This is the revised edition to the PhD thesis, which was defended on 2024-10-03. The text has been slightly revised with addition of interview questions, an extended bibliography and some few updates.

Studies in Global Archaeology 31

Integrated Heritage Management as an Avenue for Sustainability

The Example of Rescue Archaeology in Mozambique

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Abstract

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This work analyses the structure and management system of rescue archaeological activities in Mozambique with the purpose of suggesting amendments which will better fulfil the management of Cultural Heritage and alignment with the Sustainable Development Goals in Mozambique. The detailed study on the policy of cultural heritage management and rescue archaeology in Mozambique and comparison with neighbouring countries, based on interviews and policy analyses, shows that rescue archaeology needs to be developed and professionalised. This is not only an academic activity but also provides employment opportunities for young archaeologists and cultural heritage managers. As shown here, this approach also allows for the incorporation of community engagement. For Archaeological research to be effective, it must use procedures and good practices and apply the same methodological protocols across the country, e.g., implement the same site form register for archaeological, cultural and historical sites, and use the 'same criteria' for classifications and site risk assessment. By applying biocultural heritage approach and FAIR and CARE principles procedures, I argue that rescue archaeology and other cultural heritage management activities in Mozambique, to be sustainable, must broaden the actors involved in the process. The research process should incorporate different stakeholders at various social levels, aggregate their knowledge, and recognise their rights, powers of control and interests. Combine cultural heritage management actions with the management of natural heritage, landscape and biodiversity and sustainable livelihoods.

Keywords: Mozambique, Cultural Heritage Management, Rescue Archaeology, Archaeological data Management, Biocultural Heritage.

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List of abbreviations

ACRA - American Cultural Resources Association
AD – *Anno Domini*
AHD - Authorised Heritage Discourse
AIA - Archaeological Impact Assessment
AIM – Agência de Informação Moçambique (Maputo)
ARPAC - Socio-Cultural Research Institute
ASAPA - Association of Southern African Professional Archaeologists
BA – Bachelor of Arts
BSAC – British South Africa Company
BT - Board of Trustees
CAIRIM – *Centro de Arqueologia, Investigação e Recursos da Ilha de Moçambique*
CAP - Chapter
CARE – Care, Authority to control, Responsibility, Ethics
CC - Cartography Commission
CHM - Cultural Heritage Management
CIA - Cultural Impact Assessment
CIPRIANA – *Campanha de Implementação do Projecto ArqueoAntropologico na Província de Nampula*
CNPC – National Council for Cultural Haritage or *Concelho Nacional do Patrímonio Cultural*
CRM - Cultural Resource Management
DAA – Department of Archaeology and Anthropology
DD - Decimal Degrees
DMS - Degrees, Minutes and Seconds
DNAC - National Directorate of Conservation Areas
DNPC - National Directorate of Cultural Heritage
DUAT - Land Use and Benefit Rights
EAC - *Archaeologiae Europae Consiliu*
EEAS – European External Action Service
EFC – Early Farming Communities
EIA - Environmental Impact Assessment
EMA - Environmental Management Act
EN1 - National Road Nr. 1
EPSG – European Petroleum Survey Group
FAIR – Findable, Accessible, Interoperable, Reusable
FC - Farming Communities
FCT - Fundação para a Ciência e a Tecnologia
FLCS – Faculdade de Letras e Ciências Sociais
Fnr – Find Number
GACIM - Mozambique Island Conservation Office
GDP – Gross Domestic Product
GFDRR – Global Facility for Disaster Reduction and Recovery

GIS – Geographic Information System
GPS – Global Positioning System
IBP – Iinternational Business Publication
ICOM - International Council of Museums
ICOMOS – International Council on Monuments and sites
IFC - International Finance Corporation
IFRC – International Federation of Red Cross
IICM - Institute of Scientific Research of Mozambique
IICT - Instituto de Investigação Científica e Tropical
ILPI – International Law and Policy Institution
IMF - International Monetary Fund
INE - Instituto Nacional de Estatística
INPC – *Instituto Nacional do Património Cultural*
ISP - International Science Program
IT – Information Technology
IUCN - International Union for Conservation of Nature
JICU – *Junta de Investigação Científica do Ultramar*
JIU - *Junta de Investigação do Ultramar*
JMGIC - *Junta das Missões Geográficas e de Investigações Coloniais*
LSA – Later Stone Age
MA – Master of Arts
MAEASaM – Mapping Africa's Endangered Archaeological Sites and Monuments
MAEUEC – *Ministerio de Asuntos Exteriores, Unión Europea y Cooperación*
MEC - Ministry of Education and Culture
MINEDH/IEDA – *Ministério da Educação e Desenvolvimento Humano / Instituto de Educação Aberta e a Distância*
MLHA / DCY – Ministry of Labour and Home Affairs / Department of Culture and Youth
MRAC - Monuments and Relics Advisory Council
MSA - Middle and Later Stone Age
NH - National Heritage
NHC - National Heritage Council
NHCC - National Heritage Conservation Commission
NHCN - National Heritage Council of Namibia
NMM - National Museum and Monuments
NMMR - National Museums and Monuments of Rhodesia
NMMZ - National Museums and Monuments of Zimbabwe
NORAD - Norwegian Agency for Development Cooperation
OCHA – Office for the Coordination of Humanitarian Affairs
PhD – Doctor of Philosophy
PHRAs - Provincial Heritage Resources Authorities
PNL - Parque Nacional do Limpopo
QGIS – Quantum Geographic Information System
RfTD - Rising from the Depths
SA3 - Southern African Association of Archaeologists
SAHRA – South African Heritage Resources Agency / South African Heritage Resources Authorities
SAREC - Swedish Agency for Scientific Cooperation
SARQ - Archaeology Section

SDEJT – District Education, Youth and Tchnology Service or *Serviço Distrital de Educação, Juventude e Tecnologia*
SIDA- Swedish International Development Cooperation Agency
TIW - Triangular-Incised Ware
UCM – *Universidade Católica de Moçambique*
UDM – *Universidade Técnica de Moçambique*
UEM - Eduardo Mondlane University
UK - United Kingdom
UN – United Nations
UNCED – United Nations Conference on Environment and Development
UNESCO - United Nations Educational, Scientific and Cultural Organization
UO - Urban Origins
UP – *Universidade Pedagógica*
USA - United States of America
USD – United States Dollar
USTM - *Universidade São Tomás de Moçambique*
UTM – Universal Transverse Mercator
WCSAP – Washington Coalition of Sexual Assault Programs
ZEMA – Zambian Environmental Management Act

1. Introduction

The aim of this study is to develop theoretical and methodological procedures to support institutions and individuals involved in archaeological activities in Mozambique, mainly cultural heritage managers and archaeologists. Cultural and natural heritage management encompasses a set of actions, practices, knowledge, and attitudes developed by individuals and institutions for the conservation, protection, and preservation of cultural and natural heritage resources. These resources are inherited from the past, transformed, created or integrated into our daily life to benefit our current needs, associated with a particular set of values that demand sustainable use to be enjoyed by future generations (Hamilakis 2015, Holtorf and Bolin 2024). Heritage also implies multiple processes of political negotiations of identity and the construction of cultural and social values or meanings that help us make sense of the present and our sense of physical and social place (Smith 2006, 2012; Lane 2011; UNESCO 2018, EEAS 2021). In Mozambique, the National Directorate of Cultural Heritage (DNPC) and the Department of Archaeology and Anthropology (DAA) at Eduardo Mondlane University (UEM), including other cultural heritage management institutions have made much effort to create conditions to guarantee good management of cultural heritage as a fundamental basis for consolidating individual identity, national unity, citizens' self-confidence and for social cohesion (cf. Cruz e Silva 1976, 1977 and 1978, DAA/UEM 1980 and DAA/UEM 1988, Sinclair 1987, Morais 1988, Macamo and Ekblom 2018). Due to these efforts and the overall importance of heritage, the cultural sector is crucial for Mozambique, and cultural heritage management is part of the country's development agenda.

Mozambican legislation specifies rescue archaeological activities for any project involving soil removal. At least 5% of the total project budget should be dedicated to Rescue Archaeological activities (Decree nr. 27/94).[1] The law also specifies a tender or procurement process for contracting public works, supplying goods, and providing services to the State.[2] The agency responsible for archaeological rescue and research activities is the National Directorate for Cultural Heritage (DNPC), which lies under the Ministry of Culture and Tourism. The directorate interacts directly with provincial services and indirectly with district services. DNPC has provincial and district offices throughout the country.

However, cultural legislation is not specified in terms of roles to manage rescue archaeology operations and there is a low compliance with the law. Even though there is a strong administrative structure in place, as will be discussed here, the lack of clear procedures for rescue archaeology is problematic. This thesis is formulated in support of the ambition to clarify the procedures for rescue archaeology.

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[1] *Decreto nr. 27/94, Regula a Proteção do Património Arqueológico e aprova a composição do conselho Nacional do Património Cultural. Boletim da República, 20 de Junho de1994, nr. 29.*

[2] As specified in *Decreto nr. 5/2016, Aprova o Regulamento de Construção de Empreitada de Obras Públicas, Fornecimento de Bens e Prestação de Serviços ao Estado. Boletim da República, 08 de Março de 2016, Iª Série, nr. 28.*

This thesis presents an overview and analysis of the current situation in Mozambique with the aim to suggest procedures for rescue archaeology in the country, including procedures to record archaeological, historical and cultural/sacred sites in the field. A classification system and assessment criteria for sites to be applied for archaeological research in general are also presented. I emphasize that archaeological research and archaeological data in Mozambique should be open and in compliance with the FAIR principles,[3] allowing the dissemination of much prehistoric information to the general public at a low cost (see more discussion in Chapter 7). Although there is an archaeological research data management structure based on the DAA-UEM, in the medium and long term it is suggested that an independent institution be created to manage this data. It is an important step that scientific research is currently being developed globally as a consequence of the growing development of digital technologies, which have been embraced in most of the archaeological research since the last decade (Johansson and Johansson 2010, Dawson *et al*. 2013, Corti and Fielding 2016, Gunnarsson 2022:11, 41–44).

In addition to the FAIR Principles, I suggest the inclusion of the CARE principles approach for data management processes in cultural heritage management and archaeological research to ensure the self-determination and data governance of local communities (Carroll *et al*. 2020, Proffitt 2021, Hensel *et al*. 2023, Sterner and Elliott 2023, see more discussion in Chapter 7.3.2). Consequently, this study suggests paths for the current administrative structure and the administrative system of cultural heritage activities to be transparent, allowing the inclusion and integration of other academic institutions, and all actors from the central to the local level. Recommendations are given to ensure the long-term viability of archaeological research activities, data management and other cultural heritage management actions in the country. I suggest that the inclusiveness of other stakeholders can be achieved by the application of a holistic biocultural heritage approach to address issues of cultural and natural heritage management (cf. Poole 2018, Ekblom *et al*. 2019, Wilkinson 2019, Lyver 2019, Dacks *et al*. 2019, and see more discussion in Chapter 1.3.1.).

Cultural heritage management can generate economic benefits, create employment oportunities that produce more income for the population and reduce poverty. This chain of values and services puts the cultural sector at the foundation of the values associated with sustainable development and the promotion of peace and security (World Bank 2001:41-56, UNESCO 2018; Naumov, Mate and Laura 2020, EEAS 2021, Kappler and Selimovic 2021, Labadi, GIliberto, Rosetti, Shetabi and Yildirim 2021, Cross and Giblin 2022, Katapidi and Robinson 2022, Holtorf and Bolin 2024, UN 2024). In Mozambique, these objectives can be achieved through the promotion of cultural industries and by strengthening rescue archaeology activities, as will be argued here.

1.1. Aims and Questions

The purpose of this thesis is to establish principles for rescue archaeology activity management in Mozambique based on a contextual analysis of the history of cultural

[3] FAIR principles represents a rapidly growing movement in scientific research that advocates all research data should be Findable, Accessible, Interoperable and Reusable (Wilkinson *et al*. 2016, Corti and Fielding, 2016, Boulton *et al*. 2019, Previtali and Valente 2019). See detailed discussion in Chapter 7.

heritage management in Mozambique and in a global context. Specifically, I analyse the practices and procedures of rescue archaeology in Southern Africa, and archaeological rescue activities and cultural heritage management in Mozambique. Concepts and methods that will be used here include the biocultural heritage approach to heritage, archaeological data management, FAIR and CARE Principles, the development of disturbance assessment surveys and procedures, as well as archaeological and heritage impact assessments.

Heritage management and archaeology should be integrated into landscape planning continuously and for the benefit of local communities, following the principles defined in the Sustainable Development Goals (Labadi *et al.* 2021). These practices include culture-engaged actions that prioritize participatory processes and local solutions to foster community ownership and contribute indirectly to broader aspirations for peace, social inclusion, fundamental freedoms and cultural diversity (UNESCO 2018).

For me, archaeology is a deeply interdisciplinary subject and here I focus on Cultural Heritage Management, and particularly rescue archaeology. In this thesis I analyse the current state of the policy of cultural heritage management and rescue archaeology in Mozambique. As will be shown, although the legislation is strong and there is scope for a strong rescue archaeology sector, there is a lack of specific procedures and guidelines in the Mozambique context. Therefore, I will be exploring how rescue archaeology today is organised in Mozambique by answering the following research questions:

- How can the experience of procedures and practices of cultural heritage management in Southern Africa be harnessed to strengthen archaeology procedures in Mozambique?
- How can we ensure that infrastructural development and development investments benefit the cultural heritage sector and local communities?
- How can we develop procedures and practices to integrate local knowledge with archaeological and biological risk assessment?

Thus, in this thesis, I map the current state of the policy of cultural heritage management and rescue archaeology in southern Africa more broadly, compare and suggest the 'best practices' for Mozambique. This includes broader questions about what specifications are needed in Mozambican cultural legislation for effective management of rescue archaeology activities and how they can be improved, including appropriate methods to assess the risks of disturbance, and heritage and biological values. In this endeavour, I use the framework of comparative policy analyses (cf. Cyr and deLeon 1975, Geva-May, Hoffman and Muhleisen 2018, Radin and Weimer 2018, Beryl and Weimer 2018, de Wee 2021). I then move on to discuss practices and procedures in Mozambique based on formal documents and also interviews with practitioners. I also discuss and propose a structure for the management of archaeological data, including methods of registration and mapping of sites. These methods were tested out by conducting rescue archaeology fieldwork in areas where there are archaeological sites assessed as at high risk of destruction/degradation and of high scientific value, e.g., Matola, Campoane, Chongoene and the Xai-Xai areas. Finally, I propose procedures for rescue archaeology management in Mozambique and data dissemination for the general public.

1.2. Research Design and Methodology

Research design consists of plans and procedures for research that span from the decisions to study a topic from broad assumptions to detailed methods of data collection and analysis (cf. Creswell 2009:22). The research project presented here has been developed in several stages using a variety of methods and techniques such as literature review, archaeological surveys, policy analysis, local community engagement, and semi-structured interviews in terms of data collection (Fig. 1.1.). Input to the research project was received through seminars and workshops, where preliminary results were shared and communicated, as well as through conference presentations.

The broader literature review on cultural heritage created a framework for the study by identifying the content keywords and definitions of the terms (Creswell 2009:39-58). From this exercise, I developed a rich understanding of the rescue archaeology context globally, and in southern Africa and Mozambique particularly. In addition, I reviewed international, regional, and local cultural heritage legislation to better understand policies that regulate heritage protection and rescue archaeology research.

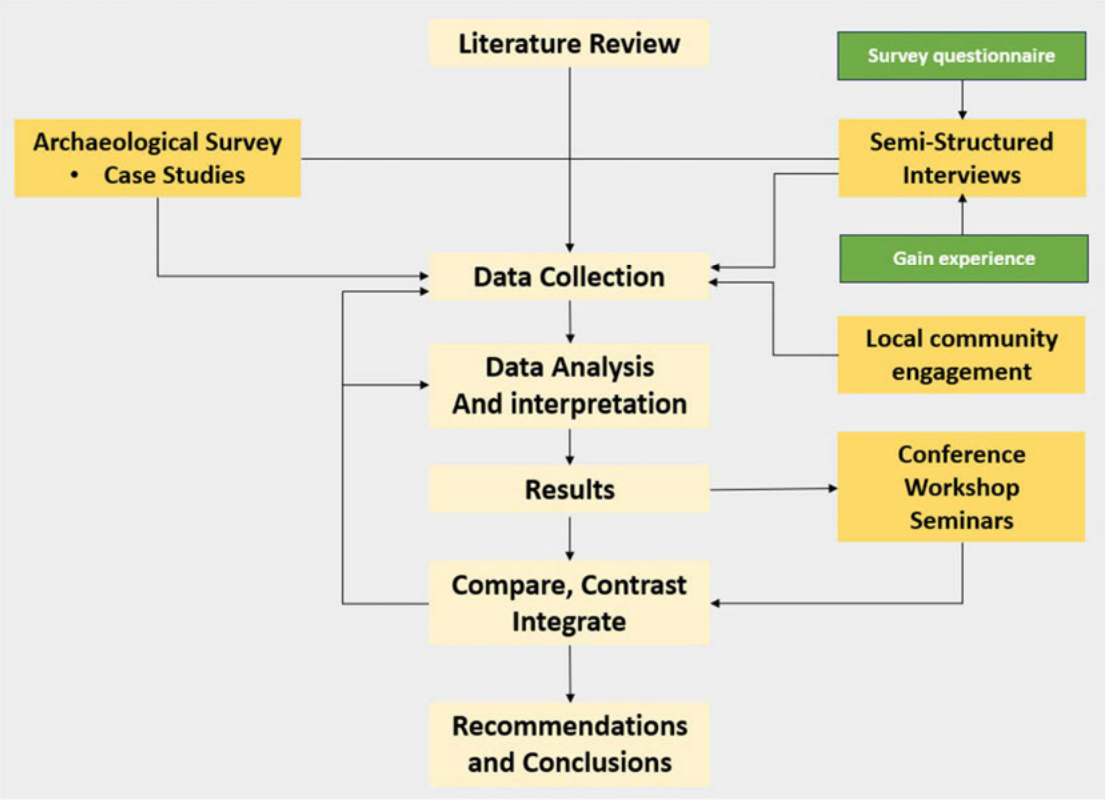

Figure 1.1. The research design of the present project.

Figure 1.2. Map of Southern Africa

Semi-structured interviews were used to complement the literature review to understand how rescue archaeology has been managed in Mozambique, South Africa, Zimbabwe, Botswana, Malawi, Namibia and Angola. The interviews are particularly important for the Mozambican context, as few formal publications are available on this topic. Further, much of the procedures and practices in rescue archaeology are built on individual experience and tacit knowledge.[4] The interviews provide an understanding of the challenges the archaeologists encounter in practice during rescue archaeology activities in Mozambique and other countries in Southern Africa.

The interviewees are archaeologists (mainly individuals who have conducted rescue archaeology activities in Mozambique and in one or several countries in southern Africa) and cultural heritage managers. In total, 19 semi-structural interviews were made, six of which were carried out with leading archaeologists and cultural heritage managers in the country, three Zimbabwean archaeologist and three interviews were made at cultural heritage management institutions in the cities of Maputo and Matola. The interviews were carried out as semi-structured, where I had prepared a number of set questions (Appendix 5), but where the interviewee could also reorient the interview situation and the questions (Bernard 2006:213-215). From the interviews, I gained practical knowledge on research and management of rescue archaeology activities based on each expert's reflections and experiences. 81.25% of the interviews lasted between 50–65 minutes, 12.5% lasted 70–80 minutes and 6.25% lasted 131 minutes. All interviews were voice recorded with the permission of the participants, and transcripts were complemented by me taking notes during the interview. The difference in time during the interviews was determined by several factors such as the language, the ease of conversation, the individual way interviewees responded to the questions, the background of the interviewee, and the time available for the interviewees, etc. (cf.

[4] For instance, in course of this project, Mr Leonardo Adamowicz passed away, a professional archaeologist who dedicated himself to the development of archaeological research and in particular the rescue archaeology in Mozambique. Fortunately, I had the possibility to interview him, to understand his experience and ideas and his sensitivity to the management of cultural heritage in the country.

Loosveldt and Beullens 2013). Two participants preferred to answer the interview questions in writing.

After the manual transcription of interviews, the text was sent to each interviewee to validate the transcript, exclude unnecessary details and add some missing or vital information. The information is used here after the interviewee's consent. The interviews have been anonymised to safeguard the identity of the interviewees. The transcripts are anonymised and stored at the Department of Archaeology and Ancient History on a secure server, identifiable only by an anonymised key. Due to the limited number of archaeologists working in each country and the sensitive nature of the information, it has been decided not to publish the transcripts here. This is an ethical consideration that balances the FAIR and CARE Principles. It would be relatively easy to deduce an individual's identity, or equally problematic; there would be a risk of misidentifying the interviewee if the full transcripts were to be published.

The similarities and differences in the very personal stories of the interviewees have helped me to understand the practical challenges faced by the institution that grants licenses and by the archaeologists in rescue operations. The interviews, in combination with the policy analyses and practices of the neighbouring countries discussed above, have helped me develop some suggestions and recommendations for rescue archaeology management for Mozambique. In Mozambique, interviews have also been conducted with representatives from the main institutions linked to cultural heritage management to understand their role in relation to cultural heritage management, but with a particular focus on rescue archaeology. Participants have been asked for information related to the organisation of the services of management of cultural heritage, procedures for protecting cultural properties in case of projects that require archaeological impact assessment, the mechanism for monitoring and supervising activities during project development, as well as documentation and dissemination.

Comparative policy analyses were conducted (cf. Cyr and deLeon 1975, Geva-May, Hoffman and Muhleisen 2018, Radin and Weimer 2018, Beryl *et al*. 2018, de Wee 2021) of procedures and practices based on legislation, formal documents and academic papers discussing the cultural heritage management procedures and also from information obtained in the interviews. This methodology allowed me to assess different alternatives of policy and efficient cultural heritage management systems and rescue archaeology models in relation to Mozambique. My ambition here is not to suggest that Mozambique simply copies foreign models to apply them wholesale. Such recommendations would be inappropriate, as policies in different countries differ in approach and tactics, adapted to the social and political context and history. The contrasts may result from specific cultural bases and administration, political differences between the countries, different environments where they operate, and the relationship differences between national and subnational levels, to name a few. Moreover, the reasons for these particularities are not directly apparent (Cyr and deLeon 1975, Radin 2020). However, the comparison made me able to better highlight the weaknesses and strengths of any system, the experience of which is also applicable to the Mozambique system. The ultimate aim was to improve the management of archaeological activities and maximise the use of resources, saving both time and resources (cf. de Wee 2021, Geva-May *et al.* 2018). I will, therefore, build on the positive examples of structures that could be followed in Mozambique or integrated into the country's national cultural legislation and cultural heritage management system. The interaction and articulation of these various steps and planned methods and techniques have not been linear, sometimes also entailing setbacks such as postponements and, low attendance of workshops

and lack of responses from academics and officials. Nevertheless, such setbacks also serve to illustrate the pressure that officials and academics are under in Mozambique due to the general lack of resources, both in terms of funding and personnel.

Fieldwork has been carried out to assess the observance of the procedures of archaeological impact assessment in projects whose activities involve soil removal and transport. My aim here was to suggest a structure for how Cultural Heritage Management services, archaeological research and rescue archaeology activities in Mozambique could follow scientific standards to harmonise with practices in other parts of the world, particularly in Southern Africa. Rescue archaeology is, after all, a 'destructive process', a fact that stresses the importance of documentation as a way of preservation (Renfrew and Bahn 2012:111–120). Preservation then requires accessible and open information – transparent documentation and open databases. The ambition has also been to try out and assess the methods of registration, classification and documentation suggested here. In this process, I have formulated a site form register, which includes a system for assessing the risk of erosion, disturbance from infrastructure, agricultural intensity and other anthropogenic and natural factors. The classification systems allow for mapping the potential of archaeological sites and other cultural heritage sites existing in the study area, including an assessment of protection status in terms of local custodians or authorities and an assessment of biological values and status of the sites. Through collaborations, the same method of assessment and classification have been also tried out in other areas (Ekblom *et al*. 2024a, Ekblom A. *et al*., 2024b).

The thesis also specifies a procedure for working with local community integration to combine local knowledge with scientific knowledge for the inclusion of local heritage sites. Using interviews, local community engagement (cf. Carson and Gelber 2001), and CARE Principles (Carroll *et al*. 2020, 2021, 2022, Robinson *et al*. 2021, Proffitt 2021, Erickson, Selvathesan and Dickens 2022, Sterner and Elliott 2023, Hensel *et al*. 2023), I investigated the appropriate methods for treating local cultural resources adapted to the local areas in which I have been working (see more explanation in Chapter 3.3). The procedure and steps followed in such community collaboration must be adapted to the practices and wishes of local communities, which in Mozambique is highly diverse. The methodology presented here makes explicit the necessary steps in such work, even though the dateils must be adapted on a local basis. As shown here, this approach also allowed me to provide more diverse cultural interpretations of the evidence (Tully 2007). Information acquired during community engagement activities and collaborations helped me gain insight into local practices and knowledge and also allowed me to construct a practice and conceptualisation of cultural heritage management and the integration of a biocultural heritage approach. In addition, the interaction with local community members allowed me to understand the community's perceptions about the archaeological research, site significance and other issues that they would like to address in this research project (cf. Thebe 2011).

After data analysis and interpretation, the results were compared, interpreted, compiled and presented in conferences, workshops and seminars and the feedback collected and integrated during these occasions is now included in the thesis. These presentations enabled an interaction with the scientific community, receiving criticism and possible questions about the ongoing research and collecting feedback. Also, it made it possible to redirect the questions raised by the research to explore missing, forgotten or under-explored content to produce quality work. The interaction with other researchers contributed to the strengthening of the research skills, as did other

feedback obtained from interviews, surveys and general interactions with other archaeologists in Mozambique.

All data was compared, revised, contrasted or integrated, as the case may be. The ongoing reflections of the entanglement of these different elements, including also the setbacks as a means of learning, contributed to the adjustment of the methodology and objectives to the questions of this research. The process of interpreting data and compiling information continued throughout the project and suggestions and conclusions have been revised based on these comments.

1.3. Framing the Thesis

The management of cultural heritage is an essential action for sustainable development, creating conditions for the socio-political and economic harmony of communities and the conservation of ecosystems. The achievement of this objective depends on the use of a holistic and inclusive theoretical and methodological procedure, which connects to broader sustainability aims and to biocultural heritage as a concept and approach. These concepts have provided the focus or framing ideas for this thesis and will be explained further below.

1.3.1. Sustainability

Heritage and Sustainability

The assurance of the possibility of 'Our common future' (cf. Brundtland report in 1987 published by the World Commission on Environment and Development) depends on a sustainable development, which seeks to meet the needs and aspirations of the present generations without compromising the ability of future generations to meet their needs (UN 1987:50-51, Lowenthal 2005, Pace 2012:275, Keitumetse 2016:9, Holtorf and Bolin 2024). To reach the goals of sustainable development, each country is urged to generate and make use local knowledge to manage natural and cultural heritage taking into account national, regional and international management practice (UNCED 1992, Keitumetse 2016:10). The natural and cultural diversity of all cultures and civilizations is essential for a sustainable development, and to ensure a sustainable future which included all aspects social equity and democracy, economic justice and environmental health. Cultural heritage is here a key part. It is the duty of each country to enhance the welfare of residents and of ethnic minorities, to recognise and support their identities, cultures and interests, and to avoid endangering their cultural heritage, including local heritage practices and traditional knowledge, and to preserve and respecting non-market approaches that contribute to the eradication of poverty (UN 2012:10, Keitumetse 2016:10). The 2030 Agenda, which has specified goals and targets to ensure sustainable development, states that culture should be integrated into policies for social and economic inclusion and environmental sustainability with innovative solutions to sustainability. Governments are advised to adopt so-called 'culture-engaged actions' that prioritize participatory processes and local solutions to foster community ownership and also to contribute indirectly to broader aspirations for peace, social inclusion, fundamental freedoms and cultural diversity (UNESCO 2018).

The development of a sustainability policy framework provided guidelines to the equitable use of biophysical (Keitumetse 2016:9), natural and cultural resources, emphasising equal access by all generations and people from all over the world. In this

context, cultural heritage as an academic field and practice began to adopt the language and concepts of sustainability science, among them sustainable heritage and sustainable heritage development. Cultural heritage was here advocated as a resource for providing environmental, social, cultural and economic benefits for societies, contributing to the well-being and quality of life of communities, and helping development (Grazuleviciute 2006, Pace 2012:276–288).

Below, I will give some examples from southern Africa of how heritage can be integrated with sustainability goals. The Great Zimbabwe management developed a management plan for the protection and conservation in the 1980s, supported by agencies such as UNESCO and the Swedish Agency for Research Cooperation (SAREC). Coordinated efforts resulted in the implementation of a sustainable management plan, integrating the monument, its landscape culture and the surrounding ecosystem. This program resulted in the Great Zimbabwe being listed as a World Heritage in 1986. The program also included institutional capacity building to follow up sustainable management activities (Ndoro 2001:48–51). The Mapungubwe site represents another cultural landscape of national and international importance, with cultural, historical and archaeological values. The site is part of a trans-frontier wilderness area that incorporates the Tuli Safari Area in Zimbabwe and the Tuli Game Reserve in Botswana, which, through a biocultural approach, seeks to maintain a sustainable and integrated management of cultural and natural heritage, local biodiversity and promote tourism development. An interpretative tourist centre was created in Mapungubwe National Park. This centre constitutes a tourist attraction and creates employment for local community members (Cocks and Wiersum 2014). Meanwhile, in Namibia, the Twyfelfontein World Heritage rock art site is another example of sustainable heritage management ensured by National Heritage Council (NHC), where the archaeological site and the wildlife management integrate to promote tourism development in the area, share costs and benefits in an equitable manner to all landholders. The area contains the Twyfelfontein Country Lodge and the Aba-Huab Camp site, which offer tourist services and create job opportunities. The local site manager is responsible for regular monitoring of the site, reporting threats or damages to the NHC, informing permanent staff and rescue workers of the significance of the site and ensuring that all visitors are accompanied by a guide (Imalwa 2016:50–53).

In Mozambique, the archaeological site of Manyikeni[5] has been the focus of archaeological activities since 1975. As part of the research activities, local communities participated voluntarily in the work and took part in daily lectures and explanatory tours of the site. An interpretative centre was constructed in 1979 to disseminate local cultural heritage to a wide audience. Resident guides were trained, and educational and touristic tours were organised to the site. Sadly, these collaborations were disrupted by the 16 years-war (1976–1992), which began shortly after national independence in 1974. However, in 1995, an integrated management plan was proposed, including the development of cultural ecotourism with the establishment of links between Manyikeni and Vilanculos Bay (Sinclair 1987:99, Macamo 2006:150-156, Madiquida 2015:27, Macamo and Ekblom 2018). The Mozambique Island[6] is an example of integrated and sustainable cultural heritage management in the country. The Mozambique Island had a management and conservation plan (2010–2014) to enhance its cultural and natural heritage, and to safeguard its status as a World Heritage site. This

[5] Manyikeni is a stone wall enclosure dated 1200-1700 AD with surrounding settlement (Macamo 2006).
[6] The Mozambique Island was proclaimed Cultural Heritage of Humanity by UNESCO in December 1991.

management plan was implemented by the Mozambique Island Conservation Office (GACIM), with the participation of government institutions, representatives of civil society and the private sector (Jopela *et al*. 2014, Macamo and Adamowicz 2017). Recently, efforts are under way to create the Chongoene and Xai-Xai Archaeological and Biocultural Heritage Park, in Gaza province. The Park creation integrates the Rising from the Depths (RfTD) research network, which explores the marine cultural heritage, ecosystems conservation and their intangible values for the benefit of coastal communities in East Africa[7] (Henderson *et al.* 2021). The park project also collaborates with the training program between UEM and Uppsala University – Biocultural Heritage: Developing New Heritage Industries. This program contemplates studies on rescue archaeology activities in the area, identification and risk assessment of factors that affect local cultural heritage to ensure their sustainable management, including ways for biodiversity preservation with the participation of the local community and administrative authorities.

The aforementioned examples are just a few of the prominent cultural heritage sites known in the region and in Mozambique that would benefit from integration with sustainable management to preserve its heritage values, combined with local, national and international practices. Sustainability of cultural and natural heritage can only be achieved if there is harmony between international law, domestic law and customary law (Munjeri 2008:18). The latter is necessary to ensure and allow local community involvement in site management (Chirikure and Pwiti 2008, Chirikure *et al*. 2010, Macamo 2012, Gibble 2014, Jopela and Fredriksen 2015, Macamo and Ekblom 2018).

Any effort towards sustainable management and protection of cultural heritage and natural landscapes is justified by the fact that the archaeological heritage contributes to the historical identity of nations, people and local communities. It is part of the sum of knowledge and experience from which the decisions for tomorrow are taken at all levels of society. It represents an irreplaceable contribution to what has been termed the 'collective memory of mankind'. In the case of Mozambique, the examples mentioned above are heritage sites that are physically visible and previously known. By contrast, in the case of the unknown archaeological heritage, challenges remain to make them visible and available to researchers and the public domain since most of the Mozambique regions still lack archaeological research owing to limited resources (see discussion in Chapter 7.2). With the increase in development projects in the country, which are often implemented without an archaeological impact assessment, there is a high risk of permanently losing precious knowledge of prehistory.

Some countries in southern Africa, such as Botswana, Namibia and South Africa (see Chapter 4), guarantee through rescue archaeology activities that economic development is socially sustainable, allowing the sustainable management of the cultural heritage covered by development projects. Here, cultural heritage management is built out as a sector that creates opportunities for employment for many professionals, both accredited archaeologists and cultural heritage managers, and the principles are established in the specific legislation of each country. By contrast, in Mozambique, even though legislation is in place, rescue archaeology activities are still lacking a uniform and formalised procedure. Further, since there is a lack of instruction on what the impact assessment should entail, several development projects are implemented without

[7] In Seminar on the Chongoene Archaeological and Biocultural Heritage Park (2021-2023), held in Xai-Xai, August 18, 2022. More information about the Chongoene and archaeological Biocultural Heritage Park can be via this link: Diversity, Sustainability, and Transformation South-Central Mozambique (ihopenet.org).

pre-development archaeological impact assessment. In addition, there is no enforcement of the existing laws. This means that the rescue archaeology industry is not exploited effectively to create local employment opportunities (see discussion in Chapter 6).

The Biocultural Heritage Approach

Good management of cultural heritage requires the use of local means of nature conservation and landscape planning based on community involvement. Apart from the preservation of heritage, there also needs to be actions for biodiversity conservation based on the exchange of experiences between local and scientific knowledge, creating a ground for the development of new skills and knowledge (Ens *et al*. 2015, Swiderska *et al*. 2018, Poole 2018). In the current day context in which several local communities are impacted by climate change, the biocultural heritage approach promotes the interaction between cultural memory and heritage practices, many of which have contributed to conserving species (cf. Holtorf 2024).

This knowledge and experience are keys for environmental management actions, especially in a vulnerable environment where communities are dependent on natural resources or in places close to vulnerable ecosystems. Through a biocultural heritage approach, archaeology and cultural heritage management should assist in promoting and valuing local ecological knowledge and cultural diversity as a high-level priority for sustainability (Poole 2018). The biocultural heritage concept provides a theoretical platform that can explore diverse community knowledge to manage ecological problems, e.g. drought, wildfire, flooding, and local ecological management. Further, the approach is suitable here as it emphasises the ethical engagement of human rights with the consideration of biodiversity conservation priorities of its biological and cultural expressions (Davidson-Hunt *et al*. 2012, Swiderska *et al*. 2018). Biocultural Heritage emphasises the idea of community-based resource management and traditional ecological knowledge, to refer to ecosystems originating from human practices. In a broader sense, it encompasses the natural-cultural components of human-environment interactions, including knowledge, practices and innovation (Ekblom *et al.* 2019).

Biocultural heritage thus incorporates a complex system of interdependent parts centred on the relationship between local communities and their natural and cultural environments, including biological resources, traditions, practices and knowledge for adaptation to environmental change and sustainable use of biodiversity resources (Wilkinson 2019). The concept allows for the appreciation of the interrelation that biogenetic diversity shares with the language, heritage, cultural memory, ecological knowledge and values of local and indigenous communities to a sustainable development (cf. Poole 2018), and as such is a useful tool for discussing and solving problems related to degradation of land and water, declines in biodiversity, conflict over access to and use of natural resources and rural-to-urban migration (Lyver 2019).

Analogous methodologies constitute a holistic approach of many local communities, which recognizes the ownership of local knowledge as heritage, taking a custodial and intergenerational character. They represent new conceptual and methodological approaches to cultural and natural landscape research and management that crosscut conventional boundaries to form an interdisciplinary field that integrates scientific ways and community-based conservation manners of heritage management. Local knowledge, skills, practices, values and beliefs related to environment and ecological management are dynamic, adaptive and transmitted across and between generations. This knowledge is embedded within a worldview and ethos and often includes spiritual

connections to a place, including species and landscapes. This diversity shares ecological knowledge with language, heritage and cultural memory (Boyd, 2012:176–177, Cocks 2014, Poole 2018, Ekblom *et al*. 2019, Dacks *et al*. 2019, Wilkinson 2019, Bridgewater and Rotherham 2019, Murray *et al*. 2019).

Therefore, such approaches constitute an ideal methodological and theoretical procedure to address issues of cultural and natural heritage management in Mozambique. Mozambican traditional structures and local practices were considered cultural obscurantism (including traditional ceremonies, traditional medicine, local beliefs, witchcraft beliefs, chieftaincies and traditional hierarchies). These practices were severely ostracised by the Frelimo party during the first years following national independence and were thus abandoned by the local communities. The 1982/3 drought and the 16 years-war that displaced many populations to urban areas and neighbouring countries (Newitt 1997:482–486, UN-HABITAT 2007, Lourenço 2009, GFDRR 2014, Meneses 2015, Muchacona 2020, Sheldon and Penvenne 2020, Manjate 2022:20), contributed to the fragmentation of the national customary system. Despite these structures for cultural and natural heritage management in rural areas are still strong as they are rooted in customary practices carried out by local communities. In the 1990s, the government legally recognised the community authorities (Meneses 2009, Lourenço 2009, Meneses 2015, Muchacona 2020, Masseko 2021, Manjate 2022:20), and there is now some notable growth in official forms of management.

However, infrastructural projects often through landconcessions to private companies are increasing rapidly, which is potentially a threat to community ownership and management of resources. Combining cultural heritage approaches with resource management and conservation efforts therefore is crucial. Furthermore, most of the population live in rural areas and are dependent on the health of natural resources and ecosystem for their livelihoods. In addition, the country has been devastated by natural disasters, droughts, floods and cyclones (Mondlane 2004, GFDRR 2014, Charrua *et al*. 2021, Singh and Schoenmakers 2023) making local practices and heritage and resource conservation more challenging.

Notwithstanding the aforementioned motivations, in this thesis it is argued that culture engagement actions can be achieved using the biocultural heritage or analogous methods as a holistic research framework, as a comprehensive research framework.

The approach evaluates local ecological knowledge and cultural diversity for sustainability as a high-level priority and promotes the involvement between cultural memory and environmental management actions, giving emphasis to the ethical engagement of human rights, considering biodiversity conservation and priorities for cultural diversity (Poole 2018).

1.3.2. Academic Fields

Cultural Heritage

Cultural heritage as a field emerged as a Western approach originating in the context of a late Enlightenment concerned with the preservation of the natural and cultural environment. Developed in the emerging European nation-states in the eighteenth and

nineteenth centuries, it supported an exclusive collective identity for each nation.[8] At this time, cultural heritage provided a national origin and national history, promoting a single national language, religion and culture which all came to be part of 'heritage' (Holtorf 2011, Harrison 2012:24, 43). The past and cultural heritage elements were seen as a source of national identity,[9] self-confidence and unity, as well as an instrument of power (Kristiansen 1992, Barbara 1996, Negri 2008:8, Lane 2011, Carmen 2012:16, 20–22). During this first phase of crystallization of heritage management, it came to be understood as the management of physical objects or places, a focus that has remained dominant until today. However, heritage also incorporates various practices and intangible aspects, such as languages or cultural practices, in a broader sense.

Heritage, simply worded, integrates ways to go about conserving 'things' or landscapes that we value and the choices we make about what to remember and what to forget, often in the light of a potential threat in relation to future generations. Thus, cultural heritage is not only what former generations built up but also the way it is interpreted, valued and managed by contemporary society and in our everyday lives (Tengberg *et al*. 2012, Holtorf and Bolin 2024). Thus, heritage is dynamic and negotiated through the relations of individuals (Holtorf 2011, Petursdottir 2012). It is not a thing, site or place, nor is it to be 'found'; rather, heritage is the multiple processes of meaning-making that occur as material heritage places or intangible heritage events are performed, identified, defined, managed, exhibited and visited. Heritage, in this sense, is a subjective political negotiation of identity, place and memory, a 'moment' or a process of reconstructing and negotiating cultural and social values and meanings (cf. Smith 2012).

The 1954 Hague Convention for the Protection of Cultural Heritage in the event of armed conflict represents the first international treaty to define cultural property as movable or immovable property and as of great importance to the cultural heritage of all people (UNESCO 2010). The expansion of this international movement to protect the 'universal heritage' of humanity and global organisations for nature conservation,[10] led to the development of UNESCO's World Heritage Convention of 1972,[11] where the term 'property' was replaced by 'heritage' (Gultekin 2012, Smith 2012, Leitão 2017). The definition of 'world heritage' includes monuments of architectural works and structures of an archaeological nature that are of outstanding universal value from historical, aesthetic, ethnological or anthropological points of view (UNESCO 1972:1, Holtorf and Bolin 2024). Using the material characteristics and emphasizing architecture and art, this convention tended to recognise only the sites surrounded by the remarkable, the greatest, oldest, the beauty, biggest and 'best' forms of heritage (cf. West and Ndlovu 2010, Harrison 2012:18, 40-41, Holtorf 2020). The convention underlined the idea that some cultural and natural heritage sites are of universal and exceptional importance and, therefore, need to be protected as part of the common heritage of humanity (Munjeri 2008:15, Smith 2012). This way of theorizing and conceiving cultural heritage emphasised a canonical model of heritage, now

[8] The rise of nationalism fostered attachment to ancient monuments as symbols of collective identity. Antiquities gained credence as historical witnesses more reable and more compelling than documents (Lowenthal 2005).
[9] Heritage values mainly as special or historic features within a landscape that remind us of our collective and individual roots, providing a sense of continuity and understanding of our place in our natural and cultural environment – heritage as landscape-related 'memories' from the past (Tengberg *et al*. 2012).
[10] The International Union for Conservation of Nature (IUCN) was created in 1948.
[11] UNESCO's World Heritage Convention of 1972, in Mozambique was implemented from 1975 and adopted officially in 1982 (*Resolução* nr. 17/82, BR, I *Serie*, nr. 44).

referred to as Authorised Heritage Discourse (AHD). The canonical model of heritage implies that certain forms of heritage are official and authorised by legislation or charter, while others, such as local heritage practices, are not (Smith 2006:87–114, West and Ndlovu 2010, Smith 2012, Tengberg *et al*. 2012, Harrison 2012:18–20). In that sense, there is a danger that a western vision of heritage is applied in other parts of the world with very different experiences and types of cultural heritage.

In Mozambique, the legislative diploma nr. 825/1943, adopted during the colonial period, including the subsequent official cultural legislation implemented after the post-independence period (see discussion in Chapter 5), represents typical cases of an official and nationalist heritage discourse. This model, however, proved to be ineffective because cultural heritage in the country is rooted in local communities, as rural areas are administratively and geographically located far away from administrative state institutions that are located in the provincial capitals or the capital itself. State authorities and their provincial or district officials are typically 'unaware of or do not have access' to information and formal means of managing cultural heritage in rural areas.

However, archaeological sites located in rural areas are commonly recognised as local heritage sites and they are effectively protected by customary practices. Archaeological sites, sacred forests and burial places are places for holding ceremonies. This situation led to the recognition of the need for two complementary models of cultural heritage management in the country: the traditional system of custodianship and the official means of site protection ensured by the state (Jopela 2010, Jopela 2011, Jopela and Friedriksen 2015, Jopela 2018, Macamo and Ekblom 2018). Archaeologists and cultural heritage managers in Mozambique routinely use this complementary and collaborative strategy with local communities as part of cultural heritage management. Archaeologists typically adhere to local customs and traditions and where required to participate in ceremonies before the commencement of any excavation work, they do. The local protection practices ensure the maintenance of cultural heritage sites as a living heritage (cf. UNESCO 2020, Macamo and Ekblom 2018).[12]

Despite this practice, co-management and local ownership of knowledge have not been explicitly written into the statutes for cultural heritage management in Mozambique (see discussion in Chapter 7). In southern Mozambique rural areas, ceremonies normally take place in the presence of community members and the researchers involved. This ceremony is led by traditional chiefs. In the absence of traditional chiefs, if convenient, the traditional ceremony is led by their representative or substitute. Traditional chiefs follow the matrilineal and patrilineal lineage according to the different regions of the country (cf. Medeiros 1985, Buur and Kyed 2005, Maúngue 2020, Manjate 2022:37, Carvalho 1988). The purpose of the ceremony is to present the researchers and their objective to the local community. The spirits of the ancestors are asked to welcome the researchers and bless their work. This process ensures that the cooperation with the local community is successful during the research activities. During the ceremony, the local community will be able to voice possible restrictions, recommendations, or procedures to be followed by the research team.

[12] Living heritage include performing arts, oral expressions, social practices, rituals, festive events and traditional knowledge, skills that are an integral part of community daily life and are transmitted from generation to generation. This is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history and provide them with a sense of identity and continuity; thus promoting respect for cultural diversity and human creativity (Wijesuriya 2018, Poulios 2014).

The traditional ceremony usually takes place in the traditional chief's house, or in a place such as a sacred forest, cave or even in the mountain, where the spirits dwell. Certain products are normally required to be used during the process of spirits invocation: white corn flour, wine or traditional beer, chickens, a certain monetary value (mainly coins), and tobacco (snuff) are examples.[13] When establishing contacts with local authorities, the project team must ensure that it is interacting with the appropriate entities, avoid situations where they are rushed for time or pressing on to have the ceremonies made quickly as it takes time to gather the individuals that must be present to authorise the procedure, obey the hierarchies of local authorities. Otherwise, local authorities may not be fully welcoming, or the ceremony may be carried out by inappropriate individuals. The ceremony may be cancelled, or the knowledge of cultural heritage may not be shared. Since the ceremony also constitutes a moment of celebration and joy, other consumable products may be requested by members of the community to be purchased at the expense of the research team. These products are prepared and consumed by all participants in the ceremony. Failure to hold the ceremony may give rise to a negative situation that can affect the normal course of the research. This also fuels continued distrust and creates tension between the main actors in the research: the traditional chief, the research team, the local community, and government officials. The ceremonies thereby provide a good opportunity to build a collaborative research environment for all those involved in the research and also ensure local community involvement, participation and future collaboration, which follow the principles of CARE.

The CARE principles are a set of principles developed to ensure equitable participation of local communities in the use of their data and knowledge systems. These principles also address concerns about tangible benefits for community collectives through inclusive development and innovations, improved governance and citizen engagement, and result in equitable outcomes (Carroll *et al*. 2021, see further in Chapter 7.3.2). Therefore, adopting and implementing local community data governance actions in Mozambique constituted added value for greater inclusion of local communities in archaeological research and cultural heritage management activities.

The Eurocentric nature of the 1972 World Heritage Convention and its attempts at universalizing a sense of heritage excluded other cultural and social experiences and knowledge, which opened much criticism and debate. Academically, these debates reshaped cultural heritage studies, advocating for the inclusion and integration of non-western (and also non-official) practices of cultural heritage and its many realities (see, for instance, discussion in Munjeri 2008:19–21, Eboreime 2008:4–5, Brosché *et al*. 2017, Smith and Waterton 2012:158–159, Smith 2012, Gosden 2012:255). Within cultural heritage, studies are now defined as constructed through discourses where values are projected onto tangible objects and intangible elements of human culture, a complex negotiation underwritten by a range of different and often contradictory values, arguments and connotations (Smith and Waterton 2012:154, Brosché *et al*. 2017). The multidimensional nature of cultural heritage implies an ambiguity that transcends a single conception in theoretical or conceptual terms, posing continuous challenges to academics and cultural heritage managers, but this ambiguity has also opened the way for the formalisation of community/public collaborations and approaches.

[13] These products may vary according to the ritual requirements of each specific area or as the traditional chief directs.

As a result of criticism of the material focus on heritage management, the Convention for the Safeguarding of the Intangible Cultural Heritage was signed in 2003 to protect the intangible cultural heritage (see discussion in Petursdottir 2012). The 2003 and 2005 conventions were ratified by the Mozambican Government in 2007 (*Resolução* nr. 39/2007[14], *Resolução* nr. 40/2007).[15] The 2003 Convention recognised that communities, in particular local communities, citizen groups and individuals, play an important role in the production, safeguarding, maintaining and recreating of intangible cultural heritage. In the revisions of the 2003 and 2005 conventions, the definition of cultural heritage includes intangible elements such as gardens, agricultural scenes, and sacred sites, as well as songs, dances and narratives (Lowenthal 2005, Tengberg *et al*. 2012). Cultural heritage was now conceived holistically and as contributing to the enrichment of cultural diversity and human creativity (Munjeri 2008:22).

Cultural Heritage Management

The practice of cultural heritage management, as it is currently known, has been labelled in many different terms, such as 'historic preservation', archaeological resource management and 'heritage management', but typically, these terms just as cultural heritage management itself lacks rigorous definitions (McManamon and Hatton 1999:114, Praetzellis 2012:320). Other terms are Archaeological Heritage Management, Cultural Resource Management, Heritage Resource Management or Heritage Management, terms that are frequently used synonymously (Fowler 1982, Knudson 1999, Kristiansen 2005, Gultekin 2012, cf. Mitchell 2017:27, van Vollenhoven 2018). Although there are many possible denominations, in this work I use the term Cultural Heritage Management (CHM), which is a comprehensive term and the term most frequently used in the current literature and scientific debate.

First, I explain and describe the origin and development of the cultural heritage management concept. Cultural resource management (CRM) was developed within the discipline of archaeology in the United States during the early 1970s. The first use of the term 'cultural resources' is attributed to specialists within the National Park Service around 1971 or 1972. The word 'management' was gradually added to cultural resources by the 1974 cultural resource management conference held in Denver. Initially, the CRM conceptualization was concerned with a wide range of resources, such as archaeological sites, historic buildings and districts, social institutions, folkways, arts and crafts, architecture, belief systems, the integrity of social groups, the ambience of neighbourhoods and so on. All listed resources constituted aspects of the US National Environmental Policy Act of 1969.[16]

In the ambit of the Implementation of the 1972 UNESCO treaty and through its Operational Guide of 1983, the process around the nomination of the first natural heritage candidate and planning for the cultural heritage listings encouraged the use of management as a concept. Further regulations were provided with the Operational Guide of 1988, where legally adequate protection, management mechanisms and public access to cultural assets or protected areas were emphasised. The cultural heritage

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[14] *Resolução nr. 39/2007 de 12 de Novembro, Ratifica a Convenção sobre a proteção da diversidade de expressões culturais, adaptado pela UNESCO em 2 de Outubro de 2005.*

[15] *Resolução nr 40/2007 de 12 de Novembro, Rtifica a Convencção sobre a proteção do Patrimonio cultural immaterial, adoptado pela UNESCO em 17 de Outubro de 2003.*

[16] All these resources were previously described in the National Historic Preservation Act of 1966, Historic Sites Act of 1935 and Antiquities Act of 1906 (McManamon and Hatton 1999:114, Fowler 1982, Praetzellis 2012:320-321, Little 2012:397).

management term was first used by ICOMOS in its *Charter for the Protection and Management of the Archaeological Heritage* of 1990 (Gultekin 2012). In Mozambique, the cultural heritage management terminology was officially introduced by the *Diploma Legislativo* nr. 825/1943. This colonial legislation was repealed by Law nr. 10/1988 on December 22nd, which has since been the main reference for cultural legislation implemented in the country (see further discussion in Chapter 5).

The development of cultural heritage management procedures can also be traced to the Aarhus Convention (United Nations Economic Commission for Europe, 1998), which, among many provisions, imposed public participation in decisions on activities, plans, programmes and policies relating to the environment. Environmental assessments were launched to integrate human and cultural aspects together, defined as 'environmental concerns'. Later, through the Commission of the European Communities of 2000, environmental assessment came to mean any written information, in any accessible form, about the state of 'human health and safety, human life conditions, cultural sites and constructed structures, which are or may be affected by the state of the elements of the environment or, through other factors, activities or measures' (see Teller 2002). By the 1990s, cultural resources began to be managed and integrated more explicitly into ecological land management worldwide (Knudson 1999).

In Mozambique, similar efforts were initially developed by the culture sector, which, from Decree nr. 27/1994, on 20 July, introduced regulations on archaeological heritage and required rescue archaeology activities in development projects. Within the environmental impact assessment sector, Decree nr. 76/1998 of December 29 was implemented. This decree was subsequently revoked by Decree nr. 45/2004 September 29, Decree nr. 42/2008 November 4 and Decree nr. 54/2015 December 31.

Since cultural heritage is considered part of the environment, typically, heritage and/or archaeological assessments must be carried out as specified in the national environment regulations before any project can begin. In this way, government officials and private land developers require the assistance/collaboration of archaeologists to help them fulfil the requirements of laws and regulations (Praetzellis 2012:20). Cultural heritage management generally begins with the formulation of a cultural resource overview, where an archaeologist identifies, inventories and evaluates the resources affected by the enterprise. Secondly, the archaeologist assesses the effect on the resources from the development, determines the type of impact on resources and the possible consequences and understands what a project proponent has to do to preserve them. The third step is typically to formulate effective and integrated management plans to protect, conserve and preserve the resource; plans that recognise, understand and address local situations to manage cultural heritage (Fowler 1982, McManamon and Hatton 1999:120, Praetzellis 2012:20).

In southern Africa, formal heritage protection is said to have been introduced in the early 20th century and during the colonial period (see critical review in Ndoro and Pwiti 2001, Ndoro *et al*. 2017:3). However, different forms of heritage management and practise of cultural heritage protection were recognised within the continent before the colonial presence (Ndlovu 2011, Macamo and Adamowicz 2017). The distinction partly depends on the definition of heritage management. Some scholars (see below) restrict the term heritage management to signify legislative and procedural norms based on written laws and decrees. Such a definition prioritises western and/or formal heritage protection. Other scholars consider heritage management holistically, going

beyond written policy, including local cultural knowledge and practice, rules or moral norms based on customary laws that are transmitted orally from generation to generation (Eboreime 2008, Chirikure *et al*. 2010, Ndlovu 2011, Bwasiri, 2011b, Lozny 2011, Jopela and Fredriksen 2015, see also further review in Chapter 3). As already discussed above, such customary systems of protection are strong among African societies. As a living heritage, it constitutes cumulative bodies of knowledge, practice and belief about the relationship of living beings with one another and with their environment that are generated, preserved and transmitted intergenerationally. Customary rules enforced by traditional custodians govern the use of such resources (Jopela and Fredriksen 2015, Macamo and Ekblom 2018:398).

Nowadays, as mentioned above, the term cultural heritage management has often been and still is used as a synonym for archaeological work done to fulfil legal or political mandates for a larger development, usually a construction project or resource exploration with a negative impact on the environment. Overall, I would define the broad range of approaches and concepts as an interdisciplinary field that aims to sustainably manage cultural, natural and environmental resources for the public good. Cultural heritage management can be defined as the application of management skills (planning, organizing, directing, controlling, and evaluating) to achieve goals set through the political process with the objective of preserving aspects of our cultural heritage. The goal of cultural heritage management is the conservation of culturally valued information and/or aesthetic and spiritual experiences inherent in a cultural resource in the context of associated public values (e.g., physical environment, economics and community needs) (Kristiansen 2005, Fowler 1982).

