, enhancing their sense of identity, however it also means that written settlement histories are scarce and village-founding dates and associated information many vary from person to person (*ibid*).

As a consequence, the villages were found to differ in age, according to the oral traditions of each community, and variations between the results recorded by different surveys were found to exist in the oral record. The following information regarding village names and meaning derives primarily from the 2014 PSA and LPG project interviews:

- Mangarelane: name is very old, probably derived from the first man who settled here approximately 84 years ago, and/or the man, Mangarelane, who refused to surrender to the Portuguese. Current settlers are 3rd and 4th generation;
- Chipongo: name derived from the first man who settled here, approximately 35 years ago;
- Mapanzene: derived from the name Nhagonzoene, the grandchild of Nhagonzo (another settlement in the region) the age of the settlement is unknown;
- Mabime: the name is that of an ancient man with a tumour so large that it touched the ground, the people began to call him Mabime and the name stuck. The age of the settlement is not known;
- Mangugumete: the village is believed to date to colonial times, with the name Mangugumete meaning 'where someone decides to stay';
- Manusse: the age and origin of the settlement is not known. An interviewee for the 2014 PSA and LPG project survey was noted to have arrived in 1950, attracted by the good agricultural land; and
- Chitsotso: named after the first founder. This founder had many children and the people started to call him Chitsotso, which means locust. The age of the settlement is not known but the present community arrived in the late 1980s as a result of the civil war.

4.3.3.2 Cemeteries and Burials

Communities were primarily recorded to bury their dead within settlement areas, near houses, rather than in demarcated burial grounds. Nine burials for community leaders were recorded in the study area (BU-101 – 09) in 2015, as well as four cemetery sites (e.g. associated with religious buildings), CE-102 – 105. A fifth cemetery site was identified outside the study area; site CE-101 is a cemetery site on the River Save, approximately 50 km north of the study area. The grave sites listed in Table 4 include those located by Sasol's demining and clearance team in December 2014 and January 2015. A number of historic headstones (possibly colonial) were also noted in the study area which may require further investigation. Three additional burials (BU-110 – BU-112) were identified in the 2018 survey, as well as two additional cemeteries (CE-106 and CE-107).

All cemeteries and burials identified in 2015 and 2018 surveys are listed in Table 4 below. This is not a complete list of all burial sites in the study area and there is a potential for previously unknown (and undisturbed) cemeteries/burials to exist. It should be noted that the 19 burial and cemetery sites identified in 2015 and 2018 are in addition to 26 sites recorded in 2014 for the PSA and LPG project survey (these locations are listed in Appendix B and mapped in Appendix D). A number of these formerly recorded sites are situated along the main EN1 road proposed for the transportation of equipment during the CTT project and north of Mabime, where the route crosses the Govuro River.

Furthermore, during both the 2014 and 2015 fieldwork, a high potential for unmarked burial sites along the roads between the villages in the study area was identified, particularly near Mabime; Mapanzene and Mangugumete, possibly where unknown individuals were laid to rest during the civil war. These locations are well known to the community. The presence of Baobab trees are also considered as indicators of an important burial site by the local communities (particularly if the tree is very mature).

4.3.3.3 Churches and Mosques

Christianity was found to be prevalent in the project area, sitting alongside traditional religious practice. Six churches (CH-101 – CH-106) were noted across the villages within the study area in 2015, as well as one Mosque (MO-101), approximately 50 km north. Two additional churches, CH-107 and CH-108, were identified in 2018. These sites are listed in Table 4 and mapped on Figure 26 and Figure 27. These are in addition to 20 churches recorded (but not mapped) during the PSA survey in 2014. These were found within the villages of Mangarelane, Chipongo, Mabime, Mangugumete, Manusse and Chitsotso.



Figure 20: Church of St Ana, on EN1 south of Maimelane (Adamowicz, 2015)

4.3.3.4 Sacred Places

Animist activity and traditional ceremonies (tied to a particular natural place of cultural significance, e.g. sacred forest) were observed during the PSA study (2014) and were further investigated during the 2015 and 2018 cultural site surveys. Specific sites of cultural importance are noted below and listed more fully in Appendix A. These sites are mapped in Figure 26 and Figure 27.

Seven sites of cultural importance ‘sacred places’ were identified in 2015, these include six sites within the cultural heritage study area (SP-102 – 107). No additional sacred places were recorded in 2018. The known sites comprise sacred trees, sacred forest and a sacred pool. Where relevant, the ten additional sites recorded in 2014 are incorporated with the discussion below, these 2014 cultural sites are included in the cultural heritage gazetteer (Appendix B) and mapped in Figure 26 and Figure 27.

Sacred Trees and Forest

One specific sacred tree site was identified during the 2015 survey (SP-107). This site is potentially an ancient burial ground, situated around an old Baobab at Chipongo (Figure 21). The 2014 PSA community survey recorded four additional sacred trees in the vicinity of Mangarelane, Mabime, Manusse, and Chitsotso. These trees were often associated with areas of sacred forest, two of which contained cemeteries (at Mangugumete and Chitsotso). These locations are included in the cultural heritage gazetteer (Appendix B) and mapped in Figure 26 and Figure 27.

Community interviews in Mangarelane suggested that due to a loss of tall trees in the surrounding area (and consequently a loss of associated sacred spaces) many ceremonies are now conducted by elders within the village itself.



Figure 21: Site SP-107 sacred place near Chipongo village (Adamowicz, 2015)

Sacred Pool

Two sacred pool sites were located during the 2015 survey. Site SP-101 is approximately 15 km north of the study area alongside the EN1 road. Site SP-104 is situated on the coast approximately 20 m south of Chipongo. The 2014 PSA survey identified an additional sacred water body at Mabime (within the village) used to bury stillborn babies. It is taboo to use the pool for normal activities such as washing.

Other Sacred Places

Site SP-102 is located on the proposed northernmost transport route branch towards the coast. The site was identified as a spiritual centre but appeared abandoned. Site SP-103, south of Mangarelane, was identified as a site of male circumcision (Figure 22).



Figure 22: Site SP-103 place for male circumcision (Adamowicz, 2015)

Site SP-105, in the vicinity of St Ana Church (CH-106), is an area identified by the local community as a sacred place, which may be used for circumcision and/or contain an old cemetery site (Figure 23).



Figure 23: Site SP-105 sacred place (Adamowicz, 2015)

Site SP-107 is the residence and sanctuary of a local artist, traditional doctor and community leader (Figure 24).



Figure 24: Entrance to site SP-107 (Adamowicz, 2015)

All of the above cultural and sacred sites are not considered 'secret' and access is granted freely by the local community. However, the information pertaining to these sites is constrained by that information which the community was willing to share. As such, there remains a potential for as yet unrecorded sacred sites and secret sites (and related intangible activities and taboos) to exist within the study area. Those sites described above are summarised in Table 4.

Table 4: Cultural sites identified during community consultation (2015 and 2018)

Site ID	Site Type	Description	Coordinates (UTM 36K or Lat,Long)	Village/locality
BU-101	Burial	Burial, Sacred Place, claim by nephew of Pululane Milioro António as Sacred Place and burial of his ancestor. Nothing visible.	708107, 7583993	Manusse
BU-102	Burial	No visible burial. White cotton sheet indicates area of cemetery. Survey undertaken.	726334, 7597963	Mabime
BU-103	Burial	Burial of the founder of Chipongo in the end of 19 c. AD. No	733919, 7589938	Chipongo

Site ID	Site Type	Description	Coordinates (UTM 36K or Lat,Long)	Village/locality
		visible archaeological evidence.		
BU-104	Burial	Only two burials are visible. Grass very high. Lot of cobras which are considered protector of ancestors. Interview with local women.	732758, 7601174	Mangarelane
BU-105	Burial	One grave, 15m east of powerline servitude. Identified by Sasol clearance team.	-21.804111 35.036528	Manusse / powerline
BU-106	Burial	One grave, 30m west of powerline servitude. Identified by Sasol clearance team.	-21.812833 35.033000	Manusse / powerline
BU-107	Burial	Two graves, 15 m east of powerline servitude. Identified by Sasol clearance team.	-21.896944 35.071611	EN1
BU-108	Burial	Two graves. Identified by Sasol clearance team.	-21.898000 35.071583	Powerline
BU-109	Burial	One grave, 3m east of powerline servitude. Identified by Sasol clearance team.	-21.948611 35.100333	Powerline
BU-110	Burial	The grave of Santos' Mabime family (father). Identified by	724897, 7606809	Mangarelane II

Site ID	Site Type	Description	Coordinates (UTM 36K or Lat,Long)	Village/locality
		archaeological team during survey 19/06/18.		
BU-111	Burial	Two graves. Unknown family. Identified by archaeological team during survey 19/06/18.	725666, 7606208	Mangarelane II
BU-112	Burial	One grave. Unknown family. Identified by archaeological team during survey 19/06/18.	727810, 7598642	Mabime
CE-101	Cemetery	Partially destroyed by River Save.	710066, 7677891	Mambone
CE-102	Cemetery	Cemetery for people from Nhamanhcea two generations ago.	731614, 7589086	Chipongo
CE-103	Cemetery	Sacred Place, probably with burials. Some recent potsherd found	722872, 7601191	Mabime
CE-104	Cemetery	Five graves. Identified by Sasol clearance team	-21.864917 35.052833	Powerline
CE-105	Cemetery	Three graves. Identified by Sasol clearance team. Traditional ceremony carried out.	-21.884861 35.064111	Powerline
CE - 106	Cemetery	Five graves. Identified by archaeological	725825, 7606222	Mangarelane II

Site ID	Site Type	Description	Coordinates (UTM 36K or Lat,Long)	Village/locality
		team during survey 19/06/18.		
CE - 107	Cemetery	Seven graves. Identified by archaeological team during survey 19/06/18.	719326, 7599913	Mabime
CH-101	Church	Remarkable architecture. Needs to be renovated. Interview with Cristina Alfredo. Guardian with local nearby cemetery.	710518, 76778833	Mambone
CH-102	Church	Evangelical Church Guardian with local nearby cemetery	714664, 7612121	EN1
CH-103	Church	Apostolic Church, Assembleia de Deus. Guardian with local nearby cemetery.	731389, 7589159	Chipongo
CH-104	Church	Church Apostol's with rustic original architecture.	716789, 7580422	EN1
CH-105	Church	Methodist Church in need of renovation. Interview with priest. Guardian with local nearby cemetery.	731957, 7602292	Mangarelane
CH-106	Church	Church St. Ana and professional school for boys and girls. Field Survey, Interview	716638, 7601677	Maimelane
CH - 107	Church	Catholic church of St. José (semi-permanent), built	725723, 7606467	Mangarelane II

Site ID	Site Type	Description	Coordinates (UTM 36K or Lat,Long)	Village/locality
		with rudimental material. Identified by archaeological team during survey 19/06/18.		
CH - 108	Church	Catholic church (semi-permanent) built with rudimental material. Identified by archaeological team during survey 19/06/18.	719509, 7599787	Mabime
MO-101	Mosque	Mosque. General information and visit. Guardian with local nearby cemetery	710909, 7677940	Mambone
SP-101	Sacred place	Sacred Place. Field Survey	694159, 7635550	EN1
SP-102	Sacred place	Sacred Place. Centro de Reavivamento Espiritual. Field survey. Interview completed.	720470, 7615047	Mabime
SP-103	Sacred place	Sacred Place - circumcision. Where skins are buried. Field Survey and interview with local young men recently circumcised done by Ercidio Nhatule in Xitswa	732758, 7601394	Mangarelane
SP-104	Sacred place	Sacred Place. Dialog with some women. Bathing in the Pecane Lake help pregnant	737921, 7567790	Vilanculos

Site ID	Site Type	Description	Coordinates (UTM 36K or Lat,Long)	Village/locality
		women have healthy child.		
SP-105	Sacred place	Considered by local people as Sacred Place but not supported by church. Possibly an old cemetery.	716489, 7601678	Maimelane
SP-106	Sacred place	Paulo Vilankulos, artist, community leader, traditional doctor. Interview completed.	733919, 7589938	Chipongo
SP-107	Sacred place	Sacred Place, probably burial of community leaders.	731770, 7588865	Chipongo

4.3.3.5 Intangible cultural heritage

Among the communities surveyed in the CTT project area, an emphasis on locally valued unique traditions, often impossible for outsiders to fully comprehend, were observed. In this context intangible cultural heritage is defined as the traditional practices, cultural norms and knowledge transmitted from one generation to the next, which communities or individuals recognise as part of their cultural heritage. Such (non-material) assets are protected by Mozambican cultural heritage law (see Section 2.0).

Common community heritage events were observed across the communities surveyed, including:

- Christian religious holidays, such as Christmas and Easter;
- Muslim Ramadan;
- Initiation of young boys and their return from the forest after circumcision;
- Birth of first born son;
- The first fishing of the season;
- Cobra snakes are considered protectors of the ancestors; and
- Rites of initiations.

A number of specific intangible heritage elements were identified during the community interviews conducted for the 2014 PSA survey. These were seen to vary from village to village and commonly linked to a specific natural feature, e.g. a sacred tree. Further details are provided in the PSA cultural heritage report (Rrequal, Ancient & Golder Associados Moçambique Ltd, 2014). Where practices are linked to a specific place, these are listed in mapped in Figure 26 and Figure 27.

Medicinal Plants and Traditional Practice

In Mozambique, medicinal plants constitute a valuable instrument of traditional medicine, with *Curandeiros* widely used in rural areas as the main source of medicines for primary health care (Adamowicz, 2015). The socio-cultural value of this resource is largely unstudied. There are a number of plants preferred for the treatment of locally prevalent diseases (listed in Appendix A), however, the collection of these species is uncontrolled meaning that a large number are threatened with extinction.

During the 2014 cultural study for the PSA, traditional medicinal knowledge and specific plant species used for the treatment of disease and ailments were identified in the vicinity of three villages: Mapanzene, Mabime and Chipongo. This information was expanded during the 2015 cultural study, which includes interviews with practitioners of traditional healing with stores set up along the EN-1 road (Sites MP-101 – 03, see Figure 25). Details of these sites are summarised in Table 5.



Figure 25: Produce at clinic MP-101 (Adamowicz, 2015)

Table 5: Centres of traditional medicine identified during 2015 community consultation

Site ID	Site Type	Description	Coordinates (UTM 36K)	Village
MP-101	Traditional Medical Practice	Medicinal plants located in vicinity	716407, 7613312	(roadside – EN1)
MP-102	Traditional Medical Practice	Medicinal practice based almost entirely on shells and clay	716612, 7605310	(roadside – EN1)
MP-103	Traditional Medical Practice	Medicinal plants located in vicinity	716427, 7600269	Litlau (roadside – EN1)

4.3.3.6 *Cultural Site Summary*

The community consultation phase and cultural site survey identified a number of significant and unique cultural features within the study area. Although the settlement history is largely unknown and subject to debate, oral traditions suggest that Mangarelane may be the oldest village.

Burials were recorded primarily within the village centres and next to houses, two were also found to exist within areas of sacred forest. There is however a high potential for unmarked (and ancient) burials along the roads between villages and elsewhere: those grave sites identified are not considered to be a complete list. Three new burial sites, two new cemeteries and two new churches were identified within the study area during the 2018 survey.

Traditional cultural practices (ceremonial activity, initiation rites, traditional medicine etc.) and related natural sites with cultural values (sacred trees, forests, pool) were found throughout the villages surveyed in 2014 and 2015, no additional sites were identified in 2018.

Communities were found to resort to ritual activity in the event of hardship or need, as required. These activities were linked to specific cultural sites, often with intrinsic ancestral links and cultural landscape connotations.

The information pertaining to cultural sites and traditional practice is constrained by that information which the community was willing to share. There remains a potential for as yet unrecorded sacred sites to exist within the study area.

It is considered that all identified sacred sites fall into IFC's 'Non-Replicable' category (PS 8, 2012) and are defined 'Immoveable' by Mozambican Law (10/1988).

All the cultural sites identified are shown on Figure 26 and Figure 27.

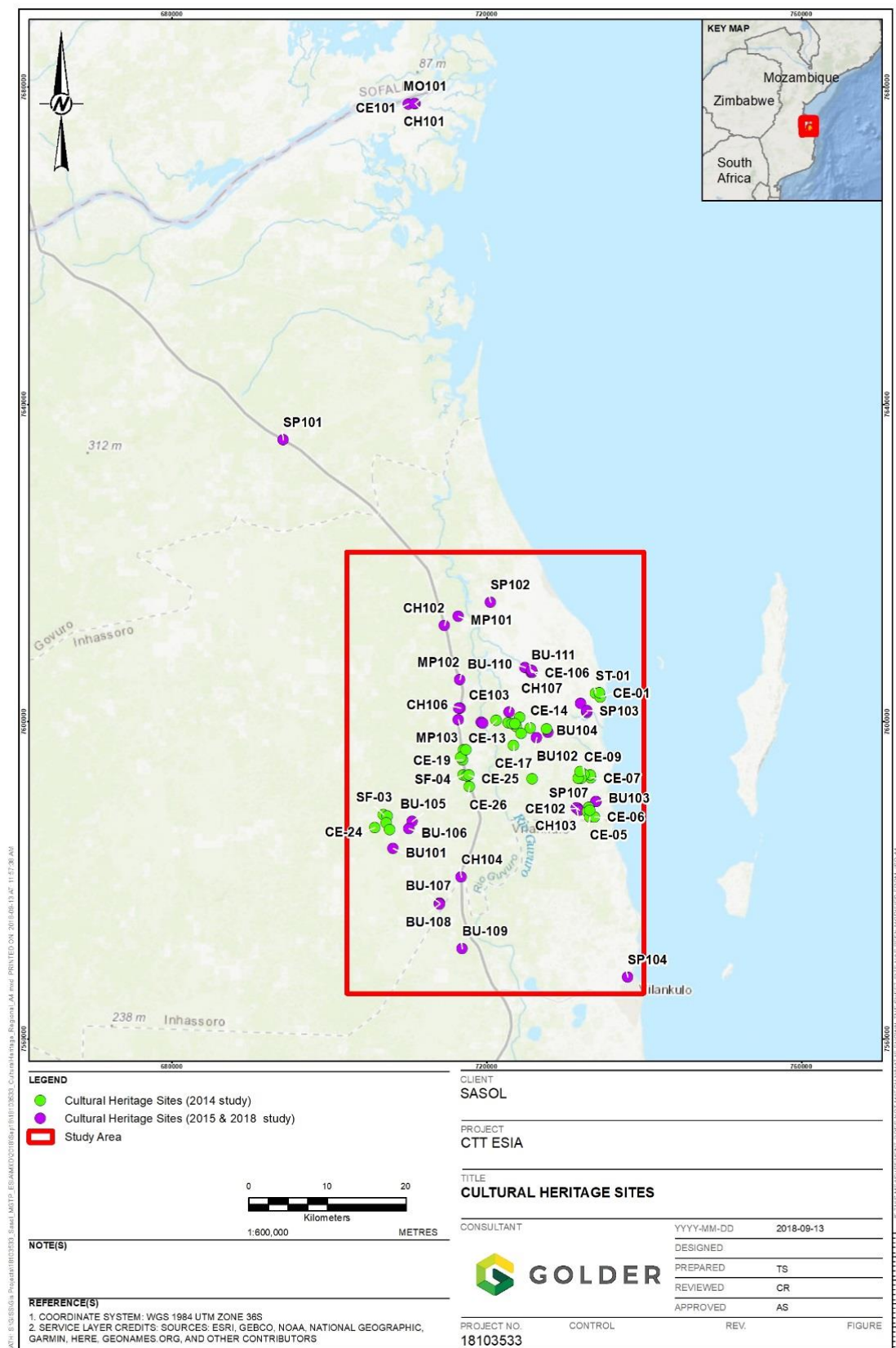


Figure 26: Cultural sites identified by baseline study

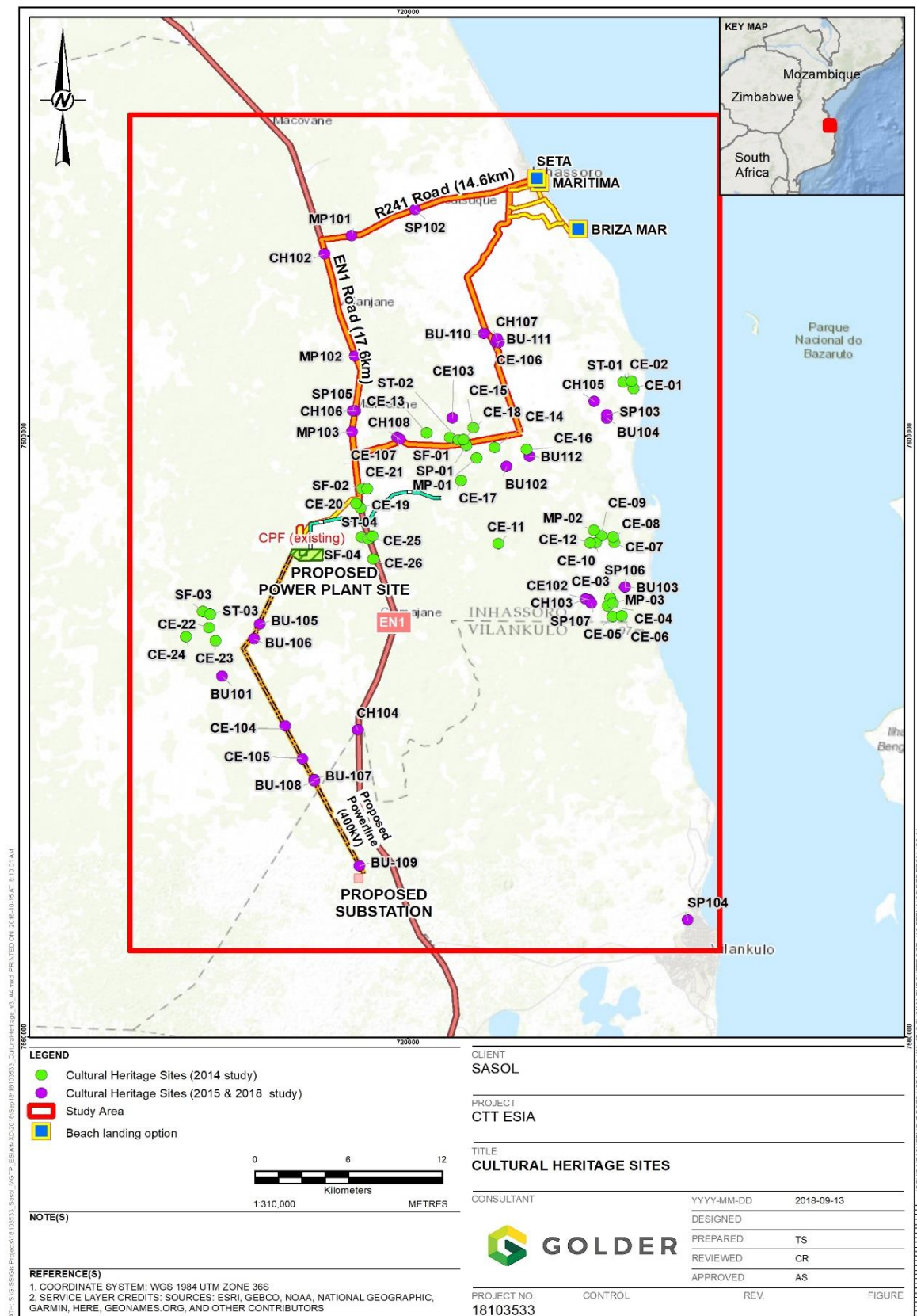


Figure 27: Cultural sites within study area

4.4 Cultural Heritage Site Valuation

In order to summarise the results baseline survey and to facilitate the impact assessment, all sites recorded have been rated in terms of their cultural heritage value. This baseline value is derived from a consideration of each feature or site in terms of its form, survival, condition, complexity, context and period.