Among similar understandings, archaeological heritage management is a dialogue creation process between archaeology and the general public (Ndoro 2001:7, Holtorf 2020), or in general terms, cultural heritage management is a process of organising the use of cultural resources amongst multiple stakeholders such as people, institutions, governments, regions and the world (Keitumetse 2016:1). In addition to the above aims, cultural heritage management actions and procedures, in a best-case scenario allows heritage and environmental priorities to coexist with development priorities (Vollenhoven 2018). All these objectives can be achieved through the realisation of heritage assessment and rescue archaeology before the implementation of development projects whose activities involve the removal or movement of soils. To me, such activities are an insurance policy for the conservation of heritage and the environment.

Rescue and Contract Archaeology

The preservation of cultural heritage through archaeological activities can also be traced through many different names and practices (Fagan 2003, Cleere 2005, Kristiansen 2005). This practice is known by many different names, such as ‘compliance’, ‘salvage’, ‘preventive’, ‘rescue’, ‘emergency’ or, more recently, ‘ more recently ‘commercial or ‘contract’ archaeology (Ndlovu 2014, Demoule 2016). The differentiation of names corresponds in part to different organisations and formations of this activity in different parts of the world. For example, ‘rescue archaeology’ is the term preferred in Britain (Darvill 2009), implying that archaeologists follow and watch the development of the project activities, trying to save cultural resources in the aftermath of construction (see discussion in Demoule 2012). ‘Salvage archaeology’ is a concept developed in North America and precipitated by constructions where there was a need to save or rescue archaeological remains prior to their destruction. In this situation, it is impossible to be selective about what is examined, and owing to time constraints,

documentation and selection are limited as refined techniques of data recovery cannot be planned or deployed strategically (Lipe 1974, Darvill 2009).

Meanwhile, ‘preventive archaeology’ was introduced as a term during the economic growth booms from the sixties to the eighties, after the post-war reconstruction in Europe (Depaepe 2016). From that time, the term has been used increasingly and in contrast to the earlier terms of salvage, rescue or emergency archaeology, which all imply a reactive approach to archaeology. By contrast, preventive archaeology implies that archaeologists should play a leading role in planning the project activities, making archaeology part of a development project from the start. The archaeologist team plans the activities in advance, mobilising a series of legal, operational and scientific measures ahead of the projected infrastructure and building works. This proactive work also means that cultural heritage management activities will not disrupt the planned construction process. Preventive archaeology ensures that any archaeological remains above or below ground are effectively identified, studied and assessed prior to their eventual destruction (Alexander 2011, Demoule 2012, Silberman 2012).

Globally, many archaeological excavations today are development-funded activities, which has led to the emergence of the term ‘developer-funded archaeology’ (Demoule 2016). In this context, from the mid-1970s, with the increase of economic and infrastructure development, the concept of ‘commercial’ archaeology came of use as a reference to the contractual regime between the archaeologist and the entrepreneur. Commercial archaeology refers to archaeology as an exchange of products and services (cf. Zorzin 2015). Its initial usage was fraught with negative connotations (Fagan 2003). Commercial archaeology is currently specified in legislation in most countries. In such legislation, either the whole cultural heritage management sector or at least government-funded work are under the demands of tender or procurement process, and most of the archaeological work takes place through contractual and/or procurement processes. This has given rise to the name ‘contract archaeology’, implying that archaeologists are generally engaged on a defined contract basis one way or another (Carter 2002, Kinahan 2013).

Given these multiplicities of denominations, it is, in fact, difficult to decide what is the appropriate term to use. In Mozambique, the term ‘rescue archaeology’ is used in Mozambican legislation (see Decree nr. 27/94[17], article 2). However, in practice, activities tend more towards ‘preventive’ archaeology, as discussed in this thesis. Mozambican legislation specifies procedures for contract or commercial archaeology but not precisely how contracts are to be negotiated and by whom. Consequently, in this work, I use the term ‘rescue archaeology’ in lieu of the other terms, as this is the most prevalent terminology utilised in Mozambique.

Table 1.1. The FAIR principle for open data (quoted in full from the Fair Principles Organisation (see also Wilkinson et al. 2016, Previtali and Valente 2019, Sterner and Elliott 2023).

Findable 	Findable is defined as: “As assigned a globally unique and persistent identifier. This means that data are described with accurate and relevant attributes and that the (meta)data is described. Metadata[18] should be given clearly and explicitly and include the identifier of

[17] *Decreto nr. 27/94, Regula a Proteção do Património Arqueológico e aprova a composição do conselho nacional do património cultural. Boletim da República, 20 de Junho de 1994, nr. 29.*

	the data it describes, finally (meta)data should be registered or indexed in a searchable resource".
Accessible 	Accessible in this context means that: "(meta)data are retrievable by their identifier using a standardised communications protocol, such as: open, unload, free, and universally implementable; Freely available as a whole and at no more than a reasonable reproduction cost. The protocol allows for an authentication and authorisation procedure, where necessary. (Meta)data are accessible, even when the data are no longer available."
Interoperable 	Interoperability here suggests: "the ability of data or tools from non-cooperating resources to integrate or work together with minimal effort. (Meta)data[18] should be made available in widely used, non-proprietary formats that can be used across multiple computing and software platforms, intermixing with other datasets. (Meta)data uses a formal, accessible, shared, and broadly applicable language for knowledge representation. Use vocabularies that follow FAIR principles and include qualified references to other (meta)data."
Reusable 	Reusable signifies that: "(meta)data are richly described with a plurality of accurate and relevant attributes. Data are released with a clear and accessible data usage license; (Meta)data is associated with detailed provenance; Data meet domain-relevant community standards; (Meta)data can be used, reused and free of encumbering intellectual property restrictions, however, redistributed according to a certain specific restriction (e. g. non-commercial)."

The Fair principles

The documentation of knowledge is of paramount importance in the field of rescue archaeology, as the information it contains will inevitably be lost through construction. This knowledge must be produced in a standardised manner and made accessible to the research community and to the public. FAIR principles are guidelines which enable digital resources to become more Findable, Accessible, Interoperable and Reusable for machines and humans. They put emphasis on enhancing the ability of machines to automatically find and use the data to support its reuse by individuals (Wilkinson *et al*. 2016, Jacobsen *et al*. 2020). Recognizing existing obstacles to finding and processing data for research, these principles also imply that all components of the research process must be available to ensure transparency, reproducibility and reusability. These principles aim to facilitate knowledge discovery, data and knowledge integration and reuse by the community after the data publication process (Wilkinson *et al*. 2016). To effectively develop archaeological research and cultural heritage management activities, including inclusive archaeological data management, Mozambique needs to adopt and implement FAIR Principles. The FAIR principles constitute the central base of the open-access approach for data and research (Table 1.1.).

[18] Metadata are data that describe other data. Is a structured reference data that helps to sort and identify attributes of the information that it describes. They are basic information about data which can make it easier to find, use and reuse particular instances of data. For example, the basic document file metadata are: author, date created, date modified and file size (Volle 2024).

Policy Analyses

The term policy analysis is broad, encompassing the examination of laws, regulations and administrative policy frameworks or procedures, as well as the voluntary practices of governments and other institutions. In essence, policies areas mean to guide decisions of authorities and public to achieve desired outcomes. Below I will define the terms that will be used here.

Policies are laws, regulations, procedures, administrative actions, incentives or voluntary practices formulated by government authorities and other institutions and adopted to reach a long-term goal. This includes laws and regulatory frameworks. Policies are shaped by dynamic and complex processes over time (Birkland 2019:25–57, Greenberg *et al*. 1977), and there is simple causality between the policy goals and its outcome (see also discussion in Heckathorn and Maser 1990). In this sense, policies express power as government intervention or an intention to influence the behaviour of citizens, individuals or collectively, by using a set of positive or negative sanctions (Heckathorn and Maser 1990). In this sense, policies provide the parameters for decision-making but do not typically focus on the details of information, as this would require continuous changes to the laws. Therefore, this thesis illustrates that, by its nature, the cultural heritage legislation in Mozambique is written in rather generalist terms (and sometimes ambiguously so). However, in this case, there is low compliance with the law as it does not have specific and additional regulations.

Procedures can be defined as 'the specific methods employed to express policies in action in day-to-day operations of the organisation'. Procedures outline the step-by-step implementation of various tasks. From beginning to end, they show what action to take under specific circumstances. Procedures should be easily adaptable to new contexts/situations and separated from the policy, but they must, at the same time, be consistent with the policies. For procedures to work, they need to conform to the requirements of any applicable policies and all relevant laws, and they must also be known by all stakeholders. This means that they must be posted or distributed as specified in the relevant policy and, as good sense dictates, be reviewed as needed to meet particular needs and determine and make necessary changes and conditions (WCSAP 2022). In the context of this thesis, I use the term procedure to refer to the sequence of specific actions that must be followed to carry out impact assessment and rescue archaeology activities in Mozambique. The term is also used to designate all the steps to be observed during the instruction of rescue archaeology activities processes, which must also be transparent and regulated in the specific legislation of the culture sector.

Practices, expressed in the simplest way, are the way things are ordinarily done in a given place. Practices may include formal procedures, but often, they are the result of organisational culture and habits that have accumulated over time. They are "routinised ways in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood" as written by McColl-Kennedy *et al.* (2017). Through practices and professional actions, when performed frequently and in an open manner, individuals gain skills and solidify knowledge (Adler and Pouliot 2011). In the context of how this term is used here, practices correspond to the way in which archaeological research in general, rescue archaeology activities as well as archaeological data management are carried out in Mozambique. Since much of the rescue archaeology practice in Mozambique is still a new phenomenon, not yet written down or explained it is largely an undocumented knowledge practice. I therefore decided to approach this knowledge through interviews in this thesis. Based on interviewees reflections and experiences I captured tacit knowledge from archaeologists

and cultural heritage managers who have worked many years within rescue archaeology and in various capacities and roles within this field.

1.4. Outline of the Book

This work consists of ten chapters. In this first chapter, the main ideas and contents discussed throughout the work have been presented. I also explained the objectives and the methodology used and the techniques applied for the collection, elaboration of the work and interpretation of the results to reach the elaborated objectives. The main concepts and terms that will be used recurrently throughout the work were presented and defined and explained their meaning to understand their specific use in the coming chapters.

In Chapter 2, the national background of the geographical and physical character and population size of Mozambique is introduced to the reader. This is followed by a summary of the economic and industrial policy analysis in the country regarding rescue archaeology to assess which kind of benefits can be generated for these activities when good management of archaeological research in the country is made as a way of reducing poverty. This background is necessary for the reader to understand the context of cultural heritage management in Mozambique and its challenges. To understand the formation of rescue archaeology in Mozambique the chapter ends with a presentation of the background of archaeological research in Mozambique during the colonial and post-colonial periods and the emergence of cultural heritage management policy in Mozambique.

To understand how the Mozambique experience relates to global processes and debates in Chapter 3, I delve deeper into the first known forms of cultural heritage protection from different geographical contexts, tracing the origin of the first cultural heritage international agreements globally. This analysis constitutes a starting point for the current governmental system of management and protection of cultural heritage in force in many modern states and used by international conventions, including Mozambique. This second part of the chapter provides a detailed analysis of the evolution of rescue archaeology around the globe. Furthermore, it examines the emergence of academic discourse on this practice, with a particular focus on its development until the present day. This background is a condition to understand the study object under analysis in this work. Finally, Community-based and public archaeology in general and its current status in Mozambique are discussed as a background.

In Chapter 4, I present the analysis of the practice of rescue archaeology and heritage management in different countries of Southern Africa. This analysis focuses on the type of system and administrative structure that manages the cultural heritage in force in each country, the legislation on heritage and cultural resources and the actors involved. The emergence and evolution of each country's cultural legislation; when and how rescue archaeology activities emerged; and how they were transformed over time following political, social and economic changes. In addition, the results of interviews with some practitioners in the rescue archaeology field are presented here. These experiences may help in how rescue archaeology in Mozambique can be improved. The discussion is fundamental for understanding the practice of rescue archaeology in the region particularly in Mozambique.

The following chapters delve deeper into the details of the policy of cultural heritage management and rescue archaeology in Mozambique. In Chapter 5, the system of

cultural heritage management and rescue archaeology activities in Mozambique is presented and analysed. In total, six interviews with leading archaeologists and cultural heritage managers in the country. This analysis reflects precisely on the specific legislation on cultural heritage, institutions and administrative structures. Attention is paid to the actors involved in the process, including their perceptions of the administrative systems and their actions as practitioners of archaeological research and direct managers of cultural heritage. This part made it possible to assess the state of archaeological research in the country and to determine the level of sustainability of the cultural heritage management sector.

There has been an expansion of rescue archaeology in Mozambique over time. In Chapter 6, I discuss early efforts of rescue archaeology in Mozambique from colonial times to the present. The increase in infrastructural development has led to more rescue archaeology activities, as will be shown in the chapter. Specific attention is given to the projects which implemented archaeological impact assessments, and the type of activities covered, with a discussion of the procedure and actors involved and the treatment of the scientific results produced by these projects. Finally, past practices of rescue archaeology are discussed in terms of good and unsatisfactory experiences and as a basis for presenting possible solutions for the good management of archaeological research in the country.

The next chapter, Chapter 7, explores issues about integral records of archaeological sites and cultural and historical sites, including assessment criteria and classification of archaeological, cultural and historical sites. I discuss elements and efforts to be developed to create sustainable management of archaeological data and information in Mozambique. Further, I present how cultural legislation advice and manages the production and curation of archaeological data. In the conclusion of the chapter, I present the open data research approach and suggest why Mozambique should adopt FAIR principles as the ideal means to ensure open and operable archaeological data.

In Chapter 8, I present the results of the first fieldwork made in 2019 on disturbance assessment surveys of archaeological and heritage sites. The aim of this work was to exemplify a possible source of information for cultural heritage management with concrete examples and to highlight challenges and possibilities with digital approaches to information management for cultural heritage management. The work was developed in the Campoane, Matola, Zitundo and Ponta Mamoli archaeological sites in Maputo province. The second case-study was carried out in the Chongoene and Xai-Xai archaeological sites, and the Xai-Xai airport construction site in Gaza province.

In Chapter 9, I present the empirical data of the second fieldwork carried out in 2021 on archaeological and heritage impact assessment. The core area of the study was also the coastal zone of the Chongoene and Xai-Xai districts, but also including Chongoene village, as well as part of the Maciene and Banhine areas. This section presents practical results of local community engagement and documents and classifies all types of cultural heritage identified in this area as well as assesses the risks that threaten its state of conservation and preservation. The results show that the presence of many shell middens and other archaeological remains demonstrates that local communities have explored shellfish since pre-historic times. The exploitation of these resources is not only relevant to the diet of local communities but also constitutes an economic alternative. Chongoene district has many historic buildings, monuments and massacre sites. The link between current local communities and traditional and cultural practices is justified by the presence and preservation of sacred forests and cultural and sacred

sites. The sacred forests are also an example of the preservation of biodiversity by the community. Further, I present the pottery analysis of material found during the fieldwork and summarise the results achieved in this chapter.

Finally, in Chapter 10, I draw conclusions from my analyses and present recommendations on future procedures and guidelines for effective rescue archaeology activities that include considerations of sustainability and cultural heritage management perspectives. These recommendations include the FAIR and CARE principles. These inputs resulted from the workshops held in Chongoene and Maputo in 2023 on the management of rescue archaeology operations in Mozambique. I also pointed out possible guidelines that can be explored by future research to ensure the continuity of the rescue archaeological research debate in the country to reveal new scientific knowledge.

2. Country Background

The Mozambique policy of heritage management and rescue archaeology has emerged as a result of the specific historical and social context of Mozambique. Such necessary context also includes information on national geographic and physical characterization, population characteristics and the system of political administration. The national policy on heritage management has evolved in tandem with other legislation, such as the land law and administrative decentralisation reforms. This background will also illustrate directly or indirectly, on one hand, the current state of rescue archaeology in the country, in particular in relation to economic policy and industrial activities. Finally, in the second part of the chapter, I present content on archaeological research and cultural heritage management policy in Mozambique from the colonial period to the present. This exercise will help in understanding how rescue archaeology activities began and how the country's cultural legislation influenced or is still shaping the current state of rescue archaeology.

2.1. National background

2.1.1. Geography

The Republic of Mozambique is a relatively large country, with 786 380 km^2, characterised by its long coastline of 2 800 km, which extends from the Rovuma River to Ponta de Ouro. The country extends between the parallels 10˚27′ and 26˚52' of latitude south and between the meridians 30˚12' and 40˚51' of latitude east. The country borders Tanzania to the North, Malawi and Zambia to the northwest, Zimbabwe, South Africa and Eswatini to the west and South Africa to the south.

Geologically, the long period of land formation has resulted in a resource-rich natural environment with large findings of gas and rare minerals, which is why Mozambique is attractive to a resource extractive industry. Chronologically, the main phases of formation in Mozambique are Precambic (reflecting numerous sedimentary cycles, found as outcrops in the coast of Northern parts), Karroo and Post-Karro (the southwestern strip which borders South Africa). The youngest geological layer is the unconsolidated Quaternary to Holocene sediments, with sand dunes and sand plains interrupted by luvisols around the larger river's mouths.

These geological formations shape the following forms of the territory: plains, plateaus, mountains and depressions. The plains cover about 44% of the national territory, with altitudes below 200 m, and extend along a narrow coastal strip in the central and northern areas, extending to the south of the Zambezi River delta and occupying almost the entire southern area (dos Muchangos 1999:18-28, Palalane *et al*. 2016, Sheldon and Penvenne 2020). The Zambezi Valley is the lowest part of the country; it is part of the Eastern Great Rift Valley. The land rises from east to west; thus, in the centre and north, it slopes steadily into the high plains and ultimately to the

mountainous regions on the northwest border with Malawi and Zambia (Sheldon and Penvenne 2020). The plateaus occupy 51% of the territory, with altitudes ranging from 200 to 1000 m, and the mountains form altitudes above 1000 m, covering 5% of the territory (Muchangos 1999:28-31). The coast is more cropped in the north with saliences (capes), recesses (bays), peninsulas, islands, beaches, and sands associated with mangroves, dunes, limestones and rocks (Muchangos 1999, MINEDH/IEDA 2017).

The geological diversity offers natural conditions for the occurrence of various natural resources in the country, such as iron, tantalite, gold, bauxite, graphite, marble, bentonite, limestone, sea salt, heavy mineral sands, ilmenite, manganese, fluorite, platinum, nickel, uranium, asbestos, beryllium and diamonds (Newitt 1995:469; Buur 2014; Sheldon and Penvenne 2020). Large coal deposits are found in Moatize, and natural gas reserves were discovered in Palma, Pande, Temane, Buzi and Inhassoro. Heavy sands occur in Chibuto and in Nampula (Lehto and Goncalves 2008, Vasconcelos 2014, Balchin and Coughlin 2018). Most of these resources are unexplored and yet open to foreign investment. Such exploitation requires the development not just of extraction infrastructures (extractive plants, factories etc), but also related infrastructures such as roads, bridges, railways, and powerlines. Such infrastructural works will offer employment opportunities and need to be reconciled with cultural heritage management actions through rescue archaeology.

The country's soils are diverse in quality and type. The soils of the southern and west-central regions are sedimentary. The northern and central provinces have more fertile, water-retentive soils than the south, where sand and infertile soils prevail. Northern soils, whose qualities allow agricultural potential to extend beyond the river valleys, have a higher content of red clay, with a varying range of fertility. In contrast, the central region has a broad expanse of rich alluvial soils along the Zambezi delta. In the southern region, fertility is largely limited to alluvial soils in the valleys of the Save, Limpopo, Incomáti, Umbelúzi and Maputo rivers. Agriculture is still the base of economic development. Despite there being extensive areas with fertile soils, most of the agricultural sector (around 99.7%) is small-scale and dominated by household-level production whose economic value is probably underestimated. Foreign investment in agriculture is concentrated in commercial production, mainly for the foreign market by private companies (Aiuba 2018). All areas with good ecological conditions have been inhabited by humans since prehistoric times, and their attractiveness for large-scale farming would have detrimental effects on heritage sites. The implementation of farming projects should be accompanied by rescue archaeology activities. Several zones of fertile but heavy soils occur southwest of Inhambane (Sheldon and Penvenne 2020) and are also attractive for the exploitation of heavy sands. As discussed here in the case of Chongoene, infrastructure linked to the heavy sand extraction in Chibuto started without rescue archaeology, which had devastating effects on heritage (see more discussion in Chapters 8 and 9).

Dense forests occur in the north-central interior and on the Chimoio Plateau, where the rainfall is greater than 1000 mm for five months of the year (Muchangos 1999:81-82). However, most of the northern and east-central areas have open forests. Moving to the south, the savanna dominates with riverine gallery forests and mountainous forests by the Libombos mountain range. Coastal shrub vegetation also occurs along the coastline and at the mouth of rivers (Sheldon and Penvenne 2020, Muchangos 1999:82–88), though vegetation in some of these areas is unstable (see below).

Most of the Mozambican rivers flow eastwards towards the Indian Ocean. The most important rivers are shared with upstream countries such as South Africa, Zambia and Zimbabwe, where almost 54% of the total flow crosses Mozambique (Palalane *et al.* 2016). Most rivers are subject to cyclical floods, which put heritage sites close to rivers at great risk. For example, floods affected most parts of the southern region in 1951, 1967, 1972, 1975, 1977, 1978/79, and 1981, and most severely in 2000/2001 and 2013. Meanwhile, the 2007/2008 floods affected most of the central region. Droughts may affect sites negatively in that covering vegetation dies and sites are subject to erosion. Although droughts have reoccurred in history, in the last decades, severe droughts occurred in 1982/3 and very severe in 2003 and 2004, affecting the whole southern African region.[19] In addition tropical cyclones have affected the coast of Mozambique (Mondlane 2004, GFDRR *et al*. 2014, Charrua *et al*. 2021, Singh and Schoenmakers 2023, IFRC 2021.[20] Such events are disastrous for human and biological life (Matyas and Silva 2013), and will radically affect archaeological sites through intense erosion and destruction. It will also require building up new infrastructure risking more damage to sites. These conditions are likely to become worse as regional climate models predict more extreme rainfall events (Haensler, Hagemann and Jacob 2010, Pinto *et al.* 2016; Pinto, Jack and Hewitson 2018, Holtorf 2024). Coastal sites, sites located in semi-shifting sand dune locations (typically near the coast but also inland) or sites located near the rivers may, therefore, require risk assessment and, in some cases, preventive rescue archaeological activities.

With the ambition to regulate rainfall and ensure water availability and electric energy, several dams have been constructed. These dam projects constituted the first development of rescue archaeology activities in the country, as we will see in Chapter 6. The largest dam is the Cahora Bassa, which produces hydropower to Mozambique and South Africa, built in 1971–1972. The Massingir Dam collects water from the Elephant River for irrigation downstream and was built between 1972 and 1975 (Carvalho 1974, Carvalho *et al*. 1975). The Corrumana Dam was built between 1983 and 1989 in Moamba to supply water (Adamowicz 2015). Work on the Moamba Major Dam in Incomati River was begun in 2014 to provide freshwater to the greater Maputo area, and was planned to have a small hydroelectric plant for the production of 10 MW of electricity (Adamowicz 2011). The construction work stopped in 2016 owing to a lack of funding. T This project is part of a large project of the Incomati River Basin between South Africa, Eswatin and Mozambique (Vas and Zaag 2003). Other large dam projects are being prospected. The Mapai Dam is planned to be constructed in the Limpopo River to regulate the floods of the Limpopo River (Adamowicz 2017, Nigussie, Demissie and Kulemeka 2019). The M'Panda Uncua Dam is also planned in the Zambezi River, 61 km downstream from the Cahora-Bassa Dam. It is expected to produce 1500 MW of energy (Madiquida *et al*. 1999, Lehto and Goncalves 2008, COBA 2009). Before the construction of all these dams mentioned above, archaeological surveys or rescue archaeological activities were carried out (see more discussion in Chapter 6). However, the scale of these archaeological interventions was relatively small, and archaeological sites were lost without documentation. In addition, the dam constructions

[19] Southern Africa suffered severe drought as far north as Lake Malawi from 1794 to 1802. In 1817, drought began again, affecting the Natal area. In 1823 and 1929 drought was reported in Zambesi Valley, and in 1827 also in Inhambane (Newitt 1995:253–256).

[20] The major cyclones are Domoina (1984), Filno (1988), Nádia (1994), Bonita (1996), Lisete (1997), Eline, Gloria and Hudon (2000), Idai and Kenneth (2019), Gombe (2022), and Fredy (2023).

also resulted in the forced relocation of families and the loss of local heritage sites, which were not included in the assessments.

Dam building is always a trade-off between water supply and availability of hydropower which is necessary for the development of the country (Muchangos 1999:45–47, Altinbilek 2002) or needed to regulate the effects of climate variability. Dam building typically requires foreign investment, and major international donors such as the World Bank have formulated principles for the borrower to apply environmental and social standards on cultural heritage assessment and also linked consultation processes. Depending on the contracted companies, such procedures are not always followed (Lane *et al.* 2017).

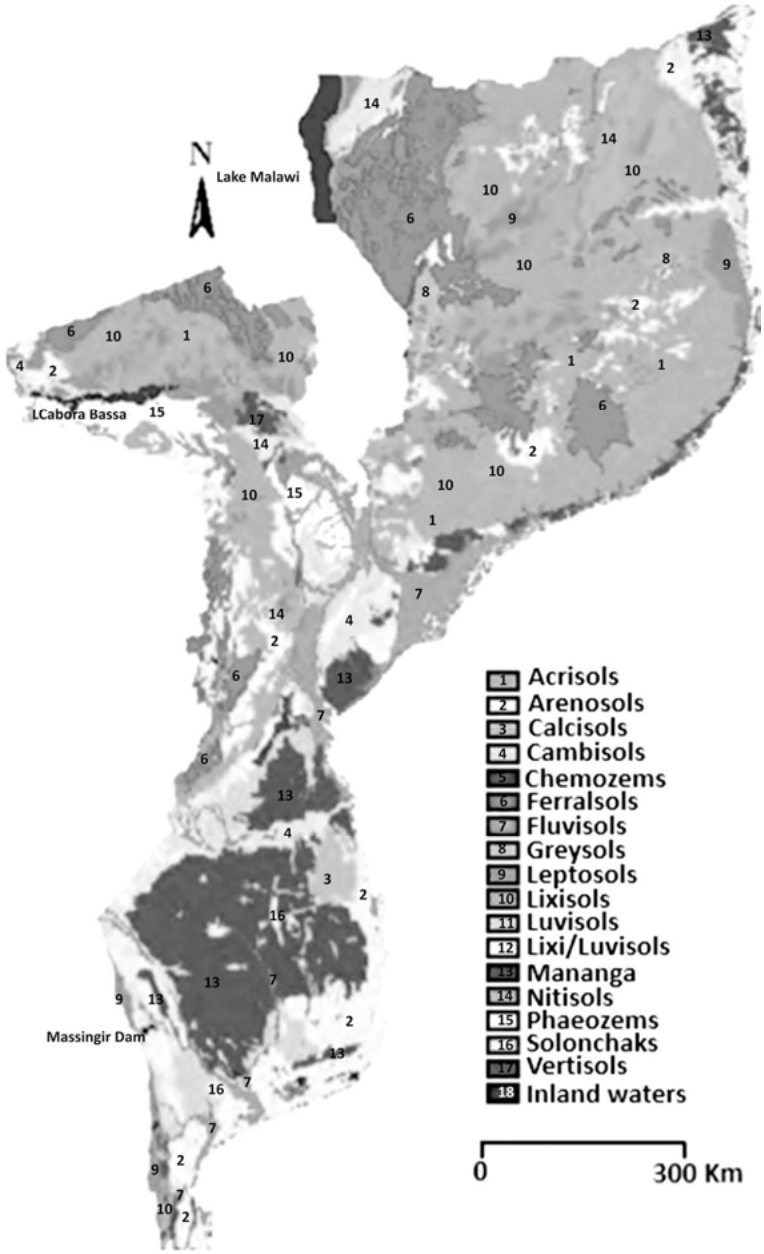

Figure 2.1. Soil map of Mozambique based on the FAO classification (modified from Mafalacusser 2013).

2.1.2. Political Administration

The political and territorial division of the country is made up of administrative political regions units designated by provinces, districts, administrative posts, localities, and villages *(povoação)*[21] (Muchangos 1999:13, Palalane *et al*. 2016). This administrative division corresponds to the form of organisation of the State local bodies that perform the function of representing the State at the local level for the administration and development of the respective territory and contribute to national integration and unity, observing the principle of a vertical hierarchical structure. Within the scope of their functions, these bodies develop a relationship that observes the principles of unity, hierarchy and institutional coordination (Decree nr. 11/2005[22] articles 2–3; 8–12 and 80).

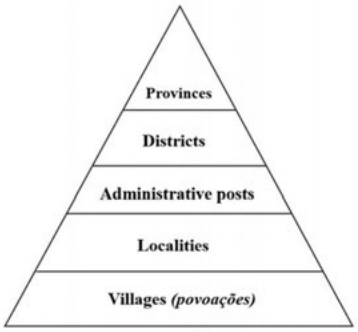

Figure 2.2. Hierarchical organisation of local state bodies.

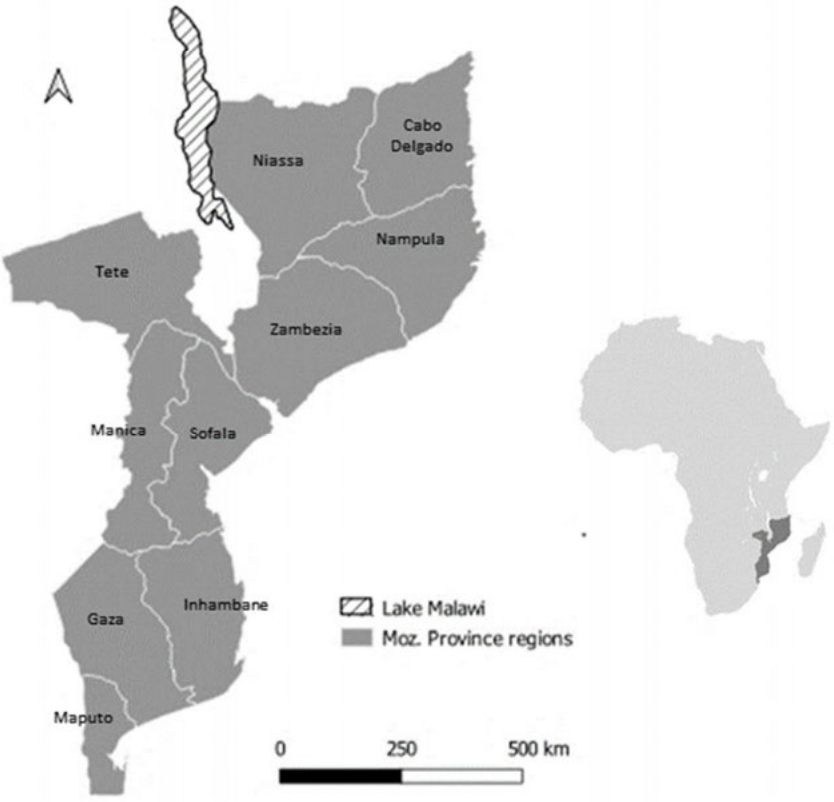

Figure 2.3. Administrative map of Mozambique

[21] *Lei nr. 8/2003 de 19 de Maio, Estabelece princípios, normas de organização, competências e funcionalidade dos órgãos locais do Estado.*
[22] *Decreto nr. 11/2005 Aprova o Regulamento da Lei dos Ôrgãos Locais do Estado.*

According to the above administrative hierarchical structure, articulated with the law nr. 2/97[23], Law nr. 8/2003[24] and his Decree nr.11/2005, Decree nr. 5/2020[25]; Decree nr. 15/2000[26], Law nr. 1/2018[27], Law nr. 4/2019 and its Decree nr. 2/2020[28], the legislation is part of the basic decentralisation process that has been underway in the country since the 1990s (Buur and Kyed 2005, Kyed 2009, Forquilha 2020). All government ministries have linked directorates, which have representations at the province and district levels. Thus, administrative and management power was delegated to provincial and district officials. District consultative councils that include members of the traditional chiefs were created (Ekblom *et al.* 2024).

As an example of the culture sector, the National Directorate of Cultural Heritage (DNPC) represents the highest entity for the management of cultural heritage at the central level. Hierarchically, it interacts directly with the provincial Department of Cultural Heritage and, through these, interacts with the Services for Education and Technology. The district government authorities operate similarly. Based on this decentralisation model, culture sector officials from central, provincial and district levels, in collaboration with local authorities, archaeologists and project owners, can potentially together offer effective cultural heritage management services and monitoring. The same decentralised structure could also be used to facilitate heritage assessments and rescue archaeology when development projects are implemented in the country.

2.1.3. Land Law

Before the colonial presence, land in Mozambique belonged to the entire community and was managed by a traditional authority in accordance with the traditional norms and practices of each area. However, wars and conflicts occurred between some pre-colonial states to expand territories and conquer people (Carvalho 1988, Liesegang 1986, Newitt 1997). With the Portuguese presence, from the 16th century onwards, some lands were granted to Portuguese authorities or conquered from African chiefs (Crown Lands' or *prazos).* These were privatised through the three life-tenures system (mother, daughter and granddaughter), announced by the royal letters.[29] By the end of the 19th century, this form of land privatisation had shifted over to chartered companies, and companies that obtained their largest income from tenants (Newitt 1995:217–

[23] *Lei nr. 2/97 de 18 de Fevereiro, Aprova o quadro jurídico para a implementação das autarquias locais.*
[24] *Lei nº 8/2003 de 19 de Maio, Rstabelece princípios, normas de organização, competências e funcionalidade dos órgãos locais do Estado*.
[25] *Decreto nr. 5/2020 de 10 de Fevereiro, Regulamenta a lei nr. 7/2019, de 31 de Maio que estabelece o quadro legal sobre a organização e o funcionamento dos órgãos de representação do Estado na província.*
[26] *Decreto nr. 15/2000 de 20 de Junho, Estabelece as formas de articulação dos órgãos locais do Estado com as autoridades comunitárias.*
[27] *Lei nr. 1/2018 de 12 de Junho, sobre a revisão pontual da constituição da República*.
[28] *Decreto nr. 2/2020 de 8 de Janeiro, Estabelece as normas de organização, as competências e funcionalidade dos órgãos executivos de governação descentralizada provincial.*
[29] The letter of 1646 states the following: […] to divide the lands of the Rivers of Cuama (now Zambezi River) equally among the married men which you are to send, so that with the fruits of the lands they can maintain themselves… and instruct you that of the lands which are given to individuals in lives, a third shall on their death go to their heirs and two thirds shall be divided among married couples sent to that conquest. Latter of 1667: All the lands of Rivers are held from His Majesty for the term of three lives, with the obligation to pay a certain qui-rent and to perform service […] The service is that every holder of lands is obliged to assist with his people when it is necessary to make war in any part or perform any other duty for the common good. The holders of these lands have the same power and jurisdiction as the Kaffir *fumos* from whom they were conquered, for the deeds were passed in that form and therefore they are like the potentates of Germany, and can pronounce sentence, put to death, declare war, and impose tribute (Newitt 1995:224).

242, Macamo 2006:45–47, Sampaio 2014, Rodrigues 2015).[30] Land management was also ensured in accordance with the Portuguese Civil code,[31] which partly recognised legally known uses and customs practices for land management and applied the law only when compliance was necessary. From this legislation, the Portuguese state established legal mechanisms for 'Crown land' management in Mozambique while also recognising forms of land possession rooted in local traditions, including specific constraints that should be respected during law enforcement, including forced labour (Pinto 2009). However, the application of legislation in Mozambique was different, and often, local community rights over land were not respected.

After independence, the Mozambican state continued with the policy of the Portuguese State, the land remained state property (Law nr. 6/1979), regulated by Decree nr. 16/1987[32] in the context of centralised economic planning policy. This law, despite having established legal principles for the use and enjoyment of land, was highly criticised for being ambiguous and for not clarifying some aspects, such as the form of possession and use of land. This criticism was also fuelled by a growing policy of privatisation of the national economy that has been observed in the country from 1975 to the present, with a peak in the 1990s. Lack of clarification of procedures for the use and exploitation of land and the empowerment of land by the State in a country where agriculture is the basis of economic development had negative impacts on economic development. These criticisms dictated the adoption of new measures in Law nr. 19/97[33] regulated by Decree nr. 66/1998.[34] The land remains State property and cannot be sold, alienated, or mortgaged (article 3). Procedures necessary to acquire Land Use and Benefit Rights (DUAT) by individuals were clarified (chapter iii), the authorities to authorise DUATs were defined (chapter v), and the stages to request authorisation of land use and enjoyment were clarified (chapter vi).

The law provides the following forms of land acquisition and occupation: a) occupation by individuals (Mozambican by birth or nature) and local communities according to customary norms and practices that do not contradict the constitution; b) Occupation by individuals who in good faith have been using the land for at least ten years; and c) authorisation of the request presented by natural or legal persons in the form established in this law (Law nr. 19/1997, article 12). Although the law favours local communities, it opens room for wealthy individuals and companies to exploit the law to accumulate large tracts of land in a manner that was not intended by the law (cf. article 3), favouring situations of clandestine sale, purchase and resale of land. The problem of land speculation and selling of extended DUATs as parcels of land remains continuous on several levels, sometimes involving local elites and government officials (cf. Lane 2021). The state can also grant DUATs for economic activities for a maximum period of 50 years, renewable for the same period. However, DUATs acquired through occupation by local communities for personal housing or family exploitation exercised

[30] Examples of chartered companies are the Niassa Company in 1890–1929 and the Mozambique Company in 1891–1942/5. Examples of companies based on rents is the *Zambézia* Company in 1898; Borror Company in 1904; Luabo Company in 1904; *Société du Madal* in 1906; Mozambique Sugar Company and the Lugella Company in 1906.

[31] *Código Civil Português de 1867, aprovado pelo Decreto-lei nr. 47344 de 25 de Novembro de 1966, aplicado nas províncias ultramarinas pela Portaria nr. 22869 de 4 de Setembro de 1967 (Pinto 2009*).

[32] *Decreto nr. 16/87 aprova o regulamento da lei nr. 6/79 de 3 de Julho.*

[33] *Lei nr. 19/97 de 1 de Outubro, aprova a lei de Terras e revoga as leis nr. 6/79, e 1/86, de 3 de Julho, e 16 de Abril, respectivamente.*

[34] *Decreto nr. 66/98, de 8 de Dezembro, aprova o regulamento da lei de terras, e revoga o Decreto nr. 16/87, de 15 de Julho.*

by national natural persons are not subject to such deadlines (Law nr. 19/97 article 17:1–2).

The granting of DUATs is also made at high levels of State administrative bodies. Provincial governors authorise DUATs up to a maximum of 1000 hectares, including special licenses in partial protection zones. Minister of Agriculture and Fisheries authorises DUATs for areas between 1000 and 10 000 hectares, including special licenses in total protection zones. The Council of Ministers authorises DUATs in areas that exceed the competence of the Minister of Agriculture and Fisheries, as long as they are included in a land-use plan or whose framing is possible on a land-use map, as well as deliberates on the use of the territorial waters and the continental shelf (Law nr. 19/97 article 22:1–3).

Based on the powers of these authorities, some lands belonging to local communities in rural areas are granted to private entities, with little or no community consultation, despite the fact that consultation is mandatory to avoid land conflicts (cf. Resolution nr. 45/2022).[35] Projects that explore these land concessions are also rarely preceded by cultural heritage management activities, rescue archaeology and underwater archaeology prospecting (see discussion in Ekblom *et al*. 2024). Further, sometimes projects are implemented without DUAT, as reported in Chongoene, in the access road project to facilitate the transport of heavy sand from Chibuto to the port (see discussion in Chapter 9). This situation calls into question sustainable management efforts for cultural heritage in the country.

2.1.4. Population characteristics

This section briefly analyses the country's current main demographic indicators to explain the relationships between the population and cultural heritage management activities. In addition, it is an important section in terms of linking heritage management and archaeological research to the economic and social well-being and improvement of the lives of some parts of this population.

Mozambique has about 27 909 798 inhabitants, of which 48% are men and 52% are women. Most of the population is young, as 46.6% of the population is between 0 - 14 years (the age group 15–64 years constitute 50.1%, and individuals aged 65 years only represent 3.3% of the population. Population growth is large, with a 35% increase since 2007. The opportunities for school education have decreased in the last 10 years, and the illiteracy is higher in rural areas (INE[36] 2019). Populations are concentrated in the coastal regions. The population increased sharply by 35%, from 20 632 434 in 2007 to 27 909 798 inhabitants in 2017 (INE 2019).

In terms of its distribution by branches and sectors of activities, the workforce is absorbed by primary sectors, which are dominated by agriculture, herding or pro-

[35] *Resolução nr. 45/2022 de 28 de Novembro, Aprova a Política de terras e a estratégia de sua implementação e revoga a resolução nr. 10/95, de 28 de Fevereiro*
[36] *Instituto Nacional de Estatística. 2019. Resultados definitivos. Censo 2017. IV Recenseamento Geral da População e habitação.*

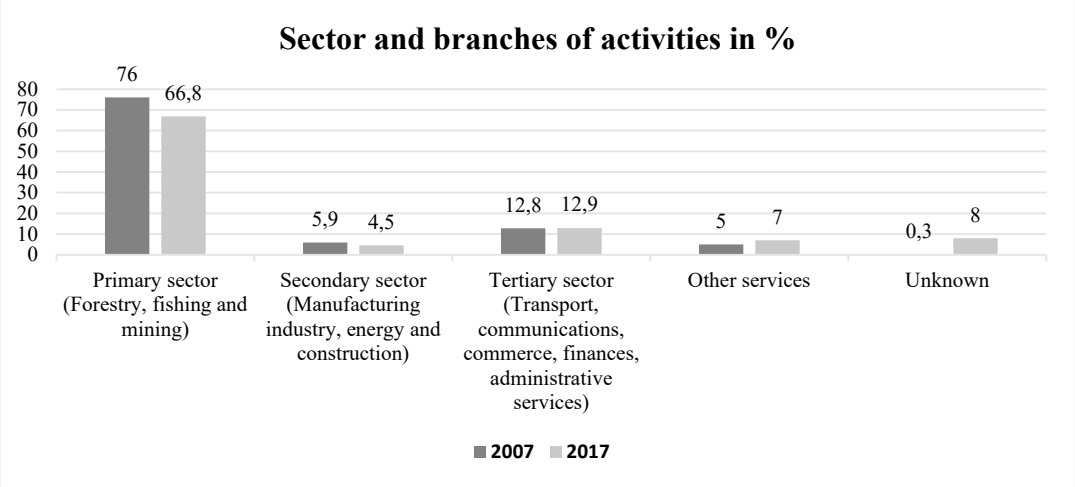

Figure 2.4. Distribution of the workforce by branches and sectors of activities.

production of other household subsistence resources (Fig. 2.4). The GDP per capita is low ($17.94 billion) (O'Neill 2024), and unemployment is high. Close to 90% of the workforce earns their living in the informal sector (Chivangue 2015). There is an informal local employment sector which is characterised by low salaries and low labour security.

The mega-projects that are being implemented in the country have not yet promoted economic transformation (see further in the next subchapter). They should boost economic growth, transformation and poverty alleviation by attracting more foreign investment and making major fiscal contributions to the state via taxation. Taxation, when used effectively, can improve infrastructure, support industrial production, improve education, develop local skills through training, generate employment indirectly by facilitating services and good supply, etc. (Sonne-Schemidt, Arndt and Magaia 2009, Balchin and Coughlin 2018). The lack of recircling benefits to the citizens is conditioned by the weakness of the national economy.

Faced with this problem, promoting cultural and ecosystem services, ecotourism (Milcu *et al*. 2013), and cultural heritage management activities, in particular rescue archaeology, are activities which can contribute to economic productivity for part of this population.

Since national independence, the country has been experiencing spontaneous and accelerated urban development. Most Mozambican cities are located on the coast as a result of political, administrative and economic interests since the colonial period (Araújo 2003, UN-HABITAT 2007). Archaeologically, these are areas of high scientific potential as the same places were occupied by the first farming communities during the first millennium AD. The same areas are also the location of historical monuments and sites, as the colonial administration was established here. In addition, the coastal areas were nodes for resource collection and distribution and thus contain plenty of archaeological sites that have not yet been properly explored.

The rapid process was, in part, an effect of the 16 years-war, which displaced many people to cities. This process is still ongoing; the political instability and consequent military attacks in Cabo Delgado associated with the terrorist attacks since 2017 are displacing many populations from rural areas to cities in search of protection. Migration to the cities also occurs since there are few alternatives for income generation and

schooling in rural areas. The large immigration to urban areas has resulted in large-scale, unregulated informal settlements without any form of municipal planning. Long-lasting natural disasters, as discussed above, are also seen as factors in urban development, especially the drought that makes land in the countryside unproductive, forcing people to migrate to cities in search of jobs, education and health services (Araújo 2003). Population data show an increase of 2 100 970 inhabitants of the urban population in ten years (UN-HABITAT 2007, INE 2019).[37]

The urban city area is planned and developed vertically, it concentrates commercial activities with infrastructure and services. The suburban city develops around the urban city horizontally and with unplanned or spontaneous construction. There is deficient infrastructure and social services here, with a high density of land occupation (Araújo 2003, Ribeiro 2019). Informal housing areas are rarely assisted by civil construction engineers and inspected by local municipal technician services to ensure safety or sanitary health, let alone heritage assessments. In addition, even in formally planned areas, it is rare for private or even public builders to include architectural planning heritage assessment or consultation prior to or during construction. As a result, partial or total demolitions are recurrent as reconstruction and modernisation are necessary when these infrastructures are degraded or adapted to new uses for their better insertion into the environment. These are typically not accompanied by heritage assessments, though there are some notable exceptions (see Chapter 6.3 and examples given in Fig 6.7 and 6.7).

Owing to the expansion of the urban city, large peri-urban areas have emerged, with spontaneous neighbourhoods and scattered rural residences with little planning. In these areas, there is a lack of service supply or, if they exist, they are deficient and there is a lack of basic sanitation services, while rural activity is predominant (Araújo 2003; UN-HABITAT 2007, Ribeiro 2019). The lack of peri-urban settlement planning has been detrimental to the preservation of archaeological sites. From my own fieldwork observations presented in detail in Chapter 8, the expansion of the urban city to the periphery has impacted known archaeological heritage sites in Xai-Xai, Chongoene and Matola, as well as historic areas in Maputo city. The scale of destruction of unknown or unreported sites can only be appreciated based on the rate of disappearance of the known and documented sites. The countryside-city movements, population increase, and urban development, farming, grazing and tourism activities impact cultural resources existing in peripheral areas. For example, the Chongoene, Campoane, Matola, Xai-Xai, and Zitundo archaeological sites in the coastal area are examples of this problem (See further discussion in Chapter 8 and 9). All these problems pose a challenge to the sustainable management of the cultural and natural heritage that exists there, and there needs to be a collaboration with urban planning departments to mitigate such effects.

As already discussed in Chapter 1.3.1, it is necessary to find a balance here between economic goals and the need for infrastructural development on the one hand (also including opportunities for labour) and the other sustainable development goals (SDGs) of biodiversity and local sustainability in terms of equity and livelihood stability. In addition, although not written down, heritage resources are crucial to

[37] In 2007, of the 20.5 million inhabitants, 35% of the population lived in urban areas against 65% of the rural population, from the 27 909 798 inhabitants recorded in 2017, 66.6% are in the countryside and 34.4% in the cities (UN-HABITAT 2007, INE 2019).

political, social, economic and cultural gains, as suggested in the introduction, and can also be combined with biodiversity goals in Mozambique.

2.1.5. Economic Policy and Industry

The analysis of the main economic indicators and the performance level of the country's industrial activities are important for understanding the process and procedures necessary to strengthen heritage and biological assessments and rescue archaeology in the country. In Mozambique, many types of infrastructure are currently being constructed with the implementation of different projects that are decisive for the economy and planning. The implementation of such projects also requires monitoring by rescue archaeology, which offers employment opportunities both nationally and locally.

The country's economic policy has been linked to its political complexity since the colonial period and post-national independence. During colonial times, the policy excluded native Mozambicans from the economic management system. The economy was characterised by private monopolies, central planning and state marketing of key products to promote the capital accumulation by the colonial state, Portuguese settlers and Portuguese-based commerce and industry (Newitt 1995:449, Sheldon and Penvenne 2020). The newly independent country did not define a specific economic policy directly after independence in 1975. However, with the 3rd Congress of the Frelimo party in 1977, the party adopted a Marxist-Leninist political and economic orientation (Newitt 1997:467, Buur *et al*. 2013, Chivangue 2015, Forquilha 2020).

In this context, planning was centralised and tied to 5-year economic development plans with the aim of promoting the country's wealth and increasing the welfare of people in terms of schooling and healthcare. Communal villages were created to organise the population and to allow better assistance from health and education services. Since agriculture was the basis for development, state farms and commercial cooperatives were promoted to promote the production and distribution of wares (Constitution of 1975 articles 3 and 6, Newitt 1997:467, ILPI 2013, Chivangue 2015, Forquilha 2020). The control of the economy by the Frelimo party fused the authority of the party on the one hand and the state on the other. In 1978, about 50% of all companies were under State control, and by 1981, 65% of industrial production, 85% of the transport sector and 90% of the construction sector were included in the government sector (Newitt 1997:474, Chivangue 2015). In parallel with the 16 years-war (Newitt 1997:482–484, UN-HABITAT 2007, Sheldon and Penvenne 2020) and natural disasters, such as the floods and droughts during the early 1980s, the national economy was adversely affected (Newitt 1997:482–486). As a result, all development plans were interrupted, and surviving populations in rural areas fled to cities. The country entered an economic recession, and consequently, its population suffered extreme poverty and loss of infrastructure due to the 16 years-war.

Owing to the economic crisis, and with mounting international pressure and a sensitive security situation created by the 16 years-war, the Frelimo government chose to decentralise planning and switch to economic liberalism (ILPI 2013). It was also recognised that the centrally planned economy had not promoted a local business class or created an institutional framework necessary for a market economy. In 1985, government control over prices and wages was lifted and the investment of business actors was called for (Newitt 1977:484). Conditions for continued loans from the International Monetary Fund (IMF) and the World Bank pushed Mozambique into a

decentralisation and market liberalisation process (Forquilha 2020). As Mozambique, with these reforms, became a member of the IMF and the World Bank, the country began to receive technical and financial support to implement programs for reorienting economic policy and structural re-adjustment based on the principles of democratisation, decentralisation, and privatisation (Dinerman 2007, Buur *et al*. 2013, Whitfield and Buur 2014, Chivangue 2015, Sheldon and Penvenne 2020).[38] Still in 1992, as the General Peace Treaty was signed, Mozambique was among the less-developed countries in the world and its economy dependent on foreign aid (Buur 2014). Of the five credits granted by the IMF and the World Bank until 1990, two were applied to the energy and transport sectors, and three aimed to pursue reforms in economic management and in restructuring small and medium-sized enterprises (Landau 1998:5). In this context, there was a radical change in economic policy, and the opening for private companies (Dinerman 2007, Chivangue 2015). Still, the state has overall responsibility to promote, coordinate and supervise economic activities (Constitution of 1975, 1990 and 2004).

As a result, the extractive industry has developed since 1995 and doubled its activities in 2011. This sector is dominated by capital-intensive mega-projects that potentially could contribute to domestic tax rates. Some examples are the projects of coal mining in Moatize, Tete province, which has been in place since 2008, with an estimated extraction of around 2.3 billion tonnes of coal. The extraction of natural gas in Pande and Temane, in Inhambane Province, are other examples. Gas exploration in the Rovuma reserves, Cabo Delgado Province, is estimated to amount to the value of 5.6 billion m^3, Moma titanium ore and heavy sand in Nampula (Abdul *et al*. 2013, Buur 2014, Balchin and Coughlin 2018). Meanwhile, the manufacturing industry is concentrated in the Maputo and Beira corridors. The leader is Mozal, focused on the production of aluminium in Matola for export (Buur *et al*. 2013, Buur 2014, Sheldon and Penvenne 2020).

Despite the initial high hopes for the gas industry in Rovuma, the gas exploration in Pande and Temane has brought little actual benefit to the national economy (Abdul *et al*. 2013). This is a problem in many Sub-Saharan African countries that are rich in oil and minerals but have failed to transform income from these resources into national economic growth, the exception being South Africa and Botswana (Buur *et al*. 2013). In the Mozambique context of agriculture, the extractive industries by themselves have been unable to boost economic development.

In parallel to megaprojects, the promotion and development of cultural industries through rescue archaeology is still underutilised, as will be discussed in the coming chapters. In addition, and as will also be shown in the coming chapters, biological impact assessments and mitigation of biodiversity loss in development are underdeveloped in Mozambique (Bagri and Vorhies 1997, Wale and Yalew 2010, Charlotte, Pioch and Thompson 2017). This is a limitation, as both biodiversity and heritage are crucial assets to the national economy, either through the collection of taxes and direct job opportunities or through the development of local enterprises capable of providing rescue archaeology or heritage and biological assessment services and in increasing

[38] For example, in the first five years (1984-1989), the World Bank included three credits totalling USD 205 million for the balance of payments support in line with the government's macro stabilisation program. The first sector credit started in 1987, and since then, the economy in Mozambique has been managed by a market base or economic liberalism (Chivangue 2015).

employment opportunities for household income in the heritage and tourism sector more broadly.

This absence means that each year, there are many (undocumented) archaeological and heritage places being lost with a loss of knowledge that cannot be amended in future. Archaeological surveys still need to be carried out in many parts of the country (cf. Chapter 7.2). Over time, legislation has been improved, creating more impetus for heritage and archaeological training. This started already in the colonial days, although it was embedded in a colonial discourse that excluded some forms of heritage. After independence, a major challenge was the lack of trained staff in national, provincial and district directorates. The number of archaeologists was also very few. However, as I discuss below there has also been a growing archaeological practice and a professionalisation of archaeology over time.

2.2. Archaeological Research in Mozambique

Over time, legislation has been improved, creating more impetus for heritage and archaeological training. This started already in the colonial days, although it was embedded in a colonial discourse that excluded some forms of heritage. After independence, a major challenge was the lack of trained staff in national, provincial and district directorates. The number of archaeologists was also very few. As I discuss below there has also been a growing archaeological practice and a professionalisation of archaeology over time. In Chapters 4, 7 and 10, I suggest the formation of a professional body of officials, managers, researchers and students, which potentially can build out a better system for heritage management and rescue archaeology over the country, a little similar to that of South Africa.

2.2.1. The Colonial Period

In the African context, in general, early archaeological information was mostly provided by geologists and military or colonial administrators (Barham and Mitchell 2009:7 - 8). The Portuguese presence in Mozambique dates from the sixteenth century (Carvalho 1988:79), and in 1721[39] the Royal Academy of Lisbon reported the presence of rock-art paintings in Mozambique (DAA/UEM 1980:1). Findings were reported at the beginning of the twentieth century as stone artefacts were reported by the explorer Ryan in the Umbeluzi river region in 1911; artefacts found in 1913 by Leite Vasconcelhos on the Búzi river, and in 1915 by E.J. Wayland on the Monapo river (DAA/UEM 1988:5, Rodrigues 1999). The area of Chifumbaze (Tete) was prospected in 1907 by Carl Wiese, and Wieschoff excavated remains of stone wall buildings dating to the Mutapa state[40] in the 1930s, Niamara and Maguro (Manica), (Morais 1988:41, Macamo 2006).

As Portugal expanded geographical, botanical, and hydrographical research in the colonies, there was also an increased interest in Anthropology and Archaeology. In 1936,

[39] A charter in the form of a law of August 20, 1721, published to defend of the Portuguese Cultural Heritage that attributes its guardianship to the Royal Academy of Portuguese History (Lopes 2018:34).

[40] 'Mutapa State' was developed around 1440–1450 between the Mazoe and Lúrio rivers. The State was headed by the Muenemutapa's dynasty, matrilineal lineage, which in general occupied all areas stretching from the Zambezi to the Limpopo Rivers and from the Kalahari Desert to the Indian Ocean (Carvalho 1988:62-64, Newitt 1997:51-58).

the ‘Anthropological Mission of Mozambique’ was created (see discussion in Chapter 5), with the anthropologists Mendes Correia (1934) and Santos Júnior (1937 and 1941) publishing works on local prehistory (DAA/UEM, 1980:3). In addition, the work of agronomists (Barradas, 1945, 1947, 1948, 1955, 1964 and 1965), and geologists and Zambezi Rivers (DAA/UEM 1988:6-7).

This work was decisive for the creation in 1943 of the ‘Monuments Commission and Relics of Mozambique’ (The Monuments Commission), tasked with developing archaeological research in Mozambique (*Diploma Legislativo* nr. 825/1943, DAA/UEM, 1988:3, Macamo & Ekblom 2018). Increased interest in Stone Age studies in South Africa led H. Breuil (1944b, 1946, 1948 and 1959 and van Riet Lowe (1953) to carry out archaeological surveys in the Umbeluzi, Movene and Incomáti rivers valleys, reporting Acheulean Early Stone Age lithics. With these works, Mozambique was recommended to follow the South African archaeological nomenclature rather than the European school (van Riet Lowe and Breuil, 1944, Morais 1988:41, DAA/UEM 1988:7). Some of these studies and information produced in Mozambique were presented and discussed in the First Pan-African Congress in Kenya in 1947 (DAA/UEM 1988:9), this was also the first time Mozambique was part of the African archaeological debate.

During the 1950s, based on research carried out in central Mozambique, efforts were made to improve the sequence of the Stone Age (Alberto 1951, 1958). In Massingir, southern Mozambique, efforts were made to establish the stratigraphic sequence of lithic artefacts (Carvalho 1974 and Carvalho *et al*. 1975). Research initiatives focused on the Later Stone Age, e.g., microlithics and polished stone tools (Carvalho 1974), as also rock art (Leite 1965, Oliveira 1967, Ervedosa 1967, DAA/UEM 1980:3, DAA/UEM 1988:9, Morais 1988:41, Madiquida 2015:25). Research on the Farming Communities (FC), e.g., dating to c. 100 AD onwards, evolved only later with Dickinson (1969 and 1971) and with Liesegang (1972) who identified the first Portuguese settlements in Sofala.

In the north, few archaeological surveys were carried out during the colonial period. Castro (1956 and 1961) studied the rock art of Niassa, while Monteiro (1966) studied Swahili settlements of Kiuya, Mbwezi and Quisiva on the Cape Delgado coast, revealing evidence of long-distance trade (Madiquida 2015:26). During colonial times, archaeological research was focused on typological classification[41], comparison and technical-morphological analysis of the artefacts. There was also the ambition to link sites to the chronological periods established in South Africa. Unfortunately, some of the artefacts from this period were lost and others were taken to the Tropical Scientific Research Institute in Portugal. There was also an imbalance in the geographical spread of surveys; of the 115 sites reported in total, 72% were concentrated in southern Mozambique, and of these, only 19% referred to the Farming Community period (DAA/UEM 1980, DAA/UEM 1988, Morais 1988, Sinclair *et al*. 1993:409–410, Macamo 2006).

In general, Portugal as a colonial country was economically weak and, during most of its colonial time in Mozambique (until the first quarter of the 20th century), created a system of concessions, transferring the administration, pacification and development

[41] Classifications were always practiced for the purpose of defining stages of human cultural development that could be interpreted or compared with the ‘master sequence’ of the Palaeolithic of Europe (Barham and Mitchell 2009:8).

of most of the territory to private companies. Therefore, much of the information related to surveys in these areas can be found in the countries of these companies. Educational institutions were taken over by foreign missionary orders, which were only abolished in 1913 (Newitt 1997:438). Thus, the structure and policy for the protection of cultural heritage in Mozambique was low compared with neighbouring colonies. In South Africa, for example, the first heritage legislation was passed in 1911 (e.g., Bushmen Relics Protection Act nr. 22/1911), a legislation that was later adopted in Botswana and Zimbabwe (Ndlovu 2011:42-43, see Chapter 4). The Portuguese colonial state lacked funds to develop scientific research, although Mozambique was defined as a province of Portugal. The scientific institutions (JMGIC/JICU) were centralised in the metropolis but with little practical impact on colonies (Pereira 2005a). For example, the IICM discussed above was created almost in the terminal phase of the colonial regime. Thus, the lack of conducting pre-archaeological impact assessment studies on project activities can also be justified by the absence of funding to pay for qualified archaeologists at that time.

2.2.2. Post-Independence Period

After national independence, new institutions were created to design policies, and to coordinate, supervise and carry out cultural heritage management, including the creation of a legislative system. From 1974 to 1976, an archaeological unit was formed as part of the Earth Sciences Department of IICM. Immediately after independence in 1975, the Institute of Scientific Research of Mozambique (IICM) was incorporated into the Eduardo Mondlane University (UEM).[42] From 1976 to 1978, a specific Archaeology Section (SARQ) was placed under the UEM Centre for African Studies (CEA). In 1980, SARQ was instead incorporated in the Faculty of Arts of UEM, as the Department of Archaeology and Anthropology (DAA) (Morais 1978, DAA/UEM 1988:13). With this, DAA became the first national institution with the authority to design and implement research projects, to conduct fieldwork and coordinate archaeological research programs nationwide – a function which it fulfils to this day. For instance, in 2018, DAA/UEM created CAIRIM, as special multifunctional organic unit with scientific, administrative, patrimonial and financial authorithy (Macamo *et al.* 2024). CAIRIM conducts archaeological research and cultural heritage management in and around Mozambique Island.[43]

The problems of lack of institutional capacity building after the independence period were held back during the 16 years-war, as discussed above, also hampering archaeological research. The sole research focus on the Stone Age periods was now expanded. Instead, as infrastructural projects expanded on the more populous coastline, research focused on the farming communities, especially in near urban areas (Morais 1988:49, DAA/UEM 1988:13).[44] Since the national politics were directed towards Marxist

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[42] This shift was made through a government decree, e.g., *Decreto nr. 30/75 de 23 de Outubro.*

[43] See more on the inauguration of CAIRIM in the research programme Rising from the Depths which also supported this development at https://risingfromthedepths.com/uncategorised/marine-heritage-in-northern-mozambique-return-to-the-ilha/; In 2017 an archaeological museum attached to DAA was created at UEM, but immediately was closed to improve the state of conservation of the building.

[44] These research projects were oriented towards the later periods of the history of Mozambique, focusing on the origins of the local society since EFC (DAA/UEM 1980:4). This was a fundamental element for the consolidation of individual identity and national unity (Macamo and Ekblom 2018). The research result challenged the colonial denigration and dismissal of the local heritage and a means of recovering precolonial history. It was a way of countering the alienating effects of a new education system, offering a different understanding of the past, independent from the written accounts produced by European observers (see discussion in Lane 2011).

politics, the Marxist frame of interpretation and analysis, influenced archaeological research (Sinclair *et al*. 1993:409, Morais 1988:48, Macamo 2006:47, Macamo and Ekblom 2018). Many prominent sites of the Early Farming Communities period were reported, such as the Matola site, an important type site of Matola Tradition pottery (Senna-Martinez 1967, Cruz and Silva 1976). In 1977, Paul Sinclair located and excavated the archaeological site of Chibuene, introducing landscape studies and mapping both Early Farming Communities (EFC) sites and Zimbabwe traditions sites (Sinclair 1987). One example is the PhD thesis of João Morais (1988), which focused on socio-economic formations in Mozambique from 0 - 1500 AD. The results of these studies proved the existence of a pre-colonial history in Mozambique, which colonial policies had suppressed for a long time. Since then, staff of the DAA department has published a number of PhD theses and papers that are quoted in this thesis (e.g., Meneses 1999, Macamo 2006, Madiquida 2015, Jopela 2017 and Raja 2020).

Table 2.1. Ceramics traditions, ^{14}C and relative dates reported in Mozambique (Cruz e Silva 1977, Morais 1988, Adamowicz 1990).

Nr.	Ceramics Traditions		^{14}C Dates	Relative dates
1	Matola		c. AD 140 ± 50; AD 910/890 ± 50	EFC
2	Pre-Nampula		c. BC 40 - AD 100	LSA/EFC/LFC
3	Nampula A		c. AD 100 - 450	EFC/LFC
4	Early Monapo		c. AD 200 – 500 /700	LSA/EFC/LFC
5	Late Nampula A		c. AD 450 - 550	EFC/LFC
6	Nampula B		c. AD 450/550 - 800	LSA/EFC/LFC
7	Late Monapo		c. AD 700 - 1000	EFC/LFC
8	Nampula C		c. AD 800 – 1100	EFC/LFC
9	Late Nampula B		c. AD 800	EFC/LFC
10	Luangua		c. AD 1300 - 1600	LFC
11	Lumbo		c. AD 1500 - 1700	LFC

Between 1977 and 1985, the Swedish Agency for Research Cooperation (SAREC) sponsored an archaeological research program providing institutional capacity building and developing archaeological research. This international cooperation solidified the base for archaeological research in post-colonial Mozambique (Macamo and Ekblom 2018). Matola tradition ceramics also were observed on the sites of University Campus, Chongoene, Xai-Xai, Bilene, Siaia, Caimane, Zitundo, Inhaca, Tembe and Nhachengue (Cruz e Silva 1976 and 1978, Morais 1988:51-58, Macamo 2006:59-61). In northern Mozambique, the 'CIPRIANA Project' run by Adamowicz and also funded by SAREC, located several sites, among them Xakota, Nakwaho, Riane, Muse, Muhekane, Namikopo, and Namolepiwa (Adamowicz 1987:48, 1990, 1992, 1999, DAA/UEM 1988:89). As a result of this work, several local ceramic traditions were identified and studied, summarised in Table 2.1.

The accumulation of reported archaeological sites promoted structures for the protection of cultural heritage. Consequently, in the late 1980s, the first cultural heritage legislation, the Law nr. 10/88, December 22 was introduced. This law protected known archaeological sites, monuments and historical buildings but did not provide measures for the management of rescue archaeology activities. The absence of cultural legislation in Mozambique, a country that has just 'been born' was a major problem, as cultural heritage forms the basis of many aspects that are in the foundations of nations, as mentioned in the previous sections.

Within the SIDA-SAREC cooperation, two major archaeological heritage projects were developed in the country and operated within a regional framework (see discussion in Macamo and Ekblom 2005).[45] Archaeological research was also developed in terms of training at the level of PhDs.[46] The SIDA-funded training programs are still ongoing, e.g. the 'Biocultural Heritage in Mozambique: developing new heritage industries' program has been running since 2018 and includes six PhD students, including myself.

Outside the SAREC support, other major cooperation projects have helped to develop archaeological research in the country, combining research activities, staff training and cultural heritage management. For instance, an archaeological project was funded by the University of Calgary and directed by Julio Mercader in Niassa Province and the Gorongoza National Park (Mercader, Bennett and Raja 2008, 2010). Archaeological research and cultural heritage management were funded by the Norwegian Agency for Development Cooperation (NORAD) and directed by Tore Saetersdal from the University of Bergen (Macamo and Adamowicz 2017). The NORAD project was crucial in creating training opportunities in archaeological research and institutional, technical capacity. Following Marcader's work in Niassa, in 2014, Nuno Bicho from the University of Algarve in Portugal began a research project on the Middle Stone Age and the origins of anatomically modern humans in Mozambique, which included students from DAA.[47] Bicho *et al*. (2016) also compiled a database of Stone Age sites in Mozambique, including more than 80 lithic sites from Niassa province, as well as data from two new sites, the open-air surface site of Ncuala and Chicaza rock shelter, later shifting focus to Massingir and the Elephant River (Bicho *et al*. 2018a, b). Using archaeological evidence, palaeoecological data and approaches from historical ecology, landscape studies and livelihood security, vulnerability and resilience in Chibuene and Limpopo National Park (Ekblom 2004, 2008, 2012, Ekblom and Gillson 2012, Ekblom *et al*. 2014), presents ecological dynamics of the coastal area of southern Mozambique and discuss ways in which local communities are resilient and adapted to ecological changes over time. These external projects were crucial for the academic training of a new generation of DAA staff.[48]

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[45] Urban Origins in Southern and Eastern Africa (UO) from 1986, and Human Responses and Contributions to Environmental Charge (HRAC) from 1995. They contributed to archaeological development and heritage management (Loforte 1988), Macamo and Adamowicz 2017, Macamo and Ekblom 2018).

[46] Between 1995 and 1998, a study program of Early, Middle and Later Stone Age in Southern Mozambique was developed in the south zone (Meneses 2004); In the central southern region, other studies identified privileged spaces for human settlement, resources utilization, agriculture development, pastoralism, mining and commercial activities between the 13th–18th centuries AD. The study also showed that places were strategically located for the elite settlement, including not only the traditional stone walling (*Madzimbabwe*), but also the use of landscape for power relations (Macamo 2006). Another study combined archaeological surveys excavations with the historical and ethnographic sources, constructing the long-term settlement history and historical ecology of the lower Zambezi River valley and delta region (Madiquida 2015).

[47] Based on the early maps from Santos Júnior, a review of the previous archaeological information about Mozambique held in *Instituto de Investigação Científica e Tropical* in Lisbon and more recent data acquired through various projects developed in the country. During the first two years of implementing this project, I was integrated as a master's student in Archaeology at the University of Algarve.

[48] Examples are Muianga 2015, who explores the rock art and material culture of Cahora Bassa, whose Master's thesis was completed in 2013 and another is Madime (2015) based on evidence of the Iron Age long-distance trade connections from Sofala to overseas. In the ambit of cultural heritage management, Jopela stands out (Jopela 2010, Jopela *et al*. 2012 and Jopela and Fredriksen 2015), demonstrating that traditional custodian is a good way of managing the cultural resource in Southern Africa and particularly in Mozambique. The doctoral thesis of Jopela (2018) is an addition to this work.

As seen above, archaeological research from 1990 until now has been expanding and also developing new methodological approaches, such as multidisciplinary methods and landscape approaches. Most studies have been carried out under the frame of landscape analyses and in collaboration with the local community, oral history and written sources. Despite the evident development of archaeological research in general and the emergence of several national professional archaeologists, there were little formalised structures in place for rescue archaeology. Rescue archaeology activities were officially introduced by Decree nr. 27/94 of 20 July, and expanded slowly over the year in the country, and I will discuss it in more detail in Chapter 5. In order to have a better context for understanding the emergence of rescue archaeology in Mozambique, I will first explore the basis of the cultural heritage management policy in Mozambique.

2.3. The Lack of Cultural Heritage Management Policy

Mozambique, before the colonial presence, had a traditional custodianship system which constitutes a unique model of cultural heritage management, a practice which still continues today alongside the official mechanisms of cultural heritage management (Macamo and Adamowicz 2017, Jopela 2010, 2011, 2018, Jopela and Fredriksen 2015). However, during the colonial presence, local forms of culture and local practices were suppressed, and a new legislative system was imposed (see discussion in Pereira 2005a).

The cultural heritage management system implemented by the Portuguese colonial government followed a similar path as the evolution of the scientific research policy implemented in Mozambique. In 1883, the Cartography Commission (CC) was created in Portugal to organise and elaborate geographic and hydrographic charts of the Portuguese possessions. The Ministry of Colonies, through *Decreto-lei* nr. *26842 de 28 de Julho* in 1936, decentralised the CC and created *Junta das Missões Geográficas e de Investigações Coloniais* (JMGIC) to guide and promote scientific research in the colonies of the Portuguese empire (Pereira 2005a, Pereira, 2005b:364-365, Castelo 2012).

It was in the context of the objectives of the JMGIC that the Anthropological Mission of Mozambique (already discussed above) was created in 1936 (DAA/UEM, 1980:3, Rodrigues 1999, Pereira 2005a). However, since studies of the Anthropological Mission were concerned with the physical and 'racial' aptitudes to serve the colonial exploration project, they missed the elements of cultural heritage in local communities (Pereira 2005a, Castelo 2012). Although the Monuments Commission began to produce some works on local prehistory (Morais 1988, Macamo and Adamowicz 2017, Macamo and Ekblom 2018, Mendonca 2019), it was motivated by the aim to control cultural heritage resources and their research results. The aim was also to prevent looting, to make economic gains from historical relics and to legitimise colonial power. The Monuments Commission was to study local cultural heritage and resources and disseminate them to the public and to manage institutions for the management and preservation of cultural heritage and resources. The commission resulted in the formation of a new legislation in 1943, the *Diploma Legislativo* nr. 825/1943*,* which specified that it was not allowed to study, access, intervene or export cultural heritage

and resources without proper authorisation by colonial authorities (*Diploma Legislativo* nr. 825/1943*,* articles 7, 13, and 14).[49]

During this time, there was a recognition of the existence of cultural heritage, but one that was controlled and exploited by the colonial government. The 1943 legislation introduced the idea of cultural heritage management in Mozambique, including systems for classifying and categorising the different types of heritage existing in the country. At the same time, through centralised administration, the colonial government took the power of management of all then-recognised cultural heritage resources. The policies at the time considered the local community uses of monuments and relics as a basement and threat to heritage, and did not allow anyone to use monuments and relics without authorisation from the Monuments Commission. This system suppressed and underestimated any form of use of cultural heritage by local communities. This was not an isolated occurrence specific to Mozambique; the colonial heritage legislation did not recognise local forms of management all around southern Africa (cf. Ndlovu 2011 and see further discussion in Chapter 3). With the *Diploma,* the colonial state formalised archaeological research, which had previously been carried out informally by the Anthropological Mission. The Government assumed the duty to administrate archaeological research while being aware of the existence of cultural heritage in the colony and requiring good management practices for its sustainability.

As part of the scope of the 'Monuments Commission and Historical Relics of Mozambique', the first archaeological work was carried out in Manyikeni in 1947, at the time classified as a 'Portuguese heritage' (Macamo and Adamowicz 2017). Therefore, in addition to economic interests, this legislation was used to invent a past that justified the colonial presence to the detriment of local communities. In addition, and as discussed above, most archaeological evidence produced at this time was taken to Portugal. In theory, since the creation of the Monuments Commission, any infrastructural development should only be implemented after pre-development archaeological impact assessment activities to protect and preserve local cultural resources. However, this was not the case, and as a result, several pre-historic archaeological sites were lost. An exception is the rescue archaeology carried out in Guruè, as above mentioned, although these excavations were not planned but made by chance.

In 1953, JMGIC was renamed *Junta de Investigação Científica do Ultramar* (JICU), and later, in 1955, as activities were expanded, the IICM was created. The institute developed research in the areas of Geology, Geography and Human Sciences (Pereira 2005b). Despite this advancement in various areas of research, little effort was made to develop cultural heritage management studies, apart from the efforts of the Commission of Historical Monuments and Relics and IICM of Mozambique, as discussed above.

In summary, during colonial times, there was no concern about research about local cultural heritage. The study of Mozambique's history and culture was not a priority, and aspects of Portugal were taught in schools. As a result, after independence, studies on local heritage aspects were prioritised. However, Mozambique history was not a subject in the schools, and there was no curriculum for teaching Mozambique prehistory or history.

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[49] See example *in Diploma Legislativo nr. 825/1943. Constitui a 'Comissão dos Monumentos e Relíquias Históricas de Moçambique', à qual cumpre investigar [...] e promover a sua propaganda cultural e turística. Boletim Oficial*.

Therefore, there were also few rescue archaeology activities during the colonial period. For a better understanding of this problem, I present an in-depth assessment of the scope of the protection of Cultural Heritage and rescue archaeology in the country in Chapter 5. Before moving to this discussion, in the following chapter, I will present an analysis of the emergence of cultural heritage protection and rescue archaeology in the broader context of international negotiations and commitments. The following chapter will facilitate an understanding of the evolution of cultural heritage. We will thus move the phenomenon under analysis from the general to the specific, making its particularities gradually more explicit in the Mozambican context.

3. Formation of Heritage Management and Rescue Archaeology

The protection of cultural heritage has a long history and has varied in different regional and cultural contexts. In Africa, as elsewhere during the 20th century, much emphasis has been placed on the Western forms of protection and preservation of cultural heritage through legal norms, mainly focusing on physical monuments. Existing elements of intangible and living heritage were neglected during most of the colonial period and are still to be embedded in both legal interpretations and practices. The fundamental qualities of these two diverge in the cultural heritage policies of each country, as many countries are lacking a formal policy on local heritage (Herrmann 2005). In addition, during the late 21st century, the below-ground heritage was included in the laws but not in the practices and procedures of countries. In general, the heritage policies emerging in the 20th century have also made an unfortunate separation between cultural and natural heritage (Lowenthal 2005, Tengberg *et al*. 2012). The gaps between physical monuments and intangible heritage and of natural and cultural heritage still define the policies and procedures of cultural heritage in many countries. This section presents some examples of the first legal forms of protection of cultural heritage that form the basis of current cultural legislation in different parts of the world, and which have provided the context for the Mozambique formation of cultural heritage.

3.1. The Emergence of Cultural Heritage Protection

The separation of nature-culture in heritage protection is linked to modernity. Looking at practice emerging in earlier times and around the globe, the boundaries between nature-culture were more fleeting (Lowenthal 2005, West and Ndlovu 2010:202, Leitão 2017). Various forms of protection of cultural heritage were present early on and can be traced in different regions and cultures. In many regions, practices were more focused on the preservation and conservation of monuments, including other physical traces of the past, mainly those made from inorganic material (Smith 2012, Harrison 2013). In sub-Saharan Africa, the preservation of ancient monuments has been ensured by local traditional practices (Ndoro 2001, Saetersdal 2004, Matenga 2011). The fundamental difference between these two contexts is reflected in the different methods of cultural heritage protection (cf. Herrmann 2005).

3.1.1. Early Periods

Heritage is as old as humanity; prehistoric people left goods and artefacts. Beneficial and poor legacies about heritage are referenced in Polybius[50], Thucydides[51] and

[50] Polybus, ca. 200–118 BC, was a Greek historian of the Middle Hellenistic period.
[51] Thucydides talks about heritage in his history of the Peloponnesian war (Bowersock 2022).

Homer's[52] tales, and in the Old Testament (Lowenthal 2009:1, Bowersock 2022, Parzinger 2022). The Egyptian pharaoh Tutankhamun, who ruled c.1334–1325 BC, restored ancient ruins, interpreted as monuments of 'eternal age' (Jones 2008:98). In the Roman Empire, there are some early examples of formalised protection of cultural heritage using orders from the Roman imperial power. In AD 376, the imperial power issued an order that forbade house-builders to use marble and stone from monuments. This order was followed in the AD 458 Decree, which protected monuments against destruction. Similar to efforts in ancient Egypt to protect tombs from looting and in order to control grave robbers, the Byzantine emperors of the 5th century AD inspected and seised for the state treasury finds reported in the empire, mainly the coins and those of monetary value. The Roman Senate decreed in AD 1162 that Trajan's column should be protected to remain intact, without decay. In AD 1363, a law was promulgated to protect and preserve ancient ruins, later reaffirmed by Pope Pius II in AD 1462, and subsequently reaffirmed and recast by his successors. A position as an administrator of antiquities was created in AD 1573, the commissioner of treasures and other antiquities and of mines. This legislation allowed the Roman empire to put treasures, antiquities and quarrying on the same level of control to limit their destruction and to preserve them.[53] From the point of view of local beliefs in the Roman tradition, monuments were also considered 'natural' since they lay within the soil (Schnapp 1996:83–84, 123, 125, Carmen 2012:16–17).

Outside the areas of the Roman domain, ancient China offers other examples of early cultural official regulations. In AD 653, the Tang Dynasty promulgated the *Tang Code*, the first written law applied in East and South Asia to protect royal mausoleums, ancestral temples, great mountains and royal palaces. Offences against the *Tang Code* were regarded as one of the gravest crimes (ranked in severity as crimes against the State). Since conserving cultural landscapes was part of the cultural life of royal families and social elites, in AD 748, Emperor Xuanzong of Tang also issued the first decree to protect a cultural landscape. It prohibited fishing and logging in the Jiuqu Stream, located in the Wuyi Mountains of Fujian, now protected as a UNESCO's World Heritage Site (Zheng Jun 2024).

In the Germanic tribal societies, severe penalties were prescribed for those who dug up and robbed buried corpses (Kristiansen 2005:24, Holtorf 2020). However, in the context of current Europe, the implementation of the first decrees and laws for the protection of cultural heritage was a late phenomenon. In Scandinavian Denmark and Sweden, the earliest examples of Heritage Management, as we might recognize it today, date to the 17th century. In AD 1622, Christian IV of Denmark passed the first edict concerning the protection of antiquities, and in 1630, the Swedish monarch published a statute covering Swedish antiquities. The destruction of ancient monuments and relics was expressly forbidden by a Swedish proclamation of 1666, and in 1684, a further decree declared all ancient objects found in the ground to be the property of the Swedish Crown (Cleere 2005:25, Kristiansen 2005, Schnapp 1996:176, Carman 2012:17). The Swedish example and the regular renewal of decrees show how the laws were aimed at placing ancient remains under the control of the government but were

[52] Homer is a Greek poet, born between 12th and 8th centuries BC, possible somewhere on the coast of Asia Minor. He is credited to be the author of the two epic poems, the *Iliad* and *Odyssey* (https://www.biography.com/authors-writers/homer).

[53] This regulation banned the reuse of monuments for building purpose, since the ancient monuments were a cheap source of building materials for the palaces of princes and cardinals, and the building contracts specified the reuse of any materials found *in situ.*

continuously modified and adapted (Carman 2012:18). The use of state regulations to ensure the management of cultural heritage, when threatened, was later implemented by other governments in a similar way, but in general, these regulations focused on monuments and relics and as separated from landscapes.

In later periods, the destruction of the Herculaneum remains in the mid-18th century motivated the Bourbon king of Naples to issue a decree to bring his kingdom's buried heritage under juridical control a century later. In the first decade of the 19th century, Denmark adopted protective legislation for archaeological remains, motivated by increased land demand for cultivation (Cleere 2005:25, Kristiansen 2005).[54] In Greece, the first cultural protection was introduced immediately after independence from the Ottoman Empire, aimed at preventing the export of ancient remains. Meanwhile, in Ireland, in 1869, the Irish Church Act, which disestablished the Anglican Church, made provision for historic important places of worship. It provided the State Office of Works with funds diverted from the Church to maintain them as national monuments. This organisation was a model for the state management of archaeological resources that would be applied in mainland Britain (Carman 2012:20–26).

Beyond Europe, local authorities in India passed legislation for the protection of ancient monuments in 1873. The central colonial government was reluctant to adopt this regulation since it was intended to ensure the export of cultural goods and any other form of informal exploitation of cultural heritage. However, as we will see below, Indian legislation inspired later legislation and policy in the United Kingdom (UK).

Custodianship practices as a means of protecting cultural heritage in sub-Saharan Africa have been known for millennia (Ndoro 2001, Saetersdal 2004, Jopela and Fredriksen 2015, Jopela 2018, Macamo and Ekblom 2018).[55] However, around 1850/1880, the organisation of the collection of antiquities developed by Europeans precipitated new and colonial forms of protection and official management of cultural heritage based on the legislation in the colonial country, for example, in the Horn of Africa, Benin, Zimbabwe and South Africa (Said 1999, Barham and Mitchell 2009:7–8, Ndoro 2001:15, Ndlovu 2011). Since then, the colonial management model has been strongly rooted in the subcontinent, gaining stability and permanence during the colonial periods, with institutions and legislation remaining in place in the postcolonial period, in some cases even today.

In the late 19th and early 20th centuries, heritage in Europe and the US became a source for promoting national identity by stressing past history, wealth and authority; in addition, the economic gains that come from cultural heritage needed to be controlled (Lowenthal 2009:xvii, 90, 102, Parzinger 2022). In the fervour of promoting cultural heritage, the separation between nature-culture was institutionalised and imposed upon many other parts of the world (Leitão 2017). However, in some sense, this period gave attention to intangible heritage (for instance, through ethnography, a discipline dedicated to documenting "disappearing" customs and traditions, including material culture). It was from these studies that cultural unity and social cohesion were reassessed (Kristiansen 2005, Holtorf 2011, Petursdottir 2012).

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[54] Herculaneum was ancient town located in the modern-day commune of Ercolano in Italy. The own was buried under volcanic ash and pumice in the eruption of Mount Vesuvius in AD 79 (Zelazko 2024).

[55] In sub-Saharan Africa, local heritage is typically protected through customary rules and taboos, regulated by traditional leaders who are regarded as custodians of heritage. Heritage places are important as they are used regularly for ceremonies for invoking rain and other ceremonies related to the agricultural years or more often linked to particular events.

In the UK, the strong legal tradition of protecting private property made the protection of monuments difficult to implement (Kristiansen 2005). Inspired by Ireland and India, the Ancient Monuments Protection Act of 1882 was approved, providing an Inspector of Ancient Monuments to report the conditions to the Commissioner of Work. The same Act also specified methods for the preservation of a list of monuments dated to 1700 and earlier, as well as all the standing stones and ancient monuments throughout the country. It also made provisions for the state to purchase monuments or to take them into its guardianship, and for anyone to damage monuments and sites became a punishable offence. The Protection Act was later revised in 1900 and 1913.[56] The Housing and Town Planning Act of 1909 included a provision that schemes should consider the preservation of objects of historical interest. Subsequent legislation was adopted; of these, it is important to highlight the National Heritage Act of 1983, which created the Historic Buildings and Monuments Commission for English Heritage.[57] This act dissolved the Ancient Monuments Board and the Historic Building Council and incorporated their functions into a single department. The placement of the management of archaeological sites and historic buildings under a single department consolidated the state's advisory role and legislative control of heritage (Harrison 2012:51–54, Carman 2012:24–26). The discussion on the UK legislation is important for this thesis, as it was exported and applied to the British colonies, including southern Africa, from 1911 and also to what was then Rhodesia (see discussion in Chapter 4).

In the United States of America (USA), the Lieber Code (General Order) was established in 1863 to make provisions to protect classical works of art, libraries, scientific collections, or precious instruments. In 1869, the Bureau of Ethnology established legislation to preserve Native American sites on federal lands and the Yellowstone National Park Act was passed in 1872. The Antiquities Act, approved in 1906, played a key role in drawing together concerns for natural and cultural heritage resources. Subsequent developments from the 1960s increased management measures for cultural and natural resources in such a way that during the 1970s and 1980s, 'heritage' became a dominant term used in the cultural and natural legislation of the USA (Kristiansen 2005, Goldman 2008, Carmen 2012:30, Harrison 2012:42, 47–50). The first forms of legal measures for the protection of cultural heritage adopted in different parts of the world and by distinct political and ideological regimes were motivated by the need to preserve it for themselves or for the state's political and economic power, a symbol of glory, but later also to prevent looting and intentional destruction, appropriation and religious conflicts.

3.1.2. International Agreements

In this section I analyse the origin and development of the current international model for the protection of cultural heritage, which conditions or exerts some influence on cultural legislation in southern Africa and in Mozambique. This analysis also provides

[56] The 1913 Act created the Ancient Monuments Board to advise the Commissioner of Works on the compulsory purchase of significant properties whose protection was a matter of national concern.
[57] The Town and Country Planning Act of 1947 also protected and classified ancient monuments, according to various grades of ascending significance. The Historic Buildings and Ancient Monuments act of 1953 established the Historic Buildings Council for England. Consent for alterations to historic buildings were introduced by Town Country Planning Act of 1968 and the control by the state of archaeological sites were introduced by Ancient Monuments and Archaeological Areas Act of 1979, which also introduced a formal system of Scheduled Monument Consent for any work to a designated monument.

a general understanding of the dynamics of cultural heritage management theory, in force in various parts of the world, mainly since the 1970s.

The Lieber Code (1863, see above), approved in the USA during the American Civil War (1861–1865) (Kalshoven 2016), can be considered an early policy on how different states regulated and protected cultural heritage during armed conflicts. Section 2, articles 31, 34-36 established mechanisms for the protection of the private property of the enemy, of persons, religions and arts and sciences. Owing to the 19th century expansion of the technology of war, including more naval weaponry (Vagts 2000), and after Franco-Prussian War (1870–1871), and the resulting fragile balance of power in Europe, the means and methods of war needed to be regulated. As a result, the Brussels Declaration was signed in 1874 (Kalshoven 2016, Dowdeswell 2017), which regulated aspects of war. The declaration also included heritage through articles 8, 38–39, which protected the cultural heritage of the states involved in the conflicts.[58]

The Hague Conventions of 1899 and 1907 introduced regulations respecting the law and customs of war on land (Vagts 2000) and respect for protected cultural heritage during the conflicts (see articles 23, 25, 27). For instance, article 27 states that "in sieges and bombardments, all necessary steps must be taken to spare, as far as possible, buildings dedicated to religion, art, science or charitable purposes, historic monuments […] and it was a duty of local inhabitants to indicate the presence of cultural properties or places by distinctive and visible signs."[59] In 1935, the Treaty on the Protection of Artistic and Scientific Institutions and Historic Monuments was signed (Roerich Pact), an inter-American treaty which established that the historic monuments, educational, artistic and scientific institutions, artistic and scientific missions, the personnel, the property and collections in time of conflicts should be considered neutral, protected and respected by belligerents (Roerich 2018).[60]

The main regional and international agreements that ensured the protection of cultural heritage goods during armed conflict were called into question during World War II (Stanley-Price 2005:19) since belligerent states violated the principles, and various types of cultural heritage were destroyed during the war (Stanley-Price 2005:4-5).[61] As a response, the idea of international cooperation and cultural protection arose, and several conferences were held. These included the Conference of Ministers of Education of the Allied Governments (1942), the French National Committee (CAME) in London (1942), and the Conference of the United Nations for the Establishment of an

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[58] The declaration stated that all seizure or destruction of, or wilful damage to, institutions of this character, historic monuments, works of art and science should be made the subject of legal proceedings by the competent authorities.
[59] The document is available from Library Congress, USA: https://www.loc.gov/law/help/us-treaties/bevans/m-ust000001-0631.pdf.
[60] They may display a distinctive flag with a triple red sphere in the circle on a white background (the symbol was called 'banner of peace' where the three spheres represented past, present and future) which will entitle them to the special protection and respect on the part of the belligerents, of governments and peoples of all the High Contracting Parties. Those responsible for the aforementioned goods may supply the International Court of The Hague, the Paris International Institute for Intellectual Cooperation or the Educational Department of the Pan American Union of the city of Washington, with an inventory of goods which it wishes to place under the special protection of the Covenant.
[61] The destruction of the Cultural Heritage during armed conflict can be explained by many reasons, such as to cause the greatest despair and to sap enemy moral (Stanley-Price 2005:4-5). Is a form of place-based violence that aims to defeat the local sense of belonging, and the collective sense of memory among local communities to whom the heritage belongs (Harmanşah 2015). Represents: a) conflict goals - cultural property is targeted because it is connected to the issue the warring parties are fighting over; b) military-strategic - the main motivation is to win tactical advantages in the conflict; c) signalling - cultural property is targeted as a low-risk target that signals the commitment of the aggressor; and e) Economic incentives - cultural property provides funding for warring parties (Brosché *et al*. 2017).

International Organization for Education and Culture (1945), which gave way for the United Nations Educational, Scientific and Cultural Organization (UNESCO) (De Capello 1970). UNESCO then emerged as an independent United Nations agency with a mission to contribute to peace and security between nations by promoting collaboration among nations through education, science and culture (De Capello 1970, Stoczkowski 2009, Goggin 2013). In 1946, the International Council of Museums (ICOM) was also established, an organisation committed to museums and museum professionals to guarantee the conservation and dissemination of the world's natural and cultural heritage. The ICOM establishes and recommends professional and ethical standards for museum activities, promotes training, advances knowledge and raises public cultural awareness through global networks and cooperation programmes (ICOM 2007).

In the ambit of UNESCO's activities and as a response to the wake of the large-scale destruction of cultural heritage during the Second World War, the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict was adopted in 1954 (Veres 2014:94, UNESCO 2010, Demoule 2012).[62] UNESCO's General Conference of 1956 in New Delhi established international principles to protect archaeological heritage and guide archaeological research which we still use today (cf. UNESCO 1957:41, Demoule 2012).[63] In 1965, the International Council on Monuments and Sites (ICOMOS) was created to secure the interchange of experience and the establishment of cooperation between states to support building conservation and establish the rules of cultural heritage conservation, inventories, documentation, preservation and restoration of excavation of heritage sites. ICOMOS also had the role of composing databases of heritage and making them available to the general public (Bjornstad 2005, Jokilehto 1998, Demoule 2012, Yujie Zhu 2015). This organisation has given considerable support to Mozambique in terms of competence support.

The several conflicts that erupted after World War II were characterised by the changing nature of war-from nation-states to long-term armed conflicts. In the 1970s–1980s, wars were proxy cold war wars (e.g., Mozambique, Angola). Wars also emerged stirred by the political exploitation of ethnic or religious divergences (Ruanda, Guatemala, Yugoslavia, Bosnia-Herzegovina, Afghanistan). These and other conflicts in Iraq, Afghanistan and Syria were characterised by violence targeting cultural heritage (Stanley-Price 2005:3,12, Matenga 2011:43-44, Harmanşah 2015, Quntar *et al*. 2015, Holtorf 2020). Often, these conflicts derived from complex problems emerging from colonialism and/or nationalism where heritage was co-opted, and which left a series of unresolved issues in its aftermath (Gosden 2012). The destruction of cultural heritage during these conflicts revealed weaknesses in the 1954 Hague Convention. Therefore, the second Protocol of the Hague Convention in 1999 introduced a system of enhanced protection for cultural property as of 'the greatest importance for humanity', which must be protected by adequate national legislation and not used for military

[62] The Roerich Pact define precisely cultural property, establishes criteria of cultural property protection and identification, make provision for centres with property of very great importance, including the prohibition of hostile actions against properties of cultural heritage at all.
The 70th conference established: i) Archaeological researches are subject to prior authorization by the competent authority; ii) Any person finding archaeological remains have to declare them earliest possible to the competent authority; iii) Impose penalties for the infringement of these regulations; iv) Make undeclared objects subject to confiscation; v) Archaeological resources are State properties, and cultural heritage legislation of each state have to make it clear; and vi) Historical monuments are classified as elements of archaeological heritage.

purposes. The same convention also created the Fund for the Protection of Cultural Property in the Event of Armed Conflict (Leylya and Schipper 2010, UNESCO 2010).

Together, in collaboration with many sectors, ICOM, ICOMOS, and UNESCO have made fundamental contributions to international mechanisms for the management, ownership and protection of legal frameworks of cultural heritage, resulting in several international conventions (Tengberg *et al.* 2012).[64] Currently, the national cultural legislation of UN member countries incorporates the principles of the UNESCO conventions, though not all countries have ratified all UNESCO conventions.

During the 1990s, the UNESCO convention and the linked World Heritage list were increasingly questioned in terms of their viability in relation to different cultures and different beliefs. Critical heritage studies as an academic field emerged through this criticism (see discussion in Chapter 1.5.2), showing us how UNESCO's focus on 'universal heritages' implicitly silences other national and local principles of cultural heritage protection. As argued by several scholars, the dominant narrative of heritages promoted through the convention excludes unofficial and alternative understandings of heritage as state authorities (Smith 2012, Tengberg 2012, Harrison 2012:20, Leitão 2017). State authorities, officials and even local communities tend to confirm and uphold this powerful/dominant narrative through what Smith has called an Authorised Heritage Discourse (AHD). Moreover, a study of the process of Authorised Heritage Discourse shows how it constructs a specific national identity, but without an understanding of how identity is constructed from heritage sites or places. In that sense, the dominant 'global heritage' and 'nationalist heritage discourse' obscure the processes of cultural production that occur around the management and conservation of heritage sites by delegitimizing debate and contestation over the interpretation of the past and present. This discourse also serves to maintain utility and authority for the state since it renders certain problems manageable; it confines the parameters of debate, and thus, other forms of knowledge and other ways of knowing or thinking about 'heritage' are constrained (Smith 2012). For example, as Great Zimbabwe became a national monument and later a world heritage site, for a while, Zimbabwean authorities (NMMZ) prohibited local communities from gaining access to Great Zimbabwe to carry out ceremonies without observing the necessary measures that do not compromise the stature of the site as a national shrine (Matenga 2011:110–112, Ndoro 2001:47).

To ensure inclusiveness, heritage managers and policies need to start recognizing and valuing local practices, including linked local knowledge, to guarantee the integration of local communities' worldviews on cultural heritage and ensure local community protection and authority over their heritage resources. There needs to be harmony between international and local models of cultural heritage management since all global forms are locally embedded and all smaller groups have a global dimension (cf. Gosden 2012). The universal principle is challenged by the fact that heritage is multifunctional (Walker 2011). The protection of cultural heritage founded on universal principles was challenged (see discussion above in Chapter 1.5.2.) because it was understood to be based on moral and aesthetic values acting to promote government efforts to boost economic, social and tourism benefits at a local, national, regional and international level (Walker 2011, Cleere 2005). Tourist revenue and local or national economic gains from natural and cultural heritage are rarely the main reasons for the

[64] World Cultural and Natural Heritage (1972), Declaration on Cultural Diversity (2001), Protection of the Underwater Cultural Heritage (2001), the Safeguarding of the Intangible Cultural Heritage (2003), and Protection and Promotion of the Diversity of Cultural Expressions (2005).

conservation and preservation of heritage; aesthetic appreciation of natural and cultivated landscapes, inspiration, and emotional and spiritual services carry more weight.[65] However, since cultural and natural heritage are interconnected and indivisible, and every human relic is also a relic of nature, no creature exists wholly in the wild, free from human impact. This is also the reason why UNESCO combines elements of nature and human effort, such as gardens, agricultural scenes, sacred sites, and protection of intangible values as 'mixed' cultural landscapes with World Heritage status rather than simply natural or cultural sites (Lowenthal 2005, West and Ndlovu 2010, UNESCO 2010, Tengberg *et al.* 2012). In these terms, it is more convenient to apply a landscape or socio-ecological system approach and policy formulation should empower local people to participate in natural resource management as part of cultural landscapes, integrating local knowledge and institutions (West and Ndlovu 2010, Tengberg *et al.* 2012).

3.2. Rescue Archaeology

As illustrated above, initiatives to protect and preserve heritage have existed in various forms in many parts of the world. However, the formalised cultural heritage management as we know it today emerged in Europe and the USA, but with inspirations also from beyond Europe. Rescue archaeology similarly emerged through the European experience and as a consequence of the application of the 'polluter pay' principle, which was then exported to different parts of the world (Everill 2007, Demoule 2012, EU 2021). This was a result of the international policy on cultural heritage management (see discussion in Chapter 2.1.1) applied in construction and natural resource exploitation projects, which occurred mainly after World War II (Johansson and Johansson 2010, Demoule 2012). Depending on the political and economic system in any given country, rescue archaeology activities have been organised according to what some have called a 'capitalist' or a 'socialist model' (Demoule 2016; Kristiansen 2009). These divisions are not as clear-cut as they might first seem. The differentiation also depends on the cultural heritage management system of the country, which can be decentralised or centralised. Such difference can be of higher influence than the organisation of rescue archaeology, as is exemplified in many southern African countries that have a government-led or a market-led system or a combination of both (see discussion in Chapter 4). Similarly, rescue archaeology operations can be funded either by the state or by the developer, still following the 'polluter pays' principles (Johansson and Johansson 2010).

Kristiansen (2009) used the concept 'socialist model', to describe systems where monitoring and excavation activities are organised by public archaeological institutions, museums or state/provincially organised rescue archaeology units, where there is little or no competition from other agencies or organisations (Kristiansen 2009). This situation will be described here as government-led and centralised models of rescue archaeology. Heritage is regarded as a public good, and the use of a market-led model for heritage conservation and utilization is seen as going against the idea of public benefit or ownership (cf. Zijun Tang 2013). In these systems, archaeological and heritage work is a public service governed mainly by state authorities or museums who set the standards and monitor rescue archaeology (Kristiansen 2009). Russian

[65] Sacred, religious, or other forms of spiritual inspiration derived from ecosystems.

archaeology constitutes one example, where a great deal of archaeological research is carried out by the major state museums (Hermitage and the State Museum of History) administered by the Ministry of Culture. The legislative basis of this archaeological structure and policy relates to state ownership and obligation to protect heritage and to make proper use of the land and the mineral wealth that it contains (Masson 2005). For example, in China, foreigners and foreign organisations are not allowed to conduct or take part in archaeological work without the permission or invitation of the Central People's Government (Zhuang Min 2005). Denmark and parts of Germany offer other examples of government-led models of rescue archaeology (Alexander 2011, Zijun Tang 2013). As will be discussed in Chapter 4, Zimbabwe is another example of a government-led model in the southern African region.

In the 'capitalist model' as defined by Kristiansen (2009), also called 'developer-led archaeology', 'developer-funded archaeology', or 'market-based archaeology', which is the term that will be used here, rescue archaeology activities are conducted by independent enterprises governed by market standards and market competition. In market-based archaeology models, private archaeological companies compete for contracts (Kristiansen 2009, Demoule 2016). Currently, the market-led model is applied in most countries across the world, including Ireland, the UK, the Netherlands (Kristiansen 2009), Sweden and the US, to give just a few examples. The European Union have regulated all sectors to comply with market competition and procurement systems (Demoule 2016, 2017). As will be discussed in Chapter 4, it is also the dominant model in South Africa, Botswana, Namibia and Malawi, also in Mozambique.

Many countries transitioned from a government-led to a market-led organisation of archaeology in the late 1970s as part of the increased privatisation of the public sector under the neoliberal and democratisation paradigms (Amo-Agyemang 2017:1-6, Smith 2023). Although archaeology and cultural heritage were exempt from this change in many countries, it also gradually dictated the transformation of archaeology (Zorzin 2015, Shepherd 2015). The shift also resulted from the new public management theory promoting a market-oriented management model. In the open-market logic, competition over contracts is believed to force suppliers to become more time and cost-efficient, providing a higher-quality service. This quality enhancement will create more efficient work processes and increase job opportunities. Market-led models can, in theory, professionalise a sector, leading to the development of sectorial standards and, thus, a higher quality. The shift to a market-led organisation of archaeology has, in several countries, indeed led to a higher professionalisation and development of standards (Fagan 2003, Everill 2007, Wigert 2018), but not everywhere and in all respects.

The social impact assessment procedures typically incorporate pre-development heritage or archaeological impact assessments, which opened up for rescue archaeology around the mid-1970s as an outgrowth of the historic preservation movement (Fagan 2004). As a result of the increasing market adjustment of the environmental and cultural heritage sectors, formal regulations of requirements to assess the impact of new developments upon the environment were introduced at a European level in 1985. These were further specified in the 1998 Aarhus Convention by demanding the inclusion of public participation in decisions on specific activities, as well as on plans, programs and policies concerning the environment. The convention extends the notion of environmental information by including human and cultural aspects of the environment (see discussion above in section 1.5.2).

Similar procedures were established in several parts of the world; thus, cultural sites and built structures were explicitly acknowledged as environmental concerns (Teller and Bond 2002). This became one of the bases for the inclusion of archaeological impact assessment studies into environmental impact assessment in major construction projects, accompanied by specific legislation in most countries today (Praetzellis 2012:20). In low-income countries, investments in projects for infrastructure construction and natural resources exploitation are usually financed by international capitals, such as World Bank and other private funds which usually require environmental and social impact assessment for their implementation, for example, the International Finance Corporation Performance Standard on Socio-Environmental Sustainability (PS 8). These funds are regulated by free market economies (IFC 2012, Chirikure 2013, cf. King and Arthur 2014, World Bank 2017). Although most countries now have an Environmental Impact Assessment (EIA) process, the procedures in different countries are very different. In some countries, a cultural heritage assessment is part of the EIA process, while in other countries, they are completely separate, as will be discussed further in Chapter 4 in the case of southern Africa.

In Mozambique, Decree nr. 54/2015[66] regulates the process of EIA, while Decree nr. 27/94[67] provides that all projects involving excavations, removal or enlargement of land and removal of submerged or buried objects shall include preliminary rescue archaeological activities in the area covered by their works.[68] Specifically, the Mining Law[69] (*Lei* nr. 20/2014) and the Oil Law[70] (*Lei* nr. 21/2014) also specifies the mandatory EIA process in these types of activities. The challenge here is that the rescue archaeology system is imbued with two different values: economic and cultural. Market-led models favour more economic benefits, the development of technical and methodological standards, and the professionalisation of services while reducing costs. However, the cultural values associated with cultural heritage cannot be measured in the same way and risk being negatively affected (Wigert 2018).

I see a dilemma here, as archaeology and the practice of cultural heritage have been a device of modernity, i.e. the constellation of social, economic, cultural and ideological processes have been linked with modernism, nationalism and capitalism from its conception and birth (cf. Fagan 2003 McGuire 2007).[71] The market-led model also represents a form of 'disaster capitalism', as has been pointed out. The market-based archaeology model is founded on competition, and economic competition risks favouring the developer. However, developers are not the consumers of archaeological research or responsible for heritage preservation (see also Hutching and La Salle 2015). The developer has no direct interest in the results of this research, and their only concern is for their land to be released as quickly as possible and at the least cost (cf. Demoule 2016).

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[66] *Decreto nr. 54/2015. Aprova o Regulamento sobre o processo de avaliação do impacto ambiental e revoga os decretos nr. 45/2004, de 29 de Set., e 42/2008, de 4 de Nov., Boletim da República, 31 de Dez. 2015 nr. 104.*

[67] *Decreto nr. 27/94. Regula a Proteção do Património Arqueológico e aprova a composição do conselho nacional do património cultural. Boletim da República, 20 de Jun. 1994, I Série, nr. 29.*

[68] Maybe this is not a conformist position, when Silberman (2007:190-12) points out that the archaeologist rarely ever has power to control, or even to recognize their ethical.

[69] *Lei nr. 20/2014 (Lei de Minas) Boletim da república, 18 de Agosto de 2014, I Série, nr. 66.*

[70] *Lei nr. 21/2014 (Lei de Petróleos). Boletim da republica, 18 de Agosto de 2014, I Série, nr. 66.*

[71] Reflecting on the devastation of Cultural Heritage, caused by development activities and population growth, Fagan (2003) argues that the legislation to protect archaeological sites and cultural heritage is difficult to enforce, and policing site is very expensive and that it is not easy for needy countries to do investments with little perceptible return. Nevertheless, Fagan advice that all archaeological work processes should be ethic.

In this study, I have interviewed a number of distinguished archaeologists and experts who will be introduced properly in Chapter 4 (Table 4.1) and Chapter 5 (Table 5.1). However, I bring up some of these interviews to illustrate that, by necessity, these professionals have also contemplated this dilemma. I will quote two of the interviewees as examples of their personal understanding of this problem. The following interviewees also share the same idea that the developers are not interested in cultural heritage as such:

> Interviewee 16: Obviously, there's no value in the developer to try to say that the heritage is worth anything. So, very often they play down the value of the heritage (Interview, Jun 08, 2023).

> Interviewee 13: Looking from my perspective, all contract archaeology should be automatically research focus because otherwise we are not learning anything. If all we are doing is digging up stuff and writing reports to the developer, the developer is not going to do anything with it, they are very seldom interested in findings, they are just interested in getting out and the mission to undertake their development (Interview, May 18, 2023).

Several of the interviewees feel that the heritage assessments and the archaeological work are of little value to the companies which have contracted them or the authorities. Therefore, as suggested by interviewee 13, such activities should be focused on the archaeological research problem to build new knowledge. However, this dilemma is not specific to market-led archaeology. Government-led archaeology can be equally, or even more, sensitive as market-led archaeology development is prioritised by state officials, and heritage tends to be underprioritised in some large development projects. Many governments do not have funds to invest in cultural heritage management projects and give priority to other sectors of the state, such as defence, transport or education. A government-led system can also lead to similar leniency to developers and corruption, as there is no outside insight or scrutiny. Under these conditions, rescue archaeologists or independent consultants are more flexible in doing the job than archaeologists employed or funded through government funds (see discussion in Ndlovu 2014). However, the vulnerability of the market-led model was also shown in the period of the economic crisis in 2008 in Europe, when the decrease in the number of developments led to a collapse in rescue archaeology (Depaepe 2016).

With the expansion of market-based rescue archaeology, there has indeed been a professionalisation of archaeology, which has become increasingly regulated by a code of ethics applied worldwide since the 1980s. It defines the rights and duties of archaeologists, including respect for the basic rules of scientific research (Evril 2007, Demoule 2012, 2016, Zorzin 2015). In addition, a number of professional organisations that have been formed: the European Association of Archaeologists (EAA, http://www.eaa.org) and the *Archaeologiae Europae Consilium* (EAC, http://www.european-archaeologicalcouncil.org),[72] American Cultural Resources Association

[72] The EAA brings together c. 1000 archaeologists (out of about 25000 professional archaeologists in Europe) and has an annual meeting based on the model of the Society for American Archaeology. The EAC brings together the heads of national archaeological services from different European countries, with the explicit goal of "managing Europe's archaeological heritage". It exhibits less free speech than that of the EAA, because it is made up of public administrators (Demoule 2012:619). There had been earlier foundational texts such as the Valletta (or Malta) Convention of the Council of Europe from 1992 (Council of Europe 1992), and the European Association of Archaeologists/EAA Code of Practice from 1997, followed by the EAA Principles of Conduct for rescue Archaeology in 1998. Shortly after, in 1999, the European Archaeological Council was founded, to act as a forum for heads of national archaeological services in Europe (Kristansen 2005).

(ACRA) (https://acra-crm.org/), or the Association of Southern African Professional Archaeologists (ASAPA, Ndlovu 2014, Deacon 2015).

Market-led archaeology has resulted in an explosion of data that has, in many ways, revolutionised archaeological approaches and methods (Demoule 2016). For example, in South Africa, contract archaeologists offer the greatest quantity of archaeological artefacts and related data for museum storage (Ndlovu 2014), but as will be discussed in the coming chapters, in Mozambique, the situation is more critical, as the developers in some cases monopolise the research reports, and archaeological information produced in the context of their projects are not easily accessible to the public. Companies are protected by the regulation in Decree nr. 27/94 in the sense that no one can use data from the archaeologist before they are published, but a problem of knowledge transfer occurs if the reports are never published or are embargoed by the developer. Here, the interests of the paying client are given greater weight over heritage management and those of local communities (see similar discussion in Ndlovu 2014); such actions are hindering rescue archaeologists from communicating their findings within the discipline.