Valuation has been calculated in terms of a perceived research worth and with reference to Mozambican designations ('moveable' and 'immovable'). It also takes into account the scale at which the site matters (e.g. local or regional) and their rarity. The results of the valuation process, for every site identified, are presented in Table 6.

The following values (low – high) have been applied to the identified cultural heritage site types within the study area:

- Low: sites of low local value, in the sense that new buildings (e.g. most churches, mosques) can be re-established, archaeological sites or artefacts which are common and well-researched;
- Medium: sites potentially movable under certain conditions and of moderate regional or community value (e.g. medicinal plants) and/or a potential research value (e.g. artefactual remains requiring further research), and
- High: both 'moveable' and 'immovable' sites of high national value and of high local value (e.g. burials, ancestral sacred places); statutory protected sites.

Also included in Table 6 are those cultural heritage sites identified for the PSA and LNG ESIA Project that may be impacted by the CTT project. The valuation ascribed to them in the 2014 impact assessment (Golder Associates, 2014) has been used for this assessment. These sites are *italicised* in Table 6.

4.4.1 Archaeological Site Valuation

As a result of the literature review and survey phase the archaeological potential of the Inhassoro area is considered to be relatively high. This potential relates to its favourable geographic location, making it an attractive place for prehistoric settlement. This theory is substantiated by the artefact remains gathered from the field surveys in both 2014 and 2015. However, those archaeological sites presently recovered within the study area ultimately amount to artefact surface scatter; none of these are unique to the region's archaeological record. Without further analysis and intrusive investigation (e.g. trial trenching) it is not possible to relate these materials to sites of particular significance (e.g. past settlement or industrial activity). In summary the archaeological sites within the study area, AR-102 – 105, AR-109 – 112 and AR-114 - 115 are valued as low – medium to account for their potential research value and (as yet unsubstantiated) association with sub-surface features. Sites beyond the study area AR-101, AR-106 – 108 and AR-113 are valued as high to account for their protected status and proven research value.

4.4.2 Cultural Site

The significance of the cultural sites identified in the study area has been calculated in terms of the potential negative impact on the community in the event that they (the community) or the sites themselves are relocated. In order to ensure maintenance of the 'cultural norm' (i.e. continuation of normal cultural activity) for those communities affected by the project, access to those local cultural sites identified in the study area is required.

Burial sites and sacred sites which provide tangible ancestral links to the past (e.g. a sacred tree) are considered particularly sensitive and 'immovable'. Those features associated with unique, intangible, cultural practice (medicinal plants, sacred sites) are also highly sensitive.

In summary, all sacred places (SP-101 – 107) are valued as high. The majority of churches within the study area (CH -102 – 105) have been valued as low in account of their relative modernity and potential movability. Church CH-106, however, has been valued as medium to account for its architectural value.

Table 6: Cultural Heritage Site Valuation Summary

Site ID	Site Type	Description	Location	Valuation
AR-1	Archaeological	Late Iron Age Pottery and Lithic Scatter	Proposed data gathering well I-G6PX-6	LOW - MEDIUM
AR-2	Archaeological	Late Iron Age Pottery Scatter	Proposed well pad I-G6PX-4	LOW - MEDIUM
AR-3	Archaeological	Early Iron Age Pottery Scatter and Shells	Existing pad I-14	LOW - MEDIUM
AR-4	Archaeological	Late Stone Age Lithics	1 km south of proposed flowline	LOW - MEDIUM
AR-5	Archaeological	Late Iron Age Shell Midden	Proposed well pad I-G6PX-2	LOW
AR-101	Archaeological	Mambone 2 - Archaeological Site, disturbed by river Save erosion. Field survey completed.	c80 km north of Vilanculos, Inhambane. Mouth of the Save River.	HIGH
AR-102	Archaeological	Mambone 1 - Archaeological almost totally disturbed by fluvial erosion. Interview with Cristina Alfredo.	c80 km north of Vilanculos, Inhambane. Mouth of the Save River.	LOW
AR-103	Archaeological	Settlement site. Archaeological site. Late Iron Age.	Along route for transportation of equipment	MEDIUM
AR-104	Archaeological	Settlement site. Late Iron Age. Dispersed pottery Luangwa Tradition. Site disturbed by practice of agriculture and	c30 km west of powerline	LOW

Site ID	Site Type	Description	Location	Valuation
		erosion. Systematic field survey.		
AR-105	Archaeological	Small area with high concentration of Luangwa Tradition Pottery and iron slag.	Adjacent to route for transportation of equipment	MEDIUM
AR-106	Archaeological	Chibuene. Coastal trading settlement with artefacts, such as glass beads, evidencing trade links across the Indian Ocean. Pottery with shell stamp motifs.	c6 km south of Vilanculos, Inhambane.	HIGH
AR-107	Archaeological	Nhachengue. Archaeological Site, evidence of Gokomere-Ziwa ceramic tradition	Nhanchengue, Inhambane.	HIGH
AR-108	Archaeological	Archaeological site. Late Iron Age. Stone walls. Zimbabwe Tradition.	c100 km north of Vilanculos, Inhambane.	HIGH
AR-109	Archaeological	Few quartz microlith and Late Iron Age pottery. Site covered by high grass and partially disturbed by agriculture.	c9 km east of Mapanzene	LOW
AR-110	Archaeological	Late Iron Age Archaeological Site. Luangwa Tradition decorated pottery. Disturbed by agriculture.	South eastern extent of study area	LOW

Site ID	Site Type	Description	Location	Valuation
AR-111	Archaeological	Archaeological site. ?Early and Late Iron Age.	c 5 km south east of Manusse	MEDIUM
AR-112	Archaeological	Archaeological site. Late Iron Age.	c 5 km north of route for transportation of equipment	LOW
AR-113	Archaeological	Manyikeni. Madzimbabwe. Open Air Museum. Stone wall. Zimbabwe Tradition.	c52 km north of Vilanculos, beyond study area.	HIGH
AR-114	Archaeological	Archaeological site. Late Iron Age. Limited archaeological evidence and shallow shell midden.	c11 km north east of Mapanzene.	LOW
AR-115	Archaeological	Archaeological Site. Late Iron Age. Recorded in 2000, entirely disturbed by agriculture. Field survey.	c.2 km north of beach landing option at Maritima	LOW
BU-101	Cultural and Religious	Burial, Sacred Place, claim by nephew of Pululane Miliro António as Sacred Place and burial of his ancestor. Nothing visible.	Manusse	HIGH
BU-102	Religious	No visible burial. White cotton sheet indicates area of cemetery. Interviewed Guardian and local	On the way to Mabime.	HIGH

Site ID	Site Type	Description	Location	Valuation
		people. Survey undertaken.		
BU-103	Religious	Burial of the founder of Chipongo in the end of 19 c. AD. No visible archaeological evidence.	Chipongo	HIGH
BU-104	Religious	Only two burials are visible. Grass very high. Lot of cobras which are considered protector of ancestors. Interview with local women.	Mangarelane	HIGH
BU-105	Religious	One grave. Identified by Sasol clearance team.	Manusse, 15m east of powerline servitude.	HIGH
BU-106	Religious	One grave. Identified by Sasol clearance team.	Manusse, 30m west of powerline servitude.	HIGH
BU-107	Religious	Two graves. Identified by Sasol clearance team.	Burial, 15 m east of powerline servitude.	HIGH
BU-108	Religious	Two graves. Identified by Sasol clearance team.	Burial, along powerline servitude	HIGH
BU-109	Religious	One grave. Identified by Sasol clearance team.	Burial, 3m east of powerline servitude	HIGH
BU - 110	Religious	The grave of Santos' Mabime family (father). Identified by archaeological team during survey 19/06/18.	Mangarelane II -21.62769 35.17279	HIGH

Site ID	Site Type	Description	Location	Valuation
BU - 111	Religious	Two graves. Unknown family. Identified by archaeological team during survey 19/06/18	Mangarelane II -21.63302 35.18030	HIGH
BU - 112	Religious	One grave. Unknown family. Identified by archaeological team during survey 19/06/18	Mabime -21.70105 35.20204	HIGH
CE-101	Religious	Partially destroyed by River Save. Interview with guardian and a local.	Old Mambone	HIGH
CE-102	Religious	Cemetery for people from Nhamanhcea two generations ago. Interview with some people/Survey	Nhamanhcea	HIGH
CE-103	Cultural and Religious	Sacred Place, probably with burials. Some recent potsherd found	Malongojiva	HIGH
CE-104	Religious	Five graves. Identified by Sasol clearance team	Cemetery, along powerline servitude	HIGH
CE-105	Religious	Three graves. Identified by Sasol clearance team. Traditional ceremony carried out.	Cemetery, along powerline servitude	HIGH
CE - 106	Religious	Cemetery. Five graves. Identified by archaeological	Mangarelane II 725825 7606222	HIGH

Site ID	Site Type	Description	Location	Valuation
		team during survey 19/06/18.		
CE - 107	Religious	Cemetery. Seven graves. Identified by archaeological team during survey 19/06/18.	Mabime 719326 7599913	HIGH
CH-101	Religious	Remarkable architecture. Needs to be renovated. Interview with Cristina Alfredo. Guardian with local nearby cemetery.	Mambone	MEDIUM
CH-102	Religious	Evangelical Church Guardian with local nearby cemetery	Jofane, along transportation route	LOW
CH-103	Religious	Apostolic Church, Assembleia de Deus. Guardian with local nearby cemetery.	Chipongo	LOW
CH-104	Religious	Church Apostol's with rustic original architecture.	Apostolic Church	LOW
CH-105	Religious	Methodist Church in need of renovation. Interview with priest. Guardian with local nearby cemetery.	Methodist Church	LOW
CH-106	Religious	Church St. Ana and professional school for boys and girls. Field Survey, Interview	M.C.St. Ana, along transportation route	MEDIUM
CH - 107	Religious	Catholic church of St. José (semi-permanent) with	Mangarelane II 725723 7606467	LOW

Site ID	Site Type	Description	Location	Valuation
		build with rudumental material. Identified by archaeological team during survey 19/06/18.		
CH - 108	Religious	Catholic church (semi-permanent) with build with rudumental material. Identified by archaeological team during survey 19/06/18	Mabime 719509 7599787	LOW
MO-101	Religious	Mosque. General information and visit. Guardian with local nearby cemetery.	Old Mambone / Govuro	LOW
MP-101	Cultural	Medicinal site - interview with Curandeiro nephew. Curandeiro himself went to forest to look for natural medicine. Interview completed.	North of Maimelane, along transportation route	LOW
MP-102	Cultural	Medicinal site - Traditional Doctor Recently open practice. Medicine is not based on plants, almost all are shells or clays.	Temane	MEDIUM
MP-103	Cultural	Medicinal site - Traditional Doctor Manique Eusébio was born in Malawi but family is from Inhambane	Litlau, along transportation route	HIGH

Site ID	Site Type	Description	Location	Valuation
		province. Interview completed.		
SP-101	Cultural	Sacred Place. Field Survey	Lago Sangene. 15 km north of study area	HIGH
SP-102	Cultural	Sacred Place. Centro de Reavivamento Espiritual. Field survey. Interview completed.	8 km west of Inhassoro, along transportation route	LOW
SP-103	Cultural	Sacred Place - circumcision. Where skins are buried. Field Survey and interview with local young men recently circumcised done by Ercidio Nhatule in Xitswa	Mangarelane I	HIGH
SP-104	Cultural	Sacred Place. Dialog with some women. Bathing in the Pecane Lake help pregnant women have healthy child.	Pecane, south eastern boundary of study area.	HIGH
SP-105	Cultural and Religious	Considered by local people as Sacred Place but not supported by church. Old cemetery.	Maimelane, along transportation route	HIGH
SP-106	Cultural	Paulo Vilankulos, artist, community leader, traditional doctor. Interview completed.	Chipongo	HIGH

Site ID	Site Type	Description	Location	Valuation
SP-107	Cultural and Religious	Sacred Place (5), probably burial of community leaders.	Chipongo	HIGH
CE-01	Cultural	Cemetery	Mangarelane	HIGH
CE-02	Cultural	Cemetery	Mangarelane	HIGH
CE-03	Cultural	Cemetery	Chipongo	HIGH
CE-04	Cultural	Cemetery	Chipongo	HIGH
CE-05	Cultural	Cemetery	Chipongo	HIGH
CE-06	Cultural	Cemetery	Chipongo	HIGH
CE-07	Cultural	Cemetery	Mapanzene	HIGH
CE-08	Cultural	Cemetery	Mapanzene	HIGH
CE-09	Cultural	Cemetery	Mapanzene	HIGH
CE-10	Cultural	Cemetery	Mapanzene	HIGH
CE-11	Cultural	Cemetery	Mapanzene	HIGH
CE-12	Cultural	Cemetery	Mapanzene	HIGH
CE-13	Cultural	Cemetery	Mabime	HIGH
CE-14	Cultural	Cemetery	Mabime	HIGH
CE-15	Cultural	Cemetery	Mabime	HIGH
CE-16	Cultural	Cemetery	Mabime	HIGH
CE-17	Cultural	Cemetery	Mabime	HIGH
CE-18	Cultural	Cemetery	Mabime	HIGH
CE-19	Cultural	Cemetery	Mangugumete	HIGH
CE-20	Cultural	Cemetery	Mangugumete	HIGH
CE-21	Cultural	Cemetery	Mangugumete	HIGH
CE-22	Cultural	Cemetery	Manusse	HIGH
CE-23	Cultural	Cemetery	Manusse	HIGH
CE-24	Cultural	Cemetery	Manusse	HIGH
CE-25	Cultural	Cemetery	Chitsotso	HIGH

Site ID	Site Type	Description	Location	Valuation
CE-26	Cultural	Cemetery	Chitsotso	HIGH
SF-01	Cultural	Sacred Forest, surrounding Sacred Tree (ST-02)	Mabime	HIGH
SF-02	Cultural	Sacred Forest contains cemetery (CE-21)	Mangugumete	HIGH
SF-03	Cultural	Sacred Forest	Manusse	HIGH
SF-04	Cultural	Sacred Forest, contains cemetery (CE-25)	Chitsotso	HIGH
SF-05	Cultural	Sacred Forest	Mapenzene	HIGH
SP-01	Cultural	Sacred Pool	Mabime	HIGH
ST-01	Cultural	Sacred Tree - Baobab Tree	Mangarelane	HIGH
ST-02	Cultural	Sacred Tree - 'Massaleira', burial site of first King, within Sacred Forest (SF-01)	Mabime	HIGH
ST-03	Cultural	Sacred Tree	Manusse	HIGH
ST-04	Cultural	Sacred Tree	Chitsotso	HIGH
MP-01	Cultural	Medicinal Plants	Mabime	MEDIUM
MP-02	Cultural	Medicinal Plants	Mapanzene	MEDIUM
MP-03	Cultural	Medicinal Plants	Chipongo	MEDIUM
N/A	Cultural	All Churches	All Villages	LOW

5.0 IMPACT ASSESSMENT

5.1 Assessment methodology and rating criteria

Potential impacts are assessed according to the direction, intensity (or severity), duration, extent and probability of occurrence of the impact. These criteria are discussed in more detail below:

Direction of an impact may be positive, neutral or negative with respect to the particular impact. A positive impact is one which is considered to represent an improvement on the baseline or introduces a positive change.

A negative impact is an impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.

Intensity / Severity is a measure of the degree of change in a measurement or analysis (e.g. the concentration of a metal in water compared to the water quality guideline value for the metal), and is classified as none, negligible, low, moderate or high. The categorisation of the impact intensity may be based on a set of criteria (e.g. health risk levels, ecological concepts and/or professional judgment). The specialist study must attempt to quantify the intensity and outline the rationale used. Appropriate, widely-recognised standards are used as a measure of the level of impact.

Duration refers to the length of time over which an environmental impact may occur: i.e. transient (less than 1 year), short-term (1 to 5 years), medium term (6 to 15 years), long-term (greater than 15 years with impact ceasing after closure of the project) or permanent.

Scale/Geographic extent refers to the area that could be affected by the impact and is classified as site, local, regional, national, or international. The reference is not only to physical extent but may include extent in a more abstract sense, such as an impact with regional policy implications which occurs at local level.

Probability of occurrence is a description of the probability of the impact actually occurring as improbable (less than 5% chance), low probability (5% to 40% chance), medium probability (40 % to 60 % chance), highly probable (most likely, 60% to 90% chance) or definite (impact will definitely occur).

Impact significance will be rated using the scoring system shown in Table 7 below. The significance of impacts is assessed for the two main phases of the project: i) construction ii) operations. While a somewhat subjective term, it is generally accepted that significance is a function of the magnitude of the impact and the likelihood (probability) of the impact occurring. Impact magnitude is a function of the extent, duration and severity of the impact, as shown in Table 7.

Table 7: Scoring system for evaluating impacts

Severity	Duration	Extent	Probability
10 (Very high/don't know)	5 (Permanent)	5 (International)	5 (Definite/don't know)
8 (High)	4 (Long-term – longer than 15 years and impact ceases after closure of activity)	4 (National)	4 (Highly probable)
6 (Moderate)	3 (Medium-term- 6 to 15 years)	3 (Regional)	3 (Medium probability)
4 (Low)	2 (Short-term - 1 to 5 years)	2 (Local)	2 (Low probability)
2 (Minor)	1 (Transient – less than 1 year)	1 (Site)	1 (Improbable)
1 (None)			0 (None)

After ranking these criteria for each impact, a significance rating was calculated using the following formula:

SP (significance points) = (severity + duration + extent) x probability.

The maximum value is 100 significance points (SP). The potential environmental impacts were then rated as of High (SP >75), Moderate (SP 46 – 75), Low (SP ≤15 - 45) or Negligible (SP < 15) significance, both with and without mitigation measures in accordance with Table 8.

Table 8: Impact significance rating

Value	Significance	Comment
SP >75	Indicates high environmental significance	Where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. Impacts of high significance would typically influence the decision to proceed with the project.

Value	Significance	Comment
SP 46 - 75	Indicates moderate environmental significance	Where an effect will be experienced, but the impact magnitude is sufficiently small and well within accepted standards, and/or the receptor is of low sensitivity/value. Such an impact is unlikely to have an influence on the decision. Impacts may justify significant modification of the project design or alternative mitigation.
SP 15 - 45	Indicates low environmental significance	Where an effect will be experienced, but the impact magnitude is small and is within accepted standards, and/or the receptor is of low sensitivity/value or the probability of impact is extremely low. Such an impact is unlikely to have an influence on the decision although impact should still be reduced as low as possible, particularly when approaching moderate significance.
SP < 15	Indicates negligible environmental significance	Where a resource or receptor will not be affected in any material way by a particular activity or the predicted effect is deemed to be imperceptible or is indistinguishable from natural background levels. No mitigation is required.
+	Positive impact	Where positive consequences / effects are likely.

In addition to the above rating criteria, the terminology used in this assessment to describe impacts arising from the current project are outlined in Table 9 below. In order to fully examine the potential changes that the project might produce, the project area can be divided into Areas of Direct Influence (ADI) and Areas of Indirect Influence (AII).

- Direct impacts are defined as changes that are caused by activities related to the project and they occur at the same time and place where the activities are carried out i.e. within the ADI.
- Indirect impacts are those changes that are caused by project-related activities, but are felt later in time and outside the ADI. The secondary indirect impacts are those which are as a result of activities outside of the ADI.

Table 9: Types of impact

Term for Impact Nature	Definition
Direct impact	Impacts that result from a direct interaction between a planned project activity and the receiving environment/receptors (i.e. destruction of an archaeological feature or sacred site).
Indirect impact	Secondary impacts that result from project activity and affect the environment in which the receiving receptor is experienced (i.e. an increase in noise/dust at a sacred site, a loss of access to cultural sites).
Cumulative impact	Impacts that act together with other impacts (including those from concurrent or planned activities) to affect the same resources and/or receptors as the project.

The criteria used for assessing severity are:

- None/Minor – negligible or no change in archaeological heritage elements; negligible or no change in the setting or condition of a cultural/sacred site, and no anticipated change in related cultural practice;
- Low - changes to key archaeological elements so that the asset is slightly altered; there is a low level change to a cultural/sacred site (i.e., small part of the site, or its value, is lost. Slight changes to the use, setting and/or accessibility; slight changes to local cultural traditions;

- Moderate - changes to many key archaeological elements such that the resource is clearly modified and information is lost; there is a medium level change to a cultural/sacred site's setting or condition i.e. a notable portion is lost or damaged , considerable changes to use, setting, and/or accessibility; changes to local cultural traditions so that they are noticeably modified; and
- High/Very High - changes to key archaeological elements such that the resource is totally altered or removed; changes to a cultural/sacred site so that it is wholly lost or altered to such a degree that it loses its function, and the cultural norm cannot continue.

Professional judgement (including a consideration of site value) has been used to determine between none and minor and high and very high.

5.2 Identified impacts

5.2.1 Construction phase impacts

Table 10 presents a description of potential impacts to cultural heritage during the construction phase.