Instead of advocating a government-led or a market-led organisation, I will argue here that it is more important to look at how the sectors are organised and what checks and balances are in place to ensure heritage protection and high-quality archaeology. Archaeologists are generally engaged on a defined contract basis (cf. Kinahan 2013), regardless of the type of rescue archaeology model, whether it is market-based or government-led. Some countries attempt to mix the two models, allowing competition but also having state actors. Both models share a common principle that developers, whether public or private, should pay for the pre-disturbance survey and excavation (Depaepe 2016). The way that archaeological practice is monitored, and quality-assured may, in fact, be of overriding importance than its organisation. For example, in southern African countries, rescue archaeology monitoring activity is ensured by a government-led model but with the potential for decentralisation. The same is the case for Mozambique, as will be discussed here. Again, we will preview some of the interviewees who will meet us in the next chapter, the following interviews explain the current situation in South Africa:

> Interviewee 9. We have South African Resource Authorities (SAHRA), is the overseeing body linked to the government. There're also provincial's resources authorities, most of them have not been properly stablished. So, generally we go through SAHRA, however in some provinces, like Western Cape, Kwa-Zulo Natal, local heritage authorities are quite effective and if you are working in these authorities you go through these authorities. But for other seven provinces in South Africa, we have to use SAHRA (Interview, Jan 26, 2023).

> Interviewee 13: I know that SAHRA was actively engaged and doing certain activities and following up with ongoing excavations in that landscape. They do reserve the right to go and make a presence. They don't do that always, you get a permit to excavate a site for the research proposes or for mitigations proposes, and you do not always have government officials coming to visit you simply because they are understaffed, they can't do that (Interview, May 18, 2023).

To sum up the experience of these two individuals, although South Africa has relatively good institutional capacity building and a decentralised system with specified roles, its organisation still does not ensure good quality or reporting of archaeological work (see further discussion in Chapter 4.1).

3.3. Community-Based and Public Archaeology

Community involvement in archaeology has long been a practice in Africa and in Mozambique in various ways (Sinclair 1987:89, Chirikure and Pwiti 2008, Macamo and Ekblom 2018). Community archaeology has now become a research field in itself, constituting an intensely explored subfield of research in the discipline (Chirikure and Pwiti 2008, Tully 2007, Jopela and Fredriksen 2015, Richardson and Almansa-Sánchez 2015, Sánchez 2016, Oldham 2017). As a research field, it traces its roots back to at least the 1950s, when archaeologists were called to disseminate their findings to the public (Fagan 2004).

Community archaeology developed out of collaborative work with Indigenous communities in Australia and New Zealand through a wide range of approaches and methodologies (see discussion in Nicholas and Hollowell 2007:68). In sub-Saharan Africa, the term indigenous was widely used as an abusive term during the colonial period to refer to native African communities in comparison to recent foreign or migrant communities. Currently, using this term may still be considered an insult (Lane 2021:75). Therefore, throughout this work, I use the term local communities. Later impetus for community-based archaeology came in the 1970s, with calls for archaeologists to make their research relevant to the public, looking to integrate social values as an explicit component of conservation policy and practice (Oldham 2017). Thus, archaeology and archaeologists were situated in the wider social and political context, where participatory action was seen as an integral part of saving an endangered archaeological heritage. From the 1980s, there were calls for an 'engaged archaeology' linked to discussions on ethics, politics and rights of local communities through critical archaeology (Sánchez 2016, Oldham 2017). For instance, in North America, public archaeology largely developed in direct relation to public participation and as a component of Cultural Resource Management (Sánchez 2016).

The growth of this movement was enabled by a shift in view from processual to post-processual archaeology (Simpson 2008), which allowed for the democratisation of archaeological knowledge production and dissemination. This movement also included the administration of archaeological research and to share the results through voluntary or statutory organisations. These activities enable greater public involvement and the dissemination of knowledge (Atalay 2006, Verlaan 2013, Richardson and Almansa-Sánchez 2015). This shift in practice brings archaeological activities into constant interaction with the public (cf. Oldham 2017). It is "form of knowledge management […] that operates both a product and a process" as written by Byrne (2012).

From these understandings of knowledge production emerged the concept of public archaeology. Public archaeology is both a tool and a critical theory for understanding archaeological practices. First, as a means to understand the past, and second, to challenge a commoditisation of archaeology that affects archaeological research and practice, as discussed above. As social inequalities are growing, public archaeology helps share prehistoric knowledge with the entire public (Sánchez 2016). Objectives of community-based or public archaeology vary. The involvement of non-academics in the practice of uncovering, interpreting, presenting and preserving may be one definition (cf. Jopela and Fredriksen 2015). In community-based archaeology or collaborative archaeology (Nicholas and Hollowell 2007:68), communities have a greater degree of control over the production of knowledge and the objectives of research.

Meanwhile, post-colonial archaeology approaches (drawing also from political theory), developed from a debate against colonial heritage in favour of the local

community's heritage, their history and future (Lydon and Rizvi 2010, Lane 2011, Dommelen 2011, Gosden 2012). This approach matches the goal of community archaeology, as it also intends to replace the legacy of archaeological scientific colonialism (cf. Nicholas and Hollowell 2007:60). In addition, it offers social and political strategies for incorporating different cultural perspectives in the interpretation of the past (May *et al.* 2017). Ideally, mechanisms of collaborating with local communities should be included at every stage of the research process to build effective involvement in the investigation and presentation of the past (Tully 2007).

Table 3.1. The CARE Principles quoted from the CARE organisation (Directly quoted from Global Indigenous Data Alliance) (see also Carroll et al. 2020, 2021). [73]

CARE	Data	Aim	Governance
Care	Data is collected and used also to benefit local communities	"Promote inclusive development, innovation"	Improve governance and civic engagement and create equitable outcomes.
Authority to control	Authority to control denotes that local communities are active leaders in the stewardship of and access to local community data. Local communities have the right to consent to the collection and use of their data.	Communities have the authority to control access and analysis of their data through local communities' values and collective interests.	These rights must be empowered and recognised. Local community data must be available and accessible to local communities.
Responsibility	Implies that those working with local community data have a responsibility to share how those data are used to support or benefit local communities' self-determination and collective benefit.	To share how the data is contributing to the development of data literacy in local communities. Expanding capability and capacity of local communities' values and world views.	Any data collected must be built on a relationship of trust, reciprocity and respect.
Ethics	Work must be centred on local community's rights and well-being through all stages of data collection and utilisation.	Minimise harm and maximise benefits in local communities whom the data concern.	Promote justice and future use of data.

Figure 3.1. Local community engagement as a fundamental issue for CARE principles, community-based archaeology and public archaeology

To protect the ownership of knowledge production, local community organisations have formulated the CARE principles to guide community collaborations in any academic field. CARE stands for Collective benefits, Authority to control, Responsibility

[73] The CARE Principles are found at Global Indigenous Data Alliance (gida-global.org) and see above quoted publications.

and Ethics (Table 3.1). Since local community data are grounded in the interests of the local community and their worldview, the CARE principles aim to create value for local communities (Robinson *et al.* 2021) and address the status and importance of local communities in deciding on the use of data related to themselves, their lands and waters. These principles were created to protect local communities' data sovereignty and improve linked policies and services (Carroll *et al.* 2020, 2021, 2022, Robinson *et al.* 2021, Proffitt 2021, Erickson, *et al.* 2022, Sterner and Elliott 2023, Hensel *et al.* 2023). The link between Community Archaeology and Public Archaeology and CARE Principles, as used in this project, is illustrated in Fig 3.1. I will explain how the CARE principles are embedded in my research in Chapter 7.3.2.

Community archaeology is a long tradition in Mozambique. An early example in Mozambique is the work in Manyikeni in the 1970s (see Chapter 2.3). The ambition should be to enable cultural integration (cf. Westmont and Antelid 2018), and to focus on intangible and tangible values (Simpson 2008). This approach should also give room to multivocality in the interpretation of archaeology research and pay attention to social and interpretative contexts (Tully 2007, Nicholas and Hollowell 2007:63, Chirikure and Pwiti 2008, Colwell-Chanthaphonh 2012, May *et al*. 2017). In the Mozambican context, community archaeology ensures good management of cultural resources with the participation of all stakeholders (see discussion in Chapter 2).

In Africa, centralised state administrations were adopted during the colonial period and its continuation under the nationalistic-universalist framing of Cultural Heritage (as discussed in Chapter 4), but did not create conditions and a favourable environment for community engagement and participation in the management of cultural heritage, especially amongst local communities (Jopela *et al*. 2012). Taking similar examples from other parts of the world, cases of appropriation, erasure and destruction of local community's cultural sites were reported in Australia, Canada, USA and Zimbabwe. In Mozambique, since 1943, local communities were not allowed to use monuments and relics without permission from the Monuments Commission (*Diploma Legislativo* nr. 825/1943). However, in more remote regions, colonial and nationalist impact was marginal, with local communities often maintaining strong traditional relationships with their lands and cultural sites. Continued use of sites in resistance to authorities, is also the case also in many other African countries (West and Ndlovu 2010, McNiven and Connaughton 2018).

Following the national independence in Mozambique, cultural heritage became a tool for forging national cohesion and for reducing potential conflicts from ethnic and cultural heterogeneity. Thus, local and community heritage were seen as a potential challenge to the unity of the nation (see similar discussion by Ndoro 2001:9 more generally on African countries). At the time, it was felt that national unity was needed to combat the effects of divisive ethnic identities created by the colonial administration. This division is considered one of the main causes of postcolonial ethnic conflicts in several countries, such as Myanmar, Syria, Sudan, Lebanon, Uganda, Rwanda, Mali, Burundi, Srilanka, India and Afghanistan (Hintjens 1999, Nikuze 2014, Lange *et al. 2*021, Parzinger 2022). The Eritrean secession in Ethiopia and Biafra secession in Nigeria, which were minor revolts resulting from ethno-regional separatist minority groups, are still considered ethnic and postcolonial conflicts despite being minor revolts forged through an etnification of history (Blanton *et al*. 2001).

With the global concern about the preservation and protection of the heritage of local communities as linked to development, there has been a shift in practices. Community

archaeology approaches are now seen to foster participatory processes and local solutions for heritage management, relating to broader sustainability goals (cf. UNESCO 2018), and to promote practices of community ownership as seen in the CARE principles above. Potentially, there is a dilemma for community archaeology in the sense that, on the one hand, customary power structures must be respected, while on the other hand, these cannot be assumed to be inclusive to other community members. The methods and objectives of community and public archaeology should be inclusive, building on local and scientific knowledge as well as different skills of management. Such a collaborative methodology enables a sound management of cultural heritage but also a broader discussion on sustainability.

While many authors discuss community and public archaeology separately, here I will use them synonymously and in a complementary manner, since there is no element of community archaeology that does not fit into public archaeology. In Mozambique, and as will have already been discussed (Chapter 2.2.2), both concepts are embedded in the archaeological practice and have been used concurrently with the involvement of communities and the general public. This practice has been largely at the direction of individual researchers and is not clearly specified in policy or procedures. Thus, there is still a need for directives and methodological and policy guidance in community and public archaeology, as will be discussed further in this thesis.

In the following chapter, I discuss how cultural heritage management systems and rescue archaeology activities are structured and organised in the different countries of southern Africa. This comparative study allowed me to study how rescue archaeology activities are carried out in the region. By analysing the similarities and differences in the various legislative and administrative systems I trace the policies, procedures and checks and balances that exist in each context. I have interviewed the archaeologists and the officials to obtain an in-depth understanding of the link between procedures and practices, the latter of which is largely tacit knowledge.

4. The Practice of Rescue Archaeology in Southern Africa

This chapter will discuss rescue archaeology in the southern African region, as illustrated above in Fig 1.2. 'Southern Africa' in this work refers to the political and administrative division of the southernmost region of the African continent. It comprises the countries of Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe (Somerville 2013, Marks 2020). Owing to the inaccessibility of sources for analysis, I will not include Lesotho and Eswatini.

The chapter is based on a comparative policy analysis of the legislation, procedures and practices (cf. Cyr and deLeon 1975, Geva-May, Hoffman and Muhleisen 2018, Radin and Weimer 2018, Beryl and Weimer 2018) of the cultural heritage management laws and regulations. The terms used in this chapter and some of the problems addressed were already presented in Chapter 1.5.2 and I also brought up some dilemmas in the more general discussion on rescue archaeology in Chapter 3.2; here I delve deeper in the analyses of the individual countries neighbouring Mozambique.

The analysis is based on formal documents and academic papers discussing the procedures and practices of cultural heritage management in each country. In the in-depth analyses (Chapter 4.1), I have also complemented this information with interviews of archaeologists and practitioners in the heritage sector, many of whom have worked for many years in several countries (Table 4.1). The semi-structured interviews allowed for the mapping of knowledge and experience (Appendix 5), which cannot be found in formal documents. The interview style was semi-structured and conversational, allowing the interviewees to freely explore more content about the subject under discussion (see methodology in Chapter 1.2). This form created an interactive learning environment that enabled me to obtain tacit knowledge that did not exist in the literature by learning from the interviewee's experiences while at the same time expanding conversations based on my own experience from Mozambique. The interviews are presented here anonymously to protect the privacy and security of the participants; this confidentially is important to establish trust and rapport between the participants and researchers and create critical research (Saunders, Kitzinger and Kitzinger 2015, Dougherty 2021, Kang and Hwang 2023).[74] To identify interviewees, the interviews were coded using cardinal numbers based on the order in which the interviewees were interviewed.

The knowledge and experience of the interviewees cover South Africa and Zimbabwe, which will be presented in the first part of this chapter, together with a short history of legislation. The reason why these countries were chosen for an in-depth analysis was

[74] Confidentiality here infers that the interview information was not accessed by anyone, but myself and transcripts were stored coded and anonymised in a secure location. The identity of the interviewees and their organizational information is not reveled here. However, for the reader to have some information on the interviewee in terms of experience and perspective I here provide some information about the interviewees, while still taking care to maintain anonymity. The questions are presented in detail in Appendix 5.

the availability of informants, the fact that they each represent two opposite solutions in terms of the organisation of the rescue archaeology and that they both have a relatively well-built system for cultural heritage management. In the second part of the chapter, I present an analysis of Botswana, Namibia, Zambia, Malawi and Angola based solely on documents and publications.

Table 4.1. Interview participants.

Interviewee	Country	Current role	Interview date
01	Zimbabwe	Archaeologist, cultural heritage manager and researcher	November 11, 2018
09	South Africa	Archaeologist, cultural heritage manager, teaching and research	January 26, 2023
10	*South Africa*	*Archaeologist, lecturer and* PhD candidate	January 27, 2023
12	South Africa	Archaeologist, cultural heritage manager, teaching	March 20, 2023
13	South Africa	Archaeologist, cultural heritage manager, teaching and research	May 18, 2023
14	Zimbabwe and South Africa	Archaeologist, cultural heritage manager, consultant	May 23, 2023
15	Zimbabwe and South Africa	Anthropologist, teaching, research, administrative activities	May 24, 2023
16	South Africa	Archaeologist, cultural heritage manager, teaching, research, publishing	June 8, 2023
17	Zimbabwe	Archaeologist, cultural heritage manager, teaching and administration	June 21, 2023

The comparative policy analysis of the different systems of cultural heritage management, in particular of rescue archaeology, aims to collate positive experiences of rescue archaeology activities, but also any weaknesses of each system. Some solutions, potentially available for Mozambique have already been tested in neighbouring countries. The comparative analysis will also make Mozambique capable of formulating better structures and standards to manage rescue archaeology and to harmonise with the scientific approaches applied in the region and on an international level. At the end of the chapter, I will discuss relevant elements of policies and experiences for Mozambique that will be discussed further in Chapter 5.

4.1. In-Depth Analyses

4.1.1. South Africa

South Africa has the longest experience of formalised rescue cultural heritage resource management in the region and is today the second-largest economy in Africa after Nigeria. The robustness of its economy is in large part owing to the existence of a transport and communication network (World Bank 2018). In comparison to some other countries in southern Africa, infrastructural projects are funded by the domestic

economy to a higher degree. This means that there is a large amount of development projects, and constructions. Consequently, there is an established practice for rescue archaeology, which is also reflected in the number of academic papers discussing the South African cultural heritage management system, as seen below.

Background

During the 1970s and 1980s, the economic development of South Africa provided possibilities for the development of rescue archaeology (Ndlovu 2010, Shepherd 2015). In principle, legislation had protected monuments since 1911 with the Bushmen-Relics Protection Act. This legislation had been amended several times, with the establishment of a National Monuments Council in 1969 and the protection of monuments, underwater heritage, war graves, and objects over 100 years old, as defined in the 1986 Amendment Act nr. II (Ndlovu 2011). The KwaZulu-Natal Museum was the first institution to carry out rescue archaeology for dam constructions in the province of Natal in the 1970s (Ndlovu 2014). The University of Cape Town established the Archaeology Contracts Office in 1987, and an Archaeological Resources Management unit was established at the University of the Witwatersrand in 1990. These two divisions still exist (Ndlovu 2014). The archaeological departments at Stellenbosch and Pretoria University also undertook contracts (Shepard 2015). At this time, the financial turnover of university divisions doing contracts was generally higher than the research funding (Ndlovu 2012).

From the 1980s, the increasing volume of development projects dictated new legislation for environmental and cultural heritage protection. Several acts were promulgated for environmental impact assessment studies (Shepard 2015). The 1989 Act increased rescue archaeology in South Africa, but contracts were limited to university departments and museums (Ndlovu 2014). The heritage legislation (National Heritage Resources Act nr. 25/1999) was approved, and the South African Heritage Resources Agency (SAHRA) was established as a statutory body for heritage conservation (Chirikure and Pwiti 2008).

This act specified procedures for integrating protective measures into planning, development and local government systems (Chirikure and Pwiti 2008, Ndlovu 2014). It also gave a legal foundation and mandate to rescue archaeology in South Africa through the establishment of principles, norms and standards for archaeological permits and impact assessment (Scheermeyer 2005, Ndlovu 2011, 2014, Ndlovu and Smith 2019). Interviewee 13, who has worked in rescue archaeology for many years in a private consultancy, was precise in mentioning the importance of the new legislation in the management of rescue archaeology in South Africa:

> Interviewee 13: We have the National Heritage Resource Act, which stipulates certain conditions under which any development can proceed. For instance, if the development is longer than 300 m or is excess in certain square meters that is going immediately to trigger the act, and that development is required to do heritage impact assessment, to get government approval to undertake that development […] (Interview, May 18, 2023).

The policy specifies that constructions (exceeding 300 m in length), modifications of buildings and sites, or rezoning require impact assessments (NHRA Act nr. 25/1999, Deacon 2015, Jackson, Mofutsanyana, and Mlungwana 2019), and the Environmental Impact Assessment (EIA) process is also regulated by the Environmental and resource

extraction laws.[75] In addition to the act's specifications regarding when and how impact assessment needs to be carried out, the new legislation also stressed the redefinition of South African cultural identity and the need to redress past inequities through cultural heritage management (Deacon 2015, Jackson, Mofutsanyana, and Mlungwana 2019).

Organisation

At the highest level of state organisation, the management of cultural heritage is the responsibility of the Ministry of Education and Culture (MEC), which regulates all heritage resource authorities (Fig. 4.1). Under the ministry, the South African Heritage Resource Agency (SAHRA) is responsible for all national heritage, but management is decentralised in a three-tier classification system. Grade I sites are of national significance and under the management of SAHRA (Deacon 2015, Jackson, Mofutsanyana and Mlungwana 2019). Provincial Heritage Resources Authorities (PHRAs) are responsible for the management of heritage resources within the province (grade II sites), while local municipalities are responsible for grade III sites (Mahachi and Kamuhangire 2008:46, Ndlovu 2011, Ndlovu 2014, Ndlovu and Smith 2019, Jackson, Mofutsanyana and Mlungwana 2019).

Further information on the restructuring of the cultural heritage management system in South Africa is provided by the following interviews:

> Interviewee 12: We have nine provinces; It means that each province can declare a site of provincial significance. And Grade III means that automatically any site that has not been declared, is considered as grade III site (Interview, March 20, 2023).

Of the nine interviewees with experience from South Africa (we already saw some quotes on the organisation of rescue archaeology in South Africa in Chapter 3.2), most are generally positive towards the three-tier classification and division of responsibilities. One interviewee (see below) finds the system impractical to some degree, as it fractures responsibility to many entities. Permits for the protection of archaeological material are acquired from the Heritage Resources Authority at the appropriate level (SAHRA 2002).[76]

In the case of rescue archaeology, any developer must notify the Heritage Resource Authority, which assesses the possible impact of the development and then requests the developer to submit an impact assessment report. As expressed by interviewee 16, the decentralised system allows for local or provincial heritage authorities to make the decision whether something should be destroyed or not, and for this interviewee, "That is the most important rule […], and I think among the practitioners themselves they take a lot of pride on it" (Interview, June 08, 2023). For interviewee 16, the law and the system are progressive; however, as will be discussed below, it is yet to be implemented in all parts of the country.

[75] These include the Environmental Conservation Act nr. 73/1989, as amended and the National Environment Management Act (as amended, nr. 107/1998), the Mineral and Petroleum Resources Development Act nr. 28/2002 (Ndlovu 2014).
[76] SAHRA. 2002. Guidelines to archaeological permitting policy.

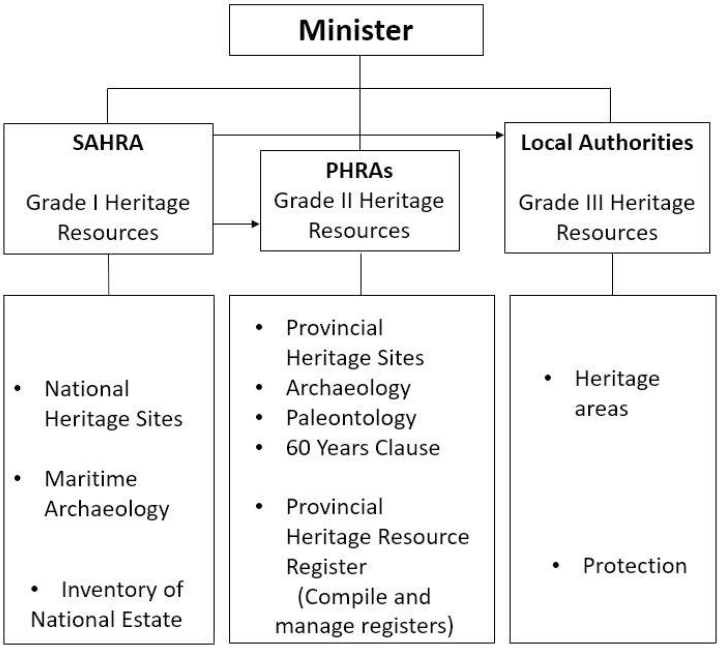

Figure 4.1. Management Framework for Heritage Resource of National State (modified from Rautenbach 2015:867.

Permits to destroy archaeological sites owing to development projects are issued only after a survey has been carried out to the satisfaction of the archaeologist and the relevant Heritage Resources Authority (NHRA Act nr. 25/1999[77], section 2:38, SAHRA 2002). The first impact study, phase I, does not require the archaeologist to have a licence from any authority (Interviewee 12, March 20, 2023). Licenses for rescue archaeology must be issued for the second phase (the so-called mitigation phase). The archaeological consultant recommends and proves the need for mitigation when soil disturbance requires archaeological excavations, removal and relocation of artefacts, etc.

The interviewees differ in how they experience that archaeological consultants are appointed, and there appears to be a lack of clarity in the process. The process of granting permits and hiring companies and consultants for rescue archaeology is complex, as illustrated by the interviews:

> Interviewee 12: […] normally the project owner will choose the environmental company that will manage all the project […] under normal circumstances, there are high chances that that environmental company normally know a lot of archaeologists or if you are an archaeologist that normally work very well, they will prefer to work with you (Interview, March 20, 2023).
>
> Interviewee 9: Sometimes it is less complicated, e.g., if you work with the company for many years, they know what you can do, they may just ask you to work for them. Sometimes, a tender process is not very transparent. Partly because people have trusted providers […] people are employed because they charge cheap rate or give the company and developer the kind of answer that they want to hear.
>
> Interviewee 13: Usually, the environmental management consultancy will employ heritage specialists […] but sometimes employ any independent archaeological

[77] South Africa. National Heritage Resources Act nr. 25/1999, Government Gazette, nr. 19974, April 28, 1999.

> practitioner. I am not aware of any cultural heritage resource company putting out any tenders for a particular job, but I am sure that that happens when the government wants to do a particular development […], and obviously, any individual companies would tender for an individual job […] then they will go to the PHRA or SAHRA to assess that, if they have further requirements, they will let the developer know (Interview, May 18, 2023).

As demonstrated illustrated from these quotes the tender process can be organised differently. The Archaeological Impact Assessment (AIA) is undertaken on a contractual basis. A developer can work with the environment agency to put out a tender for open bids. In other cases, the environmental company contracted to carry out the EIA process will put together the required documents and negotiate with the archaeologist to carry out the Archaeological Impact Assessment as part of the EIA. The environmental company may negotiate with an archaeologist directly or the contract is negotiated directly between the developer and archaeologist. It can be done through an independent competition or appointment by a professional association, e.g., ASAPA and KwaZulu Natal Amafa.

Challenges

Although SAHRA has developed its capacity over the years, there is still a lack of coordination. SAHRA's main functions are to set norms and standards for heritage resources management (NHR Act nr. 25/1999, Deacon 2015, Jackson, Mofutsanyana and Mlungwana 2019). However, SAHRA and the provincial authorities have been unable to develop procedures and the process of assessment and decision-making, including when developers are required to mitigate the impact and standardisation of recommendations. There are no national norms and standards to guide the Provincial Heritage Resource Agencies (PHRAs) (Deacon 2015). The lack of funds and a weak wording in the policy have delayed this process. Of the nine provinces, only three have established PHRAs so far, and the formation of equivalent municipal authorities has been slow. The exception is Kwazulu-Natal, Eastern Cape and Western Cape, which have established provincial heritage resources authorities and municipal processes which comply with the policy (Ndlovu 2014, Deacon 2015, Ndlovu and Smith 2019, Jackson, Mofutsanyana and Mlungwana 2019, Interviewee 12, March 20, 2023). The fact that the tree-tier system has not yet materialised throughout the country is a major weakness according to some of the interviewees, as they find the central authority, SAHRA, unable to monitor the process of rescue archaeology:

> Interviewee 9: SAHRA finds a way of working with developers, the system is questionable, they are underfunded, don't have enough staff, but is present in place for [PHRAs…]. There are methods to follow up with this and are protocols. But how it is enforced is doubtful (Interview, January 26, 2023).

The lack of competence or uneven competences at different local authorities is also flagged as a problem by several interviewees and here I give some examples:

> Interviewee 16: […] the provincial agencies haven't really put in place. They don't operate to full capacity at all. So, the competencies are not there. Actually, it is very seldom that they come up to verify what was put into the contract report or heritage assessment. The local heritage associations have never take-off at all. So, unfortunately, in many aspects, the heritage agencies play a limited part (Interview, June 08, 2023).

> Interviewee 13: We also have provincial heritage bodies, but all the provinces are not equally represented in terms of archaeological capacity on the provincial heritage resources agencies' stuff (Interview, May 18, 2023).

Another interviewee points out the possible administrative hurdles that might result from a functioning three-tier system. The person suggests that the system might be impractical in the first place, and therefore, the central authority ends up with the responsibility. However, the main problem still lies with uneven competences and capabilities:

> Interviewee 12: […] you have one body for national sites, and you are supposed to have nine bodies for provincial sites, and we have over 200 municipalities. It becomes impractical. What happens is that the national authority ends up taking responsibility for some of the provincial sites where the provincial authorities are either not there, or they are there by name and don't have the ability to manage those sites. […it is] very rare to find municipalities that have got capabilities, even to understand the heritage act accordingly (Interview, March 20, 2023).

Several interviewees raised the necessity that SAHRA and the PHRAs must improve the process of evaluating rescue archaeology reports as currently this is not done, or unevenly so. Interviewee 16 describes to us how the process should be organised:

> Interviewee 16: […] they put the required information from the heritage practitioner and that has to go to that contract report. Once the report is published, it does go out to a committee, so committee members can read it and say, it isn't good enough, ask questions or to write to the heritage authority and ask to review it again […]. Again, if sometimes is done, sometimes is completely ignored (Interview, June 08, 2023).

As shown, based on the experience of interviewee 16, the degree to which the PHRAs actually review the reports is uneven. The lack of monitoring is serious, as quality control will ensure that development projects, consultancy companies, consultants and cultural heritage management institutions together ensure sustainable management actions for cultural heritage. According to interviewee 16, this lapse is not owing to unclear policies and procedures, as in the same interview, the person states, "This thing can be properly done, the rules and regulations are there, but often things don't happen".

In addition, based on the experience of interviewees there is a lack of transparency in the contract process, which potentially can have negative effects. As explained by Interviewee 16 (Interview, June 08, 2023): "The problem of transparency in procurement process comes in when the development is involved, they try to subvert or getting around national heritage permit". Interviewee 9 (Interview, January 26, 2023) similarly saw the tender process as problematic because it can lead to 'a kind of corruption' for the same reason as expressed above. The lack of monitoring or standardised evaluation procedures could be mitigated with a high degree of professionalisation within the archaeologist community or internal sectorial standards. However, several interviewees brought up examples of archaeologists who were lacking in standards and were even cheating:

> Interviewee 9: I have heard other stories of people not carrying out fieldwork, not going to the field, using Google Earth, and just tracking there. He never carried out a survey. I quote this [example] because his survey went over a cemetery. When [the developer] began developing, they hit the cemetery […]. So, they [the developer] criticised the report, saying he had lied about the foot surveying (Interview, January 26, 2023).

> Interviewee 16: It's variable. Sometimes, you get very good contract archaeologists who make sure that everything is covered and give the background. Other times, you get someone who really is…the group is using this just to make money. They just send out anybody, and they pay the report. They don't put all the staff in, and they don't pay particular attention to recommendations at all (Interview, June 08, 2023).

It is generally thought that the 1999 cultural heritage legislation increased the professionalization of archaeologists in South Africa (Deacon 2015). This is also commented on by interviewee 9, who feels that the contract archaeology legislation has led to both "job creation and skill training". Interviewee 12 concurs with this argument, saying:

> […] When I became an archaeologist, most archaeologists were employed by museums and universities. Now, a greater number of archaeologists are employed in the private sector. At national level it is motivated in terms of more employment opportunities, it employs more archaeologists than any other Archaeology subdiscipline (Interview, March 20, 2023).

As shown above, there are concerns around the control, accreditation and qualification of archaeologists for rescue archaeology (Deacon 1988, Ndlovu 2014). These concerns resulted in the creation of the Association for Southern African Professional Archaeologists (ASAPA) in 2006.[78] This body promotes archaeology research in southern Africa. Both ASAPA and Amafa KwaZulu-Natali have an accreditation system. Accreditation as a contract archaeologist is not mandatory, but accredited archaeologists with both ASAPA and Amafa KwaZulu-Natal stand a better chance of getting a contract than others (Ndlovu 2014, Deacon 2015). Developers and environmental consultancies who do not have their own contacts use the accreditation lists through ASAPA and Kwazulu-Natal Amafa and via SAHRA to contact archaeologists. Although membership in ASAPA itself is open, the accreditation builds on the experience and academic qualifications of the member concerned. Over recent years, Ndlovu (2014) has criticised the accreditation system for a lack of transparency, which creates unequal opportunities and dependencies. Contrary to this, Deacon (2015) states that ASAPA has become "too lax" about actually regulating the activities of its members. The accreditation system is not directly specified in the law or procedures, and thus, the criterion for accreditation can be opaque. Commenting on the accreditation process, interviewee 12 said:

> SAHRA used to keep a list of what they say are accredited archaeologists without legislation legal bases to do that. The same applies in Kwazulu-Natal Amafa, they say that they accredit archaeologists, under what law no one knows. This became a problem because when they say to a company, we want you to do impact studies, the company ask how they choose the one archaeologist who can help us, and they say we are going to give you a list to choose from. But there's no law in which they built this list (Interview, March 20, 2023).

The combination of lack of monitoring and lack of formal procedures for accreditation creates a system with many loopholes. The lack of transparency, lack of control mechanisms, and, at the same time, the unqualified requirement for qualifications in the licencing institutions, which are not formally authorised by law, creates potential confusion. This is made worse by fierce competition for more employment opportunities and is related to a lack of professionalism and owing to a lack of resources or competence, the heritage authority is unable to react. I discussed what would happen in such a case with interviewee 16:

> Interviewee 16: Very often, the heritage agency will say the area is damaged, so let's just carry on, ignore it, or do nothing. The report can be very variable and also very thin (Interview, June 08, 2023).

[78] Developed from the earlier organisation Southern African Association of Archaeologists (SA3) which had been in existence since 1944 (Deacon 2015).

Carrying out archaeological excavations, implementing a development project, exporting or making any type of intervention to cultural heritage elements without permission from SAHRA or another competent entity is guilty of an offence and liable to a fine or imprisonment (NHR Act nr. 25/1999, article 51:1). However, crimes against cultural heritage may not be adequately addressed by those reporting. It can also be difficult for judicial and legal administration institutions to build a criminal case because they still lack training on this matter. Regarding this, interviewee 12 said:

> Generally, police don't know heritage laws in Southern Africa. We have to explain to the police what law this is, what crime has been committed. You look like an investigator yourself. Explain what kind of evidence you must prove the case. […] It is difficult to open a court case (Interview, March 20, 2023).

When it is decided that the evidence is strong that a crime was committed against cultural heritage, the case must go to court; however, it is difficult for local communities and cultural heritage authorities to win a court case against a large developer. Typically, court cases are complex, costly and can drag on for a long time. They can divide interests or create conflicts between professionals in the same field. Local communities and cultural heritage management authorities lack resources and legal capacity and end up giving up the case. One example is the Mapungubwe case, where a Coal of Africa (CoaAL) was operating in the buffer zone of this World Cultural Heritage site. The project owners and the cultural heritage management authorities in 2010/2011 became involved in a court case (Meskell 2011, Taruvinga 2019:145–146, Lane 2021). The case kept going until the cultural heritage authorities realised that they could not afford to pay legal fees. They subsequently gave up the case in court and chose to have a dialogue with the company (Interview, January 26, 2023, Interview, March 20, 2023).

Despite several challenges mentioned above that affect rescue archaeology activities in South Africa, this subfield is very important for the development of archaeology. It motivates its practitioners, creates jobs as discussed above and also, as commented on by several interviewees also produces scientific archaeological knowledge. Interviewee 9 (Interview, January 26, 2023) stresses that these contract/rescue archaeology projects bring in more money and resources to archaeology and thus enrich scientific archaeology. The same interviewee also points out that contract/rescue archaeology complements the regions/sites focused on in research archaeology:

> Interviewee 9: When we choose [research] projects, we often select areas based on prior knowledge and specific questions. Often, we find archaeology that we don't know about or know little about, but that helps us understand the archaeological sequence (Interview, January 26, 2023).

As contract/rescue archaeology takes place in areas that would not otherwise be prioritised, accidental discoveries contribute to the understanding of archaeology in general. The degree to which research questions and 'research archaeology' are embedded in contract/rescue archaeology was already discussed in Chapter 3.2 and commented on by more interviewees.

> Interviewee 13: …all contract archaeology should be automatically research focus because otherwise, we are not learning anything […] I think I should be a research component, but often, the practicality of undertaking proper full-scale research is just not feasible in the context of CRM archaeology in Southern Africa (Interview, May 18, 2023).

Even if Interviewee 13 feels that contracted archaeologists generally do a good job in data collection, analyses and reporting, the developer will not pay for a follow-up or detailed analysis. The same interviewee discusses that the results from contract/rescue archaeology could potentially be material for BA or MA theses or in research projects, but that often the "material is too informal to form part of a large-scale research project." One alternative to improve informal material is doing rescue archaeology research employing qualified professionals, using qualified methods and techniques, as well as ensuring monitoring of the activities, etc. This exercise will ensure high-quality rescue archaeology reports capable of improving archaeological knowledge. If investigations are carried out this way, the service provision chain will increase, protect heritage and develop the cultural heritage management sector.

Some interviewees see clearly how the impact assessment procedures promote sustainable management activities for cultural heritage and also create employment conditions not only for archaeologists, but for cultural heritage managers more broadly. However, several interviewees find that more efforts need to be made to include intangible heritage in rescue archaeology activities in South Africa.

> Interviewee 12: They will go and ignore other layers of heritage, focus on what they know better, […] the trend has always greater bias toward the tangible aspects of heritage than the intangible. (Interview, March 20, 2023).

> Interviewee 16: Usually is not dealt with intangible heritage at all, because the environmental team that pulls together [the assessment] usually has no archaeologist and then also has a person who does a social assessment. […] They don't think about the historical value of the place or the historic investment that people must invest in the site. So, […] you get the social impact assessment, which is done separately and often doesn't take any historical landscape into account at all (Interview, June 08, 2023).

In general, the heritage that is outside the scope of conventional archaeology or intangible heritage is often not included in cultural impact assessment to the degree it could be or is considered an afterthought, as commented by the interviewees above. This is problematic because doing so will result in incomplete information about the cultural aspects of local communities. Cultural heritage authorities are thus at risk of making inappropriate decisions about the project when negative impacts should be mitigated to the satisfaction of local communities. Furthermore, the material heritage found on a given site may have a relationship with the unrecorded or neglected intangible heritage. Cultural heritage authorities thus have to ensure that intangible cultural heritage is covered by rescue archaeology research.

4.2.1. Zimbabwe

Zimbabwe has the earliest heritage policy in the region as will be further discussed below. Zimbabwe in the 1970s–1990s was a strong economy with considerable investment in infrastructure (IBP USAa 2013:29). As such, there has been a strong and long-lasting formal system for cultural heritage management in the country. However, since the mid-1990s, the economy has been declining sharply, halting investments and also resulting in a fragmentation of existing administrative systems. The decline of the economy and of foreign investment in the country significantly reduced rescue archaeology activities since then.

Background

The earliest policy in the region, the Ancient Monuments Protection Ordinance from 1902, was passed mainly to prevent the plunder of monuments and relics dated before the 1800s.[79] Already from that time, a system of permits was introduced, managed by the Administrator's Office and any archaeological activities without a permit were illegal. The 1902 law was complemented by a Bushman Relics Ordinance in 1912, similar to the South African legislation (Ndoro 2001:15, Ndoro and Pwiti 2001, Matenga 2011:224, Ndlovu 2011, Makuvaza 2014, Basu and Damodaran 2015, Katsamudanga 2022). In 1936, the two laws were combined into the Natural Historical Monuments and Relics Act, which established a Monuments Commission responsible for legislation and protection of cultural and natural heritage sites. Responsibilities included documentation and inventory of all ancient monuments and relics (Ndoro 2001:15, Ndoro and Pwiti 2001, Makuvaza 2014). The legislation combined the protection of archaeological, historical, geological and biologically important landscapes (Basu and Damodaran 2015). In 1958, the Prehistory Society of Rhodesia was created recording archaeological sites and organising training in archaeological excavations (Katsamudanga 2022). In 1972, the National Museums and Monuments Act of Rhodesia (NMMR), Chap. 313, brought together the 'Monuments Commission' and the museums in the country (Ndoro 2001:16, Ndoro and Pwiti 2001, Makuvaza 2014, Katsamudanga 2022). This was combined with the decentralisation of heritage management to all the major cities and also expanded the cultural heritage presentation service to the public (Ndoro 2001:16). The new Cultural Heritage Management Service was divided between the five administrative regions and placed under the Ministry of Home Affairs. However, archaeological research and documentation of the indigenous past were not encouraged until after independence (Ndoro and Pwiti 2001, Makuvaza 2014).

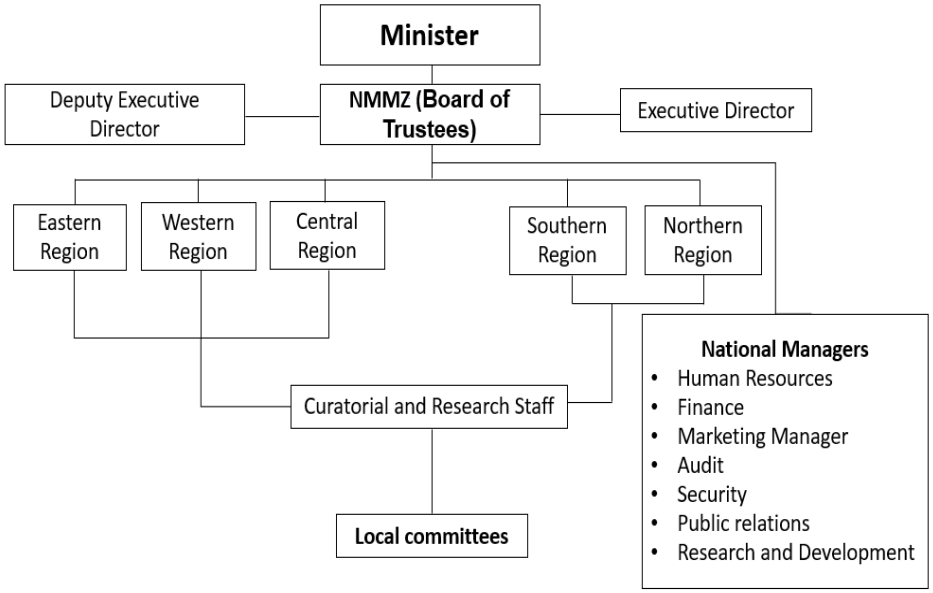

Figure 4.2. Management Framework for Cultural Heritage in Zimbabwe.

[79] The 1902 Ancient Monuments Protection Ordinance, promulgated by the Legislative Assembly.

Organisation

After independence in 1980, the NMMR was renamed National Museums and Monuments of Zimbabwe (NMMZ), still under the Ministry of Home Affairs (Makuvaza 2014). The 1972 law was amended in 1984, 1990, and 2001 but remains similar in structure and is now renamed the National Museums and Monuments Act (CAP 25:11,[80] Makuvaza 2014). Although the cultural heritage management sector in Zimbabwe is decentralised to administrative regions, control and authority are highly centralised compared to other countries. The executive and decision-making powers lie with the Minister of Home Affairs and with the NMMZ, specifically its board of directors (Fig 4.2). The CAP 25:11 designates power of authority to its Board of Trustees to 'undertake, through its employees or agents, the excavation of an ancient monument, national monument or ancient working' (CAP 25/11:13). The members of the Board of Trustees (BT) are appointed by the Minister of Internal Affairs and presided over by a Chairman (Mahachi and Kamuhangire 2008:45). However, the policy does provide for the decentralisation of authority as it can delegate to local or regional committees to assist the Board in carrying out its duties (Mahachi and Kamuhangire 2008:45, CAP 25:11, section 2).

Municipalities are also represented on the Boards of the National Museums and Monuments on an advisory basis. The law does not directly refer to heritage or archaeological impact assessment or rescue archaeology. Projects that include soil removal activities or risk removing, demolishing or destroying an ancient monument require impact assessment and mitigation, and lack of compliance is a criminal offence (CAP 25/11:24-25).

Therefore, any developer, before starting its activities, should request NMMZ to carry out heritage impact studies. In large developments, cultural impact assessments are usually carried out as part of the EIA process. The EIA procedure is specified by the Environmental Management Act (EMA Act) (Chapter 20:27), which specifies that a cultural impact assessment is mandatory in an EIA process.[81] The EIA procedure includes archaeological, heritage and social impact studies. More information about how the law manages rescue archaeology in relation to the EIA process in Zimbabwe comes from interviewee 17, who, apart from South Africa, has also worked in Zimbabwe for many years:

> If there are negative impacts on the cultural heritage, appropriate and acceptable mitigation measures have to be adopted. In instances where salvage or rescue work is not undertaken, a management plan for the identified sites has to be in place to ensure that cultural heritage is protected during the course of the development. These processes involve national museums and monuments of Zimbabwe, which are mandated to protect all the country's cultural heritage (Interview, June 21, 2023).

Lack of compliance with the EIA procedure can lead to imprisonment or fines (Environmental Management Act 11:39). However, in practice, there are few conditions to ensure compliance with legislation. For example, very often a development is only assessed before a project is begun. Once the project has started, monitoring is rarely done owing to a lack of staff and resources in the NMMZ. The penalties given to the developer for not complying with EIAs have not been effective, as a developer can easily afford to pay them. Between 2000–2008, during the years of hyperinflation, the

[80] National Museums and Monuments Act of 1972, CAP 25:11.
[81] Environmental Management Act, CAP 20:27, 7th April 2006.

penalties were set in Zimbabwean dollars. The developers embarked on their projects without an EIA, as it was cheaper for them to pay the fine than to go through the EIA process (Musindo 2010). In this way, the failure to comply with environmental impact assessment also affects cultural impact assessment.

The archaeological work includes a pre-development survey carried out by an archaeologist either contracted by the developer directly or appointed through the NMMZ. The NMMZ then assess the quality of work and reporting. This double role of the NMMZ as the organisation that both carries out or appoints an archaeologist and then monitors the quality was raised as a problem by several interviewees:

> Interviewee 1: […] While the NMMZ is the custodian of the heritage, they are the ones that access research projects that are done by contract archaeologists. It's very common to find that the archaeologist from the museum is the same archaeologist who goes out to do the contract archaeology, to do the impact assessment, and comes back in the office and accesses his own work, or a friend accesses their work […] (Interview, November 22, 2018).

> Interviewee 14: […] sometimes, we have situations where the people who work in NMMZ go out to collect data, come back, write the report, and say the project has been approved. This is fundamentally wrong because there are no separations; everything is integrated into one system.

There are few formal checks and balances in the situations described above. Interviewee 14, similar to Interviewee 17, has the benefit of comparing Zimbabwe and South Africa, where archaeology is separated from the entity/ies which approves reports and monitors results. However, environmental impact assessment also involved the Environmental Management Authority, as explained by Interviewee 17:

> Interviewee 17: Permits for salvage and rescue are issued by NMMZ; they can do the rescue/salvage themselves, or it can be done by an independent consultant. The monitoring of rescue operations also is done by NMMZ. The reports are evaluated by the Environmental Management Authority in collaboration with NMMZ. Key considerations in the evaluation process are transparency and objectivity. The evaluators will look at the appropriateness of the methodology, analysis of results, mitigation plan and management planning (Interview, June 21, 2023).

The appointed archaeologist is required to keep monitoring impacts during the development work (Interviewee 1, 22 November 2018). Still, there is a lack of monitoring of projects, mainly owing to a lack of human resources to do the work. Many professionals in the NMMZ have moved out of the country (Musindo 2010). Further, similar to in South Africa and Mozambique, the process of designating an archaeologist is not clear. Interviewee 1, an archaeologist who has formerly worked with the NMMZ, recounted his/her experience on how contracts are negotiated:

> Interviewee 1: an archaeologist […] can approach the developer and negotiate with the developer on his terms. So, it takes the initiative of an individual and their own connections. […] In that way, the NMMZ does not have much control over who gets which tender. Some developers […] approach the museum, […] and depending on who hears what is going on, they jump to the project. Things happen spontaneously. But if a developer does not approach the museum and approach other authorities that give permits, like the Rural District Council, asking for land, once they are given land [e. g. permitted to construct on land], they can go ahead, even if they have not been to consult the NMMZ' (Interview, November 22, 2018).

The conversation with interviewee 1 took place already in 2018 and the person has since left Zimbabwe and is no longer involved in cultural heritage management.

Interviewee 17, who has since been active in cultural heritage management in Zimbabwe, has a contrary opinion about the process of hiring companies and consultants to carry out rescue archaeology in Zimbabwe. For Interviewee 17, this process is now regulated and following standardised procedures:

> The process is regulated by EMA and the National Museums and Monuments of Zimbabwe. The award of contracts is done by individual companies or entities through an open tender process. The procurement process is done at the company or entity level. For public entities, the procurement process is guided by the national procurement laws. It is an open tender process that takes into consideration the technical proposal, financial proposal and experience of the assessment team. It is transparent. The company or entity, which may hire consultants define the scope of work (Interview, June 21, 2023).

This description differs from information given by Interviewees 1 and 14 and does not present the process as standardised and as open as described by Interviewee 17. Additionally, the EIA process in Zimbabwe has a low degree of cooperation between government departments. Many government departments, city councils, and district councils do not carry out any EIAs for their own projects. One example is the Great Zimbabwe State University, located within the buffer zone area of the Great Zimbabwe World Heritage Site (Musindo 2010). When it comes to the influence of developers in this system of direct recruitment of archaeologists, we heard the same complaints from interviews in South Africa, where the system is more standardised than in Zimbabwe. Thus, Zimbabwe is not an isolated case, and the same problem is relevant to Mozambique, as will be discussed in Chapter 5. In these circumstances, developers have much influence in determining the criteria for hiring consultants for rescue archaeology operations.

Challenges

In general, although formally all cultural heritage management activities are centralised to the NMMZ and Board of Trustees, there has been a move to transfer authority to local and regional commissions (CAP 25:11, sections 2:3; 4:2; 6:39). This delegation of authority should be expanded and formalised as local authorities can play a crucial role in enforcement and monitoring (Mupira 2008:83). The centralisation at the NMMZ, where officials carry out excavation and surveys and write reports, and at the same time approve and quality-assure the report is problematic. This problem was pointed out by Interviewee 14, in contrast to the South African system:

> Interviewee 14: In South Africa, the law tries to remove the conflict of interest; for example, if I am an officer in the NMMZ, I can't go to the field and come back and write the report and approve the report. That is not acceptable; there's a flaw in the process. In the South African system, the two are separated; the practitioner who goes to gather data and assess is independent and makes a declaration of independence. The person who is going to adjudicate and look at these reports also makes a declaration of independence that I was never in the field; I am doing this in the best of the information that has been collected; this project can go ahead or not.

As pointed out by Interviewee 14 (and as discussed already in Chapter 2), such centralisation is potentially a conflict of interest in terms of who of the two, company or individual consultant, wins the tender. There are many problem areas here, such as the questions of who supervises the activities, who evaluates the report to allow the project to continue, how to manage the results or reports and artefacts, what is the role of local authorities, and how can they benefit from rescue archaeology as custodians of cultural heritage, etc. The lack of clarity also affects the procurement process. While

Interviewee 17, as quoted above, said that there is an open procurement process, Interviewee 14 was less convinced:

> Interviewee 14: The procurement process is not transparent; the system is 'captured' [e.g. hostage] and cannot allow the procurement process. The interests are obviously compromised. The system that must be separated is conflated. The system that must have independent constituencies is conflated into one (Interview, May 23, 2023).

The procurement process may differ in different parts of the country and may have improved in recent years. As we saw above, Interviewee 1, who was interviewed in 2018, had not observed an open procurement. Interviewee 14 is perhaps less active in Zimbabwe now than Interviewee 17. Overall, as also shown in the quote above, there is a lack of concrete policy that specifies the processes and procedures (see also discussion in Ndoro and Kiriama 2008:60). There appears to be few specifications on reporting in terms of content and quality as was brought up by Interviewee 14, again comparing with South Africa:

> Interviewee 14: […] I don't know how the report quality is defined because most of these reports are done by people of NMMZ, who set the benchmark. Is not transparent. Is a grey zone in this country. In South Africa, they are clear in terms of standards that they enforce (Interview, May 23, 2023).

As shown in the above quote, there is a lack of concrete policy that specifies the processes and procedures (see also discussion in Ndoro and Kiriama 2008:60). Thus, there is no clear procedure for a developer to involve cultural impact assessment and how to do it. In practice, the inclusion of cultural impact assessments and monitoring under EIA depends on the level of knowledge of the developer, their sensitivity in terms of cultural heritage issues, or even the availability of funds. Contemplating the criticism from archaeologists in Zimbabwe on the current systems of the management of rescue archaeology in Zimbabwe allows me to suggest a solution, namely formulating procedures and guidelines for rescue archaeology operations and thus ensuring enforcement of the Cultural Law. The fact that not all entities involved know how or if there is a tender process suggests some problems with transparency. This discord can be overcome by making the process that guides these activities more transparent, by creating guidelines that explain the entire operational chain of rescue archaeology activities and specify duties and responsibilities for each actor involved in this activity.

When it comes to integration with local heritage, the legislation, CAP 25:11, does not refer specifically to the integration or participation and inclusion of local authorities and communities. However, with the 2000 Traditional Leaders Act.[82] Traditional leaders are defined as custodians of heritage; thus, it is mandatory for researchers to involve, consult and report to traditional leaders. Although Zimbabwe has much respect for intangible heritage (Interview, May 23, 2023), these elements of cultural heritage are not yet specifically mentioned in the law, but there is potentially a possibility to include it through collaboration with the local community. Interviewee 17 also pointed to the fact that the Zimbabwean cultural legislation does not directly address intangible heritage issues:

> Intangible cultural heritage is not well catered for in the existing legislation although this may be covered under socio-cultural impacts. But good rescue archaeology practice records the intangible aspects of the heritage. The most common mitigation is one that seeks to safeguard the intangible aspects and not rescue them. So, the legislation needs to be improved to

[82] Traditional Leaders Act, Chapter 29:17.

explicitly include intangible heritage and pre-development heritage impact assessments (Interview, June 21, 2023).

The inclusion of intangible cultural heritage elements in socio-cultural impact assessments in Zimbabwe is good, as explained by Interviewee 17. Nevertheless, the socio-cultural impact assessment may not include archaeologists or specialists of intangible heritage, as happens in Mozambique and sometimes in South Africa, or the assessment considers elements of intangible heritage as an afterthought, owing to their complexities, as explained by Interviewee 4, 12 and 16. In a context like Zimbabwe (and also Mozambique), with weak enforcement of the legislation, it is very difficult to find effective mechanisms for the sustainable management of intangible cultural heritage. Even in South Africa, where cultural legislation is strong, dealing with intangible heritage during rescue archaeology is very challenging. In addition to lack of compliance, weak legislation opens space for conflicts of interest among professionals from the same field of activity. When assessing cultural heritage law enforcement and rescue archaeology operations management in Zimbabwe, Interviewee 14 contemplated this dilemma, saying:

> Interviewee 14: I think it is all 'bow down to the rule of law'. The law is not being respected because a noble man cannot play and give himself a penalty (Interview, May 23, 2023).

When the law is not complied with, development projects may negatively impact cultural heritage or violate local principles and values that govern certain heritage assets. This violation can generate conflicts between project owners, local communities, and local authorities, which could lead the parties involved to court. For example, in Zimbabwe in 2011, a Chinese company was hired by Econet Wireless Limited to build a booster station for network and road access. The Chinese company violated graves on Sviba Hill during the construction activities. When traditional leaders realised the destruction of cultural heritage, they reported to the NMMZ, who stopped the project, after which the case went to court. The traditional leader was asking for 2000 heads of white cattle and wanted Econet to build a home for the leader (since they had disturbed the home of his ancestors) as compensation for the damage. The traditional leader lost the case in favour of Econet. Econet's counterclaim, which won in court, was that the leader was asking for something that Econet could not afford. Only then did the NMMZ officials conduct rescue archaeology operations on the site, give recommendations on how the project should proceed, and allow the construction activities to resume (Mawere *et al*. 2012), Interviewees 1, 14 and 17). Apart from the challenges mentioned above, if there were strong law enforcement, the rescue archaeology sector in Zimbabwe would contribute to economic and social development. Zimbabwean archaeologists are more optimistic about the importance of rescue archaeology:

> Interviewee 14: Suppose in Zimbabwe there's strong cultural law enforcement, how many archaeologists will be employed? By saying this, I am not criticizing the government or the NMMZ. I am talking about the value of the chain. I am criticizing the practices. To say I see an opportunity for archaeologists. The beneficiation goes back to livelihoods, families and communities. Big companies are operating in Zimbabwe, but there's no enforcement (Interview, May 23, 2023).

Non-compliance with cultural legislation and conflicts of interest among archaeologists are also seen in Mozambique (see further discussion in Chapter 6). Conflicts that may arise during rescue archaeology when the parties disagree about the management of certain heritage sites covered by the project (mainly project owners, cultural heritage management authorities and local communities) should be resolved according to

the standards and practices of good faith. Only when these mechanisms have been exhausted can an appeal be made to the court. In this way, once the procedure is not followed in an appropriate order, the correction of such lack of compliance through the court system will stall any project, take a long time and thus be very costly, or may not take place at all.

4.2. Other Countries

4.2.1. Botswana

Compared to South Africa and Zimbabwe, Botswana is a small country with a small population but with relatively high per capita income. The mining sector, particularly diamonds, is large and ranks as a middle-income country in terms of national GDP (MAEUEC 2019). In colonial days, Botswana was a protectorate under the United Kingdom and followed a similar trajectory as South Africa in terms of legislation. Botswana is characterised by a close and long-lasting collaboration between environmental protection and heritage agencies. In addition, Botswana has created a designated Monuments and Relics Fund for cultural heritage management activities expanses. This fund can fund projects implemented by the state that require pre-development Archaeological Impact Assessment.

Background

The Bushman Relics Protection Act was enacted in 1911, at the same time as in South Africa. The Act was amended in 1934 with the Natural and Historical Monuments, Relics and Antiquities Proclamation. The two laws gave authority to the Resident Commissioner to issue permits to study or remove heritage (Hermans 1977). The 1934 Act gave a clearer definition of cultural heritage, including local heritage, and also included natural heritage, in terms of geological formations, flora and fauna (Ndobochani 2016).[83] The Natural and Historical Monuments, Relics and Antiques Proclamation Amendment, 1951, prohibited unauthorised archaeological excavations (Ndobochani 2016). Botswana became independent relatively early, in 1966, and as in many countries, cultural heritage management was built around the promotion of national unity and pride (Parsons 2006). The newly founded National Museum (1968) became instrumental in building up cultural heritage management (Thebe 2011).

In 1970, the Monuments and Relics Act repealed all previous legislation, and archaeological resources or ancient monuments (defined as human activity older than 1902) were classified as state property (Walker 1991, Thebe 2011). The Monuments and Relics Fund was established through government and private funding to finance actions and activities for the management of cultural heritage (Thebe 2011). At the time, the responsibility of managing cultural heritage was under the National Museum, which also housed the collections and archives (Walker 1991). Although there was no formal policy on environmental impact assessment, an early procedure for pre-development impact assessment studies was initiated by a cultural resource management programme in 1987 (see Hall 2008:71, Ndobochani 2016). Through this process, the

[83] An amendment issued in 1935 specified that removal of or research on monuments or relics with Native Reserves required the consent of the chief of the tribe of the reserve. Through this amendment, the colonial government started to integrate local authorities in the management of Cultural Heritage (Hermans 1977, Ndobochani 2016).

museum advised the developer to conduct archaeological impact assessments, and when the requirements of AIA had been accomplished, the project was allowed to continue (Walker 1991).[84]

The Monuments and Relics Act nr. 12 of 2001 (CAP 59:03) is the main cultural heritage law, which in section 19 specifies procedures for pre-development AIA:

> […] where development or any ground-disturbing activity is to be carried out, to determine the likelihood of the development or activity impacting negatively on any cultural material or evidence that may be present in the area to be disturbed.

National Museum and Monuments (NMM), implement, monitor and enforce the Act (CAP 59:03, Moroka and Dichoka 2010, van Waarden 2011). The main Act on cultural heritage management is aided by other legislation, such as the Declaration of National Monuments Order of February 10, 2006, and the Monuments and Relics Regulations of December 30, 2016.

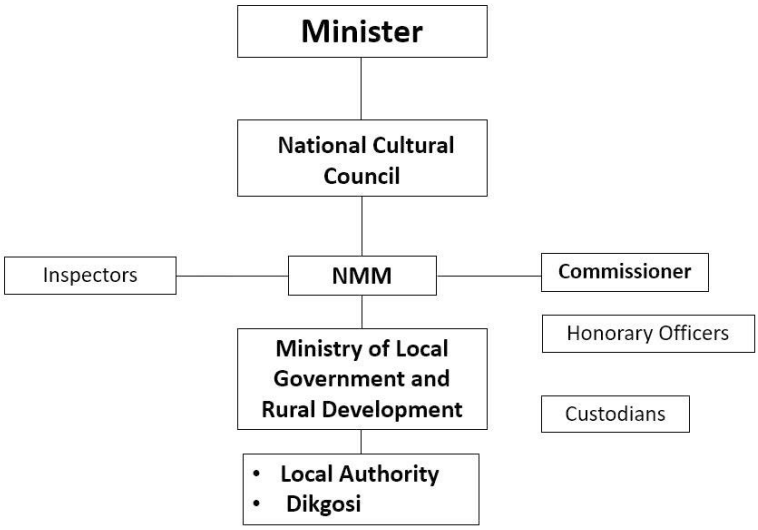

Figure 4.3. The Botswana management framework of cultural heritage.

Organisation

Administration and management of cultural heritage currently lie under the Ministry of Youth Empowerment, Sport and Culture Development and the Department of Arts and Culture Development Desk. The management structure is specified in the Monument and Relics Act nr. 12/2001 (CAP 59:03).[85] The system is centralised and hierarchical, consisting of the minister, the commissioner, the inspector, the honorary officers and the custodians (CAP 59:03). The minister is responsible for proclaiming new monuments, issuing permissions to archaeological research, and for pre-development impact assessment studies, etc. The minister appoints the commissioner, inspector and honorary officers (Fig. 4.3). The commissioner has the duty to advise and assist the minister in making decisions for the management of cultural heritage. Meanwhile, the

[84] In the same way, the Mines and Minerals Act of 1999 required an Environmental Impact Assessment as part of the application for a mining license (Ndobochani 2016).
[85] Monuments and Relics act (CAP 59:03). Declaration of National Monuments Order, October 02, 2006.

inspector investigates and reports upon any matter relating to the implementation of a specific policy and, with the written permission of the Minister, also undertakes excavation or exploration of monuments, sites and finds. The custodians ensure the protection and maintenance of a monument, site and other cultural resources. In addition, they assist the honorary office and report to the commissioner but with the honorary officer's consent (CAP 59:03).

Local authorities under the Ministry of Local Government and Rural Development are responsible for administering customary law, guaranteeing the advocacy, promotion and preservation of culture implementation process at the community level (MLHA/DCY 2002). The National Museum and Monuments (NMM) is the custodian of Botswana's cultural and natural heritage and the implementer of the cultural heritage law and policy. The directorate is responsible for identifying and protecting monuments and relics. Only archaeologists accredited or approved by the National Museum can carry out pre-archaeological impact assessments and mitigation work for activities or projects that will physically disturb the earth's surface, such as the construction of roads, dams, pipelines, mines, lodges and campsites (CAP 59:03, article 19). The NMM has issued detailed pre-development archaeological impact-assessment guidelines for AIA, which are also included in the country's EIA policy and in mining legislation.[86] The Commissioner assess the AIA report and grants permission to the development to decide on possible mitigation measures (van Waarden 2011).

Challenges

As is clear from the above presentation, Botswana has explicitly defined procedures, roles and responsibilities in the archaeological impact assessment process through the legislation. In this context, rescue archaeology operations and an environmental impact are mandatory. These activities must be carried out by the developer of the project, which will physically disturb the earth's surface. This policy gives more scope for cultural heritage protection during development projects. The procedures are facilitated by an exemplary collaboration between authorities, as discussed above (see also MLHA/DCY 2002). Still, there are challenges, such as the lack of monitoring capabilities within the National Museum and Monuments, weak enforcement of protection measures, and the designated fund has not materialised as planned (Waarden 2011).

4.2.2. Namibia

The economy in Namibia is heavily dependent on the extraction and processing of minerals for export, with strong economic links to South Africa. Receive 30 – 40% of its revenues from the Southern African Customs Union. Per capita income was US$ 10,404 in 2018, making Namibia's per capita income one of the highest in the region (MAEUEC 2019d). Namibia's economy remains vulnerable to volatility in markets, especially regarding the price of uranium. The rising cost of mining diamonds, predominantly extracted from the sea bottom, has reduced profit margins (IBP USAb 2013:15), and the restrictive budgetary policies have contracted the mining and construction sectors (MAEUEC 2019b), reducing opportunities for rescue archaeology activities in the country.

[86] Republic of Botswana, Pre-development archaeological impact assessment. Guidelines for Archaeological / Architectural/ History consultants.

Background

Namibia was first colonised by Germany between 1884 and 1915, after which it was occupied by the South African Union. The South African Union took over the formal administration of the country in 1920, a situation that was revoked by the United Nations (UN) in 1966. In 1971, the International Court of Justice upheld UN authority over Namibia and negotiated the transition to independence in 1990 (IBP USAb 2013:25-26).

Most of the policies on cultural heritage in colonial Namibia followed the legislation in South Africa (Ndjiharine 2014, Basu and Damodaran 2015). The present National Museum of Namibia emerged in 1907 from the Southwest Africa Scientific Society. In 1948, the Historical Monuments Commission was established and initiated measures to legally protect Namibia's cultural heritage. The South Africa National Monuments Amendment Act nr. 28/1969 was the first heritage legislation to be adopted in Namibia (Imalwa 2016:12–13).

The new policy established the following management structures: National Monuments Council of Namibia provincial council delegations (sections 5A, 6), and local authority to guarantee the conservation of cultural heritage within communities (section 18:2). This legislation declared any wreck older than fifty years to be a monument (section 10A), and established measures to protect the entire national heritage (section12:2A). The 1969 Act was amended several times but in essence, the legislation remained similar until the end of colonial time.

Organisation

Namibia presents another example of a centralised system of cultural heritage management, although it integrates various social actors, allowing for an inclusive management system. After independence in 1990, the National Heritage Act nr. 27 was passed in 2004 (NH Act nr. 27/2004). The 2004 Act makes all archaeological, palaeontological objects and meteorites property of the State (section 55:3). Listed buildings and conservation areas are protected, and any intervention needs permission from the National Monuments Council of Namibia (sections 53:14; 55:10), while trespasses can lead to fines or imprisonment.

The National Heritage Act restructured and provided new measures for the registration, protection and conservation of places and objects of heritage significance. The administrative system is organised around the following actors and roles: The minister makes provisions to the heritage resources management, addressing specific recommendations of the National Heritage Council. The National Heritage Council of Namibia (NHCN) is established under the Ministry of Youth, National Services, Sport and Culture and advises the minister on state heritage management and issues permits for cultural heritage management activities. The council also manages, protects and conserves the country's natural and cultural heritage and implements the terms of the Act (NH Act nr. 27 of 2004, sections 2; 48 and 45, Imalwa 2016:17). The honorary heritage officers assist the council as advisors and the heritage inspectors monitor heritage resources. Finally, the local authority acts as a liaison between the community and the council, assisting both parties in matters relating to compliance with legislation and monitoring (sections 53–54, 60–61).

As in South Africa, Zimbabwe and Mozambique, the appointment of an archaeologist to conduct rescue operations is the prerogative of the project proponent. It is required that the archaeologist should be independent of NHCN and of the national authorities.

Rescue archaeology can also be part of the EIA or can be carried out independently. The International Finance Corporation and the International Council on Mining and Metal have guidelines for cultural heritage management (Kinahan 2013). The 2004 legislation makes a pre-development archaeological impact assessment mandatory and specifies procedures for assessment, including different steps to follow and the type of activities that are required in such a study. Thus, it is standard practice in the country to use the official regulations or guidelines in development projects. Projects that begin their activities without carrying out a cultural impact study will be embargoed and obliged to conduct such an assessment and will only be allowed to continue after the cultural authorities are satisfied. Failure to comply with the law is an offence and is liable to a fine and/or imprisonment (Section 6: 54 and 55).

Challenges

The policy stipulates that anyone can intervene in cultural heritage management in the region. This initiative is meant to integrate different stakeholders in cultural heritage management and promote local community participation. Although the law tries to include different social actors in the management process, the greater power and decision-making is concentrated in the NHCN, which is potentially problematic. The national policy for arts and culture adopted in 2001 created the conditions for the new cultural legislation in 2004 (Hofmeyr 2015); however, in the main law, the lack of provision for intangible heritage remains a challenge (Kinahan 2013). The ratification of the 2003 UNESCO convention in 2007 and the Convention of Diversity of Cultural Expressions in 2005 show the government's ambition to ensure the legal protection of intangible heritage (Imalwa 2016:25). These efforts also placed the cultural heritage as a key component for development. As discussed by (Stanle *et al*. 2018), the national cultural policy needs to integrate these achievements of international cooperation more into the procedures around rescue archaeology.

4.2.3. Zambia

Northern Rhodesia was the name of the country from 1924 when it was administrated as a British protectorate. The name was changed to Zambia after independence in 1964. The country's economy depends heavily on agriculture, mining (mainly copper), construction, transport and trade. In the mid-1970s, the price of copper declined, and as a result, the country turned to foreign and international lenders for relief. Since the copper price continued declining, the national debt has been growing. By the mid-1990s, despite limited debt relief, Zambia's per capita foreign debt remained among the highest in the world. In 2012, average growth remained below the target of 7.0% planned by the government to 2030 (ZEMA 2013:12, 36, IBP USAc 2015:24–26, 31). However, with the expansion of the extractive industry and construction sectors (MAEUEC, 2019a), there is a need to expand the rescue archaeology and heritage management sector.

Background

The first cultural legislation (as in Zimbabwe and South Africa) was the 1912 Bushman Relics, which made it illegal to remove any relic or monument without a permit from a BSAC Administrator. In 1930, the Preservation of Archaeological Objects Ordinance (Ordinance nr. 5/1930) incorporated protection from disturbance or destruction of all caves, buildings, rock art, ruins, graves, and archaeological or palaeontological interest (Musonda 2012). The ordinance also introduced a provision for the

declaration of reserves (Chikumbi 2009:82). In the 1930s, the David Livingston Memorial Museum and Rhodes-Livingstone Institute played an important role in the research, management and dissemination of the country's cultural heritage. In 1948, the Natural and Historical Monuments and Relics Act nr. 90 created the Commission for the Preservation of Natural and Historical Monuments and Relics to protect cultural and natural heritage (Musonda 2012, Chikumbi 2009:82, IUCN 1992). Colonial legislation in Zambia remained in force for 25 years after independence until 1989, when the new National Heritage Conservation Commission Act (NHCC nr. 23/1989) was approved and later amended by Act nr. 13/1994. The main law is complemented by several pieces of legislation, such as the Local Government Act nr. 22 of 1991; Town and Country Planning Act CAP 293 of the Laws of Zambia and Wildlife Act of 1998 and the Tourism Act nr. 29/1979. From 1996/7, the NHCC began to cooperate with NORAD, receiving international capacity building to support and strengthen the cultural heritage management program (Chikumbi 2009).

Organisation

With the 1989 Heritage Act, the definition of cultural heritage was expanded beyond monuments and historical relics to include archaeological and historical remains dated before 1924. Areas and objects of traditional and historical interest were included as immaterial heritage (subsection 33:40). The Minister of Tourism, Environment and Natural Resources regulates heritage management activities (section 4:49, Fig 4.4). Under the Minister, the National Heritage Conservation Commission (the Commission) is responsible for management activities and has authority over natural and cultural heritage (Chikumbi 2009:82, NHCC Act nr. 23/1989, sections 2–4). The Commission may designate an Honorary Commissioner who, when authorised, 'may perform all or any of the powers or duties on a voluntary basis' (subsection 19:2). Thus, all decision-making process is delegated to the Commission. In 1996, a process of restructuring and decentralisation of cultural heritage management began. This reform, in part, was owing to international cooperation between the National Heritage Commission and the Norwegian Directorate of Cultural Heritage. This resulted in the establishment of four regional offices to combine administration and conservation activities to contribute to a more effective heritage management. Around 2006, regional offices were finally established, and their institutional capacity developed, allowing the commission to work closely with provincial and municipal authorities, tourism bodies, traditional authorities and local communities (Chikumbi 2009:82-83, Chipote 2009).

The commission is responsible for archaeological impact assessment activities, paid by the developer (section 5:43), but there are no guidelines on how this should be made. The law does not specify how local authorities should participate in cultural heritage management activities. It also gives exceptions to some activities and projects that impact cultural heritage elements without mitigation as long as they are recognised by state institutions (sections 5:33; 41). Since the law requires any person to report the heritage object discovered to the Commission (section 4:42), the Commission should also establish how the local community should participate in cultural heritage management. The EIA is regulated by other specific legislations, such as the Environmental Protection and Pollution Control Act of 1990, amended by the Statutory Instrument nr. 28/1997. This legislation establishes mandatory procedures and requirements for carrying out the EIA by a project of exploitation of natural resources, urban development, transportation, dams, rivers and water resources, mining etc.

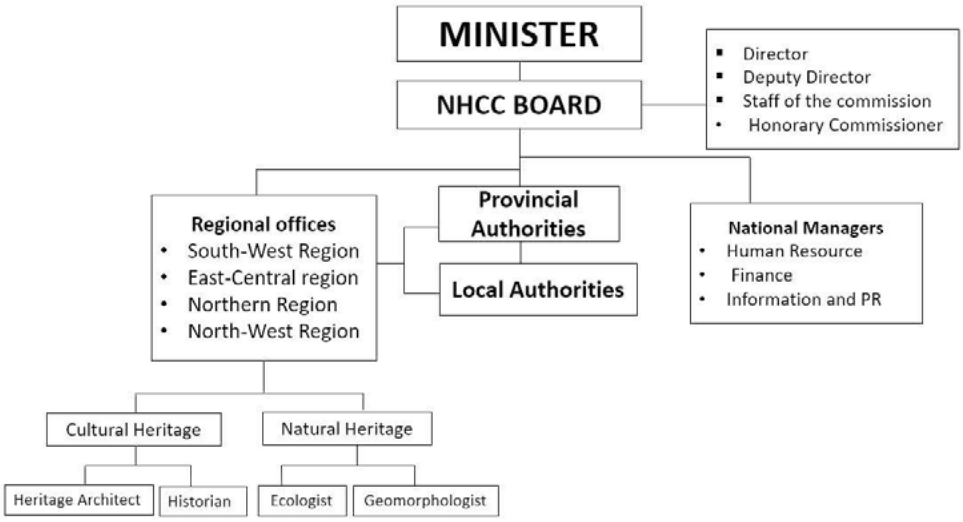

Figure 4.4. Zambian management framework for national cultural heritage (Chiumbi et al. 2009:82-83; and based on government pages,http://nhcc.org.zm/administration/).

Challenges

The National Heritage Conservation Commission Act nr. 23/1989 is ambiguous when it comes to regulating archaeological impact assessment. This can result in a lack of compliance with the law; in addition, the exemptions added in the law as to what is an offence create potential loopholes. Conducting archaeological operations without a permit is an offence to the law and is liable to a fine, imprisonment or both (article 33–40). However, in normal mining, engineering and agricultural operations, are not prohibited from excavating, altering, removing, destroying, or demolishing ancient heritage or relic or part of it unless that person was the owner of the land acquired or held under customary law or was the holder of a valid mining licence or certificate of title (Article 41). Consequently, at times, rescue archaeology is done reactively by the Commission (section 5:42b) rather than during the pre-development phase of a project. Further, it is not specified how cultural impact assessment consultants are hired.

The international cooperation between the Commission and the Norwegian Directorate of Cultural Heritage led to the decentralisation of the cultural heritage management system and institutional capacity building. This strengthened the cultural heritage management system, increased the involvement of local communities in cultural heritage management, and improved interaction with other stakeholders.

This inclusive and integrated system of management is said to have increased awareness of the decision-making process and enhanced a sense of ownership, preservation, and understanding of the relevance of heritage. As a result, new sites have been reported, documented and disseminated to the public in collaboration with educational institutions. Joint programs for the protection and conservation of cultural and natural heritage have been designed associated with tourism development (Chikumbi 2009, Musonda 2012). However, the main cultural legislation still presupposes a centralised system (cf. NHCC Act nr. 23/1989, Musonda 2012). Therefore, all the reforms and improvements made from the mid-1990s still need to be included in the main cultural policy.

4.2.4. Malawi

Like Zambia, Malawi is a landlocked country, and therefore, Lake Malawi or Nyasa/Niassa is of central importance for the country. This lake constitutes the southern stretch of the Rift Valley, and the area could potentially be rich in sites (Bootsma and Jorgensen 2005). Malawi is ranked as a low-income country and agriculture is the main economic activity. Cultural heritage protection measures and research activities in Malawi, compared to other British colonies, started at the end of the colonial period. For example, in 1957, the National Museum in Blantyre was created and the museum drafted the first heritage law (cf. Juwayeyi 2011). The heritage law was confirmed only a year after the 1964 independence. The country depends on international donations, both from bilateral as well as multilateral organisations, to revitalise the economy, control inflation and reduce poverty (MAEUEC 2020). The development of cultural industries through rescue archaeology activities is a viable alternative to alleviate poverty in Malawi.

Background

The Monuments Act nr. 44/1965 was the first cultural heritage legislation in Malawi. The act extends the concept of a monument from immovable and movable material to any area of land or specific landscape with archaeological, geological, anthropological, ethnological, prehistorical, artistic or scientific value or interest (section 1). The Act established a Monuments Advisory Council to advise the Minister on issues of administration and cultural heritage management (cf. Monuments Act nr. 44/1965, Berkes *et al*. 2000, Ndoro and Kiriama 2008:60, Juwayeyi 2011). The Advisory Council included members from other ministries, museum trustees and senior cultural heritage managers. The broad representation in the council placed cultural heritage management at the heart of all state institutions. The revised Monument Act nr. 44/1965 laid the foundation for the protection of cultural and natural heritage in Malawi. In the 1976 Act, the Department of Antiquities was designated as the institution carrying out archaeological research and managing national monuments (Juwayeyi 2011). The Monument Act was only repealed by the Monuments and Relics Act of 1991 (CAP 29:01). In the 1991 Act, the advisory council was renamed to Monuments and Relics Advisory Council (MRAC). All monuments and relics were classified as government property, except when private individuals have titles of known heritage or registered by the state. Any intervention or use of monuments and relics must be authorised by the government or be guilty of an offence.

Organisation

In Malawi, cultural heritage management is the responsibility of the Ministry of Civic Education, Culture and Community Development. The Ministry centralises all decision-making processes related to administration and management activities (Fig 4.5). Under the Minister, the Chief Antiquities Officer administrates the provisions of the Act according to any special or general directions of the Minister. In addition, the Chief Antiquities Officer has the right to carry out rescue archaeology, supervise monuments and relics, etc. The MRAC is composed of multisectoral state officers' members or their representatives. The council advises the Minister in all matters related to cultural heritage management. The local authority may and, when requested by the Minister, compile a list of monuments of local importance, report the existence of monuments and relics and ensure that monuments and relics are under the supervision of the Chief Antiquities Officer. The involvement of members from different state institutions in MRAC constitutes a means of integrated management of cultural

heritage, but only the Minister and Chief Antiquities Officer play important roles in cultural heritage management in Malawi (cf. CAP 29:01, sections 2–7).

The National Cultural Policy adopted in 2015 aimed at developing cultural heritage management in Malawi further to guarantee the availability of resources for cultural development. Within the ambit of this policy, the Department of Culture Headquarters administrates cultural and authors' rights and maintains internal and external communication and cooperation on cultural issues. Similar to the main cultural legislation, the National Cultural Policy lacks provisions for local authorities.

The cultural heritage policy establishes clear measures for carrying out pre-development AIA for development projects, but the entire administrative process is negotiated only between the proponents of the project, the Chief Antiquities Officer and the Minister. It is specified that rescue archaeology activities should be carried out by the Chief Antiquities Officer or any qualified person with an excavation permit issued by the Minister and that the cost of such work should be borne by the developer unless the Minister directs otherwise. Other complementary actions for cultural heritage management in the country have also been provided by the Mines and Minerals Act of 1981 and by the Environmental Management Act nr. 19/2017, the Guidelines for Environmental Impact Assessment of 1997 (Kosamu 2011, McCourt Mining Pty Ltd 2018). A person who conducts unauthorised archaeological excavations would be guilty of an offence (article 28:2) and liable to a fine and imprisonment (article 56).

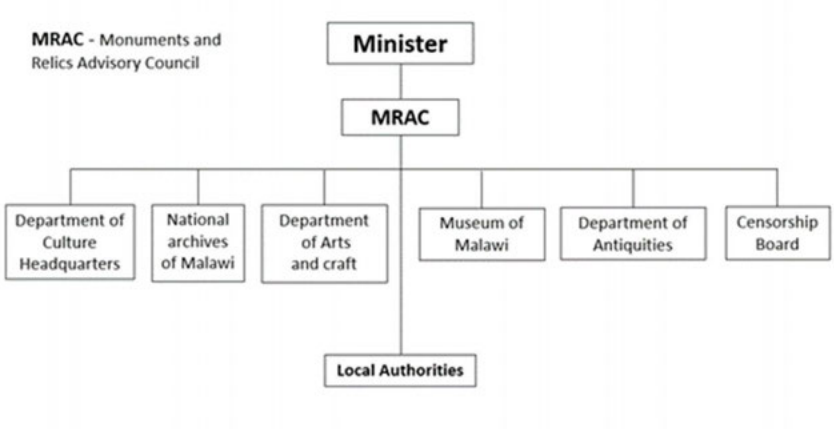

Figure 4.5. Malawian cultural heritage framework.

Challenges

Since cultural heritage management is centralised with the Minister and Chief Antiquities Officer, the integrated sector of MRAC is restricted to a high level of state administration. There is no clear framework interconnection with provincial, district and local authorities, so that they can participate in the management system. Despite the adoption of the National Cultural policy in 2015 to boost the cultural heritage management in the country, the government still plays a dominant role in the management of cultural activities. A pre-development cultural impact assessment, like in other countries of the region, is normally carried out within the scope of the Environmental Impact Assessment (EIA), which includes community engagement locally (cf. AURECON 2010). However, the EIA process in Malawi still lacks an effective monitoring and auditing process (Kosamu 2011).

In addition, some projects do not include social assessments through community engagement groups and thus do not include local heritage or intangible heritage. This

problem, combined with the lack of local community involvement in cultural heritage management, creates a lack of interest in communities to engage in effective cultural heritage management actions, as discussed by Malijani (2019). Thus, a more effective policy is needed in Malawi based on a more decentralised system that can build towards self-management and inclusiveness of local communities.

4.2.5. Angola

Angola is an interesting comparison with Mozambique, as, like Mozambique, it was colonised by Portugal. Thus, during colonial times, it was subjected to the same administrative and legislative regime as in Portugal until its independence in 1975. Angola is rich in petrol sources with a coastline of 1600 km, and economically, the exploitation of petrol in the service and manufacturing industry accounts for a large part of the economy (MAEUEC 2019b). Like Mozambique, Angola is characterised by the late start of archaeological research and cultural heritage management activities during the colonial period, as well as by the export of the cultural laws of the colonial state. Currently, cultural legislation has not been effective for the management of rescue archaeology operations, which makes it challenging to reconcile economic development projects with cultural heritage management activities.

Background

Although the first reports of archaeological data in Angola date to the early 19th century with the Diamond Company of Angola, the work on prehistory started in the early 20th century. The Archaeological Museum was created in 1947 to develop archaeological research and to manage local cultural heritage. A Culture Council was created to inventory and protect heritage (Rodrigues 1995:200-201, Oosterbeek and Martins 2011, Máximo 2018, Simão 2019, Machado 2019:11-20). After independence, a new legislation, Decree nr. 80/76[87] was approved whereby all historical and cultural heritage was proclaimed state property (article 1).

The Department of Museology Services replaced the Culture Council to administrate cultural heritage management activities (article 2). The ambiguity and limited provisions on cultural heritage management in the 1976 decree were improved by the subsequent legislation. The Cultural Heritage Law nr. 14/05[88] established the basis of the policy and regime for the protection and enhancement of cultural and natural heritage. Cultural heritage is protected by the state and is defined as material and immaterial assets of historical, archaeological, scientific, artistic, technical and social value (article 44). The definition of heritage is broad, defined as any assets that are considered as such by usage and customs and by international conventions that bind the Angolan state (articles 1, 2, and 6). Other legal instruments that are part of the legal framework for the protection of cultural heritage are the Presidential Decree nr. 53/13[89] which approves the regulation of immovable cultural heritage, and the Presidential Decree nr. 205/15[90], which approves the INPC[91] organic status (see below).

[87] *Decreto nr. 80/76. Diário da República, I Série, nr. 244, 03 de Setembro, 1976, Luanda: Imprensa Nacional.*
[88] *Lei nr. 14/05. Lei do património cultural. Diário da República, I Série, nr. 120.*
[89] *Decreto presidencial nr. 53/13. Diário da Republica, I Série, nr. 106, 06 de Junho, 2013.*
[90] *Decreto presidencial nr. 205/15. Diário da República. I Série nr. 149, 10 de Outubro, 2015.*
[91] National Institute of Cultural Heritage.

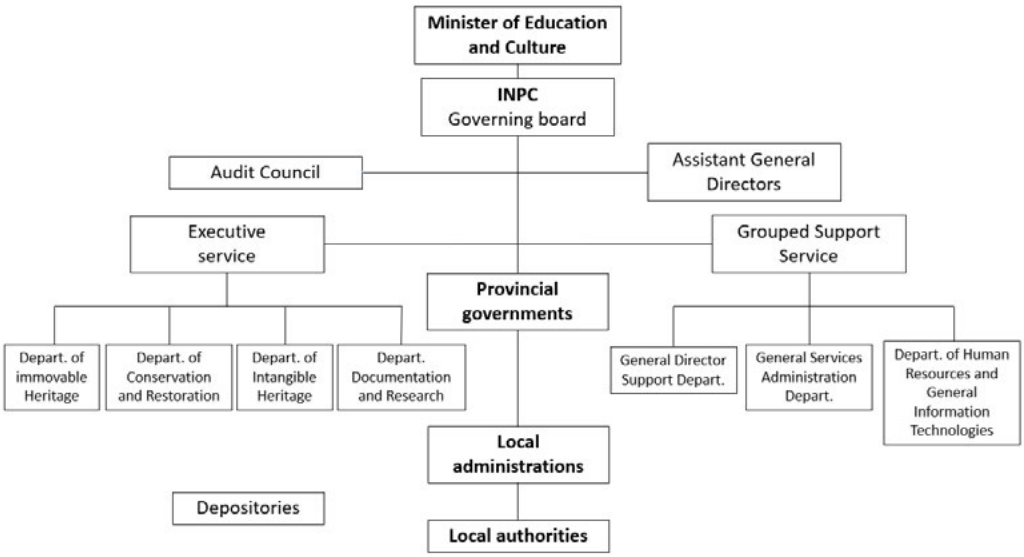

Figure 4.6. Angola national framework for cultural heritage management.

Organisation

Cultural heritage management in Angola lies under the Ministry of Culture, which, through provincial governments and local administrations, is responsible for the promotion of the protection of cultural heritage (Law nr. 14/05). Under the Ministry, the National Institute for Cultural Heritage (INPC) investigate and manage cultural and natural heritage (see Fig 4.6).[92]

Archaeological researchers are authorised by the supervising minister, similar to what is done in Malawi. In general, the Environmental Law demands that national infrastructures with a negative impact on the natural or social environment be conditioned to an Environmental and Social Impact Assessment process (Decree nr. 51/04; Law nr. 5/98). The law demands the pre-development archaeological impact assessment, and the cost is supported by the developer. In the public sector development, central, provincial and local administration bodies must allocate in their budgets a percentage of funds proportional to the importance of the cultural heritage assets under their responsibility for rescue archaeology operations. In private works, the costs of the works can be paid in part by the project promoters and entities directly interested in rescuing that cultural heritage (articles 48:1-3).

Within the administrative structure of INPC, it is up to the Department of Cultural Heritage to investigate, classify, promote, and conserve monuments and sites. The Conservation and Restoration Department promotes studies and research on preventive and curative conservation of movable and immovable cultural heritage, as well as applying measures for repair and restoration. The Intangible Heritage Department coordinates and encourages research, collection and safeguarding of the oral expressions and practices of local traditions.

Challenges

As the development of legislation and formal procedures for cultural heritage management is recent in Angola, the collaboration of the private sector has been very

[92] *Decreto Presidencial nr. 205/15, secção 3.*

important for cultural heritage management activities. The archaeological regulation is clear about the requirement to conduct rescue archaeology by state and private bodies, which can made separately or under EIA. However, the law does not specify the importance of the asset or assets to be protected. Cultural legislation also does not indicate the amount that cultural heritage management authorities must cover annually for rescue archaeology operations when it comes to public projects. The fact that the responsibility for funding rescue archaeology operations lies with several entities may be positive in terms of providing checks and balances but have negative implications in terms of implementation, role allocation and transparency.

The Heritage Law does not specify who should carry out rescue excavations, specific roles and procedures; it also lacks alignment with the EIA legislation. The administration and management of cultural heritage activities are centralised in the Ministry and INPC.

In general, the roles of individuals performing cultural heritage management activities are not assigned to specific individuals in the institution, as they are in other countries in the region, but such roles are assumed by the institution or departments of INPC. Although the Heritage Law and subsidiary legislation invoke some mechanisms of decentralisation of cultural heritage policy and the creation of local authorities (*Decreto-Lei* nr. 7/03, *Lei* nr. 14/05, *Decreto Presidencial* nr. 205/15). However, there is no evidence of the actual involvement of local authorities in the administrative system.

4.3. Discussion

All cultural legislation during the colonial period was imposed on the pretext of protecting cultural heritage, but the main reason was to benefit colonial political administration and to ensure colonial economic and social gains at the expense of local communities and local history. After independence, the colonial policy and structure were inherited by the independent countries. However, the definition of cultural heritage was redefined in an attempt to integrate into the new context of political emancipation in each country. One exception is Malawi, where although cultural legislation was planned in the colonial period, it was adopted after independence. In the process of revising cultural heritage management policy, cultural heritage in all countries became fused with the aim to maintain and build the national identity through the protection and preservation of the local cultural heritage. In many cases, the legislation was not adapted to include all the social actors, such as local communities, and it did not contain all types of heritage in each country.

Provisions for mandatory pre-development archaeological impact assessments for projects in southern Africa were introduced in the 1970s, first in Botswana (Moroka and Dichoka 2010), then in South Africa in the 1970s and 1980s (Ndlovu 2010, Shephard 2015), and in other countries in the following years. Initially, most of the cultural legislation adopted in southern Africa did not regulate rescue archaeology activities. The lack of provisions for rescue archaeology has been solved by subsequent amendments to legislation and the adoption of subsidiary legislation since any law is subject to *mutatis mutandis.* In some countries, legislation came to specify not just policy but also procedures and guidelines.

Owing to the specificities of each country, such as the process of independence, the type of political and administrative systems adopted in the post-independence period, and the level of economic and social development, cultural heritage management

practices vary from centralised to decentralised. The comparative policy analysis of the legislation, procedures and practices of the cultural heritage management laws and regulations in southern Africa are summarised in the table below (Table 4.2).

Botswana, Namibia, Malawi and South Africa have explicit cultural heritage policies that demand a pre-development Archaeological Impact Assessment (AIA) for the projects that may endanger cultural heritage. However, in Angola, Zambia and Zimbabwe (as also in Mozambique) the policy is ambiguous, and there are no complementary procedures or guidelines. In the absence of guidelines in cultural legislation, cultural impact assessment alternatively is generally governed by environmental impact assessment regulations.

As mentioned in Chapter 1.3.2. cultural heritage resources are typically not considered part of the environment and, therefore, risk underplaying heritage assessment. Environmental impact assessment is usually made in large development projects, where

Table 4.2. Comparison of the monitoring system of rescue archaeology in southern Africa (x signifies presence).

Rescue Archaeology Legislation in Southern Africa								
Based on the law	Countries							
	S. Africa	Namibia	Botswana	Zambia	Zimbabwe	Malawi	Angola	Mozambique
State pays costs						x	x	
Developer pays costs	x	x	x	x	x	x	x	x
Excavator								
State Authority		x	x	x		x		
Museum	x				x			
Contractors	x	x		x	x	x	x	(x)
Not Defined								x
Control and Monitoring								
State Authority	x		x	x	x	x	x	x
Museum		x	x		x			
Procedures								
Well formulated	x	x	x					
Absent								x
Vague				x	x	x	x	
Follow up System	x	x	x					
System Administration								
Centralised		(x)	x			x	x	x
Decentralised	x			x	x			
Main Law	Act nr. 25 of 1999	Act nr. 27 of 2004	Act nr. 12 of 2001	Act nr. 23 of 1989	1972 CAP 25/11	1991 CAP 29:01	Act nr. 14 of 2005	Law nr. 10/1988 and Decree nr. 27/1994

cultural heritage management must follow environmental regulations before the project begins, as happens in southern Africa. However, in some medium and small-scale projects, rescue archaeology activities can be made separately, since all legal procedures are provided. In South Africa, archaeologists report that the interests of the paying client are given more weight over those of local communities. The best-developed impact assessment policy and procedure is perhaps Botswana, which has clearly defined procedures, roles and responsibilities.

Zambia offers two alternatives to archaeological impact assessment procedures and legislation. The first alternative is that pre-development AIA may occur as a result of a 'moral duty' of developers to avoid breaking the law. This procedure is the same as in the context of Mozambique and Zimbabwe. In the second alternative, a pre-development AIA can also occur when a cultural heritage resource is found during a project development. For instance, a project embargo occurred in Zimbabwe when human skeletons were revealed during the construction of a booster station for network and road access for Econet Wireless Limited. Another example happened in Mozambique, when a project of construction of road access to the port site in Chongoene did not comply with cultural and environmental legislation (see Chapter 9). In such cases, a project must be suspended and allow space for rescue archaeology activities. There is a greater risk here that the developers can hide the discoveries for fear of reprisal from the state. The obstruction may be owing to the lack of funds to invest in pre-development cultural impact assessments, weaknesses of cultural legislation and because the project executors do not want to put compliance with cultural legislation before the planned deadlines for the activities.

A highly centralised system can lead to a uniform system of heritage management and introduce heavy bureaucracy and inefficiency. It tends to minimise interaction and collaboration with the public and local communities (Ndoro and Pwiti 2001, Smith 2004, Mumma 2008:101, Arazi 2009); see Chapter 1. One major problem with a centralised administration is also that local authorities and communities cannot participate in the management process. Thus, centralised administrative systems make it difficult for heritage management institutions to be responsive to the needs of communities and local stakeholders (cf. Mahachi and Kamuhangire 2008:45–46).

South Africa presents a unique model in the region of a decentralised and interactive cultural heritage management and administration, allowing all administrative authorities to participate in the process, where SAHRA is responsible for grade I sites, PHRAs are responsible for grade II sites and local authorities are responsible for grade III sites. Although the system is implemented, not all provinces have provincial heritage authorities and there is also a confusion of roles between provincial authorities and archaeology institutions (Ndlovu 2014, Deacon 2015).

Legal frameworks still fail to provide effective consideration of the cultural and social interests that can be gained from rescue archaeology research (cf. Ndlovu 2014). In Zambia and Zimbabwe, the administrative system is partly decentralised but not at the level of South Africa, as management and decision-making are done by a single body at the central level. Botswana, Namibia and Malawi have a centralised administration, but their cultural heritage policy has a clear procedure for pre-development AIAs. In Angola and Mozambique, the legislation is also ambiguous. Although Angola decentralises the rescue archaeology management to local state bodies, it still has elements of centralisation since much of the monitoring responsibilities, permits, and negotiations sit at the central level.

There is a tendency in several countries to privatise rescue archaeology activities since the policy determines that it is up to the developer to carry out a pre-development archaeological impact assessment, and the license for that purpose is issued to individual archaeologists. The exception is Angola, where government bodies, developers of the project and other entities interested in safeguarding the heritage may also pay the cost. In contrast, the law in Zimbabwe does not at all specify who should stand for the costs. In many cases, developers do not have the mechanisms to contract archaeological services and in those cases, developers prefer to hire private companies or consultants directly (or not at all). This seems to be the case in Zimbabwe, where the process of archaeological impact assessment is not prescribed by the cultural heritage legislation, and the developers hire archaeologists directly without state authority intervention.

In all countries in the region, it is the responsibility of state authority to monitor and supervise pre-development archaeological impact assessment. This is a major challenge since state institutions lack professionally trained staff and equipment, and there is a general lack of funds or means to carry out the inspection and monitoring of activities. Private individuals linked to state research institutions and private consultancy companies offer better alternatives to supervise and monitor activities than state institutions that do not have qualified professionals. Therefore, some aspects still need to be improved for the management of archaeological assessment, rescue excavations and research to be effective. The way the heritage sector is organised is key here. In some countries, like South Africa, there is a separation of authorities that legislate and inspect/monitor on the one hand and agencies/authorities/contractors that 'execute' e.g., those that carry out rescue archaeology. In other countries like Zimbabwe, at least in formal legislation, these responsibilities are held by one and the same authority, even though, as discussed here, the practice may be different.

The expansion of market-based archaeology has led to a professionalisation of archaeologists that is now well regulated by a code of ethics and methods applied worldwide since the 1980s. As discussed in Chapter 3.2, the goal of having an open tender process and competition is also to stimulate the professionalisation and growth of any sector (Fagan 2003, Everill 2007, Demoule 2012, Zorzin 2015, Zorzin 2016, Shepherd 2015, Wigert 2018). The formation of professional organisations such as ASAPA in South Africa is also suggestive of such a professionalisation, which does not have an equivalent in other countries. As explained by the interviewees, in South Africa the rescue archaeology industry is developed. South Africa, Botswana and Namibia dominate in papers and discussions on rescue archaeology. Here, the critical debate and problematisation of the rescue archaeology policy and practice have evolved into academic fields of their own, suggesting a degree of maturity. This stands in contrast to, for instance, Angola, Malawi, Mozambique and Zambia, where there are very few publications on this relationship. In the southern African region, ASAPA could potentially assist other countries in terms of cultural heritage management activities (cf. Arazi 2009, King and Arthur 2014).[93] Furthermore, the African World Heritage Fund was created in 2006 by the African Union and UNESCO to support the effective conservation and protection of cultural and natural heritage in Africa. In addition to this, international cooperation and assistance have resulted in the professionalisation of

[93] ASAPA have the potential to establish cross-border collaboration and to adopt standard system of credential and certifications. This could include efforts to support archaeological field technics and trainees, maintaining a database to link field techniques with archaeological projects as discussed by King and Arthur (2014).

staff, equipment supply, a structured archaeological research system, and cultural heritage management in countries such as Mozambique, Zambia, and Zimbabwe, with support from Sweden, Norway, and UNESCO.

Where rescue archaeology is well structured, there has been an explosion of data that, in many ways, has revolutionised archaeological approaches and methods (Demoule 2016). Rescue archaeology contributes strongly to the knowledge of the archaeological record through academic publications and reports (Kinahan 2013). In South Africa, rescue archaeology offers the greatest quantity of archaeological artefacts and related data for museum storage and display (Ndlovu 2014). Rescue archaeology has also revealed sites and cultural history which has enriched both local and national heritage experiences. Cultural heritage management might, therefore, constitute a viable option for boosting employment opportunities, for instance, in Europe and the US (Everill 2007, Arazi 2009, Moroka and Dichoka 2010). This example could be followed in Mozambique, as will be discussed in the coming chapters.

Given the constraints presented above, and also the many possible solutions based on the examples of other countries, it is pertinent to review the current national policy on cultural heritage and how that constitutes the basis for understanding the current state of rescue archaeology activities in Mozambique. In the following chapter, focusing on Mozambique, more attention will be given to the institutions involved, sector-specific legislation, the stakeholders involved in the management system, their perceptions of the current management system and the type of relationships they establish.

5. Policy of Rescue Archaeology in Mozambique

In this chapter I map out the rescue archaeology management system in Mozambique, namely the specific legislation, institutions and roles of individual archaeologists involved in this activity. Throughout the chapter I explore elements that allow us to understand how rescue archaeology is regulated, and what the main actors are. As shown in Chapter 4, which presented each of the different management systems for rescue archaeology in southern Africa, there are benefits and weaknesses of each of the systems. We also saw from the cases where the policy documents are complemented by interviews that tacit knowledge and experience are vital for navigating the system. Here I discuss the management system in Mozambique in detail. The discussion is based on a review of legislation, procedures and practices as well as on interviews with practitioners in archaeology and cultural heritage management (Table 5.1). I will be discussing its strengths and elements that need to be improved. Throughout this chapter I ask what can be done for the development of an effective practice of rescue archaeology in the country.

Table 5.1. Interview participants in Mozambique.

Interviewee	Country	Current role	Interview date
02	Mozambique	Archaeologist, teaching, research, cultural heritage manager, administrative activities	February 21, 2019
03	Mozambique	Deputy National Director of Cultural Heritage	March 11, 2019
04	Mozambique	Inventory of intangible cultural heritage	March 13, 2019
05	Mozambique	Archaeologist, teacher, researcher. cultural heritage manger	March 14, 2019
06	Mozambique	Archaeologist, teacher, researcher, cultural heritage manager, administrative activities	April 16, 2019
07	Mozambique	Promoter of cultural and tourist heritage	March 19, 2029
08	Mozambique	Archaeologist, teacher and researcher	April 25, 2019
11	Mozambique	Monitors biodiversity and assesses the counterbalance	March 7, 2023
18	Mozambique	Archaeologist, Teacher and researcher	August 23, 2019
19	Mozambique	Archaeologist, Researcher, Teacher, cultural heritage manager	August 26, 2019
20	Mozambique	Administrative activities	April 9, 2021

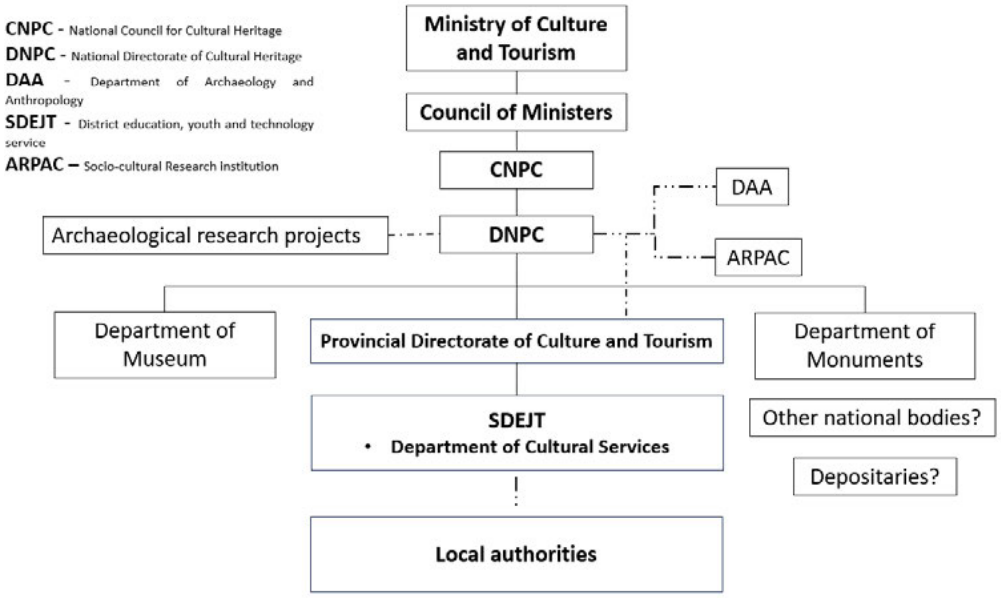

Figure 5.1. The administrative structure of the cultural heritage management system in Mozambique, related to Fig. 2.4 of the Administrative hierarchical structure of local state bodies.

5.1. Organisation

Cultural heritage management in Mozambique is the responsibility of the ministry that oversees cultural activities. The ministerial location of this sector has been adjusted nine times since independence. Since 2015, the responsibility of cultural heritage management has been under the Ministry of Culture and Tourism (Fig 5.1).[94] In the Ministry, the Council of Ministers approve and cancels a classification of cultural heritage, regulates the import and export of cultural goods, authorises the use of classified sites/buildings/goods, and publishes regulations necessary for the application of cultural legislation (Law nr.10/88 articles 7; 15; 18). The National Council for Cultural Heritage (CNPC) is an intersectoral and multidisciplinary consultative body that advises the Minister in cultural heritage management matters, issuing recommendations to organs competent on the protection, financing and use of cultural heritage goods (Resolution nr. 15/2015[95] article 25, Law nr. 10/88 article 19).

Under this administrative organisation is the national state agency *Direção Naçional de Património Cultural* (DNPC). DNPC is responsible for implementing policies, coordinating, and supervising cultural heritage management activities at a national level, including issuing or cancelling licenses for archaeological work and developing proposals for the classification of cultural heritage assets, as well as the organisation and updating of their inventory. The DNPC's other roles include the promotion of the study, preservation, enhancement and management of material and immaterial cultural

[94] *Decreto nr. 1/2015. Extingue e cria Ministérios. Boletim da República, 6 de Janeiro 2015, I Série, nr. 5*; Previous to this arrangement cultural heritage was under Ministry of Culture (2010 – 2015). In earlier periods the responsibility of cultural heritage was allocated to the following entities: Ministry of Education and Culture (1975 – 1983), State Secretariat for Culture (1983 – 1987), Ministry of Culture (1987 – 1992), Ministry of Culture and Youth (1992 – 1996); Ministry of Culture, Youth and Sports (1996 – 2000), Ministry of Culture (2000 – 2005), Ministry of Education and Culture (2005 – 2010) (from Landgraf 2014).

[95] *Resolução nr. 15/2015, de 9 de Julho. Aprova o Estatuto Orgânico do Ministério de Cultura e Turismo. Boletim da República, I Série, nr. 54.*

heritage (*Resolução* nr. 15/2015 article 8, Decree nr. 27/94 articles 3,16, 22). The DNPC is divided into the Department of Museums and the Department of Monuments, the latter having responsibility for monuments and below-ground archaeology as well as intangible heritage.

The division of responsibilities, as expressed in formal documents, is not always clear-cut. The inspector of Culture and Tourism in the Ministry oversees and monitors the application of culture and tourism policies throughout the national territory. This includes the inspection of activities carried out by public cultural and tourist institutions and communication with other government agencies (*Resolução* nr. 15/2015, articles 4, 7). Any ministry under which cultural heritage management is organised has provincial and district officers across the country. For the past 18 years, there has been a decentralisation process. Decree nr. 11/2005, articles 3 – 4 and the Law nr. 1/2018,[96] article 8:2–3 establishes principles of decentralisation and subsidiarity of the State institutions with respect to their organisation and functioning. This legislation gave autonomy to the local state bodies. The Ministry of Culture and Tourism and the DNPC have provincial, district and administrative post offices in all provinces and districts. At a village level, this service is assisted by district officials and head of the locality and local authorities.

However, at the moment, the DNPC and its provincial, district and local authorities do not specifically have staff or competence to monitor cultural heritage management or rescue archaeology. Few of the officials that are now employed at province and district levels have formal training in archaeology; this is currently the case, for example, for the cultural sector of the Gaza province and the districts of Chongoene and Xai-Xai. Thus, even though the legislation specifies provincial and district responsibilities, there is no strategy to recruit staff qualified in cultural impact assessment or rescue archaeology at the province and district levels.

The existing structure of provincial and district ministry offices means that there is already an organisation of administrative political region units with authority and mandate which can be built on for the future (see Fig. 2.2). Until then, even though the organisational structure exists to a decentralised rescue archaeology system, the decision-making process still lies at the highest level in the DNPC in Maputo, assisted by DAA, in terms of planning, coordination, supervision and quality control of archaeological activities. This problem has long been debated, and there have been discussions as to the need to decentralise responsibilities (see, for instance, Macamo and Adamowicz 2017). It has been suggested that the Ministry of Cultural Services gradually transfer some functions and power from central to provincial and local authorities (see Forquilha 2020).

The graduates in Archaeology and Cultural Heritage Management at UEM could be hired by provincial and district delegations; strategies could also include the training of local delegation staff in cultural heritage management matters so that some decision-making process can be done at the provincial and district level, in close coordination with DNPC and DAA at the central level (cf. Forquilha 2020). Strengthening local state bodies in the management of cultural heritage will help to reduce administrative bureaucracy, diffuse administrative burden and 'decongest' the DNPC and the DAA, bringing archaeological activities closer to the population to guarantee the

[96] *Lei nr. 1/2018. Revisão pontual da Constituição da República. Boletim da República, 12 de Junho de 2018, I Série, nr. 115.*

celerity and the adaptation of decisions to local realities (cf. Decree nr. 11/2005, article 4).

Archaeological research licenses and credentials are currently assessed and issued by DNPC and DAA in Maputo and made known to the delegations of culture at the provincial, district and local authorities (even though as discussed above, in principle, other authorities may also issue licenses) (Fig. 5.1). The local authorities in communities have not yet been framed in cultural legislation, as they have in Angola and South Africa, although they are specified as guardians of cultural elements and resources. Opinions on the role of the DNPC and its responsibilities and whether they should be strengthened or delegated differ amongst actors in the rescue archaeology arena.

5.2. Legislative Framework

As part of the post-independence cultural policy, the National Services for Museums and Antiquities was created in 1977 under the Ministry of Culture. In 1979, the Permanent Committee of the Popular Assembly approved the Resolution nr. 4/1979[97] of May 3, which established that each Provincial Assembly should identify and inventory the places and historical remains in each province and document the culture and heritage, such as prehistoric sites, centres of power of early states, their state, political and religious formations (nr. 2:b). This legislation succeeded and was very different from the *Diploma Legislativo* nr. 825/1943, which regulated cultural heritage management during colonial times.

In the early 1980s, the National Services became the National Directorate of Cultural Heritage (DNPC), which, together with the DAA/UEM under the Ministry of Education and Culture, collaborated in research activities, staff training and protection of cultural heritage. Based on the Presidential Decree nr. 71/1983 of December 29, the government's priority is to train citizens with solid political-ideological, scientific-technical knowledge for "cultural and physical preparation for a high patriotic and civic conscience." From a constitutional point of view, since the first constitution of the People's Republic of Mozambique in 1975 and the subsequent constitutions of the Republic of Mozambique of 1990, 2004, and 2018, the Mozambican State has supported cultural equality, promoting social and cultural progress for the benefit of the people. As discussed already in Chapter 1, cultural heritage is seen as the basis for economic and social development, as well as developing actions to protect and preserve the cultural heritage. This means that economic and social development projects, when designed and implemented, must consider cultural heritage.

Further efforts were undertaken by the government, mainly through the DNPC and the DAA/UEM, in accordance with the constituted principles that make the State responsible for promoting and developing culture, and Law nr. 10/88 was published, repealing the abovementioned Legislative *Diploma* nr. 825/1943 and Resolution nr. 4/79. As discussed in Chapter 2.2, Law nr. 10/88[98] regulates rescue archaeology in Mozambique. The new cultural policy inherited some elements of the previous legislation,

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[97] *Resolução nr. 4/79 de 3 de Maio. Cria ao nível de cada Assembleia Provincial, uma comissão de inventariação de lugares históricos existentes na Província. Boletim da República, Iª Série nr. 50*

[98] *Lei nr. 10/88 de 22 de Dezembro. Determina a proteção legal dos bens materiais e imateriais do património cultural moçambicano. Boletim da Republica, 22 de Dezembro. 1988, I série, nr. 51.*

such as the classification of cultural heritage, duties of public and private entities on cultural heritage in relation to the State, and the continued role of DNPC. The law was also based on international regulatory frameworks, such as the UNESCO's General Conference of 1956 in New Delhi and the UNESCO Convention of 1972, which was adopted in 1982[99] (see discussion above in Chapter 3.1.2.). With Law nr. 10/88, the State created its first legal instrument that identifies, records, preserves and values the material and immaterial assets integrating the local cultural heritage. From this legislation, the archaeology elements are specified in article 10:

> 1. The following shall be considered as inalienable State property, assets of the cultural heritage, known or to be found in the national territory:
>
> (a) Archaeological sites and objects;
>
> (b) Rock paintings;
>
> (c) Constructions or other works representative of pre-colonial societies such as walled houses, *zimbabués*, *aringas*, mining centres and power centres, population settlements, trading posts and places of worship;
>
> 2. When the property referred to in the previous paragraph is located in property that is not already state property, the holder of the depositary property of such property shall be deemed to be.