Table 10: Potential construction phase impacts to cultural heritage

Potential Impact	Description of potential construction impact
Change to the land surface	Land will be cleared (e.g. of medicinal plants), levelled, excavated and compacted (as a result of vehicle movements). Surface material (artefacts) will be re-deposited, damaged or destroyed as a result of any ground works. Sites of cultural significance (e.g. sacred trees, sacred forest) will be destroyed. Subsurface remains (e.g. burials) will be compacted and damaged by vehicles.
Ground Pollution	Physical pollution can arise from construction-related materials or other non-natural materials. Damage to archaeological deposits and/or sites of natural/cultural significance (e.g. sacred water courses) could also occur as a result of construction vehicle fuel spillage or leakage.
Change in Environmental Setting	Construction activity can result in increased noise levels, dust and visual disturbance. The physical setting of a cultural or religious site (e.g. sacred area) could be disturbed as a result. Intangible cultural heritage practice may also be affected consequently.
Demographic changes	Construction activity in the area may instigate demographic change (e.g., increased income, education, healthcare and in-migration) and can affect change in local belief systems and intangible heritage.

Changes to the land surface

Archaeological Sites

There are no known archaeological sites located within an area expected to be impacted by a change to the land surface. All known archaeological sites are located sufficiently distant from project infrastructure to be unaffected, or are located adjacent to existing roads, which will not be widened. There is potential, however, for unknown archaeological sites, which may exist beneath the surface or as undiscovered surface scatters, to be directly impacted during site preparation and construction works through changes to land surface. In the worst-case scenario (pre-mitigation), this could result in a very high severity, permanent, internationally significant impact.

Cultural Sites

There are a number of cultural sites that could potentially be directly impacted by changes to land surface. These include those located along the southern transport route option, which is to be widened and improved, and those along the proposed overhead electricity transmission line. Potentially impacted sites comprise:

- Burials – BU-110 and BU-111 (transport route), and BU-105, BU-106, BU-107, BU-108 and BU-109 (powerline);
- Cemeteries – CE-18, CE-106 and CE-107 (transport route), and CE-104 and CE-105 (powerline);
- Churches – CH-107 and CH-108 (transport route); and
- Sacred Places – SF-01, ST-02 and SP-01 (transport route).

In the worst-case (pre-mitigation), this could result in a very high severity, permanent impact at high value sites (burials, cemeteries and sacred places).

There is also potential for accidental damage to unknown or undiscovered cultural sites (e.g. undiscovered burial or an undisclosed sacred site). In the worst-case (pre-mitigation), this could result in a very high severity, permanent impact at high value sites.

Mitigation

The potential for impacting currently undiscovered archaeological remains will be mitigated through the immediate preparation and adherence to a Chance Find Procedure (CFP) in accordance with Mozambican heritage legislation. The CFP will form a component of the Cultural Heritage Management Plan (CHMP), which will seek to manage and monitor all cultural heritage effects for the project's lifetime. The CFP must be updated during the lifetime of the project to make provisions for a course of action in the event that artefacts are accidentally disturbed. The law states that assets must be disclosed to the local authority within 48 hours of discovery. The CFP will meet requirements for accidental cultural heritage disturbance as stipulated by both IFC and Mozambican Law. The CFP will be presented to the relevant local authority for approval. If significant archaeological remains are discovered, the need for excavation and 'preservation through record' may be required. In this case, the loss of *in situ* preservation of archaeological remains would be balanced by improved understanding of the archaeological record in a relatively understudied region.

Impacts to the identified cultural sites can be avoided by selecting the northern transport route (which already exists and requires no widening), and through re-alignment of the proposed overhead electricity transmission line, so as to avoid the identified burial and cemetery sites. It will be paramount that the Proponent continues to engage with the local community so as to avoid and accidental direct damage to unmarked (and unrecorded) graves along existing road routes and / or other previously unidentified cultural sites in the vicinity. The CHMP should include measures for dialogue during the construction phase between the Proponent and local community in relation to the avoidance of unmarked graves and previously unknown cultural assets.

Ground Pollution

There are six natural sacred places, three cemeteries three locations of traditional medical practice and one archaeological site located in close proximity to project infrastructure that may be impacted by the release of pollution to the environment. Sites SF-02, SP-102, SP-105, CE-19, CE-20, CE-21, MP-101, MP-102, MP-103 and AR-103 are all located adjacent to the existing R241 and EN1 roads (northern access route option). Sites SF-01, ST-02 and SP-01 are located along the proposed southern access route. As such, the potential for project related pollution is limited to spillages or leakage from construction vehicles. Sacred watercourses in particular, may be damaged in such a way that prevents normal cultural activity from resuming.

In the case of the three sites along the southern access route, it is already predicted that, if construction of that route were to go ahead, these sites could be destroyed or damaged. If they were to survive direct disturbance from construction activity, the potential impact of ground pollution could act cumulatively to impact these sites.

In the worst-case (pre-mitigation), this could result in a high severity, permanent, local, impact at high value sites (sacred places).

Mitigation

Impacts to SF-01, ST-02 and SP-01 can be voided by selecting the northern transport route (which already exists and requires no widening).

Ground pollution impacts will be mitigated through regular vehicle maintenance, in keeping with best practice on pollution prevention. An Emergency Response Plan will be prepared to react to accidental spillages from construction vehicles. The CHMP should also include measures for long-term dialogue between the Proponent and local community in relation to the environmental monitoring of sacred places (watercourses).

Change in Environmental Setting

There are no assets in close proximity to the proposed power plant site, and so no impacts from noise, air or visual disturbance are anticipated. There are also no impacts from a change in environmental setting anticipated at the burial and cemetery sites along the proposed electricity transmission line as a result of air emissions during construction (assuming the alignment of the route is altered to avoid direct disturbance, as discussed above).

Cultural sites adjacent to the proposed transport route, are expected to experience noise, air and visual impacts as a result of construction traffic. This will be limited to the construction period, and will only occur during delivery of equipment and materials. Potentially impacted sites comprise:

- Burials – BU-110 and BU-111 (high value);
- Cemeteries – CE-18, CE-19, CE-20, CE-21, CE-106 and CE-107 (high value);
- Churches – CH-102, CH-106, CH-107 and CH-108 (low - medium)
- Sacred Places – SF-01, F-02, ST-02, SP-01, SP-102 and SP-105 (high);
- Locations of Traditional Medical Practice (MP-101, MP-102 and MP-103).

In the worst-case (pre-mitigation), this could result in a moderate severity, short term, local, impact at high value sites (sacred places).

Mitigation

The CHMP should include plans to monitor changes to the environmental setting during the construction phase of those assets highlighted above. This may also include measures for the demarcation of sensitive areas (e.g. roadside sites) to prevent accidental damage via the laydown of materials etc. during construction and/or additional planting or screening to protect sites. The full requirements of the CHMP are summarised below.

Change in Demographics

It is anticipated that elements of intangible cultural heritage are susceptible to impacts resulting from demographic change (specifically influx), particularly during construction when a large proportion of the required skilled workforce will need to be sourced from outside the area. It is expected this influx will be limited to the construction period. This issue is considered in broader terms in the Social specialist report (i.e. beyond the

impact solely on intangible cultural heritage), and details on mitigation (e.g. an Influx Management Plan) are presented in that report.

It is difficult to predict exactly how and when changes to intangible heritage will occur and some cultural change is inevitable. During the construction phase, the influx of workers or those seeking indirect benefits and socio-economic impacts that may result, together with any loss of access or changes in environmental setting of sites used for traditional activities, is likely to have an impact. Selecting the severity of this impact is subjective, with deviation from the local cultural norm perceived as either positive or negative by different people. Furthermore, an influx of migrants may either strengthen or weaken local cultural practices over the project lifetime.

If impacts were to occur, pre-mitigation, they would be of unknown and therefore, of very high severity (on a worst case / don't know basis), local and short - medium term in duration.

Mitigation

The CHMP should provide measures for the maintenance of community access to sacred sites and facilitate respect for local intangible cultural heritage, tradition and taboos through continued community liaison. It is suggested that the presence of culturally significant places are highlighted to contractors and sub-contractors during the site induction process as project cultural awareness training.

Summary of General Cultural Heritage Mitigation

A CHMP should be developed by the Proponent to manage and monitor all cultural heritage effects for the project's lifetime in line with PS 8 and Mozambican heritage legislation (Law 10/1988 and Decree 27/1994). The CHMP should include:

- The preparation of a project-specific, 'site ready' Chance Find Procedure (CFP) to detail the requirements of the Mozambican Archaeological Heritage Protection Regulations (Decree 27/1994) which enforce the reporting of any archaeological assets to the local authority within 48 hours of discovery. The CFP will set out the course of action to be followed in the event that any cultural heritage artefacts are recovered. The CFP should be provided to all contractors and consultants on the project site during all construction activity and incorporated within the project's 'site induction' process. It will remain in place for the lifetime of the project.
- Demarcation of 'no go' sensitive areas e.g. sacred forests, sacred trees, sacred pools, medicinal bush, cemeteries (i.e. mitigation by avoidance). Although these sites may not be directly affected by construction activities there is a potential for disturbance of community access routes to cultural sites and to the environmental setting of the sites themselves;
- Enhancement or protection of environmental setting may be required and should be discussed in conjunction with local community e.g. through planting/screening;
- It may be necessary to demarcate areas to be avoided (e.g. by noisy, dust-inductive) construction vehicles at certain times of the day/year so as to avoid disturbance of traditional ceremonial activities in close proximity of construction routes;
- Maintaining community access to sacred sites and facilitating respect for local intangible cultural heritage, tradition and taboo will ensure that the negative socio-cultural effects are effectively managed – regular platforms for community liaison are recommended in this regard. It is suggested that the presence of culturally significant places are highlighted to contractors at any early stage, e.g. during site induction.
- Continued liaison between the Proponent and local cultural leaders to facilitate the identification of any cultural sites not yet shared by the community and potentially affected by the proposed project. The CHMP must set out plans for stakeholder identification and a programme for long term consultation in this regard.

Table 11 presents the assessment of impacts during the construction phase

Table 11: Impact assessment table – construction phase

Indicator of potential impact	Pre-mitigation					Post-mitigation				
	Severity	Duration	Extent	Probability	Significance	Severity	Duration	Extent	Probability	Significance
<i>Impact of changes to land surface on undiscovered archaeological remains (worst case)</i>	10	5	5	5	High 100	10	5	5	2	Low 40
<i>Impact of changes to land surface on cultural sites</i>	10	5	2	5	High 85	10	5	2	2	Low 34
<i>Impact of ground pollution</i>	8	5	2	2	Low 30	8	5	2	1	Low 15
<i>Impact change in environmental setting</i>	6	2	2	4	Low 40	6	2	2	1	Negligible 10
<i>Impact of demographic change</i>	10	2	2	4	Moderate 56	6	2	2	2	Low 20

5.2.2 Operational phase impacts

There are no direct impacts anticipated on tangible cultural heritage sites during the operational phase. Impacts upon intangible cultural heritage, in particular through demographic changes (influx), are anticipated to be limited due to the small number of jobs associated with the operational phase and the likelihood that these will be primarily sourced from the local population. The CHMP should provide mitigation for this, and will provide measures for the maintenance of community access to sacred sites and facilitate respect for local intangible cultural heritage, tradition and taboos through continued community liaison. It is suggested that the presence of culturally significant places are highlighted to contractors and sub-contractors during the site induction process as project cultural awareness training

Once constructed, the environmental setting of burials and cemeteries along the electricity transmission route (BU-105 – BU-109, and CE-104 and CE-105) could be impacted by noise and visual effects as result of the overhead powerlines. Pre-mitigation, this could result in a moderate severity, long term, local impact at high value sites. It is proposed that the noise impact would be mitigated by re-aligning the route to avoid these burials (which is already recommended during the construction phase).

These impacts are summarised in Table 12.

Table 12: Impact assessment table – operation phase

Indicator of potential impact	Pre-mitigation					Post-mitigation				
	Severity	Duration	Extent	Probability	Significance	Severity	Duration	Extent	Probability	Significance
Impact of change in environmental setting	6	4	2	4	Moderate 48	4	4	2	4	Low 40
Impact of demographic change	4	4	2	4	Low 40	2	4	2	2	Low 16

5.2.3 Decommissioning phase impacts

It is considered that impacts during decommissioning will be limited to changes to environmental setting, and will be similar to those predicted for construction.

6.0 ENVIRONMENTAL ACTION PLAN

Table 13: Environmental Action Plan

Aspect	Potential Impact	Impact Source	Detailed Actions	Responsibility
Cultural Heritage	Destruction of archaeological remains	Changes to land surface	Preparation of CFP. Adherence to CFP.	Golder to prepare CFP. Proponent to adhere.
Cultural Heritage	Destruction of cultural sites	Changes to land surface	Review design options to avoid impact. Preference is northern transport route, and to re-align powerline. Adherence to CHMP	Golder to prepare CHMP. Proponent to adhere.
Cultural Heritage	Damage to cultural heritage through leaks from vehicles	Ground pollution	Ensure all vehicles well maintained. Prepare Emergency Response Plan and Adherence to CHMP	Golder to prepare CHMP. Proponent to adhere.
Cultural Heritage	Damage to cultural heritage	All activities	Preparation of CHMP. Adherence to CHMP.	Golder to prepare. Proponent to adhere.

7.0 CONCLUSIONS

Baseline cultural heritage conditions for the proposed CTT power plant were established through systematic survey, community consultation and desk-based study. A total of 87 sites were identified by the baseline study within the study area, as well as 10 located outside the study area within the Inhambane region.

An assessment of potential impacts indicates that, without mitigation, there is potential for high significance impacts (in a worst –case scenario) on cultural heritage sites during construction as a result of direct disturbance from changes in the land surface. Mitigation measures, including selection of the northern access route, re-alignment of the electricity transmission line and development of a robust Chance Finds Procedure, reduce this impact.

A moderate significance impact is possible on intangible cultural heritage during construction as a result of demographic changes. This will be managed through the Cultural Heritage Management Plan.

A moderate significance impact is predicted during operation at burials along the proposed transmission line route, as a result of noise and visual effects upon their environmental setting. Sensitive re-alignment of the route, as required by the construction mitigation measures, will reduce this impact.

8.0 SPECIALIST RECOMMENDATION

It is recommended that the northern transport route is selected, but there is no preference for beach landing site or technology from a cultural heritage perspective.

9.0 GLOSSARY

- **Archaeological Site:** Any locality where traces of old human activities are evident (i.e., accumulation of artefacts, remains of buildings and structures, as well as the associated presence of organic elements, rock paintings, etc.);
- **Chance Find Procedure:** The chance find procedure is a project-specific procedure that outlines what will happen if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation (PS 8 Guidance Note, IFC 2012);
- **Critical Cultural Heritage:** The internationally recognised heritage of communities who use, or have used within living memory, the cultural heritage for long-standing purposes. It also applies to legally protect cultural heritage areas and those proposed for such designated status (IFC 2012);
- **Cultural Heritage:** Defined in accordance to IFC PS 8 (2012) and protected, in conjunction with their immediate setting, by Mozambican Law (10/1988) - to include (i) tangible forms e.g. objects, pottery, sites and structures with archaeological (prehistoric), paleontological, historical, cultural, artistic or religious values; (ii) natural features which embody cultural values e.g. sacred groves, water bodies, rocks; and (iii) the intangible cultural heritage of communities e.g. festivals, taboos, oral history;
- **Field Survey:** A non-intrusive walkover exercise to identify cultural heritage sites and related objects through visual surface inspection;
- **Intangible or Immaterial Cultural Heritage:** The traditional practices, cultural norms and knowledge transmitted from one generation to the next, which communities or individuals recognise as part of their cultural heritage e.g. belief systems, cultural taboos, songs and dances, language, medicinal knowledge (IFC, 2012 and Mozambican Law (10/1988));
- **Cultural Heritage:** The traditional practices, cultural norms and knowledge transmitted from one generation to the next, which communities or individuals recognise as part of their cultural heritage e.g.

belief systems, cultural taboos, songs and dances, language, medicinal knowledge (IFC, 2012 and Mozambican Law (10/1988));

- **Immovable Cultural Heritage:** archaeological sites (e.g. stone- walled 'Zimbabwe' enclosures), historic buildings, ancient cities, historic buildings and natural features embodying cultural values etc. (Mozambique Law 10/1988);
- **Non-Replicable Cultural Assets:** Non-replicable cultural heritage may relate to the social, economic, cultural, environmental, and climatic conditions of past peoples, their evolving ecologies, adaptive strategies, and early forms of environmental management, where the (i) cultural heritage is unique or relatively unique for the period it represents, or (ii) cultural heritage is unique or relatively unique in linking several periods in the same site (IFC, 2012);
- **Material Remains:** Objects produced by man, as stone or iron instruments or artefacts, ceramics, kitchen remains, construction, building and works remains, amongst others;
- **Moveable Cultural Heritage:** Cultural heritage objects (e.g. stone tools, ethnographic artefacts) used in cultural expression, intangible heritage captured on film (Mozambique Law 10/1988);
- **Preservation in situ:** To preserve in the same place where the archaeological material was found and within its primary or secondary context; and
- **Replicable Cultural Assets:** Tangible forms of cultural heritage that can themselves be moved to another location or that can be replaced by a similar structure or natural features to which the cultural values can be transferred by appropriate measures. Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites and/or structures (IFC, 2012).

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APPENDIX A

**Patrimoz Serviços de Consultoria
Field Notes**

APPENDIX A.1: COMMUNITY INTERVIEW QUESTION (IN PORTUGUESE)

Amostra das Perguntas da Entrevista Comunitária

Objectivos:

Devemos identificar e proteger toda a gama de bens do património cultural, conforme definido pela IFC:

- i) formas tangíveis do património cultural, tais como objectos tangíveis móveis ou imóveis, propriedade, estruturais sítios ou grupos de estruturas, que possuem os valores arqueológicos (pré-histórico), paleontológicos, históricos, culturais, artísticos e religiosos;
- ii) características naturais ou objectos tangíveis que encarnam valores culturais, tais como bosques sagrados, pedras, lagos e cachoeiras; e
- iii) determinadas casos das formas de cultura intangíveis que propõem-se a ser usado para fins comerciais, tais como o conhecimento cultural, inovações e práticas das comunidades que consagra o estilo da vida tradicional, (IFC, Performance Standard 8, 2012).

Em ordem para conhecer IFC directrizes o comunidades local para a projecto deve ser consultado com em conta para seus cultural património em um esforço para capturar estes elementos, especificamente:

- Túmulos/cemitérios: todos os religiões. Pode ser individuais, comunal etc.
- História do assentamentos/povoamento região: história oral por exemplo: *Quando aldeia foi fundada?*
- Sítios da importância cultural local: Assim podem ser as igrejas ou mesquitas e/ou sítios naturais ou locais que tem significado local por exemplo floresta: sagrada, pedras, árvores, plantas medicinais, lagos e lugares onde ocorrem as cerimónias, rituais, objectos de adoração, etc.
- Património Cultural Intangível: práticas tradicional (circuncisão, ritos de iniciação), actividades, cerimónias relacionados para um evento particular (chuva? doença?), regras (tabus) para lugares particular (restritos aos homens , mulheres, adolescentes, só?).

Estes sítios precisam ser localizados, gravados (com sensibilidade, e licença da comunidade local) e descritos de modo sistemático que futuramente podiam ser protegido e/ou mitigados. Registo de detalhes do património intangível quer dizer que as regras que regem nestes lugares são respeitados; tabus não seriam quebrado por empregados do SASOL etc.; e uma linha básica das normas culturais foram registados.

Os estudos anterior realizados por **Golder Associates** nas proximidades do Projectos SASOL teriam sido identificados:

- Cemitérios e túmulos;
- Igrejas;
- Plantas Medicinais;
- Lagos Sagrados;
- Árvores Sagrados;
- Floresta Sagradas; e
- Histórias orais e Património Intangível (actividade tradicionais animísticas, sitios tabu, etc.).

Metodologia

Em conjunto e parceria com o CLO, os líderes comunitários podem ser entrevistados. Pode ser que os próprios membros da comunidade são portadores duma informação chave para uma apropriada entrevista do que como um grupo discussão). O CLO deve identificar pessoas certas em cada Comunidade.

Amostra Perguntas

Data/Tempo: _____ Aldeia/Nome: _____

Entrevistador: _____ Entrevistado: _____

Posição: (por exemplo, Ancião/chefe ou membro comunidade)

(Iniciar pela introdução ao trabalhar – por exemplo, "Gostaríamos conhecer a história, o património cultural e importante lugares desta vila/zona/aldeia, para certificar que eles são mantidos na memória, respeitados localmente e protegidos pela autoridade... ")

a) História do assentamento:

- Você/Vocês nasceu/nasceram aqui? Quanto tempo vocês vivem aqui?
- (se originalmente estiver de outro lugar –Donde, quando e porque você venha aqui?)
- Nós estamos interessados na história da aldeia, se você podia contar algo interessante e útil para nós, por favor?
- Qual é origem e significado do nome da aldeia?
- Conhecem qualquer histórias sobre o fundadores/os primeiros colonos? Você sabe quem eles foram e donde chegaram?
- Você sabe a idade deste povoamento?
- Existem qualquer outras interessante histórias sobre outros assentamentos nesta área?

b) Cemitérios/sepulturas/túmulos:

- Há qualquer sepulturas nas proximidades? Numerosas?
 - Por favor, você pode indicar-me o caminho?

Por favor registrar:

- Ponto (s) GPS com um estimativa da superfície do sítio;
- Fotografia (se a permissão foi concedido);
- Qual são confissões nesta área? Você é cristão, muçulmano ou confessa uma das religiões sincréticas ou tradicionais?
- É activo ou velho?
- Onde pratica-se enterros nas aldeias – Eles são próxima de cada propriedade? O que se faz quando cemitério já não tem lugar para mais enterros? Onde e como então será escolhido novo lugar?
- Há enterros/túmulos ao longo das estradas?
- Quem é o Guardião dos sítios (são eles mantido/visitados regularmente)?

c) Igrejas/mesquitas:

- São lá qualquer igrejas ou mesquitas nas proximidades? Como muitos?
 - *Por favor, pode Você mostrar me?*

Por favor registrar:

- Coordenadas GPS e nome de edifício?
- Fotografia. Do património imóvel;
- Quem usa-los?
- Por quantas pessoas?
- Quem é Guardião do sítio?

d) Floresta e sítios sagrados:

- Precisamos ter a certeza que todos sítios de valor tradicional, cultural e religioso encontram-se são protegidos. Precisamos estar cientes da existência de alguns sítios de alto valor natural e significativos nesta área, incluindo árvores sagrados, florestas e lagos. Por favor pode você dizer me algo mais sobre o assunto e ajudar- me registrar a sua localização? Nós, vamos-lhe garantir que estes locais serão mantidos em 'segredo' se é necessário e apenas o pessoal que realizara o projecto da infra-estrutura saberá sobre isso para proteger a área e evitar qualquer tipo da modificação.