Therefore, all archaeological heritage is the inalienable property of the state, whether or not it is owned by individuals. In article 14 it is established:

> 1. Archaeological excavations or the opening of caves, and geological formations for anthropological or paleontological investigations shall require the authorisation of the competent authority.
>
> 2. Excavation work shall be carried out in accordance with scientific standards and applicable international principles.

Since Law nr.10/88 regulates cultural heritage in general, it does not specify who is responsible for authorising scientific investigations and there is no linked procedural document that specifies the norms and procedures that should guide such research. Although a draft for such specifics and responsibilities has been prepared, it has not yet been authorised, and since it was drafted many years ago, it also now needs to be updated. Thus, in practice, cultural legislation remains ambiguous and open to interpretation. The tasks of the various actors involved in the process of managing cultural heritage are not defined in the main cultural legislation or in other linked formal policy documents. Article 3:9 introduces the idea of depositaries, which are responsible for ensuring the protection, conservation and correct use of cultural heritage properties in their possession. Depositories are defined as follows:

> Depositary is anybody governed by public law or any natural or legal person who is in possession of cultural heritage property.
>
> In the case of cultural property belonging to the state, the depositaries shall be deemed to be the heads of the organs in whose inventory such assets have been inscribed (article 6:2). District Administrations and Councils City Executives are custodians (article 6:3) of the following assets located in their area: sites and archaeological objects, rock paintings, constructions or other representative works of pre-colonial societies such as walls,

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[99] *Resolução nr. 17/82, Aprova a adesão da República Popular de Moçambique à Convenção para a proteção do património cultural e natural do mundo da UNESCO, Boletim da República, 13 de Novembro de 1982, I Série nr. 44.*

> *Zimbabwes*, *aringas*, centres of mining and power centres, clusters populations, trading posts and places of worship (article 10:1). When the goods referred in the previous number are located in immovable property that is not State property, the owner of the immovable is considered the depository (article 10:2).

Here, one understands the responsible agent as a singular person, referring to the head of the authority where "properties" are stored (article 6:3). Therefore, the responsibility for the protection and conservation of the archaeological and cultural heritage in a practical way rest with an individual or a collective of individuals (administrators, heads of museums, heads of councils) on behalf of the State (cf. articles 6 and 10; Decree nr. 27/94 article19).

5.2.1. Procedures

From 1975 until the late 1980s, the government was set on creating a legal framework for effective cultural heritage protection in the country. The main cultural legislation from 1988 (Law nr. 10/88) was written in general terms and should have been followed by procedural guidelines. A few years later, an Archaeological Regulation was formulated through the collaboration between the History and Archaeology departments (at UEM), and later, a regulation was formed on the Built Heritage, organised by Dr Solange Macamo, former head of DNPC and in collaboration with the faculty of Architecture and Physical Planning, UEM (cf. Decree nr.55/2016).[100]

However, the generality of the cultural policy and the delay in guidelines, in combination with a lack of knowledge of the guidelines regarding the provincial and district levels, resulted in ambiguity in various matters concerning the archaeological heritage management and some aspects, such as the management of rescue archaeology activities were not included or considered. For example, there was no procedural guideline for pre-development archaeological impact assessments or for how to follow up and monitor development/construction work. Therefore, these activities became dependent on the ethics and internal policy of the project funder or building contractor. For instance, Interviewee 19, who is one of the actors in rescue archaeology in Mozambique, remembers that at the end of the 1980s and beginning of 1990s, archaeologists were not allowed by the developer to perform or develop pre-archaeological impact assessment because this activity was not yet legislated (Interview 19, August 26, 2019).

In response to this and many other concerns, Decree nr. 27/94 was adopted to protect and regulate archaeological heritage and to establish procedures for archaeological permits. The decree introduced the concept of rescue archaeology in Mozambique, defined as all archaeological works intended for the immediate study and protection of archaeological elements or sites threatened with destruction. Article 3:2 on the authorisation and cancellation of licenses for archaeological works provides that:

> The competent authority to authorise the issuing of licenses for archaeological works is DNPC, museums and other national bodies of public interest, designated by the Minister of Culture and Youth, which has programs work, research and protection of archaeological heritage.

[100] *Decreto nr. 55/2016 aprova o Regulamento sobre a gestão de bens culturais inoveis. Boletim da República, 28 de Novembro de 2016, I Série, nr. 142.*

The issuing authority, as specified here, is responsible for taking all measures to ensure proper supervision of archaeological works. However, inspection reports must be sent to the DNPC (article 3:4). The decree also specifies that if the licensee fails to comply with the specified conditions, the issuing authority may cancel the excavation permit (article 3:5).

In both the 1988 and 1994 legislations, there is no clarity in the roles of the institutions *visavi* each other or the distribution of roles for managing archaeological research at the central level, including matters such as issuing and charging for the licenses, classification of goods and supervision works. Many state institutions, including other 'undefined' institutions, have the right to issue licenses and to supervise archaeological works. In practice, even though several entities may give licences, the only licensing authority at the moment is the DNPC. This means that, as the legislation currently is worded, it is only the DNPC that has the exclusive right to cancel any license.

The lack of specification of roles of different entities and the DNPC is problematic. The National Council for Cultural Heritage (CNPC), which was formed and authorised through the Law nr. 10/88 law is a consultative body. It advices on the formulation and wording of policies, proposals and also the cancellation of classification of goods/buildings areas.[101] The council also issues recommendations to the competent bodies on the protection, financing and use of cultural heritage assets (Law nr. 10/88, article 19:1-2) (see the administrative structure below). In theory, procedures not specified in the Regulation may be solved under the CNPC. Problems which could not be resolved by the DNPC alone have indeed also been addressed and solved through the CNPC council (Interview 2, February 21, 2019).

The cultural policy does not include specifications on how to work with local communities and traditional authorities in making decisions about archaeological research and heritage sites. As discussed in Chapter 3.3., although collaboration with local community is common among archaeologists in Mozambique and much needed, there is no binding legislation or regulation around this. This also means that the priorities of local heritage when it comes to impact assessments and mitigation can be ignored by the contractor. Still, and as we saw in Chapter 4.3 when it comes to rescuing archaeology, a lack of clarity in legislation and procedures results in a lack of standardisation of criteria used for licensing, oversight and supervision of activities. Such a lack of standardisation and quality control also conditions the quality of research activities and their results.

5.2.2. Guidelines

As a complement to the regulations, specified guidelines are needed to articulate the responsibility and mandate of different authorities in the cultural heritage management system from central, provincial, district and local levels, which would also create a basis for accountability. Based on the wording of the 1994 regulation, "all projects involving the excavation, removal or widening of earth, or the removal of submerged or buried objects shall include preliminary archaeological and rescue archaeology". It is specified in the same law that "any earth removal or earth modification project (here referred to simply as development project) should include a minimum of 0.5 per cent

[101] The CNPC is composed of directors of organizations and institutions that carry out functions within the research, treatment and protection of the cultural heritage, by personalities of recognised merits in the cultural area and by representatives of State bodies.

of the total budget for impact assessment and rescue archaeology" (Decree nr. 27/94, article 12).

There is no mention in this regulation of what happens if the development projects fail to carry out archaeological impact studies or which monitoring agency should ensure and direct the 0.5% expenditure. Failure to comply with regulations is defined as a legal offence which can be pursued through the courts:

> 'The violations or failure to comply with the depositary obligations, conduct unauthorised archaeological excavations, unauthorised disposal of classified goods and export of classified goods will be judged by the common courts' (Law nr. 10/88, chapter ix, articles 21-24; Decree nr. 27/94, article 27).

Nevertheless, the significance of this definition is counteracted by the fact that it does not specify which authority has the reporting and monitoring duty. Nothing is specified in the heritage legislation about measures against cultural heritage offenders except depositaries and those who discover new cultural heritage. Unlike other countries in southern Africa, a heritage offence is not qualified as a criminal offence by the Cultural Law. Further, as discussed in Chapter 4, based on the comparison with other countries in South Africa, police officers are not aware of the heritage laws or do not see it as a crime; this is the case also in Mozambique.

In the case of fortuitous discoveries during construction, the decree specifies that an embargo on the construction must be placed on the building activities to conduct rescue archaeology work (article 11). However, developers and building companies may not report such findings to the DNPC (or the provincial/district offices of the Department of Culture) owing to various reasons: ignorance, lack of interest, fear that there will be a standstill in the activities, or unwillingness to pay for additional costs of cultural heritage management services. All prospecting and archaeological excavation work is "[...] subject to supervision and supervision by a representative accredited by the competent authority for issuing the license" (article 22). However, this archaeological regulation does not spell out how such supervision should be done throughout the project and through consultation with archaeologists. Similarly, nothing is specified about the management of archaeological data and the publication of information produced or storage and conservation of the findings produced by rescue archaeology activities other than the repository for the data.

Currently, and to summarise, the regulation does not explain in detail how rescue archaeology activities should be done, and the procedural specifications so far have not been able to amend this. It is advisable that the Archaeological Regulations be updated to identify and clearly define the roles of the main actors involved in rescue archaeology activities, e.g., archaeologist, developer and the permit-giving authority, including the scientific community, general public and consultant. The regulation must also clarify procedures and questions, such as who decides which funds and methods must be applied to a certain project. There are several issues that need to be addressed in such a regulation, and I will suggest some concrete amendments in my final chapter. It is first necessary to listen to some of the colleagues who have engaged in rescue archaeology activities to ascertain the prevailing practices in Mozambique.

5.3. Practices

In the following, I will provide some examples of problems that affect the cultural heritage management sector in Mozambique based on anonymised interviews with archaeologists and officials involved in rescue archaeology, representing different perspectives on the subject.

5.3.1. Compliance

The greatest challenge, as recognised by several of the archaeologists at the DAA, is that the law is not complied with, as commented by one interviewee: "The State does not apply the law; it does not have the resources" (Interviewee 8, April 25, 2019). Another interviewee went further in assessing the degree to which legislation is followed, saying:

> Interviewee 6: Compliance with the law in percentage terms, on a range of 0-100%, I would estimate between 10 and 15%, because there is no compliance with the law […]. They often use only the name of archaeologists improperly [e.g., without contracting them]. For example, in the report on the recent major road project in Maputo, it appears that the DAA participated in the pre-development archaeological impact assessment. Or they just mention that the cultural impact assessment was done, but it was not really done (Interview, April 16, 2019).

In this case, the interviewee mentions this major road project (see Chapter 6.3) as an example to say that some project developers are aware of the need to carry out cultural impact studies but do not do so. The developers take advantage of the weakness of the cultural legislation, falsifying the information in the Environment Impact Assessment (EIA) report and stating that a cultural impact assessment was carried out. Since the DNPC, the DAA and other ministerial departments do not properly coordinate to ensure the carrying out of archaeological impact studies, companies are able to start with projects without implementing cultural impact assessment.

As discussed before, a lack of enforcement of cultural legislation and a non-compliance of legislation are not qualified as criminal offences in Mozambique as they are in other countries in the southern Africa region. Additionally, in the cultural legislation there is no specific provision for archaeology. Commenting on the legislation and how it is followed up, archaeologists from the DAA said in:

> Interviewee 5: The legislation passed to protect cultural heritage is not complied to […] is not enforced, nor is it forced to be fulfilled, and no institution enforces the law. Nobody adheres to legislation. We have tried to sensitise the institutions to comply with this legislation, but so far it is not happening (Interview, March 14, 2019).

In general, the cultural legislation has an insignificant provision for non-compliance, which is punished with a up to 50 MT (0.78–58 USD), and double the value if the asset concerned is classified as a heritage monument or site.[102] Because the value of the fine is insignificant, some projects may not carry out cultural impact assessment studies and instead pay the fine. In Chapter 6, we will see how several of the known

[102] This value corresponds to the old currency Metical that was in force until 1.06.2006. The conversion rate from the old Metical to the Metical currently in circulation was 1,000 units, that is, to obtain the value corresponding to the Metical of the new currency, it was necessary to divide the value of the old currency by 1,000 units. Therefore, 50 000 MT ÷ 1000 = 50 MT or 0.78 USD (exchange of October 24, 2022), or non-compliance, of cultural legislation is punished with a fine between 0.78 USD and 1.58 USD if the asset concerned is classified as a heritage monument or site.

and legally-protected sites in the south of Mozambique have gradually been encroached upon.

5.3.2. Coordination

Responsibilities for cultural heritage management are not well defined between the DNPC, the DAA, universities or provincial and district representatives, including other cultural heritage management institutions existing at the country level, as also brought up above. Based on the interviews I have made; some archaeologists argue that the DNPC at the moment is not fulfilling its role and responsibilities and would advocate a continued centralised process but a strengthening of archaeological competence and procedures for rescue archaeology. Other archaeologists suggest that the DAA should support the DNPC more than what it does today, in terms of acting as consultants for the DNPC. Meanwhile, DNPC officials acknowledge the lack of qualified staff to perform the activities and not supported by archaeologists. For example, DAA archaeologists argued that there is a lack of coordination from the DNPC as the main institution for archaeological activities:

> Interviewee 8: I don't see any structure; the research activities are coordinated by projects financed by foreign funds […] so any foreign institution must ally itself with the DAA to achieve its objectives (Interview, April 25, 2019).

> Interviewee 5: DNPC should coordinate all archaeological research following the legislation [...] but as we (archaeologists) have this sector more or less organised in the DAA, they [DNPC] are asking for support to carry out these tasks, but with many limitations. In my opinion, it has not followed the legal procedures that should exist. I don't see that there is coordination, there are connections, we [DAA] go to DNPC and talk to them, but there is no systematic coordination activity in this area […]. (Interview, March 14, 2019).

Complicating the issue of responsibilities is the definition between rescue archaeology and research archaeology which was brought up in Chapter 3.2. With carefully designed systems for registration and documentation, rescue archaeology will contribute invaluable information to research archaeology and the understanding of the archaeology and history of the country. This would require necessary collaboration and coordination between institutions and a research approach in the central institutions. In discussing this problem, both DNPC and DAA staff seem to agree that this is (and should) not be the responsibility of the DNPC:

> Interviewee 3: We do not have research activities at our level, although it is stated in our statutes, we never carry out that activity. Each institution has a lot to do with its scope of work, and as many universities are emerging, it is full of private ones, we never had a real mark, of who does what, there is even a tendency of interference in some sectors (Interview, March 11, 2019).

> Interviewee 2: The government does not coordinate research questions. I think that research takes place at the level of institutions, but an overall institution that coordinates research does not exist (Interview, February 21, 2019).

Thus, in principle, the DNPC should also be a research institution, but at the same time it has the responsibility, in its licencing capacity, to supervise the research institutions at the universities. This results in some confusion, and the question is open to negotiation. More seriously, at the moment there is a lack of a coordinating body for archaeological activities in the country.

5.3.3. Permits and Contracting

In Mozambique, archaeological elements are inalienable properties of the State, and archaeological excavations must be authorised by the responsible authority as expressed in the law (Law nr.10/88, articles 10 and 14). The National Directorate of Cultural Heritage (DNPC), museums and other national bodies of public interest are assigned to authorise and issue licenses for archaeological works, and the authority that ensures the license is responsible for supervising and inspect the work it authorises, and sending reports to DNPC. But only DNPC has the mandate to collect copies of each license authorised by other institutions, and to cancel the licenses when informed that the excavation has not been satisfactory (Decree nr. 27/94). We are thus in situation where different state institutions perform the same work in parallel.

DNPC and DAA staffs are divided on who has the right to ensure licenses for rescue archaeological activities. DNPC staff maintain that licensing authorisation should best be kept at the ministry level, and DAA archaeologists complains that they should be part of the licensing process, as it is linked also to the management and curation of the depositories. There are thus contrary opinions in this, as shown from the selected quotes:

> Interviewee 3: Normally, the licenses, according to the norm, should be made at our level in the Ministry (Interview, March 11, 2019).

Interview 3 is an official at DNPC who finds that licenses should be managed through the DNPC as an extension of the ministerial level. Meanwhile, archaeologists from DAA took conflicting positions here:

> Interviewee 2: The licensing of archaeological works is not a job that should be done only by DNPC; it is necessary to decentralize this process. Otherwise, DNPC must recruit a greater number of archaeologists. It is easier to follow the regulation, which says that depositaries can also issue licenses. […] as well as other accredited institutions for this purpose, such as the DAA, but there always has to be coordination with the government body at a central and local level (Interview, February 21, 2019).

> Interviewee 5: […] licenses have to be issued by a specific coordinating body, which should be DNPC. There will be no escape from DNPC issuing licenses; there is no other way. We can't say that 'no one is there' [e. g. that the DNPC is understaffed or does not have competence], we also have to contribute to the existence of conditions there to put pressure (Interview, March 14, 2019).

These two interviewees raised the problem of the current lack of trained staff at DNPC to process the licenses, but their opinions diverge on how best to amend this.

Based on the interviews, there is an absence of public tender and criteria for rescue archaeology activities. Companies do not comply with the archaeological regulation (Decree nr. 27/94 article 4). Since the projects avoid paying fees (e.g., the full 0.5% of the total budget of a development project stipulated), they settle contracts privately directly with archaeologists or with amateurs or with rescue archaeology consultancies without the licensing process or knowledge of the DNPC. Mostly, however, companies do not at all comply with the pre-development Archaeological Impact Assessment or follow up with rescue excavations prior to or during construction. As the inspection system for these activities is still missing, compliance, non-compliance and varieties between them are uncontrolled. By law, Mozambique specifies a procurement system process for all government-funded or organised activities (Decree nr. 5/2016). Contracts for large-scale national development, such as the commission to build a dam, are announced and advertised as a tender process where developer companies can

make bids for the whole contract. However, the AIA process and rescue archaeology part of the project is either not carried out, or when it is, there is no formal tender or procurement process for this part. Commenting on the procurement process, the DNPC staff (who would be the authority to monitor such a process) explained the process:

> Interviewee 3: There is no procurement; the process of accessing the license has often been via the university, through sectoral partnerships [...] it is not the Ministry that manages it; it is the university that 'classifies' the archaeologist who meets conditions. Many times, some companies have direct cooperation with another company (like UEM), how the process is managed we don't know [...], in these sectoral agreements, they [the companies] have all the rules. So, the rescue archaeology process is not based on competition (Interview, February 11, 2019).

Similarly, the archaeologists from DAA agreed, saying that, in effect, there is no procurement process. DAA staff, who also occasionally do contract work, express that they are unaware of the criteria used by companies to hire archaeologists for rescue archaeology. However, Decree nr. 5/2016[103] establishes clear procedures for contracting public works, supplying goods, and providing services to the State. The decree establishes that rescue archaeology activities should adhere to the capitalist model governed by market standards and market competition. This requires Mozambican archaeologists to organise themselves professionally and make this organisation transparent.

One of the interviewees (Interviewee 2) argued that the main reason for the lack of structure was that contracts were so rare, 'every two years', which meant that there was no market to "think about public tender" (Interview, February 21, 2019). Although, as explained by Interviewee 2, the situation has operated informally in the past, owing to few projects being implemented, the situation is currently different. The country receives and implements many development projects that require cultural impact assessments. Companies working in different parts of Africa (or in other parts of the world) are also accustomed to a process of archaeological assessment or rescue archaeology. As expressed by a DNPC staff:

> Interviewee 3: We do not have a model to manage the process; the [development] projects bring the proposal. Often, as they already work in many countries where the practice of rescue archaeology is common, they already know that when they arrive here, they seek our legislation, they have their lawyers and jurists, and they are advised to do so (Interview, March 11, 2019).

At the moment, as the law does not define who pays an archaeologist or cultural heritage manager for the pre-development archaeological impact assessment, it is difficult for developers to follow appropriate procedures and to contract archaeologists. While larger development companies may have the resources and 'know-how' to follow this through, it will be challenging for smaller developers to do so. In addition to the university department (DAA), there are also several private companies that carry out cultural impact studies. It is necessary to provide a clear and transparent process to award contracts for rescue archaeology activities. This clarification of procedures will avoid

[103] *Decreto nr. 5/2016. Aprova o Regulamento de contratação de empreitada e obras públicas, fornecimento de bens e prestação de serviços ao Estado e revoga o Decreto nr. 15/2010, de 24 de Maio. Boletim da República, 08/03/2016, I série, nr. 28.*

conflicts of interest among different actors, create employment opportunities and ensure good quality of cultural impact studies.

5.3.4. Monitoring

Open competition requires an announcement and a transparent selection procedure. Currently, developers often contract archaeologists directly and the archaeologists then monitor quality and reporting. This is detrimental to the quality of archaeological assessment and surveys and also creates dependencies between the archaeologist and the contracting company, as discussed in Chapter 4.3. The archaeologist rarely has the opportunity or authority to follow up on whether the recommendations given in the assessment are adhered to, such as a recommendation to monitor a site while the construction is ongoing or to carry out preventive excavations. As there is no formal procedure around this or a monitoring responsibility directly given in laws and procedures, it takes place at the discretion of the company, and archaeologists have different experiences here. For Interviewee 6, there is too little follow-up on the company's conditions, which is made worse as there is no subsequent monitoring step or authority to carry this out:

> Interview 6: What happens is that when there are these projects, in the areas where they are implemented, when they call on an archaeologist to do work, even if there are very detailed recommendations, they are not followed. I don't know if it's the problem of insufficient funds or the companies are not interested, what they want is the first preliminary report. […] there is no monitoring at all. Monitoring should be done after the Environmental Impact study. The first report is considered as the definitive report. They [companies] ignore the recommendations of the archaeological impact study report. They do the work without calling any archaeologists to monitor the work. Monitoring archaeological work should be an important activity in these places, but it does not happen […] (Interview, April 16, 2019).

The first assessment is not followed by rescue archaeology or monitoring during construction, even if it is recommended in the report. This is in breach of the law that states, "The authority issuing the permit, the developer and archaeologists involved […] must establish a good system of cooperation and communication to ensure that the law is followed and correctly implemented" (cf. National Heritage Resources Act nr. 25/1999). However, the cultural heritage law does not specify the DNPC as a monitoring or supervision agency or open up for another institution to be a monitoring authority. It is also not specified who has the responsibility to assess recommendations in the report and ensure that these recommendations are being followed. One problem lies in that, as discussed, at the moment, the DNPC has no archaeologists or cultural heritage managers and does not delegate to other authorities to evaluate the reports. Owing to this, one DNPC staff explained in the interview:

> Interviewee 3: We have directed the evaluation of the reports. The elements to be considered in the evaluation process are those contained in the terms of reference and the proposal previously presented (Interview, March 11, 2019).

This is probably a comment about the past when trained archaeologists were at the DNPC. Several of the interviewed archaeologists (as Interviewee 2, 5) agree that there is no follow-up or monitoring and the reports are not assessed by any authority, adding that DNPC currently has the competence to do so, as explained by Interviewee 8:

> Interviewee 8: ... the one who evaluates is the contracting company, not DNPC; ultimately, DNPC can receive the report and file it. But DNPC should evaluate the reports

> and give the respective recommendations. At this moment, it is not possible to do this because DNPC […] does not have the technical capacity to do so. The report should be submitted to DNPC, but the consultants are the ones who keep the reports; they are the companies that hire, and the results belong to the project due to the confidentiality clauses that entrepreneurs normally require (Interview, April 25, 2019).

As discussed in Chapter 3.2, there is a feeling among archaeologist that the companies that contract them do not really care about the quality of their reports. This was commented on by Interviewees 6 and 8:

> Interviewee 6: What we do as research associated with large companies is not about cultural heritage management because companies are interested in the report, there is no follow-up of the programs and knowing what the ways to manage (phase two for mitigation) (Interview, Apr 16, 2019).

> Interviewee 8: The dissemination of results, community interaction, all of this is set aside because the project proponent always wants to spend as little money as possible. There is little or no interest in cultural heritage preservation or conservation. What they want is just for the archaeologist to give permission for them to continue with the project (Interview, Apr 24, 2019).

Thus, at the moment, the DNPC does not quality-assure the reports or delegate to the DAA to do so, even though informally, the DNPC can also/seek support from the DAA, who can provide quality assurance, which sometimes happens. Potentially, such a system could be built and supported through 0.5% of the total cost of the project (Decree nr. 27/94, article 12) both on the national, district and provincial levels. Meanwhile, archaeologists from the DAA added to this discussion by specifying the procedure of the 0.5 %:

> Interviewee 8: [...] who receives this value (0.5%) is the Ministry of Culture to guarantee rescue archaeological activities. But the Ministry has not been able to monitor the activities since a long time ago. So many development projects end up not complying with the law because the State itself, which should be the first to guarantee law enforcement, has no conditions for law enforcement (Interview, April 25, 2019).

The development of such a monitoring system necessitates standards or guidelines to be considered during such a report assessment. In effect, as pointed out by Interviewee 8, the companies themselves take the responsibility of filing the report and making recommendations. Even though it is mandated, the DNPC does not have an archive for the archaeological report or a system for registering sites that work together with AIA surveys or rescue archaeology. In addition, some companies prefer to keep reports hidden, as developments may be confidential.

5.3.5. Accreditation and Quality

The professional accreditation system establishes credibility and trust in the services provided. It promotes customer trust, creates competitive advantages in the market, and seeks to continually improve the service. It guarantees the good quality of the results obtained; also, it requires practitioners to operate in accordance with the policies and procedures that guide a certain activity. In other sectors, such as the laboratory sector, accreditation is a crucial part of sector maturity. Different archaeologist accreditation systems can be found in many countries. For example, ASSAPA and Kwazulu-Natal in South Africa have an accreditation system for archaeologists. The National Museum and Monuments of Botswana also has an accreditation system for archaeologists (see discussion in Chapter 4.3). This accreditation system represents

national, regional and international interests for archaeologists and cultural heritage matters (Belford and Wait 2018). However, as we saw in Chapter 4.1.1, it can also be used to exclude practitioners from the possibility of engaging in tender processes.

The DNPC or the DAA do not currently have a register of national archaeologists or a formal accreditation criteria system. There are also no clear criteria for the registration process of active archaeologists and cultural heritage management professionals and practitioners. As is clear from the above interview extracts, DNPC officials do not regulate this activity or indeed see it as their role, although based on the policy and as a state directorate, they would be the responsible unit to be in charge.

DAA, which trains several archaeologists each year and whose officials also carry out contracts, do not have a formal system for accreditation or quality assurance. Interviewees from DAA explain how it is usually the developers themselves that define the process of AIA and rescue archaeological activities (if the latter is indeed carried out). Some interviewees pointed towards the lack of specification in the archaeological regulation, which means that the tender process lies on an individual level, and other interviewees contrast this lack of procedure with what takes place in Environmental Impact Assessments:

> Interviewee 5: There is transparency and public tender within the scope of companies that do the work of Environmental Impact Assessment, but not at the level of archaeological works (Interview, March 14, 2019).

> Interviewee 8: Our legislation does not say anything about this, who does all this is the company that hires. And normally for pre-development archaeological impact assessment, there is no public tender in which several proposals are launched for different projects. […] At this moment, I do not see the existence of a licensing process; what happens many times is that many consulting companies look for the cheapest quote, and employ technicians or researchers trained in archaeology; these will do the proper work of EIA, without following the Law (Interview, April 25, 2019).

> Interviewee 6: Usually, the contracts are individual. They [the developer] hire the person. One of the things they do is try to see if the person has a license in that area for archaeological research and look for that person to apply for his license. Some [developer] companies apply for a license at DNPC [directly] (Interview, April 16, 2019).

As shown through the experience of these interviewees, the lack of specifications means that rescue archaeology activities in Mozambique are still carried out opportunistically by individual archaeologists and not as a scientific activity that produces results for building knowledge of archaeology or the potentiality of Culture Heritage Management (CHM) as a business sector. This misses the potential of creating a job market and a procedure for more job opportunities in the heritage sector at a provincial and district level. Furthermore, as this sector is not yet organised, it is easy for project developers to disregard cultural impact studies. Additionally, the interlinkages between heritage and its role in transforming the general society, offering conditions for the sustainable management of cultural heritage and for building identity/reflection of the past, are not utilised as well as they could.

As is clear from these interviews, the DNPC at the moment does not have defined national standards or uniform procedures and practices for rescue archaeology. Therefore, projects that need to carry out a cultural impact assessment use their own criteria. In addition, now, there is no qualified CHM or archaeology-trained professional in the DNPC who can monitor, supervise and inspect activities. As we have seen above, DNPC officials raise the lack of trained staff as a problem; however, DAA has been

training students up to BA level and through collaborations with other departments globally through to MA and PhD level for many years – thus there are trained individuals in Mozambique who could potentially be recruited for such a task. The problem rather lies in funding and recruitment at the DNPC. Another problem lies with the law, as it does not clearly define the qualifications required to execute rescue archaeology activities and the activities that require pre-development impact assessments.

5.3.6. Intangible and Local Heritage

In Mozambique, as elsewhere (see Chapter 3.1.2), there has been a strong emphasis on the protection of built heritage, while underground archaeological heritage has not been protected to the same degree. In addition, intangible and local heritage aspects have been given little attention during pre-development cultural impact assessments. As explained by a DNPC staff member:

> Interviewee 3: … we are dedicated to the material heritage […] but at the level of the Ministry as a whole, we have ARPAC[104], it is more focused on the research of intangible heritage (Interview, March 11, 2019).

ARPAC is an abbreviation for the Institute of Sociocultural Research, which is linked to the Ministry of Culture and Tourism.[105] Following the suggestion that ARPAC should be responsible for intangible heritage, I visited the central office in Maputo; ARPAC staff explained that they were not involved in this process. Thus, the institution responsible for managing intangible heritage in the country does not participate in the implementation of development projects, nor does the cultural legislation guide this procedure, as explained by Interviewee 4:

> ARPAC does not act directly on projects that require EIA or AIA projects. We were only invited by the company responsible for the consultancy in the last phase of the project for public consultation. We gave our suggestions, but we did not know if they were accepted; we did not even participate in the crucial phases of the project to make possible social impact assessments (Interview, March 13, 2019).

In addition, Interviewee 4 does not directly refer to the study of the EIA or Archaeological Impact Assessment (AIA) process but is sometimes involved in social impact studies. The ARPAC officials name the social impact assessment company IMPACTO Ltd., which is one of the companies that usually invites ARPAC.[106] These invitations are solely to participate and oversee public consultations, not in the planning or pre-development phase. The social impact studies based on the 28 EIA reports consulted at the Ministry of Land and Environment between October 2022 and March 2023 (Chapter 6.2.1) concern providing the local communities with health services, water and sanitation, education, electricity, transport, etc.

Given the lack of formal procedures or guidelines, the registration of intangible local heritage or biocultural heritage is completely up to the archaeologist doing the assessment. However, some archaeologists are not prepared to work with this kind of heritage. For instance, an archaeologist from the DAA elaborated while contemplating my questions about intangible and local:

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[105] ARPAC was formerly named the Cultural Heritage Archive and current Socio-Cultural Research Institution.
[106] This is a social impact assessment company (http://www.impacto.co.mz/impacto-en/) Accessed 2022-09-02.

> Interviewee 5: In my particular case, I try to register local social memories about archaeological sites and some oral traditions. I don't see that there is anything systematic about intangible elements in Mozambique. But archaeologists' concern is to work based on inquiries and popular knowledge about certain archaeological sites (Interview, March 14, 2019).

Explaining the lack of coherence in registering intangible heritage and local heritage places, Interviewee 5 takes an individual responsibility to document such heritage, and the memories linked to them but says it is not included in any procedure to do so and also not everyday practice of archaeologists doing AIA assessments. As was explained by another archaeologist, the contractors themselves are not interested in these elements. "Project proponents are concerned with the tangible component; the intangible part does not motivate them" (Interviewee 8, April 25, 2019). This can also be owing to a lack of knowledge that this type of heritage, when old, is also covered by the law – and that the law also indirectly specifies intangible heritage. Consultant archaeologists also have a duty to inform developers about this. Working with intangible heritage elements during rescue archaeology activities still constitutes a greater challenge not only in Mozambique but also in South Africa and Zimbabwe as suggested by the interviews presented in Chapter 4.

5.4. Discussion

The review of policies, the lack of procedures and the actual day-to-day practise, and the experiences of the individual archaeologists who are active in the field of AIA and rescue archaeology are highly informative. The experience of the archaeologists should ideally be balanced by interviews with more officials – not just from the DNPC but also on district and provincial levels. I have tried to interview more officials in municipalities and ministries in many different ways throughout my thesis work – but without success. To me, this is also an indication of how hard it can be for a company that wants to follow the law in terms of the AIA steps and rescue archaeology, even for those companies committed to investing the 0.5% – to know where and how to turn to the correct authority.

Good archaeological research has been carried out in the country through both traditional archaeological research and rescue archaeology, and the knowledge of our country's prehistory is expanding. In addition, there is an openness and tradition to work with intangible heritage and local heritage places in archaeological practice in Mozambique. Nevertheless, much remains to be done to make cultural heritage management a natural part of any development project. Cultural heritage legislation in Mozambique is currently less specific when compared to other some other countries in the region, the best example being perhaps Botswana, Namibia and South Africa, where roles and responsibilities of actors and institutions involved in the process are clearly specified. In Mozambique, the provisions for rescue archaeology are confused, mixed with the regulation of normal archaeological research procedures. As mentioned above, many 'state institutions', including those not defined, have the right to issue licenses and to supervise and inspect archaeological works (Decree nr. 27/94 article 22). However, this is not done now. The regulation does not specify procedures other than the requirement of licences and who has the right to issue such licences.

There also needs to be procedural guidelines for how the funds received from contractors to pay rescue operations (0.5% of the total cost of the project) are received and

managed. Currently, the low funding of the DNPC results in them being understaffed. As a result, there are no trained archaeologists at the DNPC. In addition, the monuments section of the DNPC (see below) also has many other types of heritage to care for, including historical buildings and war memorials, which take attention away from underground heritage. In this situation, the lack of clarity and procedures of Decree nr. 27/94 constitutes major challenges for the good management of rescue archaeology activities in the country. Potentially, a percentage of these funds could be used to build up an administration around this and to strengthen the capacity of district authorities. We also need to identify the legal steps and procedures to be followed, including the institution to be contacted by the developer or a project to obtain rescue archaeology licence or to be in breach of the law.

We must ensure that the rescue archaeology procedures are translated into a common guideline. This includes specifications on how the data produced will be reported or published (see also Johansson and Johansson 2010, Wigert 2018 for a similar discussion on other countries). Procedures and guidelines, including other details, do not necessarily have to be specified in the main cultural law (Law nr. 10/88) or even in linked archaeological regulations (Decree nr. 27/94), as revisions of such policy documents are typically very slow and laborious. Since conditions and roles/responsibilities may change quickly they could equally be specified in any accompanying procedural documents and guidelines, as is the case of Botswana (see discussion in Chapter 4.2.1). As we have already seen in Chapter 2.1.4, legislation was also amended inspired by neighbouring and other countries, but the process of formulating following procedures and guidelines has been slow. As I will argue in the coming chapter, there are also some amendments in terms of specifications that need to be done in the cultural legislation. It is now timely to discuss this as the Mozambique cultural heritage management legislation has not been updated for approximately 3 decades. The experience from neighbouring countries can help Mozambique in this process.

Projects for the construction of infrastructure and the exploitation of natural resources that could boost archaeological research and its funding through rescue archaeology and the 0.5% have been underused in creating employment opportunities for archaeologists and cultural heritage managers. Similarly, the building of institutional capacity at municipal, district, and provincial levels, as well as nationally, has been underused. This has delayed the possibility of building and ensuring sustainable cultural heritage management, including the dissemination of research results.

In Mozambique, the tender process procedures for all state-funded or state-supervised works challenge the cultural heritage management sector to professionalise its services. As I have discussed in Chapter 3.2., there are many academics who are loudly critical of this way of thinking, specifically in the heritage sector. However, as illustrated in my review of policy, procedures and practices in southern Africa (Chapter 4.3), we can see that there is no sharp line between a state-organised archaeology and a market-organised archaeology; rather, it depends on how the heritage sector is organised between different actors. A high degree of maturity and professionalisation in the sector can still be achieved within different forms of organisation. However, the Mozambican heritage sector has not developed agreed-upon procedures and practices – we have not seen the sectorial development as envisioned through overall national economic policy. In the long run, this will also damage the possibility and interest of development projects and of international investments who are expecting to encounter a heritage sector that can follow international rules and standards.

As discussed in this chapter, there needs to be a clarification of who selects the appropriate archaeologists/archaeological organisation and through what process. The logics of opening a sector for competition and in for deregulating service/responsibilities that were previously centralised by the State is to have the sector 'mature' as discussed in Chapter 3.2. The sector actors gradually develop their own standards, procedures and practice. By encouraging efficiency and innovation, market efficiency is promoted. In addition, the argument for market based approaches is that opening the sector expands the domestic employment market, and would offer high-quality service at lower price (see discussion in Aprahamian and Pop 2016:9, 48–49, Wigert 2018; Manyika *et al*. 2010).

Regarding the advantages of the rescue archaeology industry and open market for economic development, compared with South Africa, Interviewee 14, who has experience both from Zimbabwe and South Africa and doing contracts as an archaeologist, gave the following example of how open competition will lead to opportunities for more archaeologist and also young archaeologist if there was enough transparency:

> …If a field becomes a free market, I can employ about 10 archaeologists given the kind of development that is happening now […]. It can create a chain of values and will bring employment to young archaeologists. If we say it is part of our environmental management system, archaeologists in the heritage must be affected by these activities; we can employ these people, and archaeology becomes an enterprise. If the market is opened, […] is capable of employing between 500 and 1000 archaeologists to monitor all these projects. The way it is done in South Africa, heritage impact assessment is not a 'once' thing. Once any area has been surveyed by an archaeologist. Any impact assessment is valid for five years. After five years, you have got young archaeologists coming to do monitoring using the same data as background information. This is what I think that can happen … (Interview, May 23, 2023).

Professionalisation will also result in heritage authorities having higher credibility and clout to protect heritage and enforce laws.

Currently, the biggest challenge to rescue archaeology and heritage protection and management is that many development projects do not commission pre-development AIA, as discussed in Chapter 4 and further in Chapter 6 relating to Mozambique. While some sectors do, e.g. mining and large-scale natural resource extraction, other sectors do not comply at all, including when building roads and bridges (e.g., projects funded by the public sector). In addition, even when AIAs are carried out, typically, and as we have seen through the interviews above, recommendations are not followed, nor are they monitored and inspected by a competent authority.

Problems such as a high degree of centralisation to the DNPC in terms of administration and management of archaeological activities, the absence of a clearly defined system for AIA and rescue archaeology activities, unspecified cultural legislation, and lack of procedures for how to deal with non-compliance with the regulation are still large obstacles. Other constraints are lack of coordination and cooperation of institutions, lack of trained and qualified staff and/or lack of funding to recruit more staff. The lack of national standards for research and definition of the roles of the various actors involved in the management and administration process, etc., means that the cultural heritage management sector in general, though it has great potential, is still underdeveloped in Mozambique. In the next chapter, I will analyse the rescue archaeology activities in Mozambique. The current stage of these activities is a direct reflection of the management system and the legislation in force discussed here. It represents how rescue archaeology has been performed over time and its potential in the country.

6. The Practice of Rescue Archaeology in Mozambique

The previous chapters identified challenges in rescue archaeology and heritage management in southern Africa as a whole and then focused specifically on Mozambique. As discussed in the previous chapter, there are several challenges with the current system, but also some possibilities. A cultural heritage practice has emerged in Mozambique, as has the number of rescue archaeological activities. In this chapter I will review in more detail archaeological work that is specifically linked with various development projects in the country. The chapter will be structured historically, tracing periods of economic shifts that marked or marked the phases of infrastructural development projects or construction of the country.

6.1. Early Period

6.1.1. 1930s Development Plans

From the end of the 1930s, the Portuguese government began to implement six-year Development Plans in Mozambique, specifying socio-economic and political objectives. These plans specified the construction of railways, roads and bridges, a hydroelectric dam, airstrips and ports development (Newitt 1997:402–403). However, these projects did not start immediately, owing both to a lack of funding and to the beginning of the Second World War.[107] In addition, large areas of Mozambique were still controlled by foreign-owned concessions (*prazos* and companies) with extensive rights and privileges within the country (Newitt 1995:359-360; 387). The end of the 1940s to the 1960s was a period of investments in Mozambique.

The first development plan was proposed in 1953, with 1.7 million of *contos*[108] for investment in infrastructure for a rail link between Maputo and Harare, an extension to the Incomati railway, a continuation of the Mozambique railway to the lake, the building of the Nacala railway branch, the completion of the Limpopo Valley scheme, the construction of dams on the Revué and Movene rivers, and airfield developments.The second plan for the years 1959–64 allocated 3.2 million of *contos* for investment, which included the development of massive irrigation infrastructure settlements connected to the Limpopo, Incomati and Revue dams and investment in transport infrastructure.

The third plan covered 1968–1973, and in the interval (1965–1967), an interim plan operated. Air services began to be developed in 1940, and airfields with international standards were constructed in Maputo, Beira and Lumbo. An additional fifty landing strips were built in different parts of the country (Newitt 1995:461–464). These plans

[107] For example, in 1891, Portugal abandoned gold standards owing to financial weakness, to secure its colonies should be offered a loan from foreign countries such as England, France, Spain, etc.
[108] The *Conto* designated the amount of 1000 *Escudos* of the Old Portuguese currency replaced by Euro in 2002.

were accompanied by the construction of the main urban centres. Most of these projects were not accompanied by rescue archaeology research, and many cultural heritage elements have been negatively impacted.

The absence of rescue archaeology also occurs in large projects of infrastructure that started earlier in the country by foreign investment to connect the neighbour countries, including the railway from Maputo to Transvaal opened in 1895, the railway from Beira to Untali (in Zimbabwe) finished in 1900, the railway from Maputo to Swaziland (Eswatini) from 1903 to 1912, the Sena bridge across Zambezi River opened in 1935, the railway from Lumbo to Malawi started in 1912/3 and ended in 1924/40, a railway from Tete to Moatize finalised in 1949. The road construction connecting the different parts of the country was the responsibility of the Portuguese state (Newitt 1995:485-493 and Newitt and Tornimbeni 2008, Neto 2016).

The first instance of rescue archaeology in Mozambique dates from 1946, when the construction works of the road in Malessane site, district of Guruè, revealed ceramic sherds and traces of iron manufacture dating to the Early Iron Age (dated to 212–409 AD) (Fig. 6.1 and 6.2). The road was built during the 4th campaign of the Mozambique Anthropological Mission, and the local administrator asked Santos Junior (anthropologist) to document the site (Rodrigues 2006, Senna-Martinez *et al*. 2013).[109] This event marks the first known rescue archaeology operation in Mozambique.

In the period from 1946 to the 1960s, colonial authorities made few efforts to build cultural heritage management or to document archaeology. The effects of this neglect are difficult to estimate. It seems likely that several sites were lost in this period, as it was a time of rapid expansion of the main cities, towns and villages, with many access roads being built in the country. However, in relation to the expanding development, the first planned rescue archaeology activity took place in Mozambique in the 1960s (see the table below). By the 1960s and onwards, the decolonisation of sub-Saharan Africa was underway. As a response, from the 1970s onwards, the colonial Portuguese government began to scale up some reforms in research, including social and ecological research, as discussed in Chapter 2.2.

In this context, the *Junta de Investigação do Ultramar* (JIU) began integrating Environmental Impact Assessments (EIA) for a few major projects implemented in the Portuguese colonial areas at the end of the colonial period. The main aim of these projects was to assess and mitigate undesirable side effects that such projects had on the ecosystems (see below Fig. 6.2). In addition, and as discussed in Chapter 2.2, at the same time, the *Conselho Ultramarino* intensified the scientific and technological activities in the overseas provinces to meet the needs of the populations to justify the continuity of colonisation (Newitt 1995:529, Castelo 2012). This policy change promoted the realisation of pre-development Archaeological Impact Assessments (AIA)

[109] The Anthropological Mission of Mozambique was created in 1936, and developed its work over 6 campaigns - 1936, 1937/38, 1945, 1946, 1948 and 1955/56 - led by Santos Júnior but under Mendes Correia. The objective was to collect anthropological data that would allow a "somatic appreciation of the tribes and their relations of similarity or diversity, for elaboration of an Ethnological map of Mozambique". From this work, proceeded to the complementary collection of ethnographic and Archaeological data; the date from Malessane site (c. 15º28'00"S and 36º58'00"E) was ^{14}C radiocarbon dated, to 1740 ± 40 (ICEN-132), calibrated to 212–409 cal AD. All material from these investigations was subsequently exported all material to Tropical Institute to Scientific Research (Rodrigues 2006, Senna-Martinez 2013) where it is kept still.

Figure 6.1. Malessane Archaeological site during the archaeological rescue operations (picture from Rodrigues 2006 and Senna-Martinez 2013).

activities in the hydro-agricultural dam projects[110] in Massingir and Songo, and connection with the road construction in Matola (Cruz da Silva 1978, Morais 1988, Madiquida 2015:26).

The construction work of the Massingir Dam was the responsibility of the Ministry of Overseas, which awarded the project to the Tâmega Lda company.[111] The total cost of construction was 8 787 330 244 USD, and this project was financed by loans from the National Development Bank and the Mozambique Credit Institute. The construction work started between 1972–1977, and was supervised by the owner of the project, the Limpopo Basin Development Plan Office, created by *Decreto-lei* nr. 140/72 on April 29, 1972. Here, the rescue archaeology research was carried out in the period between the 1950s and 1960s, by Lereno Barradas and Lopes Nunes. These archaeological researchers recovered much Stone Age lithic material that was stored in *Instituto de Investigação Científica de Moçambique* and in the Museum of the Mineralogical and Geological Laboratory in what was then called Lourenço Marques (now Maputo). The second archaeological prospection occurred between 1972 and 1974, focused mainly on the dam construction area and was developed by Prata Dias, Manuel Morais and Ricardo Teixeira Duarte. This work established an archaeological sequence for Mozambique that covers the Pleistocene period. The study also provided the basis for the first publications on the Stone Age prehistory of Mozambique (Carvalho 1974, Carvalho *et al*. 1975, Prata Dias *et al*. 1975; see reviews in Duarte and Madiquida 2004, Macamo 2006:61-62).

[110] The Massingir Dam project construction started with the formation of the 'Brigada do Limpopo' in 1924, with the reconnaissance work carried out already in 1924. The project was reviewed and brought up to date in 1952 with the campaigns of the 'Incomati Sabie Mission'. The choice of the dam site was made in 1964-1965.
[111] *Portaria nr. 712/73 de 17 de Outubro,* in *Diário do Governo nr. 243/1973*.

Since Portuguese authorities believed that infrastructural improvement brought an opportunity for natural development and replaced it with a more urgent concern for politically oriented projects, the Cahora Bassa Dam project was a part of the propaganda. Thus, for the Portuguese government, building the dam was part of its policy of progress and enrichment of the overseas provinces and demonstrated the desire to proceed with the full use of natural resources for the benefit of all inhabitants of the territories (*Drecreto-lei* nr. 49 225).[112] The dam was designed to produce 3.6 million KW of electricity, to retain water for irrigation and to control floods (Newitt 1995:529). The construction work cost 327 000 000 USD and continued between 1969 and 1973 by the Zamco Company (*Zambeze Consórcio Hidroeléctrico Lda*). The archaeological impact assessment studies were integrated within the EIA. Through ordinance nr. 270/72[113] of May 15, the Ministry of Overseas directed the Central Commission for Scientific Research for Cahora Bassa to conduct an EIA study. *Diploma Legislativo* nr. 825/1943, guidance from Portugal legally ensured the management of cultural heritage during development projects. However, at that time, the colonial government had not yet legislated about cultural impact assessments during development projects in the 'province of Mozambique'.[114] Even so, some archaeological assessment and rescue activities were carried out.

The archaeological assessment project was named the Zambezi Valley Prehistory and Archaeology Studies, and it was led by Miguel Ramos. They aimed to carry out an archaeological survey and excavation in the area that would be flooded by the dam and to design an Archaeological Charter, preserving historical buildings and possibly the removal or reconstitution of museums or parks. Several archaeological sites and historical monuments were identified, such as the Cachomba and Zumbo forts and the Songo wall. There were also ambitious plans to relocate and reconstruct Cachomba Fort. These objectives were not achieved as they were unable to remove and rebuild one of the towers of the Cachomba Fort.[115] After the construction of the dam, the fort was submerged and remains so today (Ramos and Rodrigues 1979:56-66, Ramos 1979 and Ramos 1980, DAA/UEM 1988:11, Morais 1988:42, Sinclair *et al*. 1993, Macamo 2006:111, Madiquida 2015:26, Ramos 1980:21-23). Future research on underwater archaeology could help clarify information about cultural heritage in the area flooded by the dam.

During the construction of the road linking Maputo and Matola towns in 1960, rescue archaeology activities also took place, resulting in the discovery of the Matola Site, as already reviewed in Chapter 2.2.2 (Cruz e Silva 1978; also investigated later by Morais 1988). The Matola site (IV 1/68) was discovered by Senna-Martinez in 1968 during the construction of the road. A trench opened for road construction revealed red sand, in which kitchen middens and pottery sherds were clearly identifiable (Cruz e Silva

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[112] *Decreto-lei nr. 49 225 autoriza o Ministro do Ultramar a outorgar em Nome do estado no contrato a celebrar com a firma adjudicatária Zamco – Zambeze Consóricio Hidroeléctrico, Lda, para a execução do empreendimento da Cahora Bassa, em Moçambique, em conformidade com a minuta anexa ao presente decreto-lei – igualmente autoriza o mesmo Ministro a celebrar os acordos financeiros necessários à execução do referido empreendimento*, in *Diário do Governo de 4 de Setembro de 1969*, I série, nr. 207.

[113] *Portaria* nr. 270/72, de 15 de Maio, in *Diário do Governo* nr. 114/1972.

[114] Owing to the socio-political and economic reforms of the 'New State' (Newitt 1995:445), the Portuguese colonies became part of the territory of the Portuguese nation and called overseas provinces, as legislated by the *Drecreto-Lei* nr. 23:228. The *Decreto* promulgated the *Carta Orgânica do Imperio Colonial Portugues,* and the *Drecreto-Lei* nr. 23:229, which approved the *Reforma administrativa Ultramarina*. Both laws were published in *Diário do Governo*, November 15, 1933, nr. 261.

[115] The Cachomba fortress was a trading post in the Zambezi Valley and also represents the Portuguese military presence in the interior of Mozambique. The date of its construction remains to be clarified (Castelo 2015).

1978, DAA/UEM 1988:11; see also discussion in Morais 1988:42, Sinclair *et al*. 1993, Macamo 2006:59–61, Madiquida 2015:26). The same situation unfolded in Guruè with the accidental discovery of sites owing to construction. These rescue operation results were integrated into the national education curriculum program after independence and helped understand the local prehistory, constituting essential information for the training activities of archaeologists in Mozambique (Macamo and Ekblom 2018).

In general, the cultural heritage management policy adopted by the Portuguese government in Mozambique did not result in institutional structures or any administrative policy for rescue archaeology activities. All the research institutions and services were based in Portugal, which was sending research services to the colony or overseas provinces, as it was known at the time (Pereira 2005a, Pereira 2005b:295, Castelo 2012, see Chapter 2.2). Little was done for the long-term management of the local cultural heritage or to mitigate its destruction from the development project. The creation of the Anthropological Mission of Mozambique and the Monuments Commission and Relics of Mozambique could have constituted a basis for such an infrastructure but was rather aimed at producing information on the potential value of natural and human resources for exploitation. Therefore, in this period, while archaeological research was being controlled, it was not conducted as a cultural heritage management that could benefit everyone (see Chapter 2.2). On the contrary, local cultural practices and the use of archaeological sites for cultural purposes were prohibited (*Diploma Legislativo nr. 825/1943*, Pereira 2005a, Pereira 2005b:295, Castelo 2012, Macamo and Adamowicz 2017).

Table 6.1. Rescue Archaeology work in Mozambique during the colonial period.

Project/contractor	Activity	Executor of the activity
Construction of Massingir hydro-agricultural dam project between 1972–1974/7 Contractor: Limpopo Basin Development Plan Office Subcontractor: Prehistory and Archaeology Section of JIU	Pre-development archaeological impact assessment during the 1950s and 1960s (Prata Dias et al. 1975, Duarte and Madiquida (2004)	Lereno Barradas (Agronomist) and Lopes Nunes
Construction of the Cahora Bassa Hydroelectric Dam project between 1969 and 1972 Contractor: Central Commission for Scientific Research for Cahora Bassa. Subcontractor: Prehistory and Archaeology Section of Overseas Research Board (JIU)	Pre-development Archaeological Impact Assessment in of Cahora Basse Dam (Ramos, M. and Rodrigues, M. 1978; Ramos 1979, 1980, DAA/UEM 1988:11, Morais 1988:42, Madiquida 2015:26, Sinclair 1993, Macamo 2006:111, Castelo 2015).	Miguel Ramos (Geologist) and Maria da Conceição Rodrigues (Assistant of Santos Junior)
Construction of the road linking Maputo and Matola towns in the 1960 Contractor:	Rescue Archaeological operations (Macamo 2006:59).	Senna-Martinez (1975 BA in History)
Construction of the road in Goruè1in 1946	Rescue Archaeological activities (Rodrigues 2006	Santos Júnior (Anthropologist)

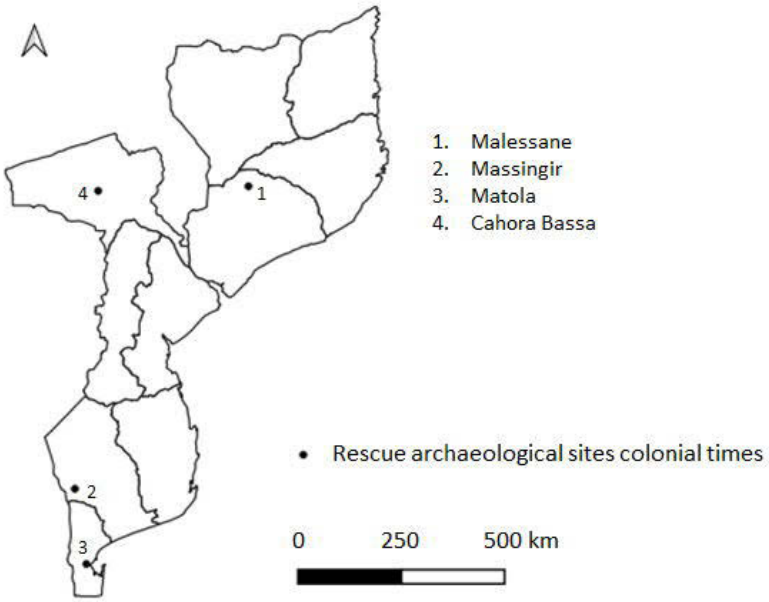

Figure 6.2. Geographical distribution of rescue archaeology research during colonial time in Mozambique.

There was some progress in the archaeological research focused on prehistory studies, see Chapter 2.2, also aided by work in neighbouring countries, such as South Africa and Zimbabwe. However, there was little chronological knowledge of the country. The lack of measures for cultural heritage management can, in part, be explained by the fact that research on the management and protection of cultural heritage using state mechanisms only became a worldwide practice after the Second World War and consolidated from the 1960s to the 1980s. As discussed in Chapter 3.1.2, it was only from this period that cultural heritage management grew in the context of the global south in Europe and the US (cf. Ndoro and Pwiti 2001, Fegan 2003, Cleere 2005, Kristiansen 2005).