Por favor registrar:

- Sítio é segredo/confidencial?
- Coordenadas GPS - ponto (s) com um estimativa da extensão do sítio; p. ex. 5m da distância a partir do lugar protegido;
- Descrição de ambiente do sítio e sua configuração; p. ex. nestes prazos: mato, mato denso, floresta; lugar silencioso ou barulhento;
- Fotografia (se uma permissão será concedida);
- Quem é em carga deste site (regulo, líder comunitário, guardião?);
- Quem frequenta o sítio? Quantas vezes? C;
- Como as pessoas chegam até lá? (Qual é rota mais acessível?);
- É antigo ou novo?;
- Estão associados ao sítio qualquer tipo de regras/tabus? P. ex. se admite os homens junto com as mulheres a aquele sítio? Crianças?
- Há qualquer tipo de cerimónias /actividades que decorrem fora deste sítio? *(como muitas vezes? Por quê?)*

e) Património intangível:

- Há qualquer tipo de festivais tradicional que têm lugar nesta aldeia? Quando? Onde? Quem organiza?
- Há qualquer especial cerimónias que tem lugar aqui , para exemplo, a circuncisão, ritos de iniciação, um criança é doente ou acontece um problema com agricultura/pesca?

(Se Sim – por favor pode você Mostrar me , que etc.).

- Há qualquer regras de acesso Você pode ter para específicos lugares (tabus)? Por exemplo são homens e mulheres permitido? Crianças?
- Há qualquer tipo de plantas medicinais usado para a cura? Onde eles se encontram? *(Por favor, pode Você indicar-me ou mostrar?*
- Localizar com GPS e regista como um sítio cultural).

Por favor agradecer o entrevistado da sua parte.

Outros elementos de património intangível pode se relacionar com as religiões (cultos) tradicionais, música, danças, língua, vestuário e tradicional industrial actividade (p. ex., produção **da cerâmica**, técnicas da pesca etc.)

Este é uma guia, com base na anterior experiência na área - por favor adiciona mais se você considera algo apropriado.

Questionário Sobre o Património Cultural Tangível, Intangível e Manifestações Culturais

Perguntas e temas de conversa

- 1) Cavernas, grutas, furnas ou abrigos naturais, que possivelmente tenham sido habitados por povos desaparecidos, antepassados ou servido de necrópole ou que apenas mostrem condições de habilitade;
- 2) Pinturas rupestres, quer nas paredes das cavernas. lapas ou abrigos naturais, quer em simples rochedos, que indiquem silhuetas humanas ou de animais ou primitivos desenhos, embora sem plausível explicação;
- 3) Construções de carácter antigo, como recintos amuralhados, torres ou simples atalaias, parapeitos, fossos ou ruínas de qualquer natureza;
- 4) Sepulturas de populações e lugares sagrados;
- 5) Oficinas de produção de olaria ou esculturas;
- 6) Restos fossilizados de animais terrestres, embora em pequena quantidade ou marinhos, como conchas ou ainda vegetais, supostos relacionados com a existência do Homem ou, presumivelmente, contemporâneos de espécies/"raças" humanas extintas;
- 7) Concentração dos cacos de olaria, carvão ou escória de fundição de ferro na superfície;
- 8) Estações com instrumentos líticos, de qualquer época passada, quer lascados quer polidos;
- 9) Locais de antigas explorações mineiras;
- 10) Locais onde se tenha feito a fundição de metais, especialmente o ferro, o que se conhece pela presença das escórias e das extremidades dos bicos de barro cozido (alcaravizes), usados nas pontas dos foles.
- 11) Quaisquer outras indicações julgadas convenientes que se refiram a locais fora da vossa área administrativa ou de pessoas que possam dar bons esclarecimentos;
- 12) Existem nessa localidade qualquer casa arrecadação ou simples armários onde se tenham recolhido objects de interesse pré-históricos ou arqueológicos?
- 13) Existem na vossa área/comunidade grupos de pessoas que dedicam-se exclusivamente da caça;
- 14) Conhece lugares onde decorrem as cerimónias dos ritos de iniciação e de circuncisão?

APPENDIX A.2: DIARY OF THE FIELD SURVEY

12/01/2015: Maps, Photos and Short Description

The travel with Mazda 4 x 4 along EN1 from Maputo (Airport Mavalane/EuropCar, 6:30) to Xai Xai, Maxixe (Provincial Board of Culture and Education/Dept. of Cultural Heritage) Massingue, Vilankulos and Inhassoro (Hotel Escola Estrela do Mar, 19:05). 760 km, 10 h 35 min. We turn out to Vilankulos for lunch and leave credential from Ministry of Culture to the District Board of Cultural Heritage.



Map 3. Showing itinerary Maputo/Vilankulos – Inhassoro. January 1, 2015



Plate 1: The vehicle used by survey team



Plate 2: (Estrada Nacional No. 1)

13/01/2015: Inhassoro – Guvuro. Maps, Photos and Short Description

The work start after breakfast at 8:00 with presentation of our credentials to the District Board of Cultural Heritage, (DBCH) to director **Raimundo Zefanias Tangué** (sdctinhassoro@gmail.com; raitangué@gmail.com; +259 84287997) (See plate 23). Mr. Tangué shows us list of site recorded by him and his scouts, as cultural heritage in Inhassoro District and appointed for us one field helper, fluent in ma-chuabo language. Because the list of district heritage was rather very limited (1 cemetery, 1 mosque, 2 church, Maritime Delegation and “palace” of administrator) we agree to cooperate more close in the future, exchanging information and data about cultural heritage in Inhassoro District. Mr. Tangué is also the leader of the Circle of Interest of the Cultural Heritage created by the League of Scouts of Mozambique.

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
H. Estrela do Mar	Team Residence during field work of Sasol MGTP Project	728644	7616302	7 m
Brisa Mar Lodge	Modern construction	730644	7613857	8 m
C. T. SETA	Modern construction	728088	7617186	15 m
Maritime Delegate	Modern construction but already partially in ruin	728427	7616763	9 m
Macovane	Recent Adm. Post	711414	7620477	15 m
To Lago Sangene	No archaeological evidence	702039	7629698	53 m
SP101 Lago Sangene	Sacred Place. The lake almost dry. No volunteers to interview. No archaeological evidence	694159	7635550	59 m
EN1 (13)	Along main road. No archaeological evidence	691677	7637046	63 m
CE101 Mombane	Partially destroyed by river Savi	710066	7677891	13 m
CH101 Mambone	Church: Remarkable architecture. Need to be renovated. Interview with Catarina Alfredo	710833	7677943	6 m
AR101 Mambone 2	Archaeological Site, disturbed by river Save erosion. Systematic field survey.	711329	7678063	10 m
MO101 Old Mambone/ Guvuro	Mosque, In risk to be destroyed by fluvial erosion	710909	7677940	4 m
AR102 Mambone Save R	Archaeological almost totally disturbed by fluvial erosion. Interview with Catarina Alfredo	714602	7679717	7 m

With the guide, appointed by Mr. R. Tangué, young secondary school Mateus Nhau we have visited and surveyed:

- Points indicated on the list of sites in proposed industrial infrastructure area in Inhassoro (between touristic complex SETA to Briza Mar lodge) No archaeological evidence was recorded;
- Modern church; and
- Municipal cemetery:

On the way to EN1 and Macovane many 10 - 20 minute stop were done for walking survey in same particularly interesting landscape (point on the map 54,76, 79, 57, Guvuro Bridge, 52, 53 and site as proposed industrial infrastructure area) but no artefacts, evidence of land use in the past were find.

In southern part of Sangene lake, according to local tradition and records of District Board of Culture Heritage, it is supposed to be sacred place and periodical practice of the initiation ritual of young boys for

Macovane area. The place also cannot be visited by pregnant women or photo taken. Our effort to find somebody to interview was unsuccessful.

During the walking survey on the way to Macovane, survey 0871, 12, 13, 30 points and Sangene Lake no archaeological evidence has been recorded.

In **Guvuro (Nova Mambone)** we have presented our credentials to the District Administrator of Nova Mambone and after to District Board of Culture Heritage, Director Mrs. Catarina Alfredo (see plate 24, catarinaalfredo@gmail.com; +258 824041647).

Accompanied by Mrs. C. Alfredo, as the excellent guide, we visited or methodological surveyed in Guvuro following areas:

- Cemetery partially destroyed by Save River. The Municipal Council of Nova Mambone is planed transfer still preserved burials to new place;
- Church (15) with remarkable architecture outside (during visit church was closed);
- Old Mambone mosque with serious problem of fluvial erosion; and
- Mambone archaeological site almost totally destroyed by fluvial erosion. On the base of decorated ceramics fragments site can be dated for late Early Iron Age (Tana Tradition) and Late Iron Age attributed to Luangwa Tradition (11 – 16 c. AD).

Other place visited by our time was well known archaeological site recorded already during colonial period. Very serious fluvial erosion and agriculture disturb this Late Iron Age site. The heavy rain not allowed us to more detailed photographic documentation closing working day.



Plate 3: Mr. Raimundo Zefanias Tangué, District Director of the Cultural Heritage in Inhassoro



Plate 4: Mrs. Catarina Alfredo, District Director of the Cultural Heritage in Nova Mambone



Plate 5: Many site like this near Inhassoro, after methodological field survey was canceled from list of District Board of Culture recorded as “archaeological sites” due lack of clear evidence





Plate 6: Fluvial erosion destroying archaeological site Mambone 2 and put in risk church, cemetery and mosque

14/01/2015: Maps, Photos and Short Description

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
Crossing Mangarelane	<i>No archaeological evidence</i>	726421	7602989	57 m
Machamba	<i>No archaeological evidence</i>	725715	7606828	57 m
Gas Field	<i>No archaeological evidence</i>	728829	7603312	57 m
Gas Field	<i>No archaeological evidence</i>	730848	7603742	44 m
CH105 <i>Methodist Church</i>	<i>Methodist Church with urged need to be renovated</i>	731985	7602292	43 m
Gas Field	<i>No archaeological evidence</i>	732330	7601110	35 m
Machamba Paulo	<i>No archaeological evidence</i>	732330	7601110	35 m
Machamba Ignacio	<i>No archaeological evidence</i>	725715	7606828	40 m
No name	Village abandoned in 2001	712605	7593389	48 m

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
AR104 2134Db1	Dispersed pottery Luangwa Tradition. Site disturbed by practice of agriculture and erosion	706262	7596848	72 m
 <p>Plate 7: Ruins of Maritime Delegate office constructed 1946</p>		 <p>Plate 8: Machamba of Mr. Ignacio, typical in Inhassoro District</p>		

15/01/2015: Maps, Photos and Short Description

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
SP103 Veloso	<i>Sacred Place – circumcision. Where sickness are buried. Field survey and interview done by Ercidio Nhatule with recently circumcised young boy done by</i>	732758	7601174	25 m
Road to Mabime	<i>No archaeological evidence</i>	727797	7598523	54 m
To Temane	<i>No archaeological evidence</i>	728798	7595498	57 m
Gas Field (33)	<i>No archaeological evidence</i>	730302	7593242	50 m
Gas Field (35)	<i>No archaeological evidence</i>	733962	7593805	34 m
Amendoim Field	<i>No archaeological evidence</i>	730746	7589665	67 m
GasField5	<i>No archaeological evidence</i>	730748	7589668	63 m

Name surveyed of locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
SP106 Chipongo	<i>Paulo Vilankulos, artist, community leader, traditional doctor</i>	731039	7588818	70 m
Chitsotso	<i>No archaeological evidence</i>	718886	7586417	24 m
Maimalene	Maimalene, No archaeological evidence	716578	7601356	31 m
SP104 Pecane SP	Sacred Place: Dialog with some women. Taking both in the Pecane Lake help pregnant women have healthy child.	737921	7567790	24 m
AR110 Lago Pecane	Grass. Late Iron Age Archaeological Site. Few Luangwa Tradition decorated pottery.	737374	7567975	23 m
Mangarelane I	Interview with Regulo Paiva Jose	732030	7602076	44 m
AR112 Malongojiva	Deciduous, Archaeological site LIA	723071	7600815	38 m
Mabime	No archaeological evidence	724375	7598566	45 m
On the way to Mabime.	No archaeological evidence. Cemetery but no visible burial. White cotton sheet indicate area of cemetery	726334	7597963	46 m
CE103 Malongojiva	Considered as Sacred Place probably with some ancient burials (according to local people). Some recent potsherds.	722872	7601191	65 m



Plate 9: Women of Mangarelane 1 village recently settled in this area



Plate 11: Regulo/Community Leader in Mangarelane Paito Jose during interview showing very extensive knowledge about settlement in this region



Plate 13: Mr. Paito Jose and his family



Plate 12: Commercial center in Chipongo. Excellent source of information about local history



Plate 14: Small lake created by Guvuro River during the floods

16/01/2015: Maps, Photos and Short Description

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Obs. On locality-site	Easting UTM 36K	Northing UTM 36K	Elev.
Amendoim field (57)	<i>No archaeological evidence</i>	717326	7613576	18 m
MP101 Mr. Palulane Miloiro, 2 nd Chief of AMETRAMO Curandeiro	His family came from Manusse where was installed many generations. Resettled in 2004. Installed since many generation. Interesting interview with Curandeiro nephew in Appendix 10.5) Curandeiro himself went to forest to look for natural medicine. Interview	716407	7613312	21 m
Temane	<i>No archaeological evidence</i>	713950	7594242	33 m

Name of surveyed locality or site	Obs. On locality-site	Easting UTM 36K	Northing UTM 36K	Elev.
MGTP	MGTP Project. Site in proposed industrial infrastructure area. No archaeological evidence	713608	7593940	29 m
CPF	CPF, Site in proposed industrial infrastructure area. No archaeological evidence	713337	7593347	32 m
BU101 <i>Manusse</i>	<i>Burial, Sacred Place, claim by nephew of Pelulane Miliro António as Sacred Place and burial of his ancestor. Nothing is possible recorded at place</i>	<i>707969</i>	<i>7584144</i>	<i>46 m</i>
CH103 <i>Chipongo. Apostolic Church</i>	<i>Church Apostol's with rustic original architecture. Assembleia de Deus</i>	<i>716789</i>	<i>7580422</i>	<i>28 m</i>
Machamba (76)	No archaeological evidence	720380	7615050	44 m



Plate 14: The best information are from people coming from interior and selling their goods near EN1



Plate 15: The migrants from northern province manifest their song and dance after completed initiation ritual in Chipongo, Inhambane Province. Local people were rather astonished but accepted telling that OL investments bring many cultural innovations

17/01/2015: Maps, Photos and Short Description

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
Machamba (77)	<i>No archaeological evidence It is raining</i>	726256	7619582	61 m
Machamba (79)	<i>No archaeological evidence It is raining</i>	720136	7614951	44 m
Machamba (80)	<i>No archaeological evidence It is raining</i>	714704	7612120	34 m
Machamba (81)	<i>No archaeological evidence It is raining</i>	716576	7598744	32 m
Machamba (85)	<i>No archaeological evidence It is raining</i>	716502	7605579	32 m





Plate 16: Guvuro River - Along this river are most fertile soils in Inhambane Province



Plate 17: Guvuro River during floods cutting road to Mabime

18/01/2015. Maps, Photos and Short Description

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
Machamba (84)	<i>No archaeological evidence</i>	716502	7605579	32 m
MP102 <i>Curandeiro</i>	<i>N'anga/Curandeiro Xinhangane Manhike. AMETRAMO member. Along EN1</i>	716612	7605310	30 m
AR114 Mapanzene Praia	<i>Few archaeological evidence and shallow shell midden</i>	736093	7595224	12 m
AR109 Seeleman	Few quartz microlith and Late Iron Age pottery. Site covered by high grass and partially disturbed by agriculture. Site code 2135Cb1	735064	7594151	50 m
AR110 Lago Pecane	Archeological Site disturbed by practice of agriculture, LIA4	737374	7567975	23 m
SP07 <i>Chip1ongo</i>	<i>Sacred Place (5), probably burial of community leaders</i>	<i>731770</i>	<i>7588865</i>	<i>51 m</i>
BU103 <i>Chipongo</i>	<i>Sacred Place. Burial of the founder of Chipongo in the end of 19 c. AD. No archaeological evidence</i>	<i>733919</i>	<i>7589938</i>	<i>55 m</i>
Vilankulos	District Capital	739299	7565941	23 m
 <p>Plate 18: Some places indicated by local communities were inaccessible due high grass and swamp</p>		 <p>Plate 19:..other due very dense vegetation. Both places are paradise for snack and other, typical for this environment, animals</p>		

19/01/2015: Maps, Photos and Short Description

This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
AR105 Temane 2	Site the first time was recorded in 2000. Small area with high concentration of Luangwa Tradition Pottery and iron slag A.S. LIA5	716126	7598079	48 m
Govuro R	No archaeological evidence	718829	7599381	39 m
Machamba (15)	No archaeological evidence	711720	7590652	58 m
Machamba (55)	No archaeological evidence	710219	7587168	37 m
SP105 St Ana	Sacred Place (7). Old cemetery	716489	7601678	44 m
AR103 Near St. Ana	A.S. LIA9Village	716719	7601505	67 m
Machamba (51)	No archaeological evidence	715073	7610789	19 m
CH102 Jofane Church	Evangelic Church (60)	714664	7612121	37 m
Machamba Vera	No archaeological evidence	714817	7612084	42 m
Machamba (53)	No archaeological evidence	716708	7613332	51 m
2135Ca1	Site disturbed by agriculture	717329	7613438	42 m
Machamba(56)	No archaeological evidence	720136	7614951	34 m
8 km Inhassoro	Sacred Place. Centro de Reavivamento Espiritual	720470	7615047	37 m
AR115 2135Ca1	Archaeological Site. Late Iron Age. Recorded in 2000, now totally disturbed by agriculture. Recorded	726481	7619521	76 m
BU104 Mangarelane Burial	Only two burial are visible. Grass very high. Lot of cobras which are considered protector of ancestors	726639	7618240	54 m
From PPS1 to PPS 4	Proposed Infrastructure/Power Plant Site	712662 to 712133	7592438 to 7591271	41 m
Machamba (11)	grass	712530	7592360	51 m
Machamba (12)	Grass	712300	7591839	50 m
Machamba (13)	Grass	713107	7591806	46 m
Machamba (14)	Grass	711965	7591106	50 m

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
From TLR1 to TLR5	TLR1 - Transmission Line Route1. No archaeological evidence	712564	7592045	45 m
G11, G2 & G3	Gas/Water pipeline route over the Guvuro River. No archaeological evidence	712746, 712754 & 712875	7592447, 7593408 & 7593578	38 - 42 m
From W1 to W12	Gas/Water pipeline route over the Guvuro River. No archaeological evidence	713781 722159	7592446 7595864	41 m
Macovane	Administrative Post	712561	7621799	60 m
Temane BC	Temane Base Camp	716319	7598165	51 m
Mangugumete	Village	717058	7596102	41 m
Nhapele	Village	698446	7618863	47 m
Machamba (18)	30 minute walking Field Survey	698374	7617620	39 m
Machamba (19)		696626	7605168	37 m
Machamba (20)		707274	7605019	36 m
Temane	Gas Field: No archaeological evidence	604134	7594881	51 m
Manusse	Gas Field: No archaeological evidence	707125	7585185	48 m
Litlau	<i>No archaeological evidence</i>	716489	7599301	45 m
 <p>Plate 20: The rain and local flood some time have limited out effort more detailed survey</p>				





Plate 21: Some aspects of road were even difficult for 4 x 4 and highly fuel consuming

20 & 21/01/2015: Maps, Photos and Short Description


This day field work, survey and records were concentrated to following localities, sites and points:

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
AR113 Manyikeni	Madzimbabwe. Open Air Museum. Stone wall. Zimbabwe Tradition. Excavations 1975, 1976, 1978/79, Survey 2011	690279	7545424	98 m
AR107 Nhachengue	Archaeological Site already investigated by L. Adamowicz, Ch. Linqvist and P. Sinclair in 1981	723505	7471587	44 m
Magume	<i>No archaeological evidence</i>	727463	7507596	71 m
Machanisse	<i>No archaeological evidence</i>	718246	7496141	61 m
Machanisse	<i>No archaeological evidence</i>	722381	7496042	56 m
Malimbane	<i>No archaeological evidence</i>	727844	7499113	48 m

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
Nhanimela	<i>No archaeological evidence</i>	728093	7505100	49 m
AR108 Nhanimela1	Archaeological site. Stone walls. Zimbabwe Tradition	728291	7505342	70 m
AR106 Chibuene	2235Ab1, Investigated by L. Adamowicz 1981 and Sinclair, P, 1987	739894	7559910	12 m
 <p>Plate 22: Some village are abandonned and many of young people went to RSA and adult move to Vilankulos or Inhambane</p>		 <p>Plate 23: Some road was difficult, narrow and dangerous for exterior good looking car</p>		

[illegible]

LEGEND

 systematic field survey

 Late Stone Age sites

19/06/2018: The survey from Inhassoro to MGtP, Manusse and Pipe Brige



Plate 25: Dense grass and the bushes substantially limited surface survey

Map 1: Showing itinerary of 19/06/18 survey



The survey confirms results of research done 15/01/2015. Due to the heavy rain in few past months the area is currently covered with dense grass and the bushes very limited surface studies especially the area of the proposed powerline.



Plate 26: New catholic church built recently.
Location: On the south limits of the project area
36 K 716879 7581441

20/06/2018: he Survey from Inhassoro to Mangarelane, Mabime and Govuro River (Bridge)

This day survey was concentrated on new sites indicated by Mr. **Santos Manuel Aguium** and his brother Marco were indicated as guide and assistants to archaeological survey in 19 and 20 of June 2018 by Natalia F. Chivambo, Director of District Board of Culture, Youth and Technology (844233851, sdejtinhasoro@gmail.com, nataliachivambo@yahoo.com.br)

Name of surveyed locality or site	Site Description	Easting UTM 36K	Northing UTM 36K	Elev.
BU 110	<ul style="list-style-type: none"> Burial of Santos Aguium father; Photo presented on cover page; and For detailed description (see page 23, 30). 	724898	7606809	58 m
BU 111	<ul style="list-style-type: none"> Two burial of unknown family, Mangarelane I; and For detailed description (see page 23, 30); 	725667	7606208	52 m
BU 112	<ul style="list-style-type: none"> One burial of unknown person; and For detailed description (see page 23). 	727810	7598642	47 m
CE 106	<ul style="list-style-type: none"> 6 - 7 graves of two families, Mangarelane II; and For detailed description (see page 24, 30). 	725825	7606222	50 m
CE 107	<ul style="list-style-type: none"> 8 graves of different or unknown families, Mabime; and For detailed description (see page 23). 	719326	7599913	52 m
CH 107	<ul style="list-style-type: none"> Semi-permanent catholic church Mangarelane II; and For detailed description (see page 24). 	725723	7606467	62 m
CH 108	<ul style="list-style-type: none"> Semi-permanent catholic church Mabime; and For detailed description (see page 24). 	719533	7599785	68 m



Plate 27: Catholic church of St. José in Mangarelane II (Adamowicz 2018)



Plate 30: Interior of St. José church (Adamowicz 2018)



Plate 28: BU 111, Two burial of unknown families



Plate 31: CE 106, 6 - 7 graves of two families. The Guardian Mrs Lucilda



Plate 29: BU 112. One burial of unknown person



Plate 32: CE 107, 8 graves of diferent or unknown families, Mabime

APPENDIX A.3: CULTURAL HERITAGE RECORD SHEETS

Archaeological sites

CULTURAL HERITAGE RECONNAISSANCE AND SURVEY

AR101

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HISTORY	ARCHAEOLOGY	X	ETHNOGRAPHY	OTHER
Project:	SASOL MGTP PROJECT			
Provinces	Inhambane			
District	Mabote	Guvuro	Inhassoro	Vilankulos

Site location:

Site location:

SITE NAME:	MAMBONE SAVE RIVER			Site no				
COORDINATES:	UTM	E 36K	714602		N 36K		7679717	
PROVINCE:	INHAMBANE		District:		Guvuro			
OWNERSHIP	PRIVATE		State	X	City		Unknown	
NAME OF OWNER	DDPC (Distr. Board of C.H.)				Recorder		Leonardo Adamowicz	

Site description AR01

The heritage site type								
Archaeological	X	Ethnological		Architectonic		other		
Natural sitting	Open air			Rock shelter		Near river/lake/sea	X	
Estimation of ground cover	Estimate h		2	Degree of disturbance	Estimate %		80	
Type of disturbance	Cultivation		X	Natural	X	Industrial		
	Construction			Lend leveled		Excavation		
FAO Soil type	Luvic arenosols			FAO Soil Code	QL 15-1a			
Accessibility (description)	Regular for this district, partially very difficult due route erosion							
Artefacts (only few test sample collected)								
Ceramic:	X	Nucleus	0	Metal	0	Imported goods	0	
Decorated	X	Flakes	0	Iron scores	X	Bones	0	
N/decorated	X		0	Bronze	0	Beads	X	
Daga	0	Quartz/micr	0	Furnaces	0	Stone walls	0	
Chronology	Late Iron Age		11 – 16 c. AD					
Cultural context		Late Farming		Luangwa Tradition		Recent		
Description general		Sandy soil. Eroded site in risk of disappearance during next flood						
Surface area (sq m)	220	Max. length		100	Max. width	210	Elevation m	7
Artefacts density	Heavy		medium:		light:	X	Single artefacts:	

Deposit depth (m)	35 cm	Number of cultural levels:		3	Unknown		
Classification, mapping and assessment of significance of the cultural heritage							
Viability of observation	Good	X	Resonable		Insufficient		
Scientific value	High	X	Medium		Low		
State of conservation	Regular		In Risk	X	Undetermined		
Impact consequence assessment of eventually prosed activities by Project							
Type of impact	Not notable	X	Direct		Indirect		
Nature of impact	Positive		N/a				
	Negative		N/a				
	Indifferent		N/a				
Activities which induce impact:		Agriculture and erosion					
Spatial Scale:	On-site:		Local:	X	National:		International
Temporary Scale	Short-term		Long term:		Temporary:		Permanent:
Prediction - magnitude of Impact		Very High	High		Reduced:		
			Medium		Unknown		
Mitigation measures							
Description:	It is impossible take especial mitigation measure. Erosion along Save River is global. It is necessary organize large scale archaeological research including test pits and excavation.						
Maps/Photos/Graphics: <i>Map 9. Showing location of Mambone 1 Late Iron Age Site</i>							
				36 K 714602 7679717			
A. Local recent pottery, 19 c. AD; B & C. Samples of Luangwa Tradition Pottery – costal faces.							

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		MABONE 1, Save River				SITE CODE		AR102	
UTM	36K	714602	7679717	WGS84	S	S20 58 14.3		E	E35 03 51.0
VILLAGE		Mambone		DISTRICT		Guvuro		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea	
Surface area (m ²)		130	Elevation (m)		14	FAO Soil Type		Luvic arenosols (QL15/1a)	
Accessibility (description)		Along Save River, disturbed by fluvial erosions and repeating floods.							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers				UNKNOWN	
Settlement description		Typical in this region settlement of fishmen and agriculture and farming community							
Cronostratigraphic framework		Late Farming Community. 1 st half of 2 nd mill. AD							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input checked="" type="checkbox"/>
		Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		Only vere urgent excavation in preserved part of site. Very strong fluvial erosion.							
Site significance		HIGH		State of conservation		IN RISK			



Plate 33: General view of preserved part of site



Plate 34: Drawings and photos of finds



PROJECT:		SASOL MGTP PROJECT							
SITE NAME		CATH. MISSION St. Ana				SITE CODE		AR103	
UTM	36K	716719	7601505	WGS84	S	21 40 35.7	E	E35 05 40.2	
VILLAGE		Along EN1		DISTRICT		Inhassoro		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea	
Surface area (m ²)		300		Elevation (m)		67		FAO Soil Type	
								Luvic arenosols (QL15/1a)	
Accessibility (description)		Easy, Regular							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers				UNKNOWN	
Settlement description		Small settlement, at present 125 m to the north from Mission							
Cronostratigraphic framework		Late Farming Community, 1 st half of 2 nd millennium AD.							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>
		Daga	<input type="checkbox"/>	Furnaces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		Test pits excavation to establish chrono-stratigraphic framework							
Site significance		HIGH		State of conservation			Regular		



Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		2134Db1				SITE CODE		AR104	
UTM	36K	706262	7596848	WGS84	S	21 43 11.6	E	34 59 38.7	
VILLAGE		Manusse		DISTRICT		Inhassoro		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea	
Surface area (m ²)		Elevation (m)		72	FAO Soil Type		Luvic arenosols (QL15/1a)		
Accessibility (description)		Dispersed pottery Luangwa Tradition. Site disturbed by practice of agriculture and erosion. Sistematic field survey.							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers				UNKNOWN	
Settlement description		Site partially destroyed by road ad erosion and partially disturbed by agriculture and forest extensive exploration.							
Cronostratigraphic framework		Late Farming Community, 1 st half of 2 nd mil.I AD							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>
		Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input checked="" type="checkbox"/>	Indifferent	<input type="checkbox"/>	Others (describe below)	
Mitigation measure		More reaserch and documentation is needed before site wanish totally							
Site significance		HIGH		State of conservation			IN RISK		



Plate 36: Very atypical place for Late African settlement. Probably potsherd were recently transported from distant location together with soil (clay) to build this road



Plate 37: The Late Iron Age ceramic similar do Chibuene pottery



Plate 38: Some potsherd with characteristic typical to be washed or preserved in marine environment

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		TEMANE 2, A.S.				SITE CODE		AR105	
UTM	36K	716126	7598079	WGS84	S	21 42 27.4	E	35 05 21.2	
VILLAGE		Old Temane		DISTRICT		Inhassoro		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea	<input type="checkbox"/>
Surface area (m ²)		280	Elevation (m)		48	?		?	
Accessibility (description)		The first time was recorded in 2000. Small area with high concentration of Luangwa Tradition Pottery and iron slag							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers				UNKNOWN	
Settlement description		Small but rich in artefacts settlement with pottsherd and daga, In 2000, durante survey has been find iron slag and glass beads							
Cronostratigraphic framework		Late Farming Community, settlement of 1 st half of 2 nd millenium AD.							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>
		Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		Site não is almost invisible on surface. No more research is needed. Many similar site well preserved still exist in region.							
Site significance		HIGH		State of conservation				IN RISK	



Plate 39: From EN1 take this direction but after look for coordinates



Plate 40: Potsherd collected in Old Temane in 2000 with motives of decoration characteristic for early face of Late Iron Age



Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		CHIBUENE				SITE CODE		AR106 2235Ab1	
UTM	36K	739894	7559910	WGS84	S	22 02 56.8	E	35 19 27.9	
VILLAGE		Vilankulos		DISTRICT		Vilankulos		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input type="checkbox"/>		Rock shelter		<input type="checkbox"/>	
						Along river/lake/sea		<input checked="" type="checkbox"/>	
Surface area (m ²)		560		Elevation (m)		12		?	
Accessibility (description)		From Vilankulos, in direction to airoport and after INAP school							
CULTURAL CONTEXT									
Deposit depth (cm)		360		Number of cultural layers				5 (five)	
Settlement description		Recorded by Paul Sinclair 1979, Investigated by L. Adamowicz 1981 and Sinclair, P., 1987 Survey 2015 to Collecting new records							
Cronostratigraphic framework		Early Iron and Late Farming Community, imports from Persia, awahili culture and China.							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input checked="" type="checkbox"/>	Bones	<input checked="" type="checkbox"/>
		Daga	<input checked="" type="checkbox"/>	Furneces	<input checked="" type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		Site is classified and protected by the inistry of Culture. Site in risk due maritime erosion and human exploration of shell midden							
Site significance		V. HIGH		State of conservation		IN RISK			



Plate 41: Chibuene Archaeological site/The most important site in Inhambane Province, Vilankulos District.. Information desk designed was by L. Adamowicz. For Ministry of Culture



Plate 42: More common pottery of Late Iron Age is represented in Chibuene Assemblage



Plate 43: The highest shell midden in Africa



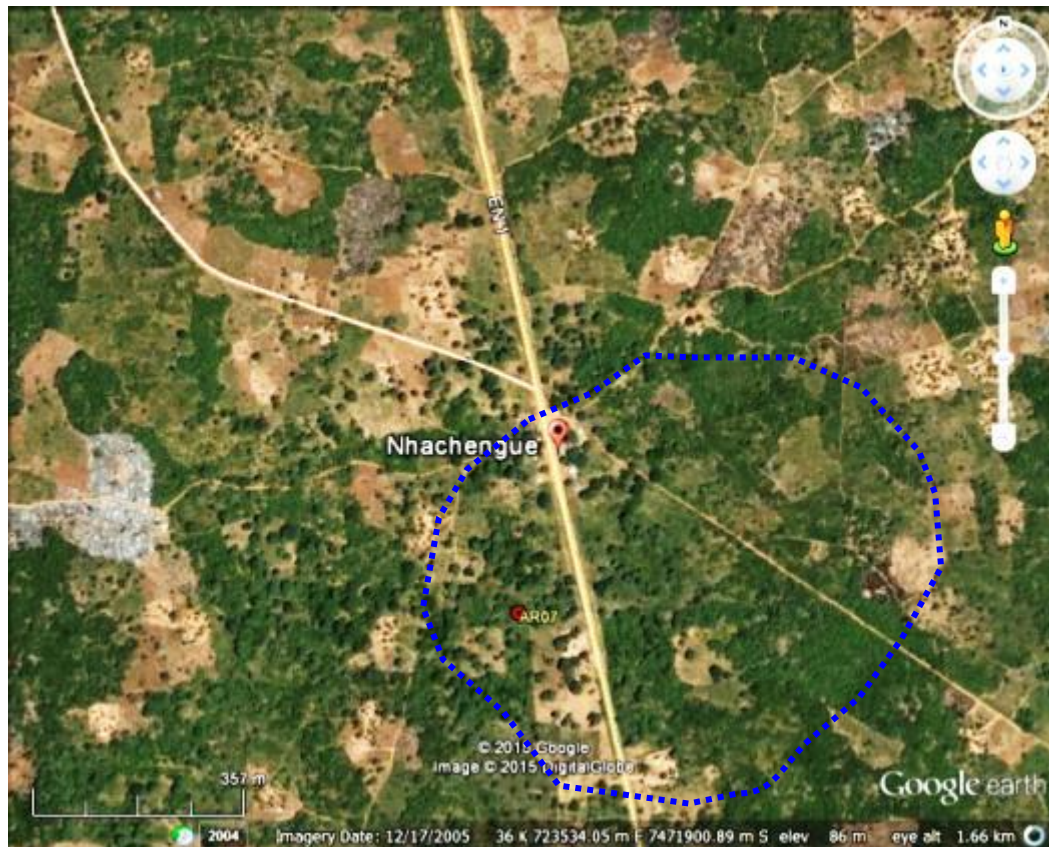
Plate 44: Ercidio Nhatule and guardian of site Chibuene



Plate 45: Some aspect of Chibuene archaeological site

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		NHACHENGUE				SITE CODE		AR107	
UTM	36K	723505	7471587	WGS84	S	22 50 55.0		E	35 10 41.3
VILLAGE	Nhachengue		DISTRICT	Vilankulos		PROVINCE		Inhambane	
SITE DESCRIPTION									
Natural sitting:	Open air	<input checked="" type="checkbox"/>	Rock shelter	<input type="checkbox"/>	Along river/lake/sea		<input type="checkbox"/>		
Surface area (m ²)	480	Elevation (m)	44	FAO Soil Type		Luvic arenosols (QL15/1a)			
Accessibility (description)	Near EN1								
CULTURAL CONTEXT									
Deposit depth (cm)	65		Number of cultural layers				3		
Settlement description	Archaeological Site already investigated by L. Adamowicz, Ch. Linqvist and P. Sinclair in 1981. Survey and Test Pits 1981, Field Survey 2015								
Cronostratigraphic framework	Early Farming Community								
Artefacts visible on site surface	Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input checked="" type="checkbox"/>	
	Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>	
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact	Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)		
Mitigation measure	Not planned any mitigation measure								
Site significance	HIGH		State of conservation		IN RISK				



Map 10: Showing location and site extension



Plate 46: Early Iron Age pottery sample find in Nhachengue archaeological site

18103533-321152-20

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		Nhanimela 1			SITE CODE		AR108 2235Ca01		
UTM	36K	728291	7619521	WGS84	S	22 32 35.8	E	35 13 11.4	
VILLAGE	Nhanimela	DISTRICT		Vilankulos		PROVINCE		Inhambane	
SITE DESCRIPTION									
Natural sitting:	Open air	<input checked="" type="checkbox"/>	Rock shelter	<input type="checkbox"/>	Along river/lake/sea		<input type="checkbox"/>		
Surface area (m ²)	320	Elevation (m)	70	FAO Soil Type		Luvic arenosols (QL15/1a)			
Accessibility (description)	18 km from Machanisse. Sandy and clay narrow road. Extremely difficult during the rain. Easy/well visible way from village to site on the hill.								
CULTURAL CONTEXT									
Deposit depth (cm)	UNKNOWN		Number of cultural layers			UNKNOWN			
Settlement description	Ruins of stone wall on the top of small hill. Previously covered by dense forest considered sacred by recently area was cleared by order of administrator from Vilankulos.								
Cronostratigraphic framework	Late Farming Community, madzimbabwe settlement of 1st half of 2nd millennium AD. Probably similar residential and cultural pattern as in Manyikeni.								
Artefacts visible on site surface	Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input checked="" type="checkbox"/>	
	Daga	<input type="checkbox"/>	Furnaces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input checked="" type="checkbox"/>	
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact	Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)		
Mitigation measure	Site recently discovered need to be investigated as soon as possible due archaeological and historical importance and studies about state formation in Mozambique.								
Site significance	HIGH		State of conservation		IN RISK				



Plate 47: Way to madzimbabwe



Plate 48: On top of the hill



Plate 49: The longest well preserved stone wall 70 - 110 cm high and 120 m long



Plate 50: 50 to 80 cm large



Plate 51: Very few potsherd on surface



Plate 52: Local guides/Osvaldo, Martina and Carlos



Plate 53: Similar tecnic as in Manyikeni or Great Zimbabwe



Plate 54: Guardian of the site. Family of local leader in absence in Maputo



Plate 55: Decorated fragment of large recipient



Plate 56: Landscape outside the stone walls

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		N. SELEMANE				SITE CODE		AR109 2135Cb1	
UTM	36K	735064	7594151	WGS84	S	21 44 26.4		E	35 16 21.9
VILLAGE		Seelemane		DISTRICT		Vilankulos		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea	
Surface area (m ²)		300?	Elevation (m)		47	FAO Soil Type		?	
Accessibility (description)									
CULTURAL CONTEXT									
Deposit depth (cm)		Unknown		Number of cultural layers				Unknown	
Settlement description		Few quartz microlith (?) and pottery. Site covered by high grass and partially disturbed by agriculture							
Cronostratigraphic framework		Possible presence of Late Stone Age hunters/gatherer camp. More research should be done. Presence of the Late Iron Age confirmed.							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>
		Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		More reserch should be done in this area.							
Site significance		LOW		State of conservation		Regular			



Plate 57: Indication direction to Selemene village but it is not direction to archaeological site laying more to the interior

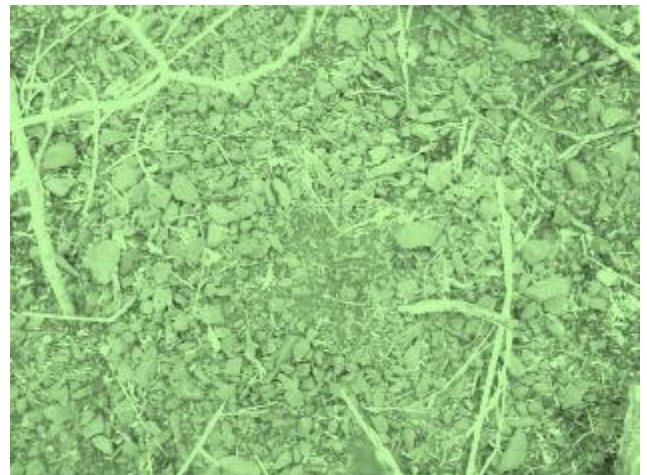


Plate 58: More research should be done on this site with characteristic of Late Stone Age and some aspect of Middle Stone Age



Plate 59: Late Iron Age potsherd recorded on surface

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		LAGO PECANA				SITE CODE		AR110	
UTM	36K	737374	7567975	WGS84	S	21 58 35.9		E	35 17 55.9
VILLAGE			DISTRICT	Vilankulos		PROVINCE		Inhambane	
SITE DESCRIPTION									
Natural sitting:		Open air	<input checked="" type="checkbox"/>	Rock shelter	<input type="checkbox"/>	Along river/lake/sea		<input type="checkbox"/>	
Surface area (m ²)		100	Elevation (m)	23	FAO Soil Type		No data		
Accessibility (description)		Regular							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers				UNKNOWN	
Settlement description		The site comprises an extensive scatter (c 160 x 450 m) of cultural remains close to lake Pecane and few kms from the sea. The surrounding of the site are characteristic of the southern Mozambique coast.							
Cronostratigraphic framework		Late Farming Community 1 st half of 2 nd millenium AD.							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>
		Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		More reserch should be done in this area.							
Site significance		HIGH		State of conservation		Regular			



Plate 60: Potsherds and daga fragments on surface along eroded cost of lake



Plate 61: Lake is almost dry

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		2135Cc1				SITE CODE		AR111	
UTM	36K	708393	7583902	WGS84	S	21 50 08.9	E	35 00 58.6	
VILLAGE		DISTRICT		Vilankulos		PROVINCE		Inhambane	
SITE DESCRIPTION									
Natural sitting:	Open air	<input checked="" type="checkbox"/>	Rock shelter			Along river/lake/sea			
Surface area (m ²)	250	Elevation (m)	43	FAO Soil Type		Luvic arenosols (QL15/1a)			
Accessibility (description)									
CULTURAL CONTEXT									
Deposit depth (cm)	UNKNOWN		Number of cultural layers				2?		
Settlement description	Very small settlement with reasonable visibility of the potsherd on surface								
Cronostratigraphic framework	Late Farming Community, of 1 st half of 2 nd millenium AD.								
Artefacts visible on site surface	Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>	
	Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>	
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact	Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)		
Mitigation measure	Actually no reason for mitigation measure								
Site significance	HIGH		State of conservation		Regular				



Plate 62: The Late Iron Age potsherd and spindlehole are unique artefacts registered on surface of this site

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		MALANGOJIVA				SITE CODE		AR112	
UTM	36K	723071	7600815	WGS84	S	21 40 55.4	E	35 09 21.4	
VILLAGE	Malangojiva	DISTRICT	Vilankulos		PROVINCE	Inhambane			
SITE DESCRIPTION									
Natural sitting:	Open air	<input checked="" type="checkbox"/>	Rock shelter	<input type="checkbox"/>	Along river/lake/sea	<input type="checkbox"/>			
Surface area (m ²)	200?	Elevation (m)	38	FAO Soil Type	Rhodic Ferrasols Fr4 5				
Accessibility (description)	Easy. Regular by very narrow road								
CULTURAL CONTEXT									
Deposit depth (cm)	UNKNOWN		Number of cultural layers				UNKNOWN		
Settlement description	Very large settlement with good visibility. The soils comprise coastal dune sands interspersed with clay alluvium. Climatic factors strongly influence crop viability and the area is more suitable for maize than sorghum or for pastoral practice.								
Cronostratigraphic framework	Probably Late Iron Age but more research should be done. 2 decorated potsherds can be attributed to Early Iron Age								
Artefacts visible on site surface	Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>	
	Daga	<input type="checkbox"/>	Furnaces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>	
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact	Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)		
Mitigation measure	Actually no reason for mitigation measure								
Site significance	HIGH		State of conservation		Regular				



Plate 63: Accordingly to local informer the site was very intensively explored as cropfield for mandioca but now subject of anathema and became desert (?)