The rescue archaeological work at this time was carried out through an agreement made between the entrepreneurs of the projects and the colonial state, where those responsible for the projects provided all the material needed to carry out the archaeological work and to report the results. However, the analysis and interpretation of the results fit more into the discipline of geology than properly into the field of archaeology (Carvalho 1974, Lopes 1974). One example is the work of Massingir (Prata Dias *et al*. 1975). Although the archaeological information from the excavations was published, little is known about the archaeological methodologies used to study the area, and the primary documentation is missing.

The rescue archaeology developed during colonial times was mainly an activity developed by amateurs (geologists, agronomists, anthropologists, and historians) affiliates in the archaeology and pre-history section of the *Instituto de Investigação Científica do Ultramar*. The few examples of rescue archaeology during this time can be explained as part of the *modus operandi* of the colonial administration, who had a low interest in cultural heritage management in Mozambique, as discussed earlier. This policy resulted in negligence in conducting pre-development archaeological impact assessment studies in many different development works. The few investigations

that were carried out were characterised by a lack of funds and the absence of qualified professionals trained in archaeology.

Thus, during the colonial presence in Mozambique, the cultural heritage was exposed to various threats, mostly from the dam and road development but also from urban expansion, with no serious measures taken to do an assessment of (underground) archaeological remains before construction. However, positive changes came after independence, when, as discussed in Chapter 2.2.2, there was a change in legislation and institutions and a shift in values as to the importance of heritage.

6.1.2. Post-independence Period

After independence, Mozambique adopted a socialist and Marxist model of economic and social planning, which also affected rescue archaeology activities (see discussion in Chapters 2.1.5 and 2.2.2). The socialist economy of centralised planning guided investments in state farms and in heavy industry. As a result, a rescue archaeological survey for the Corrumana dam project was performed in the Sábiè River, Moamba District, in 1982. The dam construction project was planned for the years 1983-1989 but was not completed owing to a lack of funding and the impact of the 16-year war. The plans were only renewed in 2015 when archaeological assessments were carried out again (Adamowicz 2015).

If Mozambican archaeology in the period before the revolution was limited by methodological, financial, professional and institutional deficiency after independence, much effort was undertaken to solve this problem. Although chronological research projects (to a limited extent on the Stone Age but mainly on Iron Age or the preferred term in Mozambique: Farming community period) were developed during the period. However, rescue archaeology activities were paralysed during the 16-year war. In addition, there was a low scale of professional development and formalisation of such activities. This lack of professional development owed mostly to the low frequency of large projects due to the war since the projects would require archaeological monitoring. However, the general agreement of peace in Rome in 1992 resulted in more infrastructure development and a new situation for rescue archaeology.

6.2. Developments since the 1990s

As part of a recovery program led by the Mozambican government aided by foreign investment to help rebuild the nation after the 16-year war, several projects for the exploitation of natural resources, construction and development of infrastructure began to be implemented. Since these projects could negatively impact cultural heritage, efforts were also made to protect archaeological heritage through Decree nr. 27/94, which demanded rescue archaeology operations for all projects involving excavation work, the removal or enlargement of land, or the removal of submerged or buried objects. For this purpose and as discussed at length in the previous chapter, the legislation included an allocation of no less than 0.5% of the total cost for rescue archaeology activities. By identifying the bodies and institutions that constitute the National Council for Cultural Heritage, this act also helped to implement Law nr. 10/88, which protects cultural heritage in general. As a result, some development projects were accompanied by pre-development AIAs or rescue operations in the 1990s. In addition, several smaller projects were carried out (Table 6.2).

Table 6.2. Rescue archaeology projects developed in Mozambique during the independence period.

Project/contractor	Activity	Report
1. Currumana dam project 1982-1989 Contractor: IMPACTO Ltd (Uncompleted due to lack of funding and by the impact 16 -year war)	Pre-development AIA for Currumana dam project for water supply in Sábiè River, Moamba District, Gaza Province.	Adamowicz 2015 – NP (Pb denotes published reports and NP denotes unpublished reports)
2. Mozal aluminium smelter Contractor: IMPACTO Ltd	Pre-development AIA in 1998 for the project in Beluluane Industrial Park.	Duarte *et al*. 1998 - NP
3. Mpenda Uncua dam Project Contractor: Consultec – LDA	Pre-development AIA in 1999, Zambeze river, Tete Province	Madiquida 1999 - NP
4. Massingir dam rehabilitation Contractor: African Development Bank	Pre-development AIA in 2004 in the area planned for earthworks	DAA / (Duarte and Madiquida 2004 - NP
5. Rio Tinto's Sand Mining Contractor: SAL	Pre-development AIA in November of 2007, Xai – Xai (Gaza) and Inhambane Province.	Madiquida 2007 - NP
6. Rio Tinto Sand Mining exploration Contractor: Sal	Pre-development AIA in 2008, a project in Jangamo / Inhambane Province.	Madiquida 2008- NP
7. Moamba-Major dam 2011 Contractor: IMPACTO Ltd	Pre-development AIA in July 2011 in the area covered by the project.	Adamowicz 2011a- NP
8. SASOL Gas production Contractor: IMPACTO Ltd Subcontract:	Pre-development AIA, Inhambane Province (Govuro, Funhalouro, Inhassoro and Mabote Districts)	Adamowicz 2011b- NP
9. Liquefied Natural Gas Project Contractor: IMPACTO Ltd	Pre-development AIA in 2011, in Palma District, Cabo Delgado, Archaeology by Environmental Resources Management (ERM)	Adamowicz 2011c - NP
10. Natural gas Project Contractor: National Hydrocarbons Company	Pre-development AIA in the southern part of the Afungi Peninsula, in 2013, Cabo Delgado Province	Adamowicz 2013 - NP
11. Moatize-Port Expansion Project C1020-03 Contractor: Vale Moçambique S. A. Subcontract: BCE	Pre-development AIA and monitoring activities for the construction of the Nacala-a-Velha railway branch from November to December 2012	Duarte *et al.* 2013 - NP
12. Currumana Dam project Contractor: IMPACTO Ltd and National Board of Water.	Pre-development AIA (to resume the project paralyzed in 1989), archaeology by PATRIMOZ SdIA	Adamowicz 2015b- NP
13. Mozambique Gas to Power (MGtP) Contractor: Golder Associates	Pre-development AIA in March 2015, Inhassoro (Inhambane Province)	Adamowicz 2015a- NP

Table 6.2 continued.

Project/contractor	Activity	Report
14. Moatize Coal Mine Area Contractor: Golder Associates Ltd	Pre-development AIA in October 2016, in Tete Province, archaeology by PATRIMOZ SdIA	Adamowicz 2017
15. Mapai Dam Reservoir Project Contractor: SMEC International Pty Ltd	Pre-development AIA in the Limpopo River area in June of 2017, archaeology by PATRIMOZ SdIA	Adamowicz 2017
16. Moatize Coal Mine Project Contractor: Golder Associates Ltd	Pre-development AIA between August and September 2017, for the area of year 2018, archaeology by PATRIMOZ SdIA	Adamowicz 2018- NP
17. Moatize Coal Mine Project for Contractor: Golder Associates Ltd	Pre-development AIA in October 2018, the area for the year 2019, by PATRIMOZ SdIA	Adamowicz 2018b
18. Liquified petroleum gas project (the PT5-C (Pande and Tamane project) Contractor: SASOL	Pre-development AIA during February / March of 2019 in the PT5-CLicense Area	Adamowicz in press

6.2.1. Projects and Sectors

Since the 1990s, the number of projects has varied between one to three per year. Since projects were rare, there was no evolving market for rescue archaeology. There was also weak enforcement of cultural law (see discussion in Chapter 5.3.3). However, gradually, more rescue archaeological activities took place (Fig. 6.3). The industries or development project sectors that have commissioned rescue archaeology operations are dam construction, heavy sand, natural gas and coal mines (Table 6.2, Fig. 6.4 and. 6.5).

There is no formal repository for rescue archaeology, and information on rescue archaeological activities may be hard to access. As the regulation prescribes, the DNPC should house archaeology reports and a national database on archaeological activities.[116] However, in practice, the submission of reports to the DNPC is at the discretion of the individual archaeologist/archaeology organisation or the contractor. The purpose of storing such documents centrally is to guide the decision-making process in other projects and to also guide companies in relation to calculating costs or simply advising them of the presence of sites in an area. Therefore, it is crucial that they are public; however, despite many requests to the DNPC to have access to any reports, I have not been able to trace any AIA reports or cultural impact assessment studies through them.

One example is the Maputo Municipality, where the DNPC is located and where projects take place without pre-development AIAs. Another example is that until February 2019, when I inquired to DNPC officials about an archive of AIA reports, I was

[116] *Lei nr. 10/88 de 22 de Dezembro e o Decreto nr. 27/94 de 20 de Julho.*

told that they had just one report. This was the AIA carried out in Nampula by Ricardo T. Duarte in northern Mozambique (which is also publicly available as many of Adamowicz's other reports via an Academia page).

As discussed in Chapter 5.3.4, there is no formal instruction for how this is to be done and where it should be submitted and stored. Some development projects, including AIAs, have not been published, or their rescue archaeology reports are not easily accessible. This problem weakens the analysis and limits the understanding of this area of activity. In addition, some projects have a confidentiality clause with the contracting companies, and thus, the information is not possible to come by.

Since AIAs can be a part of EIAs part of archaeological and cultural impact assessment (CIA) studies, they could potentially also be found in the EIA reports housed at the Ministry of Land and Environment.[117] To assess the degree to which the requirement for archaeological impact studies by projects that carry out an EIA study is fulfilled, I carried out an archive survey in the Ministry of Land and Environment during November 2022 and March 2023. The EIA reports from some recent projects were consulted randomly to analyse the existence of archaeological and cultural information in EIA studies. Of the 28 development projects selected for analysis and which had submitted an EIA report, only two (7.1%) included an AIA or a CIA (see Table 6.3 for a summary and a detailed description in Appendix 1). There is no discernible pattern here regarding the industry, or the province. There is no distinction between the size of the area and the degree of disturbance or the developer and funder. Many projects simply lack compliance with the cultural regulation.

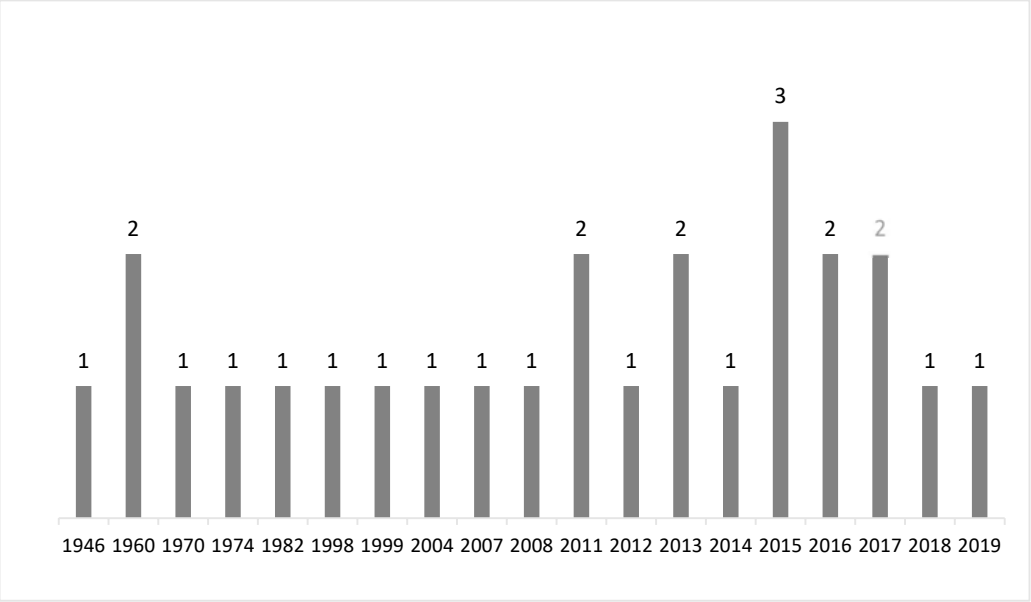

Figure 6.3. Rescue archaeology work in Mozambique per year.

[117] The processing, approval and archiving of reports here is regulated through *Decreto nr. 54/2015, Aprova o Regulamento sobre o Processo de Avalição de Impacto Ambiental e revoga os Decretos nr. 45/2004,* de 29 de Setembro e 42/2008, de 4 de Novembro, *Boletim da República, 31* de Dezembro de 2015, I Serie, nr. 104.

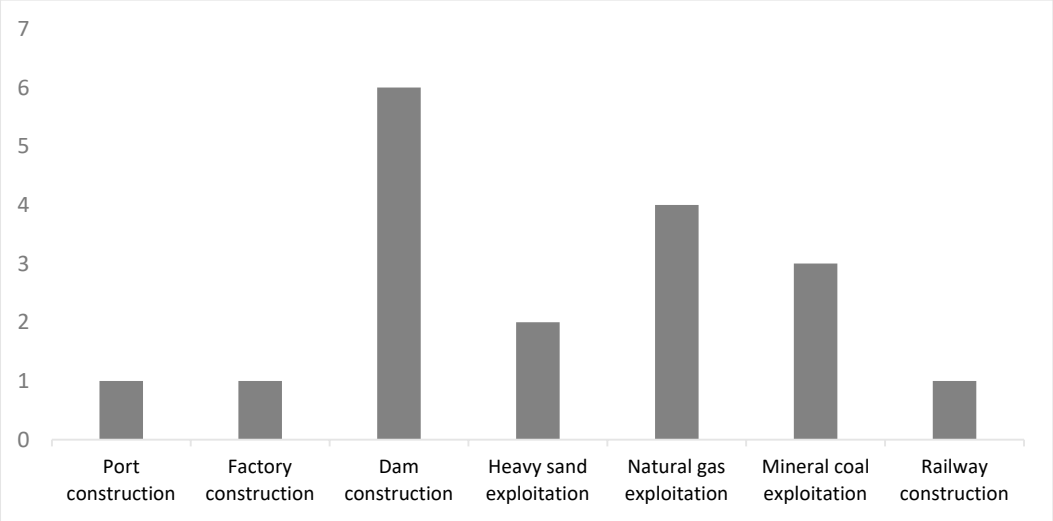

Figure 6.4. Rescue archaeology activities in Mozambique post-independence by area of activities exploitation.

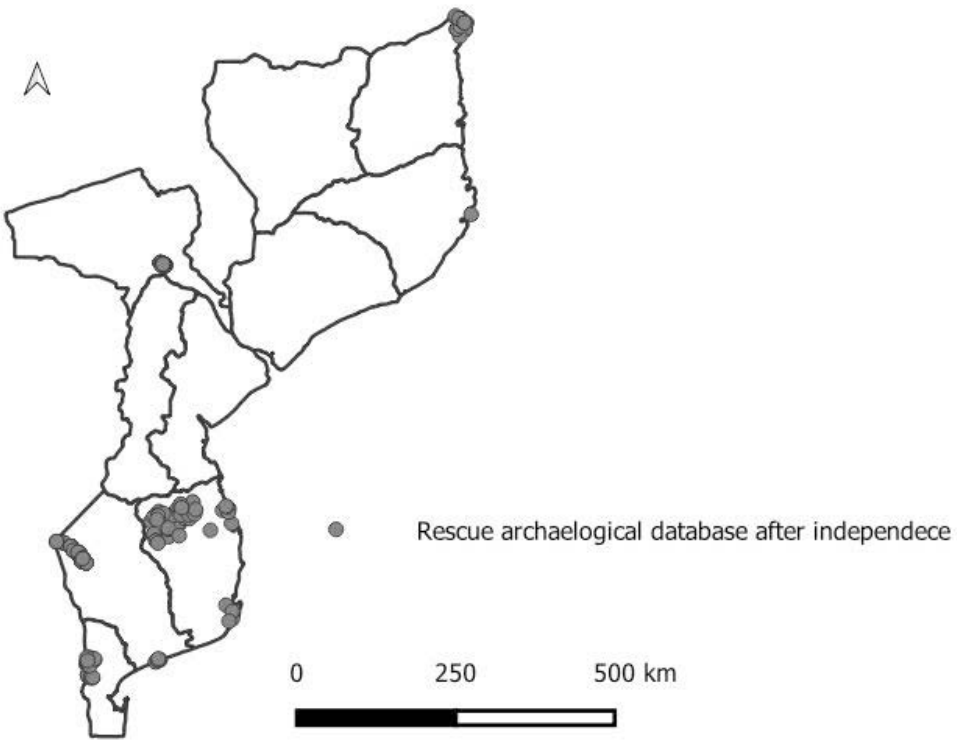

Figure 6.5. Areas covered by rescue archaeology activities after independence. There is no formal repository for rescue archaeology, and information on rescue archaeological activities may be hard to access.

Table 6.3. Extract of analysed EIA reports consulted at the Ministry of Land and Environment (see full list of the 28 reports in Appendix 1).

Sector; Developer; Province; Year	Area; Activity; Consultant; AIA
1. Transport; ANE[118], Cabo Delgado Province, 2002	163 km, Contract Nr. 04/DIPRO/2013; Engenheiros Consultores, Lda; No AIA
2. Transport; Pemba Bulk Terminal, Lda, Cabo Delgado Province; 2022	113ha, Environmental License nr 64/2014; Consultant Castro Tassule, MSc; No AIA
3. Mining; Helin Mining Co, Lda; Manica Province; 2022	380.03 ha; Consultant: Arnaldo Muapala, Individual Environmental; No AIA
4. Mining; Montepuez Ruby Mining; Cabo Delgado Province; 2020	Area unknown; Two Contiguous concessions (4702C and 4703C); No AIA
5. Mining; Consultancy and Services, Lda; Tete Province; 2022	Area unknown; Consultant: Bioglobal; No AIA
6. Transport; ANE; Nampula Province; 2023	103 km, Rehabilitation of the N104; No AIA; Consultant: Civil and Planning Group

The archive survey (Table 6.3) reveals that many development projects that carry out Environmental Impact assessments (EIA) do not include Archaeological Impact Assessments (AIA) or Cultural Impact Assessment (CIA) studies. The 28 randomly selected EIA reports are likely representative of the general situation in the country.

This information confirms the hypothesis that many development projects implemented in the country do not carry out an archaeological and cultural impact assessment (see more discussion in Chapter 8). The archive survey data also show that at the Ministry of Land and Environment, there is no control or requirement for archaeological and cultural impact studies.

I discussed this problem with one official at the Ministry of Land and Environment, who gave his/her understanding of the problem by shifting responsibility to the Ministry of Culture and Tourism:

> Interviewee 11: the archaeological and cultural impact assessment should be the first to be done. These cannot be left out, but we don't know about this. The Ministry of Culture and Tourism, when issuing an opinion for our EIA reports, should require such studies, but it is not playing its role. For example, the Ministry of Health requires information about health services in areas covered by development projects. We asked them [the Ministry of Culture and Tourism] for an opinion, there is a technical committee for evaluating reports. The Ministry of Culture and Tourism is not doing its job. There is a breach of the law. In the future, we will demand these studies because we are already aware (Interview, March 07, 2023).

Based on this information from the responsible authority, it appears that all development projects lack compliance with the regulation. By contrast, the submitted reports show stronger compliance with the EIA procedure itself. This is facilitated by a structure for how and where to submit the reports.

The reply from the official at the ministry indicates confusion over when an AIA should be carried out and the procedure whereby the Ministry of Culture and Tourism should be consulted. Still, there is potential here to build on as the requirement of EIAs seems at least to be better embedded in the procedures of companies and of the Ministry of Land and Environment. It should be noted, however, that I have not assessed the quality of the EIA reports or the degree to which recommendations given there are followed up or monitored. One report mentions that during the EIA, they did not

[118] ANE is short for the national road administration, or the *Administração Nacional das Estradas.*

discover any cultural elements or archaeological sites. This information may be true, but there is no information on an archaeological survey, the technicians involved in the archaeological research, possible names and geographic coordinates, dates of study, places visited, etc., to verify whether the archaeological research has been made or not, neither the quality of the work.

When questioned about the differentiation of reports and the absence of data that proves the consultant carried out an AIA, the official of the Ministry of Land and Environment said in an interview:

> Interviewee 11: Yes, this void and differentiation draws our attention, but the inspection sector[119] here at the Ministry must do its job. The ministry has actions to take but may not be able to respond in time due to a lack of resources (Interview, March 07, 2023).

The unclear procedures and uncertainty about where responsibility lies could/should probably best be addressed at the provincial level rather than at the central level. Having a clear procedure at the provincial level would require fewer resources and be easier to monitor than when supervised solely from the central level. Proceeding in this way would minimise the resources needed from the Ministry to ensure a satisfactory EIA study. Further, when it comes to the assessment and analysis of social elements of the local communities, the reports do not include Cultural Impact Assessment studies (CIA). The main societal elements considered by many EIA reports consulted above are ethnic groups, rites, cultural expressions, employment, health, social conflicts, population, crime, prostitution, religion, infrastructure, water and electricity supply, environmental sanitation, transport and communication, etc. Therefore, the EIA studies in Mozambique seldom comply with the cultural legislation in force in the country (Law nr. 10/88 of December 22 and Decree nr. 27/94 of July 20). The officials who kindly granted the interview at the Ministry of Land and Environment suggested that involved officials may not be well-informed about the cultural legislation.

Feedback from the workshops on rescue archaeology, on February 20 - 23, in Xai-Xai, Gaza province and on August 22 in Maputo and Eduardo Mondlane University, both in 2023, revealed that the implementation of cultural legislation in the country is still a major challenge. Most workshop participants in Xai-Xai were unaware of cultural legislation, including the nature, context, procedures, actors and relevance of rescue archaeology activities. In the Maputo workshop, although participants were aware of cultural legislation, they recognised that although the cultural impact assessment component in environmental impact assessment is not well known, it must still be done. Academics and the general public must engage in a continuous debate on rescue archaeology issues in the country to improve this topic. The municipalities technicians present in the workshop stated that they find it difficult to demand CIA studies in projects implemented by or through municipalities since they do not have any terms of reference. This idea from the municipality officials partly derives from the lack of knowledge of Law nr. 10/88, Decree nr. 27/94 and, above all, the lack of procedures regarding this activity.

Although only limited information is available, the analysis of the known archaeological impact assessment activities (Fig. 6.1 and 6.2) shows a progressive

[119] This is a reference to the Agency for environmental quality control (AQUA).

Figure 6.6. Example of some parts of the Maputo Circular Road (OrdEM 2016).

increase in rescue archaeology activities in Mozambique from 2011 in private projects with multinational capital to explore natural gas, coal and heavy sands (peaking in 2015). Notwithstanding, there has been an overall increase in rescue archaeology activities, but the data still reflects a situation of fragmented activities; that is, only some sectors are following the law. During colonial times, pre-development AIAs were carried out in large development projects (such as dam projects). Today, rescue archaeology activities are normally commissioned/contracted by companies of large-scale natural resources exploration industry, such as gas, coal mines and heavy sand exploitation. However, rescue archaeological activities are not yet developed for roads, airports, bridge constructions, housing and factories or industries infrastructure, power lines, pipelines, canals, etc. Day by day we see these types of projects being implemented without any measures of AIAs or rescue archaeology operations.

In addition, there is no readily available national database of investigations that have been carried out or of areas that lack surveys. This means that the DNPC and municipal and provincial authorities do not have information available to assess the impact of projects or the risks and effects of coming projects. In the context of limited funding and without enough qualified staff or the funds to recruit them, there are challenges to build and expand the capacity to assist, coordinate and supervise archaeological research at the country level. In some cases, there is also dishonesty about whether rescue archaeology was carried out. One example is the Maputo circular road project (Fig. 6.6). Interviewee 6 reported on different occasions (when we addressed the issue of certain projects not carrying out archaeological impact assessment) that although the interviewee did not do the AIA on this project, the archaeologists name appeared in the EIA report as having participated in a prestudy. This situation shows how the project proponents recognise the need to carry out archaeological impact studies before the implementation of the projects but how they fail to comply and then provide false statements at the expense of the cultural heritage.

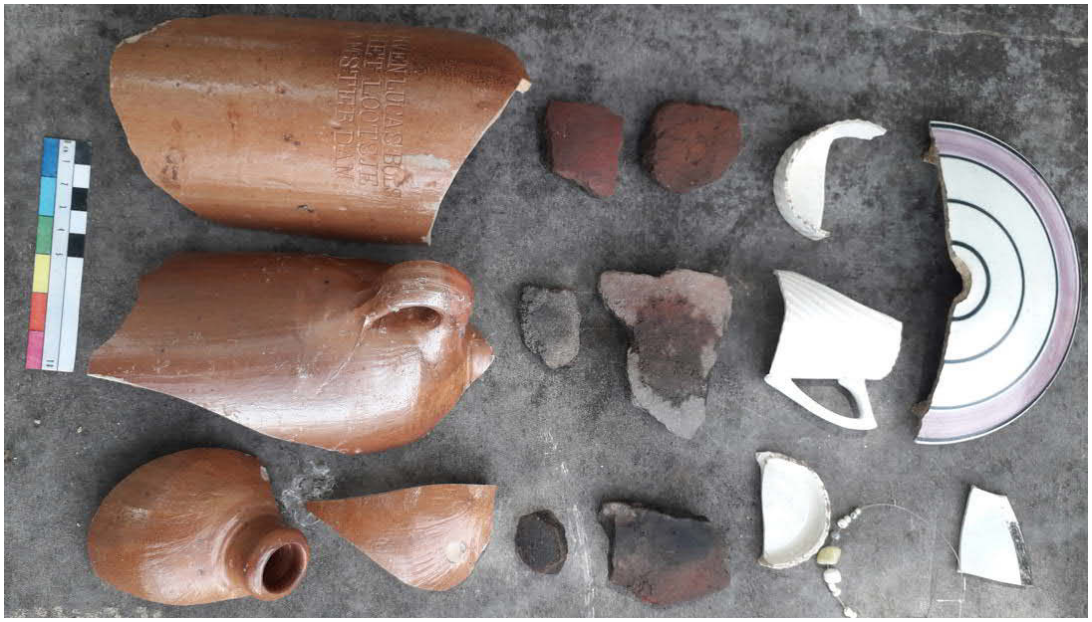

Figure 6.7. Material recovered in downtown Maputo during the rehabilitation of the drainage system of Av. 25 de Setembro in 2008.

when archaeological remains were revealed by excavations for a drainage pipeline, those responsible for the works requested the intervention of DAA/UEM, archaeologists to intervene to carry out rescue excavation and to curate the revealed remains (Fig. 6.7). The rescue work was carried out by Dr Solange Macamo and Dr Liesegang from DAA and History Department/UEM. It was possible to recover at a depth of 1.10 meters the following archaeological remains: sherds of local pottery, porcelain and faience, beads, fragments of an amphora, and pieces of tiles, including unclassifiable metallic material.

6.2.2. Urban Development

The presence of these materials (Fig. 6.7) shows that the downtown area of Maputo city is very rich in cultural heritage yet finds are reported rarely from constructions. The scenario that led to the rescue archaeology activities in Malessane in 1946 and in the Matola site during the late 1960s, where archaeologists are called to the site, are all too rarely repeated. In addition, pre-disturbance assessment would mitigate such interruptions in construction. The developer needs to recognize that their activities should be planned and carried out in the company of archaeologists or cultural heritage managers to avoid emergency cases such as these. Since any kind of construction needs permission from municipal authorities, the negotiation of archaeological impact assessment activities should also come in during the construction process instruction period.

As hinted above, some of the problems with lack of compliance could also be solved at the provincial, district or municipal level at the initialisation of a project. Especially at the municipal level, there is a process of permits that must be issued from this level at the commencement of a building project and the CIA procurement should start here.

Especially important here is the consultancy process which is required in the EIA procedure. As part of this thesis project, I have made many attempts to contact the Maputo municipality authorities between 2020 and 2021 after remitting all necessary

credentials to discuss how the DAA/UEM can facilitate a better process for impact assessments and rescue archaeology. The aim here was simply to initiate a project of collaboration – however, my attempts at contacts fell short, and they were never answered. Imagine now a company building a larger construction and who might want to include rescue archaeology in the project. With no connection to the archaeological community or the municipality, how would they go about it? By contrast, the Matola municipal authorities responded to an initial contact made in 2021, admitting that so far, they do not include archaeological impact studies in the works carried out in the municipality.

Since that date, they have been willing to collaborate with the DAA/UEM and DNPC in the management of cultural elements and resources when implementing development projects. Further, the municipal authorities of Chongoene and Xai-Xai are now already establishing institutional partnerships with the DAA/UEM to carry out archaeological impact studies.[120] Archaeologists and cultural heritage managers who graduated from DAA/UEM have the competence and are available to staff institutions. Therefore, Archaeology and cultural heritage management departments or companies can now be created outside the UEM on the national and local levels. In February 2023, we had a workshop in Chongoene and Xai-Xai on rescue archaeology. The workshop motivated the local authorities to develop rescue archaeology activities to produce scientific knowledge and to reconcile development projects with cultural heritage management actions. We discussed the need to involve local state bodies in the management of rescue archaeology operations when development projects are implemented. The low enforcement of the cultural legislation and the absence of guidelines for rescue archaeology preoccupied all workshop participants (for Chongoene and Xai-Xai; see further discussion in Chapters 8 and 9).

6.2.3. Documentation and Data Sharing

Another characteristic of the rescue archaeology practice projects in Mozambique is that they are based on a deregulated model that lacks specified procedures and standards of research methodology or reporting format. The absence of standardised procedures and specific research methodologies compromises the quality of the research results of this activity, as has been shown elsewhere (see discussion in Kristiansen, 2005, 2009, Demoule 2016; see also Chapter 7). Often, each archaeologist applies their methodologies for surveys, excavations, assessing and recording sites and other cultural heritage resources. For example, 90% of the rescue archaeological reports consulted do not present a site form record or GPS tracks, which clearly illustrates the areas covered by archaeological surveys and activities.

There is also an overall lack of a management plan for the preservation and storage of findings, including follow-up and monitoring. The museums and other institutions are potential depositaries of the national archaeological heritage (Decree nr. 27/94, article 13), but the responsibility for the final storage and processing of finds is not regulated in practice. Even though individual projects have found their own solutions to this dilemma, there is no overall control of how the material is stored, recorded and curated or a 'control function' to make sure that it can be used for further research. This is because there is no one who is officially in charge of the results from rescue

[120] This collaboration has partly been facilitated by the collaboration in and around the Chongoene archaeological park (with Dr Solange Macamo as PI).

archaeology and the registration and sorting of finds are at the discretion of the individual researcher. The regulation specifies the depository, but there is no additional instruction on the procedure of how the material is to be submitted and the responsibility of the contractor in terms of storage and curation of finds.

In the rescue archaeology projects reports listed in Table 6.3, the archaeological sites found are coded and numbered in a number of different ways. This is even though at the DAA/UEM, there is an existing national database system which was developed in 1988 (Adamowicz 1988), based on region and district and site number, a system that is not adhered to in the individual reports. The individualisation of research practices results in some degree of non-compliance with cultural legislation. Above all, the lack of specifications and improvements in archaeological research are limited. The lack of some methodological elements, such as site maps, images, GPS tracks and site recording sheets, means that any recommendations made cannot be directly linked to the assessment. The potential impact of the construction on heritage and the data does not build towards a national overview of knowledge. The reports of proposed development activity and monitoring process are inconsistent, which also frustrates the contractors (see similar discussion by Ndlovu 2014 on South Africa). A standardised proper recording of locations of surveys and test pits would serve to identify whether the contract archaeologist did indeed go on-site and should show all the areas surveyed to give a clear indication that the recommendations made in the report are informed by a detailed assessment.

The contractual terms between the parties govern the possibilities of releasing material or even including it in a national database. Therefore, as discussed by Demoule (2016) (and as discussed in Chapter 3.2), developers are not really funders of archaeological research, as all information produced under a project, if not publicly published, is at risk of being permanently lost. Thus, it will be argued in the coming chapter that archaeological impact assessments and rescue archaeology in Mozambique should be institutionalised, professionalised and published according to current research standards and methodologies, including more direct collaboration with the universities (cf. Kristiansen 2005, 2009, Shepard 2015, Demoule 2016).

6.4. Discussion

The general lack of compliance with the heritage laws results in a lack of development of practices and procedures and a low degree of professionalisation of the archaeological practice (in terms of standardisation of methods and approaches). The projects exemplified above are from the south zone in the region around the capital. This is also where the main cultural heritage management institutions are located. Thus, the lack of procedure in the south, which has proximity to archaeological institutions, is an indication that the same problem may also be occurring in the central and northern zones of the country, but probably on a larger scale. Although the archaeological regulation is in place with Decree nr. 27/94 and is a legally forcing legislation, many of the country's development and construction projects that include soil removal still have no practical process for the protection and conservation of cultural heritage. The compliance with the regulation builds on voluntary compliance and reporting from the rescue archaeology industry. Failure to comply with rescue archaeology activities is also a missed opportunity to create jobs in the cultural heritage sector that could contribute to reducing unemployment. There is no effective development of rescue

archaeology companies that could provide services and create jobs for archaeologists and cultural heritage managers.

Even though the Heritage legislation specifies the involvement of the public and local communities (see, for instance, Decree nr. 55/2016 of November *28*),[121] and in the decree that specifies rescue archaeology activities, Decree nr. 27/94, public and local community involvement is not mentioned. Neither do any procedural guidelines exist that specify this crucial step. For instance, very few archaeological reports emanating from AIAs or rescue operations mention community engagement during rescue archaeology activities, although it is very likely to have taken place.

Only the underwater work report of Moatize-Port Expansion Project C1020-03 expresses the desire to disseminate the research result to the public, but the same report does not show the development of this matter. A positive exception is the AIA report written by Adamowicz (2017) as part of the planning for a Mapai dam, which, after consultancy with the community, recommended relocation of a burial from the 16-year war, as it has a strong attachment to the community. Such consultations should be much more common in the impact assessment reports than they currently are.

This problem becomes complex in our current context in which cultural legislation still does not provide any specific measure to be taken with those who do not comply with the law. For example, it is unclear how violations of the law should be punished or what action to take in such similar cases as discussed in previous chapters. So far, no one has been accused or sentenced owing to violation of cultural legislation. In addition, a slight improvement of legislation is needed to specify that results from AIAs and rescue operations and their results belong to and are property of the State and must be made available to the public, as argued here.

Since construction and infrastructure are now destroying cultural heritage at an accelerating pace, there is a risk of creating a gap in affection and sensibility between past, present and future generations. Although there is a large potential for engaging the number of recently graduated students in rescue archaeology work across the country, this is a potential which is now missed out on. The DNPC should make the dissemination of research results mandatory; the Department of Communication and the Department of Technologies and Information Systems in the Ministry play a crucial role in this process. The legislation and contractual terms of the rescue archaeology between the DNPC and archaeological research projects must contain the clause to release produced material or include it in a national database. This would allow the DNPC, in coordination with research institutions and museums, to use FAIR principles to publish or make archaeological data open to all interested stakeholders.

It is important that new procedures and guidelines foresee how the management of archaeological data and the publication of information produced should be made with specifications of where to store and conserve the archaeological data produced. Detailed suggestions on archaeological data management in general, and particularly on rescue archaeology, are provided in the following chapter. The understanding of this information is relevant because, as has already been demonstrated throughout this work, it also provides knowledge of the status and usefulness of the archaeological information produced in the country.

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[121] *Decreto nr. 55/2016. Aprova o Regulamento sobre a gestão de bens culturais imóveis. Boletim da República, de 28 de Novembro de 2016, I Série nr. 142.*

A national online publication of survey records and excavations related to AIAs and rescue operations and their results is acutely needed. In addition, there needs to be a development of a procedural guideline for the DNPC that is available to contractors, provincial and district authorities, and archaeologists within the rescue archaeology sector and clearly specifies responsibilities, processes, and procedures. Here, it needs to be remembered that since heritage also includes local heritage places and monuments of local value, such as local historical sites and heritage places, there needs to be a mechanism for documenting these heritages in local communities. We need to increase our efforts to train provincial and district-level officials who act under the DNPC and recruit officials trained in archaeology. In the coming chapters, I will present suggestions for such a system.

7. Developing Data Management Strategies

Archaeology is a destructive process (Beaudet and Elie 1991, Lucas 2001, Renfrew and Bahn 2012: 111-120, Freeman 2015); all that remains after an excavation is the documentation (or data) that should be preserved as a representation of a site that no longer exists. Forms of data can be anything from geographical coordinates, drawings, images, maps containing routes of prospected areas and excavated sites, stratigraphic units list, as well as a diverse range of cultural heritage and material culture information contained in research reports, scientific articles published, etc., all of which must be considered as archaeological data (Freeman 2015, Cook 2018, Previtali and Valente 2019). In Mozambique, archaeological work has been undertaken since the first quarter of the 20th century (see Chapter 2.2, Chapters 6.1 and 6.2).

All these activities have yielded and still yield a large amount and different types of archaeological data, preserved in different formats, such as handwritten notes, typewritten records, videos and digital geospatial information (GIS data). This also includes different types of information such as site data and archaeological finds, including archaeometry data (results of ^{14}C; soil chemistry testing, archaeobotanical, and osteological, etc). This data contributes to the study of local prehistory and the development of heritage management aimed at making communities aware of their past as a source of identity and self-conditionality (cf. Lane 2011), and it also justifies the role of archaeology in the country as discussed in Chapter 1.

This objective can only be achieved if the archaeological data produced is shared with academic researchers, educational institutions, museums, librarians, archivists, publishers and research funders that support the development of archaeological knowledge. Since much of the archaeological data in the country is still inaccessible to the public, this knowledge and dissemination gap constitutes a great challenge for the further development of the discipline in Mozambique and internationally.

7.1. Current Repositories

Archaeological research activities are managed by the DNPC in collaboration with the DAA/UEM, and archaeological data management is the responsibility of the DNPC, the DAA, various depositories[122] and other state organisations of public interest and the museums (Law nr. 10/88, section 4, 5, 6 and Decree nr. 27/94, section 5 and 6). However, as discussed in the previous chapter, the role of these different institutions is ambiguous, especially when it comes to the responsibility of the DNPC. Since the DNPC, the provincial and district delegations of culture, do not yet have the technical capacity to manage archaeological data, the management of all this information in the country ends up being attributed to DAA/UEM.

[122] Depositories are all bodies, institutions, singular or collective persons who are in possession of cultural heritage assets (Law nr. 10/88 article 6).

One exception is Mozambique Island, where a *Centro de Arqueologia, Investigação e Recursos da Ilha de Moçambique* (CAIRIM) was created in 2018. Similar to many other public institutions in the country, the situation is partly due to financial problems. Consequently, the current cultural heritage management system does not sufficiently ensure sustainable archaeological data management.

The legislation does not provide any specific regulations or guidelines for archaeological data management or how information should be stored, made available and disseminated to the general public (e.g. for education, research and planning purposes). The law establishes that archaeological works require authorisation (Law nr. 10/88 article 14) and that within six months after completing archaeological works, or in each archaeological excavation campaign, a license holder must submit a summary report to the responsible authority. This can include a list of the archaeological sites or monuments and their cataloguing, including an *in situ* sketch and photographs whenever the conditions of visibility allow, a sketch of the main elements and respective photographs, a description of details of inscriptions or decorations and other data that preserve the scientific and historical value of excavated data (Decree nr. 27/94, section 3:5).

However, currently, not all archaeologists comply with the regulation. Archaeologists do not always submit the results of the work they are licensed to do; as a consequence, archaeological data is kept with the individual archaeologists. Currently, this cannot be considered a legal offence since, in the regulation, individual archaeologists and institutions are also considered legitimate depositories and responsible for the protection and conservation of archaeological elements (Law nr. 10/88, article 3:9; Decree nr. 27/94, articles 5:10, 19:1-2). Nevertheless, and as the interviewees in the previous chapter informed us, there are no clear procedures for submitting reports and where they should be stored.

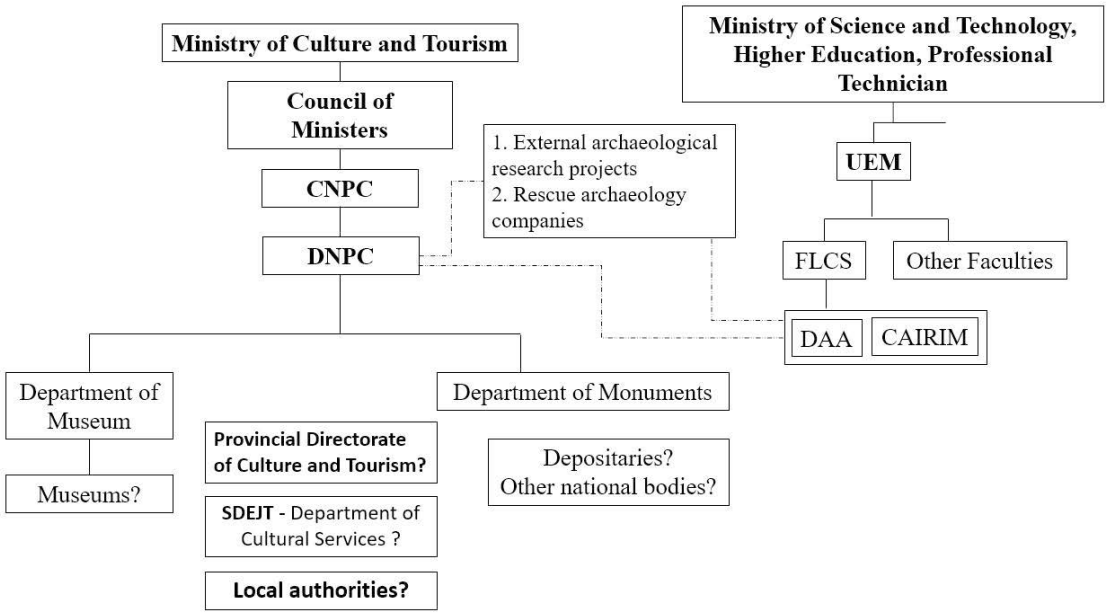

Figure 7.1. The current structure of archaeological data management in Mozambique.

Nowadays, researchers are governed by the publication and dissemination policies of their funders, but even so, local researchers tend to assume individual rights over the data. Making archaeological data available in Mozambique and realising the conditions whereby data can become a public good while it is produced by non-public funds is a major challenge. The lack of a system for data sharing shapes rescue archaeology and research activities is reflected in the treatment of collections and associated information, including strategies for creating a national database of heritage activities and results. In addition, and as explained above, there are several forms of archaeological data and different ways of site findings registration. This puts great demand on the management, storage, control and standardisation of data, made in part even more complex owing to the digital revolution. How can data best be structured and organised to meet the demands of a national archaeological database that can also meet the demands of the public?

7.2. Collections, Databases and Registration

By their nature, published papers and reports disseminate only selected pieces of knowledge, controlling scientific content and dissemination of results (Bartling and Friesike 2014:7/8); thus, it is important to be able to go back to the collections. In the case of the DAA collections, much of the data remains unpublished, which, in extension, forms a risk that the country will lose the opportunity for renewed and in-depth research on existing materials. Until today, the data (mainly artefacts) produced in research projects are stored in the DAA, while other types of data and all information related to artefacts and sites (see description at the beginning of this chapter) remain with the individual project leaders. Scientific articles and reports are sometimes published, but at the discretion of the individual project leader and based on the policy for data management of each project. These publications usually present some information selected by the author but rarely more comprehensive documentation of activities and results. This means that much information remains unpublished.

7.2.1. Collection Status

Much of the valuable archaeological data produced during the colonial period by different research institutions was taken to *Istituto de Investigação Científica e Tropical* (IICT) in Lisbon (*Diploma Legislativo* nr. 825/1943, Barradas 1968:4–7, DAA/UEM 1988, Rodrigues 2006, Bicho *et al*. 2016; Gonçalves, 2016).[123] Other data produced by professionals from South Africa and Zimbabwe were also taken there (Dickinson 1969, 1970, 1971, Derricourt 1975, DAA/UEM 1988). However, some data (e.g., lithic and ceramic artefacts) those were in the so-called Archaeology Core under the IICM until the date of independence was inherited by the current Department of Archaeology and Anthropology of UEM.

In addition, though DAA has dedicated space to store archaeological data, the quality of the current facilities needs improvement. There is also no specialised staff for archaeological data management, let alone for curating the finds and or for conserving them. As a result, much of the archaeological artefacts from different research projects

[123] As discussed in Chapter 2.2, this includes Institutions such as the Commission of Monuments and Historical Relics of Mozambique, Center for Archaeological Studies of the Academic Association of Mozambique, IICM, including particular archaeologists.

are stored under precarious environmental conditions. This is highly problematic for iron, glass, bone and other fragile materials that are at high risk of becoming degraded. Collections were in good order in the 1980s until the beginning of the 1990s, as technicians were then employed to handle collections. Now, owing to lack of funds, lack of staff and maintenance, while still in basic order collections are in dire need to be curated. Some boxes contain artefacts from different sites, and some information has not yet been catalogued after they were deposited in the DAA collection. Thus, the material risks losing its context information, which is fundamental information for further research. In recent years, Dr Mussa, with students, organised the cleaning of the storage rooms and the rearrangement of boxes of archaeological materials in an attempt to improve the situation. Several BA, MA and PhD theses have been published on archaeological data treatment or advice on how to organise the collections, but these suggestions have not yet been acted upon.

7.2.2. Database Status

The old database available at the DAA, a register of all known archaeological sites in the country that have been collected over the years, is curated by Dr Hilário Madiquida and is an important resource. However, the original data typically contains a number of geographical inconsistencies owing to the historical inaccuracy of equipment to measure coordinates, the fact that different coordinate systems were used or that coordinate systems are not defined at all. The database also lacks information produced by work carried out since the late 1990s to the present, as it is not updated. Sometimes, information is repeated twice or more in different Excel tables, typed using various cataloguing and classification criteria. Some data exist from colonial times and are inaccurately categorised or labelled, and this information has not yet been updated. In addition, while attempting to compile all 208 known national sites in the database, it became clear that some sites are entirely missing coordinates.

The usual format of writing the geographical coordinates in degrees, minutes and seconds (DMS) that is common within the DAA/UEM is good but not practical and this can often lead to errors. Taking the Matola archaeological site as an example with the following coordinates: 25°57'47.92"S and 32°26'51.71"E. The greatest challenge arises, for example, using specific symbology to indicate degrees (°), minutes (') and seconds ("). This constitutes a greater challenge at the time of data entry and registration. These symbols are different from others such as (o, ´, ") which can also be confused and used for geographic coordinates, as they appear on different keyboards and can be used or manipulated for different purposes. Individuals are more likely to use different font styles and sizes when entering coordinates since they may derive from different sources or be written at different times and paying little attention while entering the coordinates can leave spaces between the numbers. The obligation to include the S at the end of the latitude reference and E for the longitude reference so that a GIS software can correctly interpret the coordinates, and even using the letters S and E to indicate latitude and longitude, respectively, is not practical. These letters do not match the default formatting letters for latitude and longitude when importing coordinates into GIS software (Y and X, respectively). The whole exercise is error-prone, takes a long time to perform, and gets worse when dealing with larger amounts of coordinates. In this type of formatting, there is a greater probability of making mistakes that can confuse the GIS and not obtain the desired results. Any formatting error means that the information will not be possible to use in a GIS without later corrections, again increasing the risk of introducing new errors. This results in the absence

of some archaeological points or sites on the map. The investigator may not notice the missing point if there are many or if the attribute table is not carefully inspected, thus making sure that all features are displayed on the map. The researcher can also postpone the correction of some coordinates if they are noticed, ending up forgetting this task. In the case of rescue archaeology, for example, this situation may result in the destruction of some archaeological sites by the project activities when omitted in the report or result in faulty recommendations given by cultural heritage managers.

To avoid the constraints when it comes to geographical coordinates in DMS, it is recommended that it is better to write them in a simple, practical and flexible way, as shown in Appendix 4. The geographical coordinate in the DMS system can be converted to the decimal degrees (DD) system, or vice versa, directly in GIS. As previously mentioned, this Mozambican geographical coordinate data set is now available in Zenodo[124] and accessible through the link: https://doi.org/10.5281/zenodo.10361273. With this system, it does not matter whether the geographic coordinates are collected in the field in DMS or in DD formats. The benefit of the DD system is that it uses a simpler syntax with less risk of errors in entering data, and any errors can also be more easily noticed directly in the table. Google Earth Pro is a free access software that can help to identify the geographic coordinates, and UTM coordinates for different regions of the country. It can also be useful in correcting wrong coordinates if the archaeological site name is known or vice versa. Therefore, as a first step, it is recommended that national archaeologists are familiar with these practices to better record coordinates on the ground, and to correctly identify and interpret the coordinates recorded by other researchers.

Although it is common in the country to work with geographic coordinates, as recommended in this work, other researchers may prefer UTM coordinates, as Adamowicz (2015) did during rescue archaeology research at the Corrumana dam project. Unlike geographic coordinates, when entering UTM coordinates in QGIS, in the Geometry CRS field, it is necessary to consider the indication of the correct UTM zone where the coordinates were collected to have the correct position of the point in the map. Some Geometry CRS that can be used for the different UTM zones of the country are the following: EPSG: 2736 - Tete / UTM zone 36S; EPSG: 2737 - Tete / UTM zone 37S; EPSG: 5629 - Moznet / UTM zone 38S; EPSG: 3036 - Moznet / UTM zone 36S; EPSG: 3037 - Moznet / UTM zone 37S. UTM coordinates can also be transformed into geographic coordinates for comparison purposes or to adapt to the system preferred by different researchers and cultural heritage managers, as shown in Appendix 4.

[124] Zenodo is a general-purpose open repository developed under the European Open AIRE program and operated by CERN. It allows researchers to deposit papers, data sets, research software, reports, and any other research related digital artefacts (https://libguides.graduateinstitute.ch/rdm/zenodo).

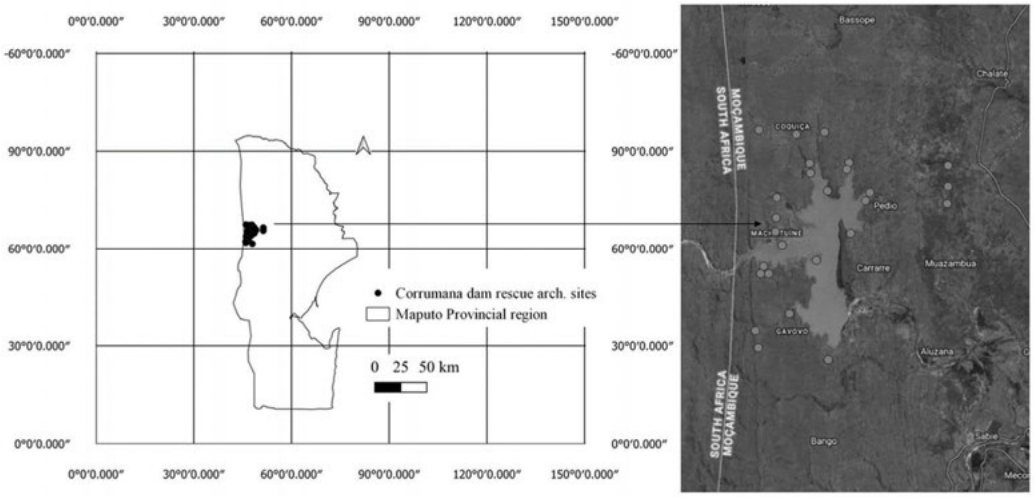

Figure 7.2. Corrumana dam rescue archaeology sites mapped from UTM coordinates.

As part of the present project, I have compiled and curated a database of sites missing coordinates and uploaded it to Zenodo, meaning that they can now be accessed by anyone through the link: https://doi.org/10.5281/zenodo.8238844. For sites with only degrees and minutes (DM) but missing seconds (S) in geographical coordinates, I have added two zeros (00) on each coordinate to complete seconds to display these coordinates on the map and see where they are located. As a result, it was possible to present the site points on the map, although the spatial accuracy is low, estimated as within 1.85 km accuracy (see Fig. 7.3 below). Future research work on revisiting archaeological sites and mapping them will improve the accuracy of the map.

Sites with missing site codes or incomplete or erroneous coordinates count to 60. When mapped with given coordinates, some sites are displayed in the sea, even though they are not underwater archaeological sites (see Fig. 7.3 below), or they are wrongly grouped in terms of chronological period.

In addition, the current national database, although an extremely important resource, does not allow for exploring the context of archaeological sites and related information in detail (e.g., local ecosystems, landscapes, ground surface, local cultural environment, site plans), as much information was left out during the recording process, and the original documentation is missing. The lack of this information will negatively affect all analyses and interpretation, including the understanding of the material collected from the site.

Since most archaeological work is a destructive process, much of this information cannot be recreated, making the subsequent steps, such as curation, conservation, studying and data dissemination, impossible (Renfrew and Bahn 2012:111-120, Freeman 2015). Therefore, a comprehensive and controlled registry is very important, especially where a given site is at risk of being destroyed since the record has to stand as a warrant for the site itself (cf. Hummler 2014:64). In the absence of records, the site plan is a very important piece of data to reconstruct the lost information. Much attention is therefore required during the process of recording archaeological data in the field because such records contain information that is otherwise unavailable about the collections and their sites.[125]

[125] https://copar.org/par/par9_fowler_givens.pdf.

The database below presents the data compiled from the old database existing in the DAA/UEM provided by colleagues, supplemented by data available from a few rescue archaeology reports made available by the late Dr Adamowicz, data provided by Prof. Anneli Ekblom from Parque Nacional do Limpopo (PNL), data compiled from Marjaana Kohtamäki's PhD thesis (2014), including recent data that I produced during my fieldwork in Chongoene and Xai-Xai. Now a site reclassification is in development and made publicly available through a repository link. The database shown in Fig. 7.4 is available on Zenodo, and accessible to anyone through the link: https://doi.org/10.5281/zenodo.8238809. Tools like these can be a starting point for opening archaeological data in the country, but there is also a need for more long-term solutions for archaeological data sharing and management.

The dataset illustrated in Fig. 7.4 can be useful for many purposes, and more information can be integrated into the database in the future. It can serve many different purposes for archaeologists, heritage managers, city planners, developers, miners, tourists, and village communities (cf. Katsamudanga 2022).