Plate 64: It's looks that cultural layer is very thin or destroyed but potsherd are scattered on very vast area

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		MANYIKENI				SITE CODE		AR113	
UTM	36K	690279	7545424	WGS84	S	22 11 09.7	E	34 50 44.2	
VILLAGE		Manyikeni		DISTRICT		Vilankulos		PROVINCE	Inhambane
SITE DESCRIPTION									
Natural sitting:		Open air		<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea	
Surface area (m ²)		1250	Elevation (m)		98	FAO Soil Type		Luvic arenosols (QL15/1a)	
Accessibility (description)		Very good road Mapinhane - Maboto.							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers				UNKNOWN	
Settlement description		Ruins of stone wall on the top of small hill. Madzimbabwe. Open Air Museum. Stone wall. Zimbabwe Tradition. Excavations 1975, 1976, 1978/79, Survey 2011. Collecting new data.							
Cronostratigraphic framework		Late Farming Community, madzimbabwe settlement of 1 st half of 2 nd millenium AD.							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input checked="" type="checkbox"/>	Bones	<input checked="" type="checkbox"/>
		Daga	<input checked="" type="checkbox"/>	Furneces	<input checked="" type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input checked="" type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		Site need to be under permanent control and invistigation due archaeological and historical importance and studies about state formation in Mozambique. Extensive The forest exploration is the main problem with correct preservation of this site.							
Site significance		HIGH		State of conservation			IN RISK		

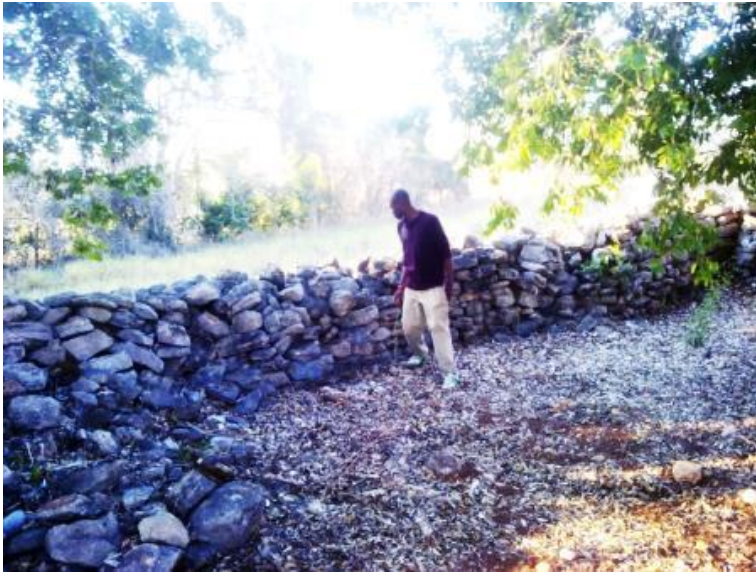
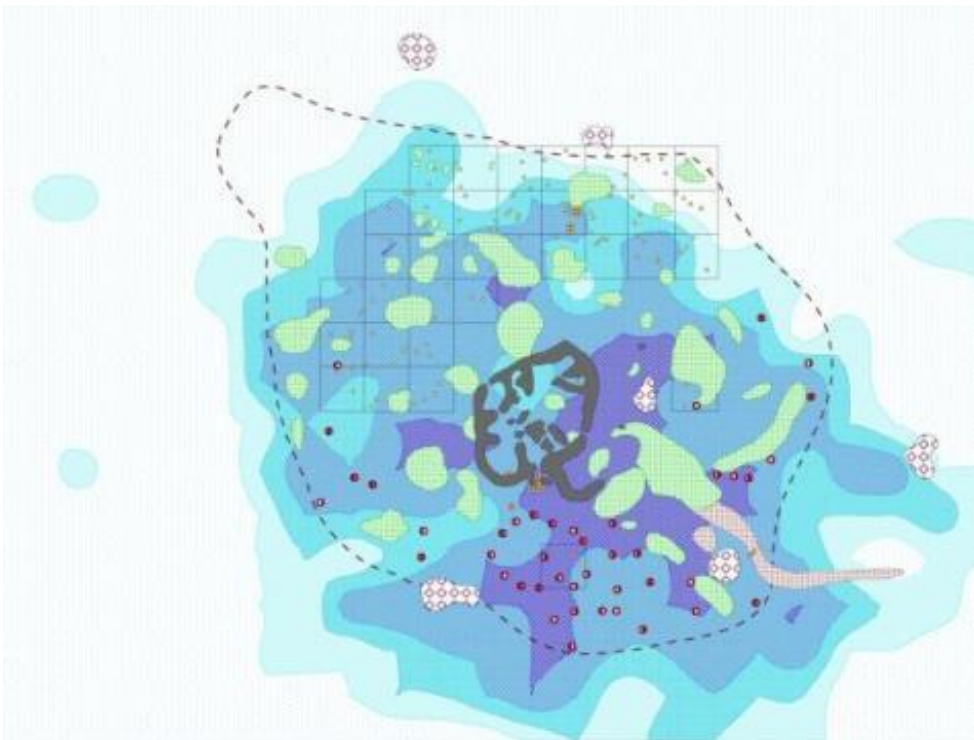


Plate 65: Manyikeni “madzimbabwe” settlement 11/17 c. AD



Map 10: Showing Manyikeni stone walls, hats around the main site and intensity of occupation (Sinclair)



Plate 66: Entrance to stone walled settlement



Plate 67: Part of disturbed settlement



Plate 68: Unfortunately most of disturbance is done by local people using stones from walls to mark a way for prominent visitors

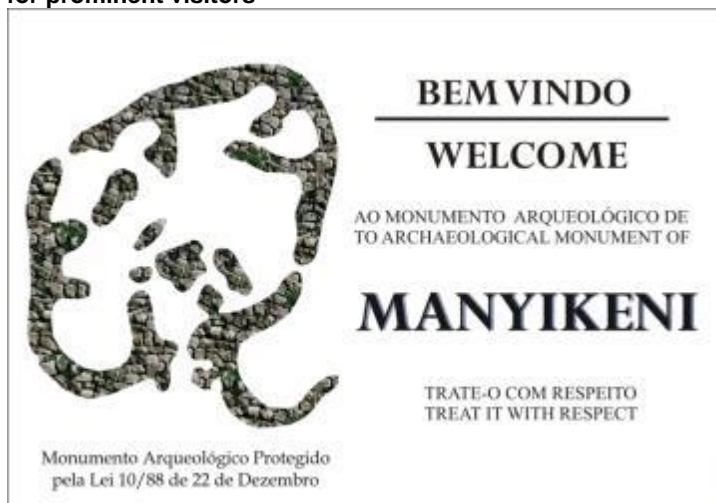


Plate 69: Informative desk for tourists and visitors. Board project: Leonardo Adamowicz. Realization of the Ministry of culture

Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		MAPANZENE PRAIA				SITE CODE		AR114	
UTM	36K	73609 3	7595224	WGS84	S	21 43 56.2	E	35 16 33.5	
VILLAGE	Mapanzene	DISTRICT		Vilankulos		PROVINCE	Inhambane		
SITE DESCRIPTION									
Natural sitting:	Open air	<input checked="" type="checkbox"/>	Rock shelter		<input type="checkbox"/>	Along river/lake/sea		<input type="checkbox"/>	
Surface area (m ²)	1300	Elevation (m)	12	FAO soil type		Rhodic Ferrasols Fr4 5 Fr			
Accessibility (description)	Regular but only with 4 x 4 vehicle								
CULTURAL CONTEXT									
Deposit depth (cm)	UNKNOWN	Number of cultural layers					UNKNOWN		
Settlement description	Few archaeological evidence and shallow shell midden								
Cronostratigraphic framework	Late Iron Age								
Artefacts visible on site surface	Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input type="checkbox"/>	
	Daga	<input type="checkbox"/>	Furnaces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>	
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact	Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)		
Mitigation measure	No mitigation measure are planned								
Site significance	LOW	State of conservation				Regular			



Plate 70: Entrance to Mapanzene Praia site



Plate 71: Mapanzene Praia site. Shell Midden





Archaeological Site Record Sheet

PROJECT:		SASOL MGTP PROJECT							
SITE NAME		2135Ca1				SITE CODE		AR115	
UTM	36K	726481	7619521	WGS84	S	21 30 45.8	E	35 11 10.9	
VILLAGE			DISTRICT	Vilankulos		PROVINCE	Inhambane		
SITE DESCRIPTION									
Natural sitting:		Open air	<input checked="" type="checkbox"/>	Rock shelter	<input type="checkbox"/>	Along river/lake/sea		<input type="checkbox"/>	
Surface area (m ²)		250	Elevation (m)	76	FAO Soil Type	Luvic arenosols (QL15/1a)			
Accessibility (description)		Regular							
CULTURAL CONTEXT									
Deposit depth (cm)		UNKNOWN		Number of cultural layers			UNKNOWN		
Settlement description		Small settlements with few potsherds. Badly disturbed by agriculture and erosion.							
Cronostratigraphic framework		Late Iron Age. 12 – 16 c. AD							
Artefacts visible on site surface		Pottery	<input checked="" type="checkbox"/>	Stone tools	<input type="checkbox"/>	Iron scores	<input type="checkbox"/>	Bones	<input checked="" type="checkbox"/>
		Daga	<input type="checkbox"/>	Furneces	<input type="checkbox"/>	Rock Paintings	<input type="checkbox"/>	Stone walls	<input type="checkbox"/>
IMPACT ASSESSMENT AND MITIGATION									
Nature of impact		Positive	<input type="checkbox"/>	Negative	<input type="checkbox"/>	Indifferent	<input checked="" type="checkbox"/>	Others (describe below)	
Mitigation measure		No mitigations need at this time							
Site significance		LOW		State of conservation			Regular		



Plate 72: Eroded archaeological site. Drawing of potsherd exceptionally collected from the surface showing rim, vessel form and decoration of ceramic invisible on photography

Burials of Community Leaders

BU 101. MANUSSE	36K 708107/7583993	Indicated by: Tomas Eusébio
<p>Burial, Sacred Place, claim by nephew of Pululane Miliro António, Tomas Eusébio, resident 47 km away to the north – east as Sacred Place and burial of his ancestor. No more information was possible recorded at place. Many families from here were resettled and few new seems to not permanent residence license. Many plants recorded in place were recognized by AMETRAMO as potential (?) medicine plants.</p>		
		
Plate 73: Supposed burial of the ancestors of the curandeiro Pulalane		
		
Plate 74: Local people believes that plants which are growing near burial can be use against sickness or bad spirits		
BU102. MABIME	36K 708107/7583993	Indicated by local community
<p>No visible burial. White cotton sheet indicate area of cemetery. Very short interview with local guardian and local people is available.</p>		
		
Plate 75: Burial near Mabime with very difficult access		
BU103. CHIPANGO BURIAL	36K 733919/7589938	Indicated by: Paulo Vilankulos

Burial of the founder of Chipongo in the end of 19 c. AD. No archaeological evidence. It was impossible invite somebody to interview.



Plate 76: Chipango Burial was recently reconstructed and protected against erosion. Shark muzzle substitute former elephant skull

BU104. MANGARELANE BURIAL

36K 726639/7618240

Indicated by: Mr Paiva Jose

Only two burial near baobabs are visible. Grass is very high. Lots of cobras which are considered protector of ancestors. Short interview with local women. During dry season is possible visit burial very close and see typical for this area "*cobra constipeira*" and yellow jiboa.






Plate 78: Burial is located between two baobabs but is strongly suggested to not visit burial or take picture



Plate 79:1 Local jiboa. No comments

Cemeteries

CE101. OLD MAMBONE	36K 710066/7677891	Indicated by Catarina Alfredo
 <p>Plate 80: Partially destroyed by river Save</p>		
CE102. NHAMANHECEA	36K 731614/7589086	Find by team
<p>Church ISIONE (syncretic) and cemetery where have been buried people from Nhamanhcea two generation ago. Interview with some people/Survey.</p>		
 <p>Plate 81: Many cemeteries are associated with local churches or mosque</p>		
CE103. MALONGOJIVA	36K 722872/7602191	Indicated by local people but they new in place
<p>Sacred Place probably with burials. The interview with guardian and local who advise us not take a picture because we take with us spirits of ancestors. As usually some recent potsherd find.</p>		
<h2>Sacred Places</h2>		
SP101. Lago Sangene	36K 694159 7636550	Indicated by Raimundo Tangué
<p>Field Survey: In this place during colonial time were organized ceremonies of initiation for boys. No pregnant women are allowed to wash something. Today place rather abandoned due resettlement in this area and lack of water in most period of year.</p>		
 <p>Plate 82: General view of Sangene Lake. During raining season lake is water lodges but this year still is almost dry</p>		

SP102. 8 km Inhassoro	36K 720470 7615047	Indicated by Raimundo Tangué
<p>Sacred Place and Centro de Reavivamento Espiritual founded by Mr. A. Zunguza, bishop of syncretic church. Interview with Raimundo Tangué, indicate that this Spiritual Centre was closed by local administration but without presenting reason for this decision. Today place looks as rather abandoned. Appointment with member of church failed twice.</p>		
 <p>Plate 83: Only this information suggest existence of sacred place</p>		
SP103. VELOSO	36K 732758 7601394	Recorded by team
<p>Sacred Place - place for circumcision. Where sickness are buried. Field Survey and interview with local young men recently circumcised done by Ercidio Nhatule in Xitswa.</p>		
<div>   </div> <p>Plate 84: Sickness buried in ceramic vessel</p> <p>Plate 85: Place for circumcision rituals, as rule, as selected near baobabs or rock shelters.</p>		
SP104. PECANE	36K 737921 7567790	Recorded by team
<p>Sacred Place near Vilankulos. Very eroded costs. Unfortunately we came there very late but after conversation with some women we understood the importance of the water of this lake: taking bath in the Pecane Lake help pregnant women have healthy child however near the lake are enormous quantity of different species of poison snakes.</p>		



Plate 86: Sacred Lake is already cut by road and is drying very fast

SP105. Santa Ana

36K 716489/7601678

Indicated by local priest Jose

Considered by local people as Sacred Place but not specially supported by church. Perhaps it was old cemetery? On surface recent potsherd were recorded



Plate 87: Some local people also claim that place was used for circumcision rituals before to be forbidden by catholic mission

SP106. CHIPANGO 1

36K 733919 7589938

Paulo Vilankulos



Paulo Vilankulos, artist, community leader, traditional doctor. Short interview is available.



Plate 88: Entrance to Paulo Vilankulos Sacred Place



Plate 89: Paulo Vilankulos, his mother and son in interior of sanctuary

S1P07. CHIPANGO 2	36K 731770/7588865	Indicated by local people
Sacred Place, probably burial of community leaders near very old baobab		
		
Plate 89: One of the oldest baobab in area		
		
Plate 90: Each part of baobab has its significant but more research should be done. Now stories are still confuse		

Religious Monuments and Features, Churches and Mosque


M101. MOSQUE IN MAMBONE	36 K 710909/7677940	Build up in 1952. Recently renewed after flood
Local Muslim community is rather small but slowly growing. New mosque will be buld in near future as this one is in risk flood and small.		
		
Plate 91: General view of mosque		



Plate 92: Women waiting to clean mosque



Plate 93: Interior of mosque

CH101. MAMBONE**36 K 710518 76778833****On the list of local monument
(Cristina Alfredo)**

Remarkable architecture. Need to be renovated. Interview with Cristina Alfredo. Guardian with local nearby cemetery. 5/9/1938, Town from December, 22, 1938.



Plate 94: Catholic church in Mambone

CH102. JOFANE**36 K. 714664 7612121****Invited to visit by local people**

Evangelic Church Guardian with local nearby cemetery. Const. 1980. Ren. 1992 and 2001



Plate 95: According to pastor Geffrey " Church is in permanent expansion and renovation... "

CH103. CHIPONGO**36 K 731389/7589159****Regular survey record**

Apostolic Church, Assembleia de Deus. Guardian with local nearby cemetery. Pastor Michael



Plate 96: Pastor Michael collect material to build new church. This will be rather abandoned

CH104. Adventist 7 Day Church

36 K 716789 7580422

Adventist 7 Day Church with rustic original architecture. Pastor Rafael Taimo. Place reserved since 1988 but building still in construction. Probably another new church will be built up in next year.



Plate 97: Adventist 7th Day Church in construction

CH105. EMUM

36 K 731957/7602292

Methodist Church with urged need to be renovate according to interview with priest. Guardian with local nearby cemetery



Plate 98: Methodist United church actually is closed and wait for renovation

CH106. MC St. Ana

36 K 716638/701677

Church St. Ana and professional school for boys and girls. Field Survey, Interview

According to short the Mission was built between 1937 and 41 but became fully functioning in 1960's. The professional secondary school was built in late 1950's, stop working shortly Independence and restart fully functioning with c 350 student after 1990.










Plate 99: St. Ana. Church of catholic mission near EN1

N'anga, Traditional Doctors - Curandeiros

(Note: Description of medicine plant used by local traditional medics, in Mozambique called “Curandeiros” is described in Appendix .)

MP101. Mr. Palulane, 2nd Chief of AMETRAMO Curandeiro		His family came from Manusse where was installed many generations. Resettled in 2004. Installed since many generation
Coordinates:	36K 716407 7613312 - Owner of large field with medicine plant	
Description	Interesting interview with Curandeiro nephew in Appendix 10.5) Curandeiro after short meeting with us went to forest to look for natural medicine.	
 <p>Plate 100: Information desk</p>		 <p>Plate 102: Palulane Pharmacie in the clinic</p>
 <p>Plate 101: The youngest patient</p>		 <p>Plate 103: New wife from Northern Mozambique</p>
		 <p>Plate 104: Palulane Pharmacie on the market in Mapinhane</p>

MP102. Xinhangane Manhike Curandeiro. AMETRAMO member		Recently Installed
Coordinates	36 K716612 7605310	
Description:	Traditional Doctor Recently open practice. None of medicine is based on plants, almost all are shells or clays. Close friend of Mateus Moises Massingue not present during our visit.	
		 <p>Plate 108: Information desk to Manhike clinic</p>
 <p>Plate 106: Before we leave clinic Manhike has offered as local fruits with vit. C</p>		 <p>Plate 109: Entrance to clinic</p>
 <p>Plate 107: Mateus Massingue is new in area but not recognized by AMETRAMO</p>		 <p>Plate 110: Massingue has large pharmacies on the markets in many localities in Inhambane Province</p>

MP103. Zacarias Afonso Mabasso AMETRAMO member		With tradition of 3 generation in the same place. Since 1925
Coordinates:	36 K 716427 7600269 *camp with plants	
Description:	Traditional doctor Zacarias Afonso Mabasso was born in Malawi. Interview about medicine plants presented in App. 9.5.	
		
Plate 111: Information on the road EN1		Plate 112: Mr. Zacarias Afonso Mabasso in front of his clinic with Ercidio J.J. Nhatule and grandson Adao
		
Plate 113: Interior of Mr. Zacarias Mabasso clinic		
		
Plate 114: Place and call and contact with ancestral spirits		Plate 115: One of possible prize for Mr. Z. Mabasso service - small antelop

Appendix A.4: Catalogue of Cultural Heritage Recorded Sites

Sites Recorded During Field Survey – January 2015 and supplemented by sites recorded 19 and 20 June, 2018										
	Guvuro, Inhassoro and Vilankulos Districts									
MAP CODE	Locality or Site Name	Site Description	Site Type	Sub Type	Name Guardian of	Easting UTM 36K	Northing UTM 36K	Elev.	Date	Site Sign.
AR101	Mambone 2	Archaeological Site, disturbed by river Save erosion. Field Survey	Archaeo-logical	Pottery	DBCH Guvuro	711329	7678063	10 m	EIA 2-8 AD, LIA 11-16 AD	HIGH
AR102	Mambone 1. Save River	Archaeological almost totally disturbed by fluvial erosion. Interview with Cristina Alfredo	Archaeo-logical	Pottery	DBCH Guvuro	714602	7679717	7 m	LIA, 1st half of 2nd millennium AD	LOW
AR103	Near Catholic Mission St. Ana	Village. A.S. LIA9	Archaeo-logical	Pottery	PBCH Inhambane. in	716719	7601505	67 m	2nd half of 1st mill. and beginning of 2nd mill AD	MEDIUM
AR104	2134Db1	Dispersed pottery Luangwa Tradition. Site disturbed by practice of agriculture and erosion. Systematic field survey.	Archaeo-logical	Pottery	PBCH Inhambane in	706262	7596848	72 m	LIA, 11-17 AD	LOW
AR105	Temane 2	The first time was recorded in 2000. Small area with high concentration of Luangwa Tradition Pottery and iron slag	Archaeo-logical	Pottery Slag and	PBCH Inhambane in	716126	7598079	48 m	LIA, 1 st half of 2 nd millennium	MEDIUM
AR106	Chibuene	2235Ab1, Investigated by L. Adamowicz 1981 and Sinclair, P., 1987 Survey 2015 to Collecting new records	Archaeo-logical	Pottery gold, porcelain	PBCH Inhambane. in	739894	7559910	12 m	EIA. 2 - 8 AD, LIA, 11-17 AD	HIGH
AR107	Nhachengue	Archaeological Site already investigated by L. Adamowicz, Ch. Linqvist and P. Sinclair in 1981. Survey and Test Pits 1981, Field Survey 2015	Archaeo-logical	Pottery	PBCH Inhambane. in	723505	7471587	44 m	EIA. 2 - 8 AD. Matola Tradition. With 28 very old baobabs	HIGH
AR108	Nhanimela1	Archaeological site. Stone walls. Zimbabwe Tradition. Field Survey	Archaeo-logical	Monument	PBCH Inhambane. in	728291	7505342	70 m	LIA, 12-17 AD	HIGH
AR109	2135Cb1 Near Seeleman	Few quartz microlith and Late Iron Age pottery. Site covered by high grass and partially disturbed by agriculture	Archaeo-logical	Pottery	PBCH Inhambane in	735064	7594151	45 m	More research needed. LSA? Pottery of Luangwa Tradition	LOW

Sites Recorded During Field Survey – January 2015 and supplemented by sites recorded 19 and 20 June, 2018										
AR110	Lago Pecane	Late Iron Age Archaeological Site. Few Luangwa Tradition decorated pottery. Disturbed by agriculture.	Archaeo-logical	Pottery	PBCH Inhambane. in	737374	7567975	23 m	LIA, 1st half of 1st mill AD	LOW
AR111	2135Cc1	Village	Archaeo-logical	Pottery	PBCH Inhambane. in	708393	7583982	43 m	EIA & LIA, 2nd half of 1st mill. and beginning of 2nd mill. AD	MEDIUM
AR112	Malangojiva	Archaeological site LIA	Archaeo-logical	Pottery	PBCH Inhambane. in	723071	7600815	38 m	LIA, 1st half of 1st millen. AD	LOW
AR113	Manyikeni	Madzimbabwe. Open Air Museum. Stone wall. Zimbabwe Tradition. Excavations 1975, 1976, 1978/79, Survey 2011. Collecting new data.	Archae-ological	Monument	PBCH Inhambane. in	690279	7545424	98 m	LIA, XII - XVII c.	HIGH
AR114	Mapanzene Praia	Few archaeological evidence and shallow shell midden	Archaeo-logical	Shell Midden	n/a	736093	7595224	12 m	some recent ceramic	LOW
AR115	2135Ca1	Archaeological Site. Late Iron Age. Recorded in 2000, now totally disturbed by agriculture. Field survey	Archaeo-logical	Pottery	PBCH Inhambane. in	726481	7619521	76 m	LIA, 1st half of 2nd mill. AD	LOW
BU101	Manusse	Burial, Sacred Place, claim by nephew of Miliro António as Sacred Place and burial of his ancestor. Nothing was possible recorded at place	Religious	Burial	Miloiro Antonio	708107	7583993	46 m	Since 1925 but nephew was uncertain to the exact location	HIGH
BU102	On the way to Mabime	No visible burial. White cotton sheet indicate area of cemetery. Interview Guardian and local people. Survey	Religious	Burial	Martinho André	726334	7597963	46 m	Recent	HIGH
BU103	Chipongo	Burial of the founder of Chipongo in the end of 19 c. AD.	Religious	Burial	no data	733919	7589938	55 m	2 nd half of 19 c. AD	HIGH
BU104	Mangarelane	Only two burials are visible. Grass very high. Lot of cobras which are considered protector of ancestors. Interview with local women	Religious	Burial	no data, cobras protect the place.	732758	7601174	54 m	functioning generations two	HIGH

Sites Recorded During Field Survey – January 2015 and supplemented by sites recorded 19 and 20 June, 2018										
BU-105	Manusse Powerline	One grave, 15m east of powerline servitude. Identified by Sasol clearance team.	Religious espiritual	Burial	unknown	710531	7587464	61 m	unknown	HIGH
BU-106	Manusse / powerline	One grave, 30m west of powerline servitude. Identified by Sasol clearance team.	Religious espiritual	Burial	unknown	710154	7586503	58 m	unknown	HIGH
BU-107	EN1	Two graves, 15 m east of powerline servitude. Identified by Sasol clearance team.	Religious espiritual	Burial	unknown	714021	7577136	65 m	unknown	HIGH
BU-108	Powerline	Two graves. Identified by Sasol clearance team.	Religious	Burial	local	714017	7577019	48 m	unknown	HIGH
BU-109	Powerline	One grave, 3m east of powerline servitude. Identified by Sasol clearance team.	Religious	Burial	local	716911	7571374	52 m	unknown	HIGH
BU-110	Mangarelane II	The grave of Santos' Mabime family (father). Identified by archaeological team during survey 19/06/18	Religious	Burial	local	724897	7606809	54 m	unknown	HIGH
BU-111	Mangarelane II	Two graves. Unknown family. Identified by archaeological team during survey 19/06/18	Religious	Burial	local	725666	7606208	55 m	unknown	HIGH
BU112	Mabime	One grave. Unknown family. Identified by archaeological team during survey 19/06/18	Religious espiritual	Burial	Local community	727810	7598642	42 m	Recent	HIGH
CE101	Old Mambone	Partially destroyed by river Save. Interview with guardian and local	Religious	Cemetery	Local Church	710066	7677891	13 m	Recent	HIGH
CE102	Nhamanhcea	Cemetery (17), where where buried people from Nhamanhcea two generation ago. Interview with some people/Survey	Religious	Cemetery	Pastor Michael	731614	7589086	75 m	Recent	HIGH
CE103	Malongojiva	Sacred Place (2)	Cultural	Sacred Place Cemetery	Indicated by M. André	722872	7601191	65 m	Probably abandoned cemetery 19 c. AD	HIGH
CE-106	Mangarelane II	Five graves. Identified by archaeological team during survey 19/06/18	Cultural Religious	Cemetery	Indicated by Santos	725825	7606222	60 m	Recent	HIGH
CE-107	Mabime	Seven graves. Identified by archaeological team during survey 19/06/18	Cultural Religious	Cemetery	Indicated by Santos	719326	7599913	54 m	Recent	HIGH

Sites Recorded During Field Survey – January 2015 and supplemented by sites recorded 19 and 20 June, 2018										
CH101	Mambone	Remarkable architecture. Need to be renovated. Interview with Cristina Alfredo. Guardian with local nearby cemetery	Cultural Religious	Church (CH),	Local Church	710518	76778833	6 m	5/9/1938, Town from December, 22, 1938	HIGH
CH102	Jofane Church 60	Evangelic Church (60) Guardian with local nearby cemetery	Religious	Church (CH)	no data	714664	7612121	37 m	Const 1945. Ren. 1982 and 2001	MEDIUM
CH103	Chipongo	Apostolic Church, Assembleia de Deus. Guardian with local nearby cemetery	Religious	Church (CH)	Pastor Michael	731389	7589159	35 m	Recent	HIGH
CH104	Apostolic Church	Church Apostol's with rustic original architecture.	Religious	Church (CH)	Pastor Rafael Taimo	716789	7580422	28 m	Since 1988.	HIGH
CH105	Methodist Church	Methodist Church with urged need to be renovate. Interview with priest. Guardian with local nearby cemetery	Religious	Church (CH)	not revealed	731957	7602292	43 m	Recent. Since 1960?	LOW
CH106	M.C.St. Ana	Church St. Ana and professional school for boys and girls. Field Survey, Interview	Religious	Church (CH) Monument	Padre José Sa Carneiro	716638	7601677	27 m	Since 1937 - 41	HIGH
CH107	Mangarelane II	Catholic church of St. José (semi-permanent) with build with rudumental material. Identified by archaeological team during survey 19/06/18	Cultural Religious	Church	Indicated by Santos	725723	7606467	58 m	Since 2017	LOW
CH108	Mabime	Catholic church (semi-permanent) with build with rudumental material. Identified by archaeological team during survey 19/06/18	Cultural Religious	Church	Indicated by Santos	719509	7599787	52 m	Recent	LOW
MO101	Old Mambone / Guvuro	Mosque. General information and visit. Guardian with local nearby cemetery	Religious	Mosque (MO), Monument	Local	710909	7677940	4 m	constr. 1952, recently reconstructed	HIGH
MP101	Curandeiro Palulane Miloiro Eusebio	Interesting interview with Curandeiro nephew. Curandeiro himself went to forest to look for natural medicine. Interview	Cultural	Medicinal Plants (MP)	Palulane Miloiro Eusebio	716407	7613312	21 m	Installed since 2004	HIGH
MP102	Curandeiro Xinhangane Manhiki METRAMO member	Traditional Doctor Recently open practice. None of medcin is based on plants, almost all are shells or clays	Cultural	Medicinal Feature (MP)	Xinhangane Manhiki Rafo?	716612	7605310	43	Recently Installed	MEDIUM

Sites Recorded During Field Survey – January 2015 and supplemented by sites recorded 19 and 20 June, 2018										
MP103	Zacarias Afonso Mabasso Curandeiro. AMETRAMO member	Traditional Doctor Zacarias Afonso Mabasso was born in Malawi but family is from Inhambane province. Interview	Cultural	Medicinal Plants (MP)	Zacarias Afonso Mabasso	716427	7600269	27 m	With tradition of 3 generation in the same place. Since 1925.	HIGH
SP101	Lago Sangene	Sacred Place. Field Survey	Cultural	Sacred Lake (SL)	n/a	694159	7635550	59 m	Recent / Modern	HIGH
SP102	8 km Inhassoro	Sacred Place. Centro de Reavivamento Espiritual. Field survey. Interview	Cultural	Sacred Place (SP)	no data	720470	7615047	37 m	Not functioning	LOW
SP103	Veloso	Sacred Place - circumcision. Where sickness are buried. Field Survey and interview with local young men recently circumcised done by Ercidio Nhatule in Xitswa	Cultural	Sacred Place (SP)	not revealed	732758	7601394	25 m	recent	HIGH
SP104	Pecane SP	Sacred Place. Dialog with some women. Taking both in the Pecane Lake help pregnant women have healthy child.	Cultural	Sacred Lake (SL)	n/a	737921	7567790	24 m	since generations? three	LOW
SP105	St Ana	Sacred Place (7). Old cemetery	Cultural Religious and	Sacred Place Cemetery	n/a	716489	7601678	44 m	1960´s	HIGH
SP106	Chipongo	Paulo Vilankulos, artist, community leader, traditional doctor. Interview	Cultural	Sacred Place	Paulo Vilankulos	733919	7589938	70 m	Three generation. Probably since 1950?	HIGH
SP107	Chipongo S.P.	Sacred Place (5), probably burial of community leaders	Cultural Religious and	Sacred Place (SP)	n/a	731770	7588865	51 m	no data	HIGH

APPENDIX A.5: MEDICINE PLANT RECORDED DURING SURVEY 2015

In Mozambique, the medicinal plants constitute a valuable instrument of traditional medicine, being widely used in rural areas as the main source of medicines for primary health care. The socio-cultural value is inexhaustible and the commercial potential is vastly unknown. Among the rich national heritage, the African potato (*Hypoxis spp.*) and chibaha [*Warburgia salutaris* (g. Bertol.)] are widely used in Inhambane Province as in whole southern Africa. In the first case (*African potato, black batata called in Inhassoro*), the cormo has been used in the treatment of various diseases, especially cancer and opportunistic diseases associated with HIV/AIDS. In the second case (*chibaha*), the shells are used in the treatment of colds, flu and related diseases as malaria, headaches, hemorrhoids and angina pectoris.

As such, the pursuit of these plants has been unreasonable and uncontrolled. At present, there are serious indications of danger of extinction of these species and the establishment of priority conservation programs to recover and preserve the (still) remnant of this valuable heritage. In this context, this research team began very basic and preliminary record of medicinal plants in Inhambane Province. This can be considered as the first phase began the study of plant used by Traditional Doctors members of METRAMO. This study, now and in the future, is based on five components:

- a. Interview with METRAMO and local Curandeiros;
- b. Prospecting and geographic mapping; 3. Development taxonomic and genetic diversity studies in partnership with botanist; 3;
- c. Developing methods of vegetative propagation; and
- d. Socio-economic impact assessment.

In this way it is hoped to assess the current state of conservation of medical plant in SASOL exploration area and contribute to the establishment of conservation measures in each year highly industrialized district.

Most popular medicine plant used by curandeiros in Inhambane Province



AVOCADO

Informer: Mr. Manique and METRAMO General Secretary deputy in Maputo Mr. Chalice Abdala.

Popular: PERABACATA (Abacateiro, avocado). Scientific: *Persea americana* C. Bauh, fam.: Lauráceas.

Application: aphrodisiac, general pain, diuretic (leaves of abacateiro) and much more/perfect in the kitchen and better than margarine, butter or jam.

Therapeutic indications: Diarrhea, dysentery, headache, contusion.

Complimentary information (Informer: Manique Eusebio done in Xitswa and translated to Portuguese by Ercidio Nhatule).

Plate 116: Perabacata (avocado)

The fruit (pulp) and the pit (seed) should be eaten fresh. The leaves can be used dry or as green tea. Avocado leaf tea is a diuretic and carminative (eliminates intestinal gas) and helps the gallbladder releasing bile, improving the digestion of fats.



Please avoid taking large daily quantities of tea (more than 2 cups/day) because being diuretic can reduce a lot of the blood pressure in people who have this disease. Being diuretic also look for taking in the morning and at most until 5:00/6:00 pm. The pit (seed) roasted and grinded well thin fighting diarrhea and dysentery.

The avocado pulp is considered an aphrodisiac. In the pit (seed) focuses the power to increase libido. The pulp can be eaten with honey or cane molasses (use bit) and recommend avoiding the use of any kind of sugar. Use honey! Can be mixed with “papinha de milo” (mamalyga?) and other foods.

Don't use avocado which grew in town or near the roads. They are useless.

Buy from my plantation. Caution: the pulp is very rich (*in calories? L.A.*) and should be avoided by those who try to lose weight. Already for athletes and our peasant is a good source of health energy, replacing with large advantage the deadly and poisonous margarines and butters (*Manique, pers. Com*).

Africana potato (*Hypoxis hemerocallidea*) and **Chibaba (pepper-bark tree)** (*Warburgia salutaris* (g. Bertol.) are among the most popular between curandeiros in Inhambane province as medicinal plants. While in the first case, the harvest is intended to the large markets of medicinal plants, primarily in the province of Maputo, Gaza and Inhambane (Krog et al., 2006: 14), in the second case, the neighboring South Africa is frequently the destination (METRAMO, Maputo, Abdala, pers. Comm.). Cross-border trade via Mabote District and demand in urban areas may, therefore, be a potential threat to these species by non-sustainable consumption.

Chibaba

- Popular: Chibaba (pepper-bark tree). Scientific name: *Warburgia salutaris*;
- Application: Colds, flu and related diseases as rheumatism, malaria, venereal diseases, headache, toothache, hemorrhoids and angina pectoris; and
- Therapeutic indications: malaria and angina pectoris.

This is a tree that belongs to the family *Canellaceae*, usually with 5 to 10 m in height, occasionally reaching the 20 m. The bark is brown. The leaves are simple, elliptical or lancelet, dark green and shiny on top and pale on the page bottom, with spiral insert. The flowers are white or greenish. The fruit is a spherical berry. (Coates-Palgrave, 2002: 741). The inner bark is spicy. and used for various applications especially these mentioned above. Not all contacted curandeiros and METRAMO agree with therapeutically properties of this plant which became rare in Inhassoro District and is imported from Gaza or Maputo (Rio Tembe, Massale e Goba Sede, METRAMO and Rafo pers. Comm.). Plant should be classified as **in risk** (Critically Endangered).

Africana potato

- Popular: Batata africana, batata preta. Scientific name: *Hypoxis hemerocallidea*.

This plant is perennial corms with elongated leaves. The flowers are star shaped and are yellow. Some authors (Van Wyk et al., 1997: 156). Singh (2007: 360 p) points to the existence of 30 species in this genus in southern Africa. These can be distinguished by size, shape and orientation of the size and shape of the leaves and flowers (Van Wyk et al., 1997: 156) but each Curandeiro recognize and choose for treatment special species

which is top secret for them. Corms have been used over many centuries by traditional medical practitioners in the treatment of cancer and opportunistic infections associated with HIV/AIDS (Manique and METRAMO pers. Com.).

More 17 name of plant were recorded in Inhassoro District and will be published after name correction and bibliographic research as soon as possible.

Impact Assessment and Mitigation (Strategy of conservation)



Under this project, impact assessment and mitigation (strategy of conservation) of medical plants in SASOL MGTP project pass through the identification, quantification and collection of plant material in major areas of occurrence of these species, as well as the preliminary studies of the development of methods of vegetative propagation, given the difficulty of reproducing via seminal

Plate 117: Typical traditional farmacie in Inhambane Province.

APPENDIX A.6: INTERVIEWS

Mr. Tomas Eusebio, nephew of Palulane Miloiro Eusebio about medicine plants

“During childhood, not far from here in the village and without this today noisy road I saw my mother get leaves from the yard to treat injuries results from household accidents or my brother’s wounds after football. And often, they healed the injuries without having to resort to medical or pharmacy. In my uncle backyard (show smiling with hand EN1 and around deserted field) grew up plant varieties whose usefulness no one in the family knew. One day we decided to go to Manusse where supposed to be buried our ancestors. Stayin near new constructed palhotas few meters from burial of my grand, grand father, my uncle asked local young lady for permission to take a few sheets of one of the plants in her garden. She was very astonished but my uncle explained to her and to me that that plant had the same utility that the ointment used for muscle pains), healed pain anywhere in the body and could use to make hot steps in the wounds.



Plate 118: Mr. Tomas Eusebio, nephew of curandeiro Palulane building new clinic for his uncle

With this explanation, the plants gained new meaning in the region of Manusse and even far from here in other provinces. I have seen that plant was used many years until she starts to dry up mysteriously, having eventually disappeared from our backyard after Chinese and SASOL start explore the forest and build up the roads. Now, my uncle import this plant from Gaza province”.

Do you know the name of this plant?

“Yes, but now I don’t remember It was 30 years ago! I think it is urera. Now AMETRAMO is invaded by immigrant from Western Africa and even from Brasil. Names change and confuse.

I recently had a conversation with a lady who attends the same church. She complained of stomach aches and said that a while ago there were many plants for the treatment of stomach problems, but don’t grow now. All backyards are clean, become sandy and full of salt (?). No medicinal plant. If you wants to have some of these plants, might have to go to distant places, and would be very costly. According of my uncle, there is something that changed the climate; the rains fall outside of the season, followed by intense heat, destroying the creation of God, will of our ancestors and as you are scientist, you can thing nature.

My grandmother repeatedly speaks that all problems is new habits of how we prepare food. There were times we were using a lot the cacana to cure bile, clean blood and cure many diseases that affect children, and those leaves could be plucked in the yard days after falling rain, but now not cacana around. Based on this observation, conversation with my uncle and in many others occasion, it shows clearly that the disappearance of medicinal plants, reflects negatively on the lives of women, mainly those who are mothers, because the plants were used to cure various illnesses, domestic incidents without go far and extremely costly hospital”.

(Here some paragraph were deleted by L. A. as not connected to the main subject of research).

“The Curandeiros and knowledge of natural medicine allowed if spare time from doctors to treat serious diseases and they also were given time to domestic duties. The worrying situation in this case is not just about the disappearances of medicinal plants that hinders women’s lives but also worried about the fact that there is


a lot of knowledge about medicinal plants and this not being recorded and researched by those who have the power to just do it for the good of all. I am agronomist and I would like to study this year in Master course in Maputo... waiting for news. May be they consider me to old. I am 41 years old but with very good practice in the forest in Zambezia province (1998 – 2012). I don't want stay here where foreigner are cutting our forest...(text reduced by L. A.).

Many young people dies here. May be HIV/ADS, but with diagnose of malaria. I convers with my colleges and neighbors suggesting go back to time of our ancestors, looking on of potentiation of plants, you could open a space in neighborhoods, districts, so that anyone who has knowledge of the use of a plant to share his knowledge".

Thanks a lot. When you have time to visits burials of your ancestors in Manusse?

"When my uncle will be back home"

Catarina Cristina Alfredo

	Date/Time	January, 13, 2015 (2nd Interview)
	Village Name	Guvuro Nova Mambone
	Interviewer	Catarina Cristina Alfredo
	Interviewee	Leonardo Adamowicz
	Position	Director of the District Board of Culture Heritage
	GPS point(s) with an estimate on site size	36K 711329 7678063

Were you born here? / How long have you lived here?

"I was born in small village now included to Zanave Natural Game Reserve. However due the war my parents move to Volankulos where I have complete my primary and Secondary School Eduardo Mondlane. My university experience in Beira were uncessesful. I became pregnant and my husband was transferred to Mambone as District Administrator Deputy of Guvuro. I have decided accept invitation to finish 3 month course of culture heritage management in Inhambane and since 2009 I am working here".

We are interested in the history of the village, do you know anything useful for us?

"If you have care we can this afternoon do together survey around Mambone".

OK. What is the origin/meaning of the village name?

"Name Mambone was given by Portuguese but Guvuro came from name of the river and why they call river like that? I don't know".

Do you know how old this settlement is?

"As your professor told us we have here Early Iron Age archaeological site. C. 2000 years ? But he knows better, ask your boss (smiling)".

Are there any interesting stories any other settlements in the area?



"Most stories is about flood and lot about ... but all this stories are connected with local superstition and tribalism but our government fights these. How people become sick? Why we should not accept build houses near cemeteries? Why we should not cross archaeological site during the night? This stories people speak this years. In my repartition of local cultural heritage we recorded them, after came from province and they comments as "stories not confirmed". But local people here are in permanent movement due to floods, civil war, and famine, seasonal migration to South Africa looking for job. As you see here are very few young men. Most are children or old people".

Graves/burial grounds

Are there any graves nearby? How many?

"We have two cemeteries. One cristin another one muslim. This one is badly destroyed by fluvial erosion and "bad langueses" and stupid people produce rumors that river Save is against present of muslims in Mambone".

Location of sites visited together with Mrs Catarina


- 1) Mambone 2, Archaeological Site, 36 K 711329 7678063;
- 2) Cemetery Old Mambone, 36 K 7677891 (During very short interview with local guardian was confirmed that place is permanently under threat during flood that become very frequent);
- 3) Mosque, Old Mambone/Guvuro 36K 710909 7677940, constr. 1952, recently reconstructed (*more information see in report*); and
- 4) Church, Old Mambone, 36K 710518 76778833, const. 5/9/1958 - December, 22, 1958 (*More information sees in report*).

"The mosque and church are presented in report. Mrs Catarino at the moment doesn't present any information about Sacred Places in district".

Intangible Heritage

"Local festivities are associated with official national holidays (3 February, 25 Juny, 25 September), church (Christmas, Easter, etc) or Ramadan. Some people organise special ceremonies associated with farming, floods or fishing but they are ver sporadic events and no oficial record about. No records about specific taboos only well knows such as separation of gender in mosque".

Eugenio Sangué

	Date/Time	January, 14, 2015 (3 rd Interviewer)
	Village Name	Mangarelane II (5 km before Regulo House)
	Interviewer	Eugenio Sangué
	Interviewee	Ercidio Nhatule in Xitswa Translation to Portuguese E. Nhatule Translation to English Leonardo Adamowicz
	Position	Executive Secretary of Administration Post (as he introduce himself)
	GPS point(s) with an estimate on site size	36 K 726421 7602989

"I was born not far from here – in small village near the Lake Nhametunda to direction to ocean. After my 6 class I went with my uncle to South Africa. My uncle was very important person but Frelimo Secretary didn't like him. Now both have been died. We emigrate from here for 15 years. I came back when in South Africa start "phobia" against foreigners. One of SASOL worker advises me to come back here.

Also my father and mother died and was buried in our village Nhametunda.

Villages here are very dispersed. They don't preserve stories as in South Africa. Each family has its own history but not villages. Today they settled here, five year later move or they are resettled.

Due general election I was appointed as Deputy of local Secretary of administrative post but it is not really job. I would like work in SASOL, I speak Africans and can read and write in Portuguese. If not, in February I will go back to South Africa. Time is very difficult here .I am married and father of one son in RSA and three children here in Inhambane Province(?).

I don't know the meaning of village names. Names are old - people rather new in this area.

When you come next time I can follow you and your white friend to my grandmother in Nhametunda. She is 75 years old or even more. She knows of stories and sacred, even secret places.

Most of young people work here in South Africa and when they came back, they don't follow traditions of their madalas (old parents).All foreigner investments are welcome.

Your questions are associated with our poverty. Please. Let's go speak about gas, electricity, medical post and schools.

I belong to Presbyterian Church, as most of as SA seasonal workers but I am not practice my believes. My wife, she is catholic and she walks every Sunday to Mangarelane 1 or if they have lift to Inhassoro".

Graves/burial grounds

"All of us Africans, we have two religions: European/Asiatic and local traditional. In the past graves are nearby or even in abandoned houses but now administrations and churches recommend associate burials with their Churches or communal cemeteries. I have never seen burials along the roads. May be Crosse commemorating accidents? Regulo Paito in Mangarelane 1 will inform you much better. He knows where people now organize Initiation rituals. I was circumcised near Nhamatunda Lake but all my children in hosin SA or Inhassoro.

About sacred places ask Regulo Paito. As him also why local administration licence cut sacred forest for people from China. They look especially for strait, tall trees which grew only in sacred forest” (I suppose he refere to Mogno Africano, coments Leonardo Adamowicz)


Intangible Heritage

Unique traditional festivities which I remember in this area were

- Wedding parties;
- Return from forest after Initiation Rituals;
- Funeral rituals; and
- Birth of first masculine descendent.

“Recently I have participated in one ceremony, with enormous quantity of tontonto (locally produced alcohol) dedicated to ancestors asking them to help select the best governors in the general election”.

Paiva Jose

	Date/Time	January, 14, 2015 (4 th Interviewer)
	Village Name	Mangarelane 1
	Interviewer	Paiva Jose
	Interviewee	Leonardo Adamowicz
	Position	Regulo, Chief of Local Community
	GPS point(s)	36 K 732030 7602076

"I was born here, my father was born here, my grandfather was born here, my children and my grandson was born here. Only one person here is foreigner – this one, my 2nd wife. She was born in Homoine and move here, as very young girl, after massacre in their villa during civil war. Founder of this village was father of my grandfather Mangarelane who refuse render for Portuguese solders after defeats of Ngungunhana.

I suppose that previously we speak Ma-changana but as our ancestors women and mother speak Xitswa everybody start prefer mother language.

In the beginning local people didn't like as for this reason we produce a lot of local beer to socialize with them.

Now we are one nation here but still we look for any opportunity to produce beer, tontonto or aguardente to socialize. Unfortunately, villages now are not the same as before. Young people went to South Africa looking for job, many was resettled or move to Vilankulos or Inhambane. New religious appears; new strange Curandeiros from Mali, Malawi, Kenya open their "clinics".

Sacred places? Most of sacred forest with toll trees mysteriously disappears. All ceremonies I conduct with elders near my house.

Please take not on places where you can find Churches ... Catholic, Methodist, Adventist, Universal in this area (most of this places were identified and described in the report).



Figure 28. Regulo Paiva Jose house is political and spiritual center of Mangarelane 1

Graves/burial grounds




The burial of my ancestors are very far from here, near the river on the top of small hill where in one chosen day of December all my family is walking hours carrying food to be offered to our ancestors. But not all members of family are buried there/only masculine leaders. Other is buried nearby village as you see there. We don't need appoint cemetery guardians. Dangerous cobras on such sites and spirits of our ancestor are the best guardians of cemetery.

Are there burials along the roads? I don't know. May be, should be. If you see large tree, better baobab, you should suppose that there is cemetery or important burial.

Nothing medicinal plant I can tell you but my mother is soecialist for traditional healing and cooperate with many Curandeiros in area collecting them plants.

Paulo Vilanculos

	Date / Time	January, 16, 2015
	Village Name	Chipango 1
	Interviewer	Paulo Vilanculos
	Interviewee	Leonardo Adamowicz and Ercidio Nhatule
	Position:	Executive Regulo, former student of catholic university in Beira but for personal reason abandoned study
	GPS point(s) with an estimate on site size	36 K 731039 7588818

"I was born here around Chipango. As you see my family name is Vilanculos as name of this district. We all are from here. One part of our family stays near the ocean and they are fishermen. Other as me in hinterland and we are agriculturist. When last Curandeiro, my uncle dies I continue very successfully with his clinic and cooperate this rural health center in Chipango and Vilanculos.

We are very happy that SASOL invest in this area and care about our culture, religion and past. That is excellent that your university send scientist for more research our history however last year visit us an archaeologist or historian with very little knowledge of our region. My youngest brother, student at Eduardo Mondlane Secondary School in Vilanculos was present during visit of this also very young consultant and ask him about Chibuenene and Manyikeneni, sites already in school manuals and internet. Young consultant was very confuse and tell that his area is history and not field archaeologist. Promise sends some photos but nothing happened (As Mr. Paulo not mention any name of supposed consultant we have decided concentrate on the actual research. Follow long discussion about archaeology of Vilanculos district between Prof. Leonardo Adamowicz and Paulo Vilanculos who promise next time join team and together to record some sites which


he has seen and which should be confirmed. Photos of Chibuene, Manyikeni and other archaeological sites was copied on CD with purpose to give for brother of Paulo to use during lessons of history in his school).

Now, if you have interest in burials, sacred places and churches you should follow this road to Vilankulos. Don't go from here to EN1 it is culturally deserted area. But the best sacred forest, lakes and old settlements are located between Vilankulos and Massinga".

Many indicated by Paulo Vilankulos churches and sacred places are located out of area planned by our present survey.

"Now, I can tell you way I don't like speak about burials, cemeteries and sacred places in this area. It is long story but interesting experience for us local people. Some 20 years ago my father was visited by consultants from Maputo asking about sacred places, burials, cemetery and he honestly indicate them all cultural richness of our present and past. The consultant records all this sites on the map and after 1 years came to us information that road will be build 11 km from here because our area is extremely important from cultural heritage point of view and cannot be disturbed. Resident of this area are still upset with my father when they should walk to bus or school 11 km".

Santos Manuel Aguium

	Date/Time	June, 19 and 20, 2018
	Village Name	Mabime
	Interviewer	Santos Manuel Aguium
	Interviewee	Leonardo Adamowicz
	Position	Cultural agent in District Board of Culture in Inhassoro and member of Circle of Interest of Cultural Heritage of the League of Scouts of Mozambique.
	GPS point(s)	36 K 725667 7606208

Santos Manuel Aguium and his brother Marco were indicated as guide and assistants to archaeological survey in 19 and 20 of June 2018 by Natalia F. Chivambo, Director of District Board of Culture, Youth and Technology (844233851, sdejtinhassoro@gmail.com, nataliachivambo@yahoo.com.br). During the first day of survey (19/06/18) they assist to confirm location of sites recorded in 2014 and 2015 and next day indicated 7 new sites:

1. Burial of Santos Aguium father, 21° 37' 39.7" E 35° 10' 22.0" / 36 K 724898 7606809/ S21.62769 E35.17279 (BU 110);
2. Two burial of unknown family, S21 37 58.9 E35 10 49.1; /36 K 725667 7606208/ S21.63302 35.18030; BU – 111;
3. One burial of unknown family, S21 42 03.8 E35 12 07.3 /36 K 727810 7598642/ S21.70105 E35.20204. BU 112;
4. Cemetery, S21 37 58.3 E35 10 54.6; /36 K 725825 7606222/ S21.63287 E35.18182. CE-106;
5. Cemetery S21 41 26.3 E35 07 11.6 / 36 K 719326 7599913/ S21.69065 E35.11990; CE-107;Semi-permanent catholic church, S21 37 50.4 E35 10 50.9; /36 K 725723 7606467/ S21.63059 E35.18080.CH-107; and
6. Semi-permanent catholic church 2 S21 41 30.4 E35 07 18.9 /36 K 719533 7599785/ S21.69178 E35.12192; CH-108

Final comments

- a) More 7 interview was recorded in 2015 but without substantial information for this research;
- b) Some Curandeiros refuse answer questions asking money for information for example: **OK, SASOL pay for your job you should pay for me!**
- c) Some indication done in interview was impossible to confirm.

APPENDIX B

Gazetteer of all sites

Site ID	Site Type	Description	Location	Coordinates (UTM 36K or Lat, Long)	Date	Valuation
AR-1	Archaeological	Late Iron Age Pottery and Lithic Scatter	Proposed data gathering well I-G6PX-6	Lat. 21° 42' 11.56" S Long. 035° 15' 45.6" E	Late Iron Age	LOW - MEDIUM
AR-2	Archaeological	Late Iron Age Pottery Scatter	Proposed well pad I-G6PX-4	Lat. 21 46'36.5"S Long. 035 15'.05"E	Late Iron Age	LOW - MEDIUM
AR-3	Archaeological	Early Iron Age Pottery Scatter and Shells	Existing pad I-14	Lat. 21°38 '32.8" S Long. 035°11'50.3" E	Early Iron Age	LOW - MEDIUM
AR-4	Archaeological	Late Stone Age Lithics	1 km south of proposed flowline	Lat. 21° 43' 57.5" S Long. 035° 07' 18.5" E	Late Iron Age	LOW - MEDIUM
AR-5	Archaeological	Late Iron Age Shell Midden	Proposed well pad I-G6PX-2	Lat. 21° 39' 23.0" S Long. 035° 13' 29.6" E	Late Iron Age	LOW
AR-101	Archaeological	Mambone 2 - Archaeological Site, disturbed by river Save erosion. Field survey completed.	c80 km north of Vilankulos, Inhambane. Mouth of the Save River.	-	Early – Late Iron Age	HIGH
AR-102	Archaeological	Mambone 1 - Archaeological almost totally disturbed by fluvial erosion. Interview with Cristina Alfredo.	c80 km north of Vilankulos, Inhambane. Mouth of the Save River.	-	Early – Late Iron Age	LOW
AR-103	Archaeological	Settlement site. Archaeological site. Late Iron Age.	Along route for transportation of equipment	716719, 7601505	Late Iron Age	MEDIUM
AR-104	Archaeological	Settlement site. Late Iron Age. Dispersed pottery Luangwa Tradition. Site disturbed by practice of agriculture and erosion. Systematic field survey.	c30 km west of powerline	706262, 7596848	Late Iron Age	LOW
AR-105	Archaeological	Small area with high concentration of Luangwa Tradition Pottery and iron slag.	Adjacent to route for transportation of equipment	716126, 7598079	Late Iron Age	MEDIUM
AR-106	Archaeological	Chibuene. Coastal trading settlement with artefacts, such as glass beads, evidencing trade links across the Indian Ocean. Pottery with shell stamp motifs. Tentative World Heritage Site.	c6 km south of Vilankulos, Inhambane.	-	6th-13th centuries	HIGH
AR-107	Archaeological	Nhachengue. Archaeological Site, evidence of Gokomere-Ziwa ceramic tradition	Nhanchengue, Inhambane.	-	Unknown	HIGH
AR-108	Archaeological	Archaeological site. Late Iron Age. Stone walls. Zimbabwe Tradition.	c100 km north of Vilankulos, Inhambane.	-	Late Iron Age	HIGH
AR-109	Archaeological	Few quartz microlith and Late Iron Age pottery. Site covered by high grass and partially disturbed by agriculture.	c9 km east of Mapanzene	735064, 7594151	Late Stone Age?	LOW
AR-110	Archaeological	Late Iron Age Archaeological Site. Luangwa Tradition decorated pottery. Disturbed by agriculture.	South eastern extent of study area	737374, 7567975	Late Iron Age	LOW
AR-111	Archaeological	Archaeological site. ?Early and Late Iron Age.	c 5 km south east of Manusse	708393, 7583982	Early and Late Iron Age	MEDIUM
AR-112	Archaeological	Archaeological site. Late Iron Age.	c 5 km north of route for transportation of equipment	723071, 7600815	Late Iron Age	LOW

Site ID	Site Type	Description	Location	Coordinates (UTM 36K or Lat, Long)	Date	Valuation
AR-113	Archaeological	Manyikeni. Madzimbabwe. Open Air Museum. Stone wall. Zimbabwe Tradition. Tentative World Heritage Site.	c52 km north of Vilankulos, beyond study area.	-	1170±80 - 1610±70 (AD)	HIGH
AR-114	Archaeological	Archaeological site. Late Iron Age. Limited archaeological evidence and shallow shell midden.	c11 km north east of Mapanzene.	736093, 7595224	Late Iron Age	LOW
AR-115	Archaeological	Archaeological Site. Late Iron Age. Recorded in 2000, entirely disturbed by agriculture. Field survey.	c.2 km north of beach landing option at Maritima	726481, 7619521	Late Iron Age	LOW
BU-101	Cultural and Religious	Burial, Sacred Place, claim by nephew of Pululane Miliro António as Sacred Place and burial of his ancestor. Nothing visible.	Manusse	708107, 7583993	-	HIGH
BU-102	Religious	No visible burial. White cotton sheet indicate area of cemetery. Interview Guardian and local people. Survey undertaken.	On the way to Mabime.	726334, 7597963	-	HIGH
BU-103	Religious	Burial of the founder of Chipongo in the end of 19 c. AD. No visible archaeological evidence.	Chipongo	733919, 7589938	-	HIGH
BU-104	Religious	Only two burials are visible. Grass very high. Lot of cobras which are considered protector of ancestors. Interview with local women.	Mangarelane	732758, 7601174	-	HIGH
BU-105	Religious	One grave. Identified by Sasol clearance team.	Manusse, 15m east of powerline servitude.	-21.804111, 35.036528	-	HIGH
BU-106	Religious	One grave. Identified by Sasol clearance team.	Manusse, 30m west of powerline servitude.	-21.812833, 35.033000	-	HIGH
BU-107	Religious	Two graves. Identified by Sasol clearance team.	Burial, 15 m east of powerline servitude.	-21.896944, 35.071611	-	HIGH
BU-108	Religious	Two graves. Identified by Sasol clearance team.	Burial	-21.898000, 35.071583	-	HIGH
BU-109	Religious	One grave. Identified by Sasol clearance team.	Burial, 3m east of powerline servitude	-21.948611, 35.100333	-	HIGH
BU - 110	Religious	The grave of Santos' Mabime family (father). Identified by archaeological team during survey 19/06/18.	Mangarelane II -21.62769 35.17279	724897, 7606809	-	HIGH
BU - 111	Religious	Two graves. Unknown family. Identified by archaeological team during survey 19/06/18	Mangarelane II -21.63302 35.18030	725666, 7606208	-	HIGH
BU - 112	Religious	One grave. Unknown family. Identified by archaeological team during survey 19/06/18	Mabime -21.70105 35.20204	727810, 7598642	-	HIGH

Site ID	Site Type	Description	Location	Coordinates (UTM 36K or Lat, Long)	Date	Valuation
CE-101	Religious	Partially destroyed by River Save. Interview with guardian and a local.	Old Mambone	710066, 7677891	-	HIGH
CE-102	Religious	Cemetery for people from Nhamanhcea two generations ago. Interview with some people/Survey	Nhamanhcea	731614, 7589086	-	HIGH
CE-103	Cultural and Religious	Sacred Place, probably with burials. Some recent potsherd found	Malongojiva	722872, 7601191	-	HIGH
CE-104	Religious	Five graves. Identified by Sasol clearance team	Cemetery	-21.864917, 35.052833	-	HIGH
CE-105	Religious	Three graves. Identified by Sasol clearance team. Traditional ceremony carried out.	Cemetery	-21.884861, 35.064111	-	HIGH
CE - 106	Religious	Cemetery. Five graves. Identified by archaeological team during survey 19/06/18.	Mangarelane II 725825 7606222	725825, 7606222	-	HIGH
CE - 107	Religious	Cemetery. Seven graves. Identified by archaeological team during survey 19/06/18.	Mabime 719326 7599913	719326, 7599913	-	HIGH
CH-101	Religious	Remarkable architecture. Needs to be renovated. Interview with Cristina Alfredo. Guardian with local nearby cemetery.	Mambone	710518, 76778833	-	MEDIUM
CH-102	Religious	Evangelical Church Guardian with local nearby cemetery	Jofane, along transportation route	714664, 7612121	-	LOW
CH-103	Religious	Apostolic Church, Assembleia de Deus. Guardian with local nearby cemetery.	Chipongo	731389, 7589159	-	LOW
CH-104	Religious	Church Apostol's with rustic original architecture.	Apostolic Church	716789, 7580422	-	LOW
CH-105	Religious	Methodist Church in need of renovation. Interview with priest. Guardian with local nearby cemetery.	Methodist Church	731957, 7602292	-	LOW
CH-106	Religious	Church St. Ana and professional school for boys and girls. Field Survey, Interview	M.C.St. Ana, along transportation route	716638, 7601677	-	MEDIUM
CH - 107	Religious	Catholic church of St. José (semi-permanent) with build with rudemental material. Identified by archaeological team during survey 19/06/18.	Mangarelane II 725723 7606467	725723, 7606467	-	LOW

Site ID	Site Type	Description	Location	Coordinates (UTM 36K or Lat, Long)	Date	Valuation
CH - 108	Religious	Catholic church (semi-permanent) with build with rudumental material. Identified by archaeological team during survey 19/06/18	Mabime 719509 7599787	719509, 7599787	-	LOW
MO-101	Religious	Mosque. General information and visit. Guardian with local nearby cemetery.	Old Mambone / Guvuro	710909, 7677940	-	LOW
MP-101	Cultural	Medicinal site - interview with Curandeiro nephew. Curandeiro himself went to forest to look for natural medicine. Interview completed.	North of Maimelane, along transportation route	716407, 7613312	-	LOW
MP-102	Cultural	Medicinal site - Traditional Doctor Recently open practice. Medicine is not based on plants, almost all are shells or clays.	Temane	716612, 7605310	-	MEDIUM
MP-103	Cultural	Medicinal site - Traditional Doctor Manique Eusébio was born in Malawi but family is from Inhambane province. Interview completed.	Litlau, along transportation route	716427, 7600269	-	HIGH
SP-101	Cultural	Sacred Place. Field Survey	Lago Sangene. 15 km north of study area	694159, 7635550	-	HIGH
SP-102	Cultural	Sacred Place. Centro de Reavivamento Espiritual. Field survey. Interview completed.	8 km west of Inhassoro, along transportation route	720470, 7615047	-	LOW
SP-103	Cultural	Sacred Place - circumcision. Where skins are buried. Field Survey and interview with local young men recently circumcised done by Ercidio Nhatule in Xitswa	Mangarelane I	732758, 7601394	-	HIGH
SP-104	Cultural	Sacred Place. Dialog with some women. Bathing in the Pecane Lake help pregnant women have healthy child.	Pecane, south eastern boundary of study area.	737921, 7567790	-	HIGH
SP-105	Cultural and Religious	Considered by local people as Sacred Place but not supported by church. Old cemetery?	Maimelane, along transportation route	716489, 7601678	-	HIGH
SP-106	Cultural	Paulo Vilankulos, artist, community leader, traditional doctor. Interview completed.	Chipongo	733919, 7589938	-	HIGH
SP-107	Cultural and Religious	Sacred Place (5), probably burial of community leaders.	Chipongo	731770, 7588865	-	HIGH
CE-01	Cultural	Cemetery	Mangarelane	734478, 7603138	-	HIGH
CE-02	Cultural	Cemetery	Mangarelane	734330, 7603633	-	HIGH

Site ID	Site Type	Description	Location	Coordinates (UTM 36K or Lat, Long)	Date	Valuation
CE-03	Cultural	Cemetery	Chipongo	732974, 7589209	-	HIGH
CE-04	Cultural	Cemetery	Chipongo	732825, 7588662	-	HIGH
CE-05	Cultural	Cemetery	Chipongo	733139, 7587978	-	HIGH
CE-06	Cultural	Cemetery	Chipongo	733719, 7588007	-	HIGH
CE-07	Cultural	Cemetery	Mapanzene	733230, 7592899	-	HIGH
CE-08	Cultural	Cemetery	Mapanzene	733160, 7593277	-	HIGH
CE-09	Cultural	Cemetery	Mapanzene	732402, 7593354	-	HIGH
CE-10	Cultural	Cemetery	Mapanzene	732041, 7592881	-	HIGH
CE-11	Cultural	Cemetery	Mapanzene	725792, 7592814	-	HIGH
CE-12	Cultural	Cemetery	Mapanzene	731677, 7592885	-	HIGH
CE-13	Cultural	Cemetery	Mabime	721200, 7600186	-	HIGH
CE-14	Cultural	Cemetery	Mabime	725565, 7599230	-	HIGH
CE-15	Cultural	Cemetery	Mabime	724198, 7600534	-	HIGH
CE-16	Cultural	Cemetery	Mabime	727608, 7599092	-	HIGH
CE-17	Cultural	Cemetery	Mabime	723404, 7597034	-	HIGH
CE-18	Cultural	Cemetery	Mabime	723575, 7599758	-	HIGH
CE-19	Cultural	Cemetery	Mangugumete	716984, 7595175	-	HIGH
CE-20	Cultural	Cemetery	Mangugumete	716702, 7595498	-	HIGH
CE-21	Cultural	Cemetery	Mangugumete	717402, 7596460	-	HIGH
CE-22	Cultural	Cemetery	Manusse	707270, 7587243	-	HIGH

Site ID	Site Type	Description	Location	Coordinates (UTM 36K or Lat, Long)	Date	Valuation
CE-23	Cultural	Cemetery	Manusse	707695, 7586374	-	HIGH
CE-24	Cultural	Cemetery	Manusse	705814, 7586619	-	HIGH
CE-25	Cultural	Cemetery	Chitsotso	717735, 7593310	-	HIGH
CE-26	Cultural	Cemetery	Chitsotso	717808, 7591806	-	HIGH
SF-01	Cultural	Sacred Forest, surrounding Sacred Tree (ST-02)	Mabime	-21.691817, 35.15785	-	HIGH
SF-02	Cultural	Sacred Forest contains cemetery (CE-21)	Mangugumete	-21.722067, 35.098533	-	HIGH
SF-03	Cultural	Sacred Forest	Manusse	-21.798517, 35.005683	-	HIGH
SF-04	Cultural	Sacred Forest, contains cemetery (CE-25)	Chitsotso	-21.752, 35.1031	-	HIGH
SF-05	Cultural	Sacred Forest	Mapenzene	-21.695083, 35.162817	-	HIGH
SP-01	Cultural	Sacred Pool	Mabime	-21.691817, 35.15785	-	HIGH
ST-01	Cultural	Sacred Tree - Baobab Tree	Mangarelane	-21.6557, 35.259383	-	HIGH
ST-02	Cultural	Sacred Tree - 'Massaleira', burial site of first King, within Sacred Forest (SF-01)	Mabime	-21.691817, 35.15785	-	HIGH
ST-03	Cultural	Sacred Tree	Manusse	-21.798517, 35.005683	-	HIGH
ST-04	Cultural	Sacred Tree	Chitsotso	-21.752, 35.1031	-	HIGH
MP-01	Cultural	Medicinal Plants	Mabime	-	-	MEDIUM
MP-02	Cultural	Medicinal Plants	Mapanzene	-	-	MEDIUM
MP-03	Cultural	Medicinal Plants	Chipongo	-	-	MEDIUM
N/A	Cultural	All Churches	All Villages	-	-	LOW



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