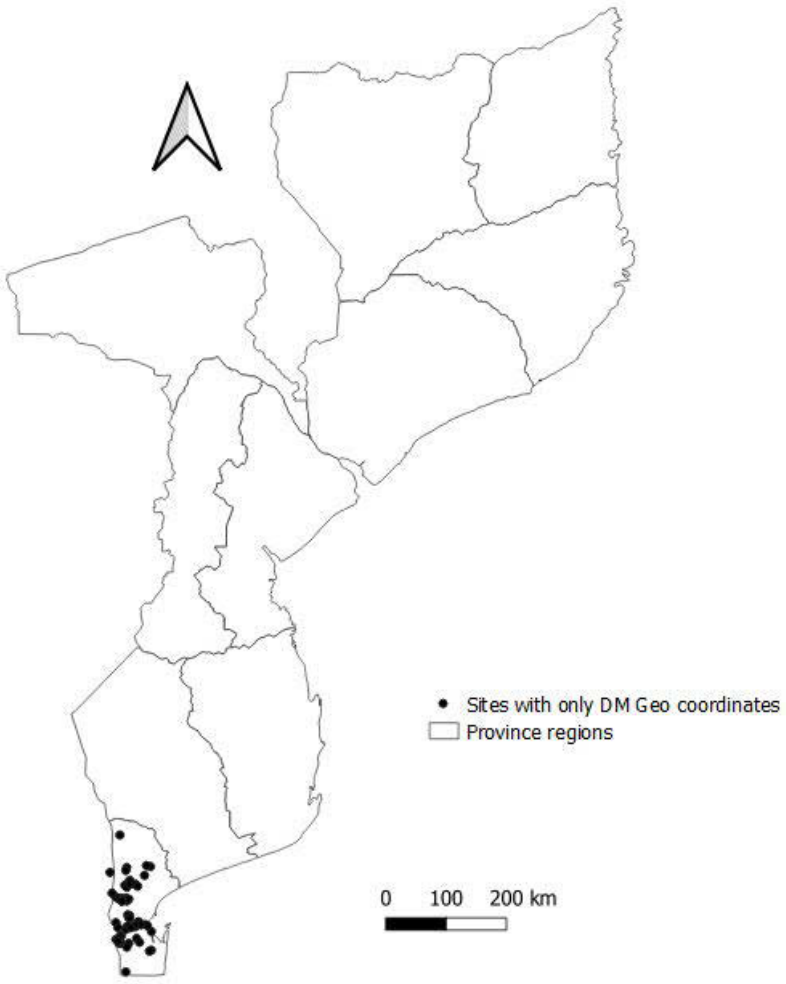

Figure 7.3. Archaeological sites with only DM geographical coordinates

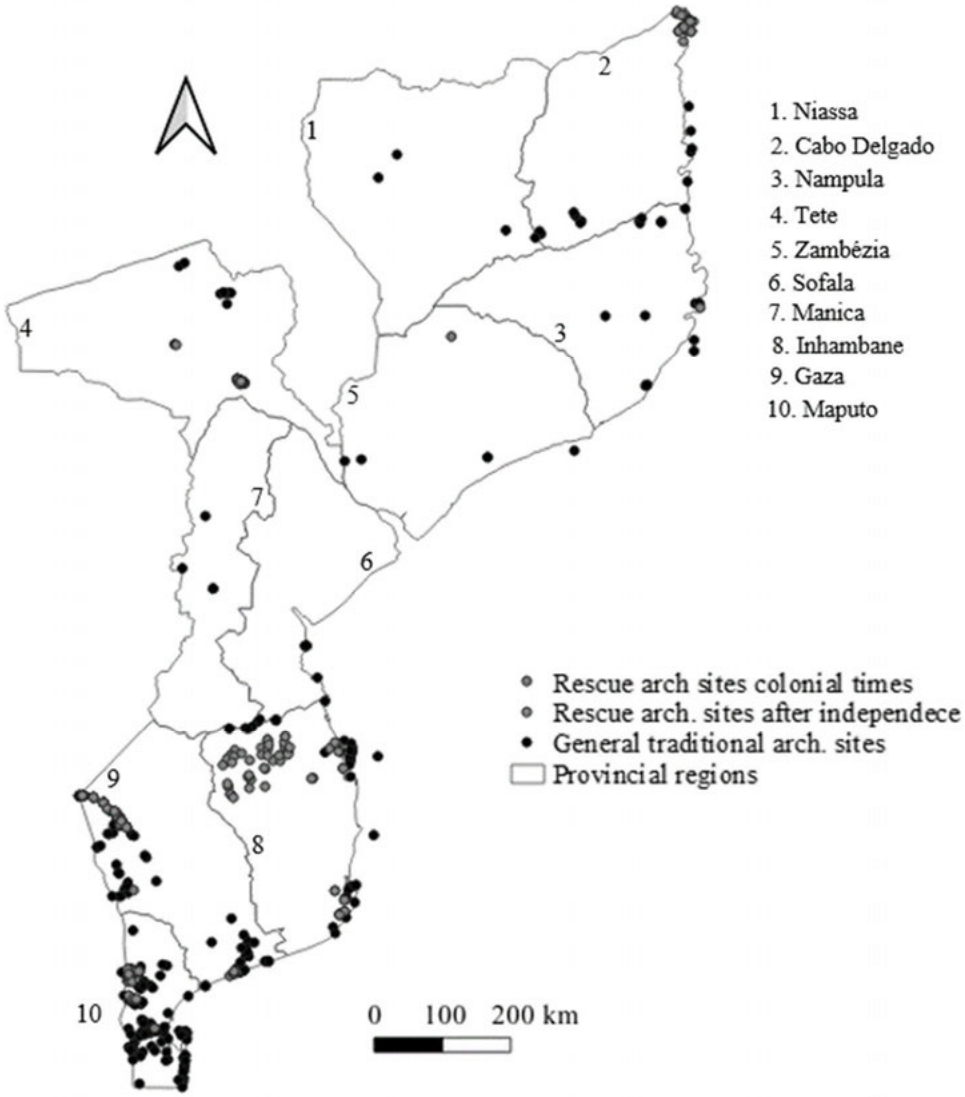

Figure 7.4. Illustration of the national archaeological database compiled from different sources to illustrate the information's availability and quality issues.

7.2.3. A New Registration and Assessment

The DNPC has not defined national standards that can be applied for all archaeological research data management, as previously discussed here many times, and this includes instructions regarding repositories and criteria for registration and cataloguing of archaeological finds and sites in a national archaeological database. The result is that the DAA, CAIRIM (e.g. *the Centro de Arqueologia, Investigação e Recursos da Ilha de Moçambique*), and rescue archaeology consultancies and individual archaeologists use their own particular procedures. It is therefore recommended to develop an agreed-upon national standard for archaeological documentation, so that all information can be harmonised; this will also require standards for site registrations and site descriptions (see further discussion in Chapter 10). It is apparent that the current national cultural heritage legislation (Law nr.10/88 and Decree nr. 27/94) is not particularly helpful in providing clear measures for the management of archaeological data and results produced by the research. This limits the possibility of compiling the results of external archaeological research undertaken in Mozambique, and it means that rescue

archaeology research and archaeological research more broadly are not integrated into national policies or development planning.

As a way of initiating the development of such national standards, a suggestion for complete registration of archaeological, historical and cultural sites, the site for registration and assessment, is presented in Appendix 2. The form is composed of five sections: i. site identification, ii. cultural landscape and site characterisation, iii. local ecosystem, iv. site sketch and v. material storage location and site 'validation' in terms of heritage value (academic, local and natural value) and also as threat level (Fig. 7.5).

For rapid assessment of sites in the field and for easy communication to decision-makers, contractors and the public, I present a three-tier scale classification system of archaeological and historical sites, sacred and ceremonial sites, including natural features. This assessment is also made directly on the recording sheet. The three-tier scale considers the low, moderate and high levels and is a development of the classification system designed by Leonardo Adamowicz. The assessment criteria considered are integrity, anthropogenic and natural threats, scientific potential and local heritage and natural values. This system is easy to communicate to all stakeholders at local, national and international levels (cf. Ekblom *et al*. 2024b).

1. Site Identification								
Site Code					Site Name			
Y[155]	M[156]	Prov[157]	Nr.		District			
					Obs			
Coordinates[158]					Site area			
X	Latitude				Site length (max)	m	**Obs:**	
Y	Longitude				Site width (max)	m		
Z	Sea level				Site extent (area)	m^2		
2. Cultural landscape and site characterization								
A. Cultural Heritage Type								
	Archaeological site			**Local Heritage Value**			**Local Natural Value**	
	Cultural Site				Low		Low	
	Sacred Forest				Moderate		Moderate	
	Sacred Tree				High		High	
	Sacred Grave			Obs:				
	Other (specify)							
B. Investigation on the site								
	Observation							
	Surface collection							
	Sample / test pit							
	Excavations							
C. Type of Site								
	Open air							
	Cave							
	Shelter							
	Submerged site							
	Other (specify)							
D. Type of archaeological resource								
	Stone artefacts							
	Rock Art							
	Ceramics							
	Iron							
	Beads							
	Shell midden							
	Grave / Human remains							
	Stone structures							
	Other (specify)							
E. Site function								
	Extraction of raw material							
	Lithic artefacts production							
	Ceramic production							
	Cast iron							
	Multi-activity site (describe)							
	Other (specify)							
F. Assessment criteria								

Figure 7.5. Illustration of the initial part of the site registration form used in this thesis. The full form is presented in Appendix 2.
Table 7.1. Summary of the three-tier scale and assessment classification criteria.

Assessment criteria	Three-tier scale		
	Low	Moderate	High
Integrity	Reworked / disturbed open-air sites / completely eroded / disturbed former stratigraphical sites	Open air sites with low disturbance / stratigraphic sites disturbed through human or natural factors	Sediment stratigraphy undisturbed / low disturbances
Scientific potential	Low knowledge potential	Moderate disturbance, e.g., small hand-tilled agricultural field, grazing / resident activities	High integrity with high scientific potential in terms of period / artefacts / context
Local heritage value	No / low importance in terms of local heritage value	Moderate importance in terms of local heritage value (old farmsteads, historical ruins	High importance in terms of local heritage value (e.g., ceremonial sites, burial sites, memorial monuments
Local natural value	No / low importance in terms of local nature value	Moderate importance in terms of local nature value	High importance in terms of local nature value (e.g., sacred forest, natural features, areas with medicinal plants
Anthropogenic treats	No / low disturbance	Moderate disturbance, e.g., small hand-tilled agricultural field, grazing / resident activities	Planned dam / development / construction site
Natural treats	No/ low disturbance	Moderate disturbance (temporary low-scale flooding, moderate risk of wind erosion, etc.	High risk of natural disturbance from flooding / erosion (e.g., by the Limpopo River plain or slopes, etc.

As discussed in Chapter 7.1, today, a policy on archaeological data management is absent; any project or researcher may develop their own principles for managing their data. In the case of rescue archaeology, the information produced either belongs to the contracting projects since they paid for the service, the data and all information produced belongs to them (cf. Ndlovu 2014, Depaepe 2016), even if these projects are not the primary consumer of the archaeological knowledge (see critique in Demoule 2016). Sometimes, the data is treated as the personal property of the individual archaeologist.

7.2.4. Sharing Data

There are several reasons why individual archaeologists, in general, may be reluctant to share their data or publish it as open source. A major reason for this is in the case of prestigious sites or sites that potentially could contain finds of interest to the illicit antiquities market, such as shipwrecks and stone enclosures, as the open publication of the location could attract treasure hunters. There could also be a fear of exposing perceived deficiencies in the primary data recording to the critical scrutiny of their peers. Another deterrent is the risk that others may use the data and publish it before the excavating archaeologists (Bartling 2014:9, Richards 2015, Moore and Richards 2015, Moore and Himma 2018). In the AIA and rescue archaeology sector, where archaeologists are under strong competition for contracts, individual archaeologists

and organisations might also be hesitant to openly share the methodology and data as it might give competitors an advantage. An AIA and rescue archaeology practitioner dependent on contracts for living expenses or complementary salary will be less interested in ʻopeningʼ up for the competition that sharing data openly would entail. Efficient legislation that protects archaeological data and authors' rights and the creation of an independent institution to manage archaeological data and the associated information can help promote positive action towards data openness. However, as argued here, limiting access to heritage information will cause several disadvantages to the sector as a whole.

Internationally, the development of online access to archaeological information has expanded rapidly since around the mid-1990s (Huggett 2015), and it opens up new possibilities. Academic journals are now increasingly demanding the inclusion of data, which then becomes open data. Open data requires a curation of information and a linked publication of metadata. Thus, there needs to be knowledge and training in open research data and data sharing in Mozambique to take advantage of these new opportunities. Mediation, appropriation or non-sharing of information and knowledge can be used strategically to counter unfair competitiveness and for professional development.

Limited access and publication of data puts the development of archaeological research at risk (Richards 2015, Huggett 2015). The problem of 'data hoarding' has been discussed as a large problem in heritage research and practice. This tendency comes partly from the fact that archaeological data often require lengthy analyses before publication. However, data hoarding risks becoming a kind of self-aggrandising appropriation of information (cf. Kansa 2012). Any professional producing archaeological data as part of the exercise of functions and roles within the institutions must realise that such data also belongs to the institutions. In addition, archaeological data, when funded through the public sector, is a 'public good'. The institutions that oversee archaeological research in Mozambique (DNPC, DAA and CAIRIM) should, therefore, promote training and other necessary means for creating the framework for open archaeological research data.

Despite this, it is necessary to recognise that data is produced in complex situations through time-consuming and intense work, requiring time, funds and scientific knowledge. Hence, data produced in these conditions cannot be shared in an unregulated way since this would risk the intellectual property rights of individuals. For example, the intellectual property or authors' rights should be acknowledged by defining and clarifying the 'authors' of the primary data and the conditions for secondary use, considering the Copyright Law nr. 4/2001 in the country. Since our cultural legislation (Law nr.10/88, Decree nr. 27/94) and archaeologists acknowledge the special relation between local communities and the sites, objects and other data related to local cultural heritage. Copyright policies and protocols should also include local community ownership to ensure the rights of those whose heritage is being investigated and establish equitable copyrights relationship between archaeologists and local communities (cf. Hollwell and Nicholas 2008), appliying CARE Principles, discussed below in Chapter 7.3.2.

Developing methods to acknowledge data producers would be a way to stimulate, value and honour archaeologists for the work they do and at the same time, promote cost-effectiveness as well as the longevity and reuse of data coming from previous investments. As observed by Kansa (2012), financial sustainability and public support

are required for archaeology's digital resources. Therefore, state institutions in Mozambique should support the archaeological open-research data movement, enabling faster knowledge exchange, preventing unnecessary repetition of work, and boosting a more vivid scientific discussion (cf. Bartling and Friesike 2014:9). In the future, the national database should be linked through a general resource webpage for archaeology and cultural heritage management activities. This resource will contain information about the cultural heritage legislation, archaeological impacts assessment reports, rescue archaeology contracts, guidelines for the cultural heritage impact assessment process, etc (see more discussion in Chapter 10).

7.3. Open Research Data Management

Open data and open research imply the idea that data should be freely available to everyone without any kind of restrictions and other mechanisms of control. Data can be freely used, re-used, redistributed and modified by anyone for any purpose. Subject only, at most, to the requirement to attribute and share alike (Creaser 2011:60, Edwards and Wilson 2015, Huggett 2015, Corti and Fielding 2016, Previtali and Valente 2019, Lander *et al*. 2022). In archaeology, the open data movement has intensified in recent years, seeking to extend awareness of the implications of open approaches to a broader archaeological audience, with a significant impact on the archaeological profession (Moore and Richards 2015, Huggett 2015). This movement has been changing the research approach in many fields and facilitates new interpretations of scientific results (Moore and Richards 2015, Previtali and Valente 2019). The idea of open research data finds support and legitimacy in policy-making spheres and research funding bodies, promoting their availability to the public, private stakeholders and citizens (Edwards and Wilson 2015, Previtali and Valente 2019, Boulton *et al*. 2020). Institutions that finance research activities are also increasingly adopting policies of making scientific results open and freely accessible as a requirement for research funding. However, this open data policy, in turn, places some challenges in terms of the forms and methods applied since the interpretations of data based on a secondary analysis require much rigour (Corti and Fielding 2016). As already discussed, it also demands careful curation of data.

In this new academic culture of open data, everyone involved in archaeological activities in Mozambique, not least managers and coordinators, would benefit from clearer policies for archaeological data management. Here, as the main institution overseeing and directing archaeological research activities at the national level, the DNPC should formulate national policies for open research data in archaeological work. This should also include establishing ways for how results are to be disseminated to the public in collaboration with heritage institutions and researchers (cf. Suber 2012, Richards 2015, Moore and Richards 2015, Beale and Beale 2015, Schalkwyk 2016). With the opening of the archaeological data, national institutions, such as the DNPC, the DAA, the CAIRIM, and the archaeological community in general, will be able to share scientific research results immediately and with a very wide audience. These academic or research and cultural heritage management institutions should be required to publish all their data, results and conclusions, as collected or recorded, openly and widely available to everybody (cf. Bartling and Friesike 2014:8). This demand has shifted the focus on transparency and reproducibility of research to public accountability and scientific repeatability (Ducke 2015, Edward and Wilson 2015).

Open data increases information accessibility, allowing others to test the validity of our interpretations and to build on the results. It allows researchers to examine and reanalyse the original data, boost scientific rigour, and illustrate the professionalism of data creators by highlighting good research practices and avoiding misappropriation of the past. This is the way by which individuals provide access and adequate documentation for theoretical and methodological background and explanation, demonstrating scientific transparency, accountability and integrity. The unrestricted accessibility of data gives researchers the opportunities to use and reuse data, 'remixing' archaeological data and its application in new and innovative ways that will enhance understanding of the past (Richards 2015, Edwards and Wilson 2015, Moore and Richards 2015, Huggett 2015, Corti and Fielding 2016, Boulton *et al*. 2020, Lander *et al*. 2022). The open data movement needs new tools and formats for science communication to reach the widest possible audience (Bartling and Friesike 2014:25).

For Mozambique, the open publication of archaeological data is a service that should be implemented, justified by the development of archaeology and the integration of new methods within the discipline. In addition, open data will enhance collaboration in research and innovation, increase knowledge and greater uptake and utilisation of knowledge for socio-economic development (Boulton *et al*. 2020). This new open science approach is driven by the ambition to democratise research, and the speedy dissemination of its results within reasonable time, at low costs, and with high dissemination is imperative. The creation of open data also prevents the risk of monopolising research results or archaeological sites, which in no way endorses archaeological research and the enjoyment of the public who need the past in their lives.

Professional ethics are also a motivation for opening archaeological data, such as promoting transparency and harmonisation of methodological procedures in research and the scientific credibility of the researcher. Lastly and as already discussed, research data (funded one way or another through tax funding) is a common good, and open data drives the interaction between researchers, students and stakeholders, broadening our knowledge about the past, understanding the present and strengthening cultural heritage resource management. With technological improvements, data opening process needs to be supported by new regulations to guide the production, sharing and use of information, especially in those countries where data are closed (Opitz and Herrmann 2018), such as in our case.

7.3.1. Applying the FAIR principles

Given the current context of the development of open data, Mozambique should adopt policies for opening archaeological data, using the FAIR principles. For confidential projects, where data is sensitive; their reports may be kept in the DNPC and classified as confidential. Such examples can be archaeological reports related to natural resource prospecting, as prospecting companies may want to keep such information hidden from competitors.

The FAIR principles movement in scientific research aims to overcome data production limitations and reuse obstacles encountered by different entities such as individuals, institutions or the general public for various purposes. The movement demands that all research objects should be Findable, Accessible, Interoperable and Reusable (FAIR) both for machines and people (Wilkinson *et al*. 2016, Corti and Fielding 2016, Boulton *et al*. 2020, Sterner and Elliott 2023; see table 1.1).

The FAIR principles approach described here does not fully engage with the rights and interests of local communities when analysed critically at the theoretical and practical levels. With the emphasis on readable by computers system they can limit local communities' data governance (Carroll *et al*. 2020, 2021). The FAIR principles, focuses simply on the characteristics of research data and facilitating increased data sharing among machines and people. Furthermore, these principles concentrate on how data is linked to each other and how large volumes of data can be shared using standardised vocabularies and having globally unique identifiers, etc. (Wilkinson *et al.* 2016, Corti and Fielding 2016, Boulton *et al.* 2020, Sterner and Elliott 2023). However, the FAIR principles are not sufficient to ensure that any data is error-free or appropriate for use in research, or even to address all data-governance issues that researchers and other stakeholders, such as local communities have to adhere to, including data justice, i.e., to respect the rights of local communities at all stages of the data life cycle (Robinson *et al.* 2021, Sterner and Elliott 2023).

However, for projects that are being implemented or already implemented, those that are not confidential, e.g., construction of roads, railway lines, bridges, dams, their AIA reports should be published or allowed to be used in research during a certain period to be determined by the responsible authorities (the DNPC). Archaeological sites and cultural heritage in general are state property and protected by law (Law nr. 10/88 and Decree nr. 27/94). Thus, by opening information related to these sites to the public will help to prevent vandalism, looting and removing some material from the sites, since the public will be aware about their content and importance.

Research values and data are often incompatible with local community cultures and collective rights and benefits. There is both a scarcity and an abundance of data about local communities, but the available information rarely aligns with the rights and interests of local communities. There is also information about local communities collected, conserved and controlled by others and difficult to find. The extent to which local communities can consistently control and access information about themselves is not clear (Carroll *et al*. 2021). The worldviews of local communities are centred on people and local governance processes that emphasise collective ownership and control of information. The use of local community information should result in tangible benefits for them through inclusive development and innovation, improving governance and citizen engagement and resulting in equitable outcomes (Carroll *et al*. 2020, 2021). As a complement to the FAIR principles, in an approach to safeguard the interests of local communities in the process of open data, the CARE principles have been proposed to allow the inclusion of local communities in data management processes, to strengthen control, to improve discovery, access, use, and reuse of data and to institutionalise the authority of different groups of actors (Carroll *et al*. 2020, 2021, Sterner and Elliott 2023).

7.3.2. Applying the CARE Principles

The approach of CARE principles addresses important considerations concerning data management process that support both innovation and the self-determination of local communities (see Table 3.1). These principles focus on the appropriate use and reuse of local community data (Proffitt 2021), ensuring that data collected on local community lands will ultimately benefit the people of those lands and be collected in a manner

that is not harmful to their communities (Hensel *et al.* 2023).[126] These norms are to be observed during the process of collecting and managing cultural heritage data by the research community, government bodies and other organisations. They also specify approaches to the defined rights, interests and concepts to be employed to facilitate local community control concerning data governance and reuse (Carroll *et al.* 2020). The CARE principles assert the rights of local communities to determine which, when and how data about them and their lands will be collected, categorised, distributed and used (Sterner and Elliott 2023). Local community data governance enacts those rights through mechanisms grounded in local communities and interests that promote their values and equity while providing a framework for addressing deeper historical issues associated with barriers for underrepresented communities and knowledge systems (Carroll *et al.* 2021).

In Mozambique building projects on the CARE principles will be facilitated by the customary practices of local custodians and heritage practices as discussed in the previous chapters. In addition, the inaccessibility of archaeological data in Mozambique can be solved by developing archaeological open data through the FAIR principles and implemented with the CARE principles approach. Adopting these strategies will help improve the current situation in which the current cultural heritage management and archaeological activities still lack an effective theoretical and methodological approach and has a weak cultural heritage legislation. For example, the formal heritage management system has failed to protect archaeological sites while local custodians have continued to manage sites (Jopela 2011). The inability of government authorities to manage sites, or at times the obstruction by authorities of local management in neighbouring countries, has been much criticised (cf. Chirikure and Pwiti 2008, Ndlovu 2012). This experience has led to the adoption of a combination of official and traditional management systems (Ndlovu 2011, Bwasiri 2011b, Lozny 2011, Jopela and Fredriksen 2015), a system which is highly suitable for Mozambique. Recent research concerned with cultural heritage management such as Jopela (2010, 2011, 2012, 2018), Jopela and Fredriksen 2015, Macamo (2006), and Saetersdal (2004), support the combination of traditional and official approaches for the management of cultural heritage, however, it is yet to be formalised in procedures and guidelines.

These approaches should include aspects of natural resource management, biodiversity, ecosystems and landscape analysis. These elements are indispensable to human well-being (see Cooks *et al.* 2018) and have an influence on the cultural heritage of local communities. The same can be said about rescue archaeology research, which is still more focused on the material aspects of cultural heritage, but which often neglects soil and plant remains analysis or osteology. Further, conventional archaeology rarely includes the immaterial intangible elements of the heritage of communities. Therefore, archaeological research and cultural heritage management activities in the country need a more comprehensive theoretical and methodological approach for a sustainable and integrated analysis of cultural heritage management with bio-ecosystems and

[126] Local community data is defined by the CARE Pinciple organisation as the amount of information and knowledge in any format about local communities that impact local people, nations and communities at the collective and individual levels. All data on their resources, land and water management activities, fire management system, and resilience ways of local communities to climate changes, information about individuals and collective groups and their culture, cultural heritage collections (photos, drawings, field notes objects) and lifeways and territories, as well as research data sets produced from local communities or samples of flora and fauna related to local communities, census records, etc (Carroll *et al.* 2020, 2021, 2022, Robinson *et al*. 2021, Proffitt 2021, Erickson, Selvathesan and Dickens 2022, Sterner and Elliott 2023, Hensel *et al.* 2023).

natural landscapes. An alternative for an integrated analysis can be made through a biocultural heritage approach.

7.3.3. Challenges and Benefits of Opening Data

In all southern African countries discussed in Chapter 4, cultural heritage legislation requires the submission of archaeological research reports to the entity that oversees this area of activity.[127] This requirement presupposes the existence of a central database. For Mozambique to achieve this objective remains challenging, given its low compliance with cultural legislation. If the recommendations suggested here are followed and there is higher compliance, much more data will also be produced. This is especially the case if the state increases its finances for archaeological surveys and research, which would produce even more data.

The source of funding for a particular research project determines the conditions for using the resulting data. Therefore, the local supervising institution of archaeological research must adopt new policies that enable the opening of archaeological data and aligns or integrates it with the policies of its partners. The process of publishing open archaeological data is necessary to comply with policy of the research-funding institution. These bodies also support the opened archaeological data approach. For example, the Swedish Research Council and the *Fundação para a Ciência e a Tecnologia* (FCT) both use Gold and Green Open access policies (Creaser 2011:60-62, Suber 2012).[128] In general, North America, Europe and Asia (and to some extent China, Japan and Singapore) has led the open data movement. African governments are also promoting these creative actions to open data and science (Boulton *et al*. 2020). Thus, archaeological data in Mozambique cannot continue to be treated in isolation, it must also be open to everyone, while still respecting the rights of authors and complying with the CARE principles.

With the adaption of open data policies, the results of research in the country, as explained above, will contribute even more effectively to society, economic entrepreneurs, various ministries, government officials, communities and citizens as knowledge partners in ways that are action-oriented and increase both effectiveness and socio-political legitimacy (Boulton *et al*. 2020). Although the open data movement represents an exceptional opportunity for archaeology development in the country to improve the overall research, stimulate disciplinary interaction, widening the perspectives and allow better circulation of knowledge (Cook 2018, Previtali and Valente 2019), the state institutions, particularly educational institutions, need to do much educational work to ensure that the available data and information can contribute to the production of new knowledge.

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[127] South Africa - Act nr. 25/1999, Namibia - Act nr. 27/2004, Botswana - Act nr. 12/2001, Zambia - Act nr. 23/1989, Zimbabwe - Act nr. 17/1972/Cap 25/11, Malawi - Act of 1991/CAP 29/01, Angola - *Lei* nr. 14/2005 and Mozambique Law nr. 10/1988 and Decre*e* nr. 27/1994.

[128] In the GOLD model, articles and contents related to them can be accessed at no cost on the journal's website; The Green model enables authors to archive their own work on a website controlled by them, or their funder, or on an independent repository. The deposited version of article may or may not be final. It might be the accepted manuscript by the Journal or an almost final one, after peer review (https://scientific-publishing.webshop.elsevier.com/publication-process/difference-between-green-gold-open-access/).

7.4. Implementation of Open Data

The Department of Archaeology and Anthropology (DAA) at UEM, in collaboration with DNPC, is one of the named national scientific institutions with rights to design projects, implement and coordinate archaeological research nationwide, including archaeological data management since the country's independence in 1975. In 2018, with the expansion of the DAA activities, the *Centro de Arqueologia, Investigação e Recursos da Ilha de Moçambique* (CAIRIM) was created.

The archaeology section of the DAA has long been the only repository and manager of archaeological data in the country despite funding and staff challenges. As such, the DAA has already designed, implemented and managed several archaeological databases. This includes the contribution to the computerised record of Mozambique's archaeological sites, the EFC and LSA sites by Adamowicz (1988).[129] In addition, a national inventory for monuments, sets and cultural heritage sites was published by (Macamo 2003). Today, with the trend towards open and digital data demands, the DAA needs to adopt new technical solutions, open to everyone and flexible enough to meet the needs of archaeological data management. This transformation and evolution align with the demands of digital technologies evolution, which are part of the archaeological toolkit and the availability of internet services for rapid dissemination of information.

In 2011, the DAA started a BA programme in archaeology and cultural heritage management at the UEM. From 2015, archaeologists and cultural heritage managers began to graduate in the country and the programme has currently produced approximately 100 BA graduates. This means that there are now trained individuals with relevant competence available to staff institutions. Archaeology and cultural heritage management departments or companies can now be created outside the UEM on the national and local levels. Further, these departments can develop archaeological research projects as well as teach related degree courses, as long as they have conditions to do so. These future institutions will not only demand archaeological data previously produced in the country but will also demand copyright on the archaeological data that they will produce. The harmony among different institutions that develop archaeological research and cultural heritage management activities depend on the existence of shared and open data for all, complying with the FAIR principles outlined above. For several reasons presented above regarding data inaccessibility, this database does not include all data produced by archaeological research in the country. It constitutes a starting point and is freely accessible to everyone. Other archaeological data existing in the country can be shared by these or other similar means.

As cultural heritage management is now organised in Mozambique, the information should be stored in the main cultural heritage management institutions in the country, combined and aggregated as needed through consistent identifiers. This will allow data connectivity, easy transfer and access. Aggregating data this way, Mozambique will move away from multiple pieces of disconnected individual excel data tables towards an institutional database (cf. Averett 2016:33-50). However, first it must be clearly defined who is responsible for what data, for better management. E.g., CAIRIM may be responsible for underwater archaeology data management. The DAA may be responsible for traditional archaeological research data and contract archaeology, as it

[129] This aimed to computerise all information collected on archaeological sites in the country, using a DBASE II Plus program for microcomputers.

is now. The DNPC in coordination with the DAA and CAIRIM could be the responsible institution for evaluating projects and assigning licenses, determining research methodologies of each project, overseeing research activities, requiring and gathering all research reports. The roles of different actors need to be regulated (cf. Opitz and Herrmann 2018). For these reasons, the section of archaeology of the DAA offers conditions to host an archaeological database and to coordinate efforts to open this information. Servers associated with the webpage services (see discussion in section 10.5) will be installed here, which will also boost the open data movement discussed above. This work requires collaboration with museums, consultancy companies and other institutions that develop archaeological research and cultural heritage management activities (Fig. 7.2).

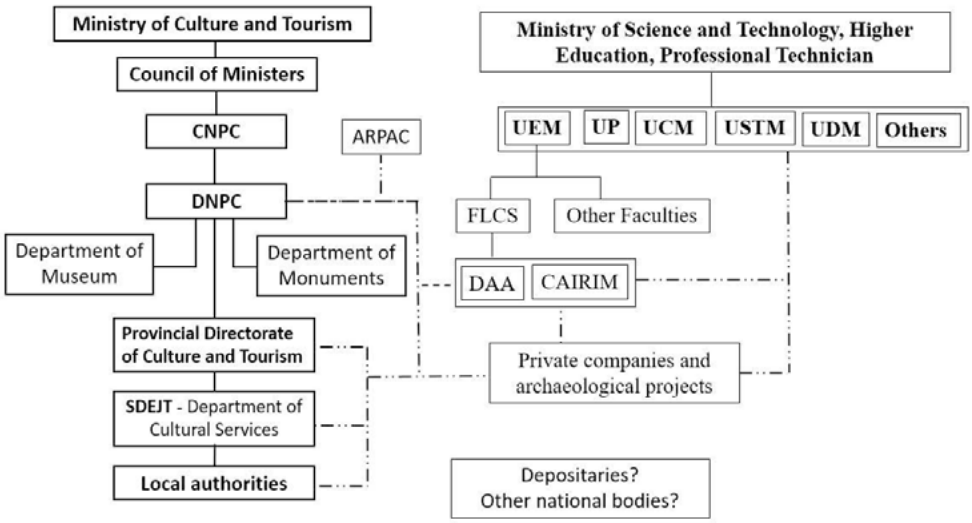

Figure 7.6. Model of a suggested structure of institutions and organisations that intervene for archaeological data management and coordinated by the DNPC, the DAA and CAIRIM.

The DAA is suited to take a coordinating role at an early stage of the implementation of open data. However, in the short and medium term, an independent institution or a specific department in the Ministry that oversees archaeological research should be created to manage archaeological data. Placing archaeological data in a university department, such as the DAA as is the case now, can create conflicts of interest with other universities, researchers and cultural heritage management institutions in the country. The current informal organisation of data management is a risk, since moving, leaving or retiring individuals who currently manage archaeological data at the DAA can negatively affect continuity, during the absence of such staff. For example, access to this data by the public and project developers is now restricted. In the new suggested structure modelled in Fig 7.6, institutions, private companies and research projects would channel the archaeological data to the DNPC and the DAA.

The DAA, through sectoral collaboration, will also have to contact organisations that produce archaeological data to collect, classify, archive, control and disseminate this information to different stakeholders. The DNPC, the DAA, CAIRIM and other institutions managing cultural heritage face the challenge of updating cultural legislation. It is necessary to specify the attributions or responsibilities of each institution, private companies and research projects that have archaeological data to avoid data

monopolies and conflicts of interest, and to ensure accountability. The DAA in particular still has a challenge in institutional capacity building to meet the requirements of Open Data. However, since the DAA is an institution for both education and research, it is well equipped for training or qualifying its staff (and staff in other institutions) in matters regarding databases and archaeological data management. There also needs to be an appropriate infrastructure and equipment to store and process data. The expenses of this process can be financed locally by funds from the rescue archaeology industry. By law, any project must allocate 0.5% of its total funds to rescue archaeology work, and that could contribute to the infrastructure. International cooperation can also be used mainly for training staff and exchanging experiences. An example of such opportunities are the activities of the MAEASaM project, which includes training activities for computational methods in heritage management.[130]

Above all, this transformation from a traditional way of inflexibility to a flexible and shared archaeological data management in favour of the development of research and education depends on the availability of funds for its implementation. Archaeological databases will contribute to the greater capacity for safe storage of archaeological data, overcoming the individual limitations of protection, storage conservation and processing of different types and formats of archaeological data. In addition, different types of archaeological data will be integrated using the same language, accessed in a simple and practical way and updated continuously. This data can be used in open sources geospatial software's, such as QGIS, which also facilitate geospatial data democratisation, since they are free to use. Open geospatial software sources can analyse, interpret, visualise and integrate different archaeological data (Lander *et al.* 2022). A combination of archaeological databases, open geospatial software tools and availability of webpages is important to open data services, to improve archaeological activities and cultural heritage management activities in Mozambique.

For a sustainable management of archaeological research in Mozambique, the responsible institutions must adopt an inclusive and transparent administrative structure that includes all the stakeholders that participate in this process, such as provincial, district and local authorities that are often guardians or depositories of cultural heritage and resources. Archaeological research is carried out on these geographical scales. Further, the inclusive administrative structure should integrate other educational and cultural heritage management institutions or provide mechanisms for participation in cultural heritage management. The administrative system must be transparent and supported by specific cultural regulations that establish the institutions and actors involved, and clearly define their roles to avoid interrelationships. Likewise, the same regulation must present the procedures that must be followed by archaeological activities from the granting of research licenses to the publication of the final results. The development of archaeological research should be accompanied by the adoption of good practices and using accepted scientific practical procedures, such as using single-country registration forms for archaeological sites and historical and cultural sites, using the same criteria for evaluating archaeological sites, historical and cultural sites. These measures should also be applied in cultural impact assessments (CIAs).

Given the increasing application of digital technologies, computational methods and software, the archaeological research life cycle, from data collection through to results publication, (Huggett 2015, Beale and Beale 2015, Ducke 2015, Corti and Fielding

[130] https://maeasam.org/archives/.

2016, Opitz and Herrmann 2018, Boulton *et al*. 20202, Jose 2020, Gunnarsson 2022:39), this transformation poses challenges for institutions that carry out archaeological research, in the sense of being able to take their results to the public, such as the DNPC, the DAA and CAIRIM in Mozambique. Internet services allow open systems for information dissemination. This means that science worldwide must adapt to the digital revolution, becoming the most efficient way in which scientific knowledge is produced and shared (Previtali and Valente 2019, Boulton *et al.* 2020). Open-access research and data sharing to the public, private stakeholders and citizens constitute an exceptional opportunity for archaeology to improve the overall research, stimulate new collaborations, promote interdisciplinary interaction, widen the research perspectives and allow better circulation of knowledge (Cook 2018, Previtali and Valente 2019). While the technical details of such a system is beyond the scope of this thesis, a digital cultural heritage management system for Mozambique does not have to be invented from scratch, as it is possible to build on the experience of developing similar systems all around the world and adopt these to local conditions. At the moment, there is a small gap where technical details are ignored for the development of a database, but this can be overcome by collaboration with other institutions with technical capacity and experience in database management. For example, since 1975, the DAA has been assisted by Uppsala University in various aspects of archaeological research, and related research methods and techniques.

Most western countries are using open technologies as new forms of science information sharing. African governments and educational institutions have been advised to make structural adaptations and educational innovations to minimize short-term disruption and maximize the long-term benefit of open science and data approaches (Boulton *et al.* 2023). This change of paradigm will offer immediate benefits, democratise access and reduce cost as well as eliminate barriers to the spread of information (Boulton *et al.* 2020). For example, through the 14 international agreements signed by African states in favour of open science development, Mozambique is now a state member of the Open Data Barometer and the Principle of Universality of Science and Academic Freedom (Boulton *et al.* 2020).[131] In this context, Mozambique is building political and scientific motivations to enable open archaeological data, using FAIR principles. As discussed here, Mozambique should also adopt a general database with a single and standardised criterion for classifying and cataloguing archaeological data applicable at the national level. The DNPC, the DAA and CAIRIM, in coordination with researchers, consultants and other cultural heritage management institutions, should formulate national standards and policies to open archaeological data. From a database, it will be possible to systematise the archaeological data, structure the information, integrate different data and make it available to different users. In the next chapter, I will lay out steps for a disturbance assessment process in the archaeological sites Matola, Campoane, Zitundo, Xai-Xai and Chongoene areas, testing out the registration forms and assessment criteria which have been suggested in this chapter.

[131] The *Open Data Barometer* state that: "Open data should not be limited for developed nations, nor should it be a luxury for developing countries, donors, civil society and governments need to work together to close the data divide, and make sure government data is open data' (Schalkwyk 2016). Meanwhile, *The Principle of Universality of Science and Academic Freedom* state that: "Academic freedom is the right without constriction by prescribed doctrine to freedom of teaching and discussion, freedom in carrying out research and disseminating and publishing the results thereof, freedom to express freely their opinion about the institution or system in which they work, freedom from institutional censorship and freedom to participate in professional or representative academic bodies" (International Council for Science - ICSU 2014).

8. Disturbance Assessment Surveys

As stated above, one of the project's aims is to develop policies and procedures for rescue archaeology in Mozambique. New methodologies were tested in selected case study areas to assess scientific potential and risk of damage to archaeological and heritage sites. This was done using conventional line-walking surveys combined with phenomenological landscape archaeology analysis based on landscape forms (Lester 1999, Jerpasen 2009, Johnson 2012). Selected sites were visited[132] to assess human and natural threats, such as erosion and risk of degradation from development, and to explain their current conditions. Many of the sites discussed here are shell-midden sites, which are a common archaeological feature along parts of the coastline (Robb *et al*. 2021). The fieldwork activities were carried out following CARE principles (see discussion in section 7.3.2).

Initially, we obtained a credential from the Department of Archaeology and Anthropology at Eduardo Mondlane University. The credential was later presented to the authorities in the areas selected for the research study at the provincial, district and local levels. In this way, we officially presented our work team and purpose and followed due procedures. During the first case study, it was not possible to fully work through the CARE principles because the work was carried out in archaeological sites located in urban areas (Matola and Campoane sites). Even on the Zitundo and Ponta Mamoli sites, located out of town, the work was simply based on assessing the status of the site without any intervention. However, in the Chongoene and Xai-Xai areas, where surveys were carried out, we included technicians from cultural heritage management institutions at provincial and district levels in our research team, which also included teachers and students from Universidade Save (UniSave). In the second case study, it was possible to fully explore CARE principles recommendations (as explained in detail in section 9.1).

As the project started, we also visited the Chongoene airport construction project to find out about possible prior archaeological impact assessment activities. This method allowed us to observe, identify, and describe several elements connected to cultural heritage management and construction projects. These issues are closely connected to the aim of developing methods for assessing the risk of disturbance and protection status of archaeological, historical and sacred sites. At this stage of fieldwork, it was important to explore what factors negatively impact these sites and their state of conservation. This step is necessary for proposing possible measures for protection to retain and preserve their cultural, natural and scientific values. Once the factors have been identified and their conservation status assessed, including the suggestion of likely solutions to safeguard their conservation status, this methodology can be replicated in different areas of the country where the similar problems impact

[132] The field school team was composed by Prof. Paul Lane, Dr Solange Macamo, Leonardo Adamowicz, myself and a graduate student from the Archaeology and Cultural Heritage Management course at Eduardo Mondlane University. Delegations from UniSave and from the Department of Culture also participated in Gaza province.

archaeological sites. This will contribute to developing procedures for risk assessments of cultural heritage sites and protect their biological value potentials in the case of sacred forests.

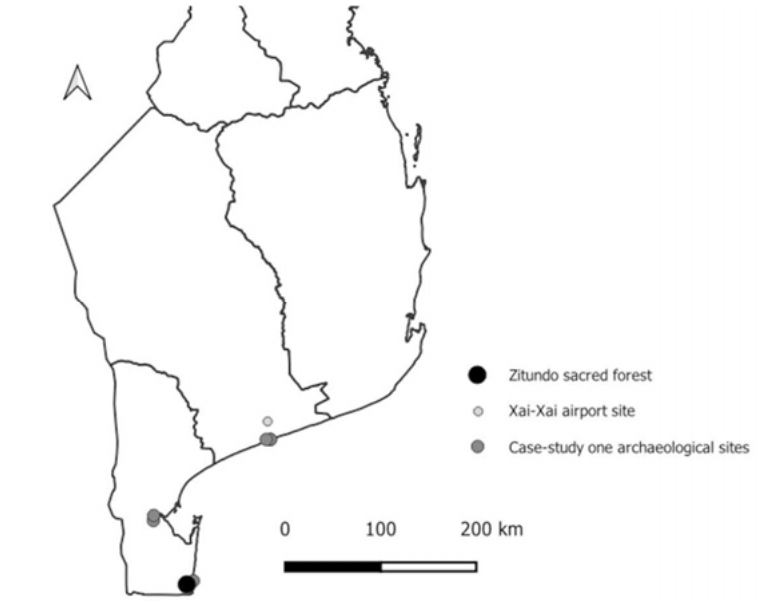

Figure 8.1. Map of the first case-study area.

8.1. Case-study one: Zitundo, Matola, Campoane

This case-study was built as disturbance assessment surveys (DAIs) of previously registered archaeological sites of Zitundo, Matola, and Campoane in Maputo Province. It also included the assessments of the Xai-Xai and Chongoene sites after the building of Xai-Xai Airport in Gaza province, southern Mozambique (see the map below and subchapter 8.2). The surveys were developed as a field school organised by UEM in July 2019 under the umbrella of the Biocultural Heritage project: Developing New Heritage Industries.[133] The students were trained in archaeological surveys and assessments, such as identifying, assessing and recording archaeological sites with a prototype of the recording form described above in Chapter 7. The coastlines of Mozambique are under serious threat because of rising sea levels, a very high risk of wind erosion with shifts in wind direction, and due to storms. The dunes are stabilised through a typically dense coverage of *Diospyros rotundifolia* amongst other species, made almost impenetrable through shrub and thick lianas (Sheldon and Penvenne 2020, Muchangos 1999:82-88).

These are ecologically sensitive landscapes since though they are partly cleared of vegetation, the blowing sand will risk suffocating the remaining dune vegetation. This might cause irreversible changes and coastal erosion, which, in recent years, has become a characteristic problem in the coastal areas of Mozambique. This problem is linked to the ineffective planning for coastal developments or mitigation of the effects

[133] More information about the project can be found here:
Diversity, Sustainability, and Cultural Transformation in Southern Mozambique (ihopenet.org).

of construction on the sensitive dunal systems (Palalane *et al*. 2016, de Freitas *et al*. 2023). When vegetation is cleared, the old previously stabilised sand dunes will become active again and start to shift. As a result, archaeological sites embedded within the dunes will be eroded.

We can already see many archaeological sites affected by this phenomenon due to natural causes and the increased intensity of rains and winds. Vegetation clearances, linked to the construction of tourist lodges and related infrastructure, strongly exacerbate this problem. Archaeologically, the conditions are worrying, as these areas are high-value sites that are relatively undocumented. Although more studies are needed, the available studies such as Martinez, Cruz e Silva (1976, 1978), Sinclair (1987), Sinclair *et al.* (1987), Morais (1988), Ekblom 2004, Macamo (2006), Madiquida (2007), Kohtamaki (2014), Madiquida (2015), show that these areas were largely occupied and explored by farming communities, since at least the first millennium AD.

Figure 8.2. Aerial view of the Zitundo archaeological site and the potential impacts to the site (Source: Adapted from Google Earth Pro Imagery, July 17, 2022)

8.1.1. Zitundo and Ponta Mamoli Sites

The Zitundo Site (-26 44 40, 32 49 30) was initially reported by P.L. Lindqvist in 1983 when archaeological material was exposed at a sand pit used for road construction. After surveying, the site was excavated by J. Morais, R. Duarte, P. Sinclair, P. Lindqvist and L. Jonson. The excavation produced Early Farming Community type ceramic materials and iron slag and included detailed topographic mapping of the site (Morais 1988:98–99). Now, the area of the Zitundo site has been affected by human and natural impacts, and the site has almost disappeared (Fig. 8.2). Small-scale residence areas and farm fields [*machambas*] are present across the site (Fig. 8.3). In addition, the area is affected by erosion, and the local community has extracted sand from the dunes for construction purposes. Further rescue excavations are recommended here before the site is completely destroyed since

Figure 8.3. Current status of the area of the Zitundo archaeological site, July 11, 2019.

some potsherds are still scattered on the ground. We also registered a locally protected forest area, the Zitundo sacred forest (-26 44 51.61, 32 49 34.83), which had been marked out by local community authorities but is not formally registered. Unfortunately, we were unable to assess its status, as we were not accompanied by local authorities (traditional leaders or village secretaries) to authorise a visit to or a survey of the site.

During the excavations of the Zitundo Site in 1983, surveys in the surrounding area led to the identification of the Ponta Mamoli Site (-26 42 33, 32 53 50), where a few eroded Matola pottery sherds had previously been recorded (Morais 1988:98–99). In 2019, our rescue archaeology team found that the entire area of Ponta Mamoli site is now already covered by tourist establishments. As discussed in Chapter 6, the norm that tourism establishments are preceded by AIAs has not yet been fully implemented. Even though this type of development falls within the Heritage Law, in practice, compliance is at the discretion of the developer. Tourist development constructions and economic activities are very dominant in this area and are expanding fast with the building of the Maputo-Katembe bridge and the linking coastal road discussed in Chapter 6 (see also below). Tourism developments centre around the Ponta do Ouro Village, which attracts tourists mostly from South Africa due to the close proximity of the South African border.

The Ponta do Ouro Partial Marine Reserve stretches from the border extending until Inhaca Island. This area is rich in marine biodiversity, to the point of deserving the classification of the first Transfrontier Marine Conservation Area in Africa (the Ponta do Ouro-Kosi Bay) and also the Transboundary Libombos Conservation Area. By joining Mozambique, South Africa, and Eswatini, the conservation area represents a broader integrated protected area to conserve and protect the natural and cultural resources of the region and to promote tourism development (Fig 8.4 and 8.5). Its geographical configuration is characterised by beaches, intertidal sand flats, rock shorelines, sub-tidal reefs and estuaries and the unique Pondoland dune flora. The marine flora and fauna include mangrove forests, sea grass beds, dugongs (*Dugongs dugong*), dolphins (bottle-nose and humpbacked dolphins) and whales (*Megapter novaeanglia*). The area along the beach is also known as a turtle (*Caretta caretta* and *Dermochelys coriacea*) nesting zone. The combination of the unique

Figure 8.4. Example of the current landscape in Ponta Mamoli, July 11, 2019.

Figure 8.5. A herd of zebras looking for grass after wildfire in the Maputo Special Reserve, July 11, 2019.

dune landscape and marine biodiversity offer good conditions for ecotourism development (Nel 2003, DNAC 2011).[134]

Ecotourism practices could potentially integrate actions of management and exploration of the archaeological heritage, preserving the existing archaeological sites while also creating job opportunities for the local community. There are probably still many new sites here to document, especially since visibility is low due to the dense vegetation. However, in the built areas, the destruction of archaeological sites is near total. In some highly exploited areas, the coastal sand dunes are beginning to shift, not only eroding heritage sites and vegetation but also causing damage to properties along this area. From a heritage point of view, it is recommended to carry out further preventive surveys in these areas and to proactively contact developers to convince them to do rescue archaeology in areas that will be exploited further.

Another area with known archaeological sites lies just south of the new Maputo-Katembe Bridge, following the Katembe-Ponta do Ouro Road. This 129 km route passes through the Maputo Special Reserve, an area rich in biocultural heritage and located close to Ponta do Ouro Partial Marine Reserve. The Special Reserve, together with the Marine Reserve, form an integral part of the Libombo Transfrontier Conservation Area. In the Maputo Reserve, remains of the wildlife population, mainly

[134] For more information on the Pondoland dune flora see https://opais.co.mz/reserva-marinha-parcial-da-ponta-do-ouro-e-a-unica-area-de-conservacao-transfronteirica-marinha-de-africa/.

elephants, zebras, hippos, crocodiles, and birds, are found, as well as a variety of antelope and small game. Tourism investment is also considered to promote further regional development and to support income generation to sustain conservation management in the long run (IFC 2012).

The bridge and road projects were developed by the above-mentioned China Road and Bridge Corporation between 2012 and 2018 and implemented without pre-development AIAs (Fig. 8.6). During the implementation of these projects, much archaeological and local heritage was likely impacted or destroyed. The Maputo-Katembe bridge project over Maputo Bay is an especially important example in the sense that it connected the commercial zone and the tourist area in the south. It also passes across high-value areas for both historical, prehistorical-archaeology remains as well as local heritage areas. The lack of investigations here may have caused long-lasting damage in terms of knowledge of the rise and development of Maputo City's history and the country's cultural heritage management in general.[135]

Chinese developers are particularly active in Mozambique, as in other parts of Africa. Finance and implement various development projects in sub-Saharan Africa without observing archaeological impact assessments. Chinese construction companies should be aware of such requirements because the law on the protection of cultural relics has been in force in the People's Republic of China since 1982, subsequently amended in 2002, 2007 and 2013. This legislation not only protects cultural relics but also includes provisions for rescue archaeology (Lane, Kleinitz, and Gao 2017). However, as we have seen in Chapter 6.2, this absence of AIA is not specific to Chinese developers or financing.

AIAs are not typically carried out as part of road construction in Mozambique. The lack of AIAs in the building of the Maputo-Katembe bridge and linked road is a serious oversight; if there had been rescue archaeology work during the construction (which is located near this area), valuable cultural heritage would have been identified, assessed, and documented before destruction.

Figure 8.6. Maputo – Katembe Bridge and Road Maputo-Ponta Douro

[135] Maputo Bay is one of the richest areas with endangered heritage. This is where Maputo city flourished, and today integrates different types of heritage. Since the 14th century, with a maritime expansion, this place has been characterised by intense commercial activities due to the port and service delivery between various parts of the world, including inland areas of southern Africa (cf. Newitt 1997). Still, this place combines maritime and terrestrial ecosystems, whose sustainability also depends on local cultural knowledge.

8.1.2. Matola Site

The Matola site (-25 57 45, 32 27 50) was discovered by Senna-Martinez in 1968 during the construction of the road Maputo-Matola, without prior archaeological impact assessments. The findings led to the immediate execution of rescue archaeology research on the site. Since then, the works of Cruz e Silva 1976, 1978, 1980; Sinclair *et al*. 1987; Morais 1988:94-98 and Macamo 2006:59-61), just to name the main examples, have devoted their attention to this site. Matola even became a name site for the so-called Matola tradition. Further contributions to the analysis and interpretation of the findings from the Matola site were developed by Kohtamäki (2014) and Madiquida (2015). All these studies were important in revealing the archaeological context, characteristics of the findings and, above all, the archaeological identity of the Matola site at the national and international levels. In this context, it was possible to infer that the archaeological remains of the Matola site are associated with the first coastal expansion of farming communities in southern Africa, mostly represented by the pottery of the Chifumbaze complex, which designates all pottery from the first millennium AD in the region (Mitchell 2002, Phillipson, 2005:249–261, Phillipson 1977, Macamo 2006:59, Huffman, 2007). Since the Matola site has the earliest ^{14}C dates associated with the Early Farming Community in Mozambique, it has gained the status of being a type site for the Matola ceramic tradition (Morais 1988:95, grouped by Huffman (2007) together with the northern coastal Kwale tradition).[136] Owing to the national and transnational recognition and high status of the Matola site, the continued protection and conservation of this site is a high priority for future scientific research. It can also be the focus of guided school tours for archaeological training to provide on-site information about the Matola tradition, the development of cultural tourism, etc. For example, now, many students from the graduate course of archaeology and cultural heritage management at the DAA/UEM have used this site as a case-study in their theses, contributing to the ongoing debate on the site within the discipline, specifically about the development of farmer communities at the country and regional levels.

The preservation of the Matola site is a challenge, however, as it is located in a rapidly expanding peri-urban area. The site is clearly demarcated with signs stating that it is protected (Fig. 8.8), but the boundary of the site and possible satellite sites nearby is not well known. Owing to the relevance of the Matola site and alerted by recent building developments in the vicinity, our field school team went to assess the threat level on the Matola Site in terms of erosion and risk of degradation from development (Fig. 8.9). During the study visit, some pottery pieces scattered on the ground were identified. The assessment concluded that the Matola site is physically endangered and has lost much of its integrity. Most of the former site area is now engulfed by urban development and low-intensity activities, such as a hotel establishment in the south and some residences in the southeast and northwest are bordered by the road. The entire area that extends on both sides of the road, going south until the Matola River, is now occupied by housing, private economic establishments and public institutions.

[136] The dates fall between AD 140+/-50 (R-1327) and AD 910/890 +/- 50 (R1328).

Figure 8.7. Prof. P. Lane (right) and L. Adamowicz (second right) explain to the students some Matola pottery at the Matola Site. The pottery is illustrated on the right, July 12, 2019).

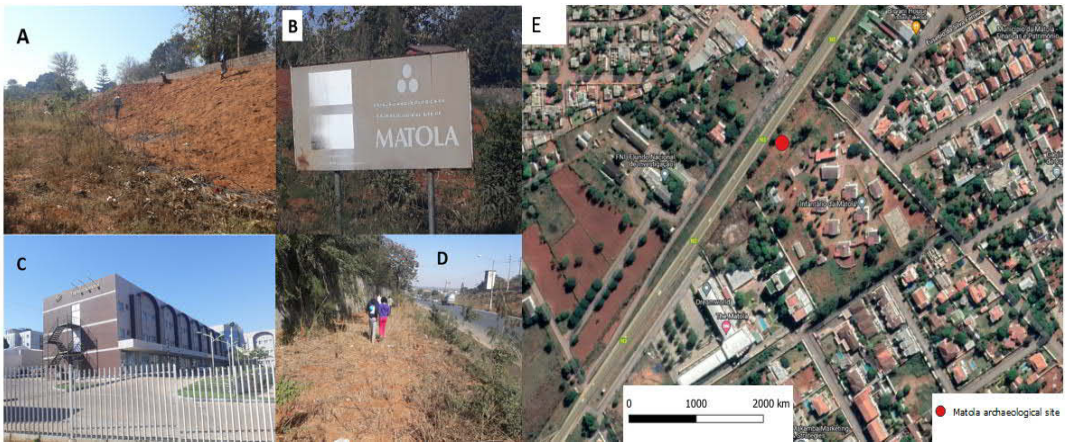

Figure 8. 8. Students surveying in the Matola Site (A); The Matola site signpost next to the road (B); The hotel that also covers much of the site area (C); The road that crosses the site in the north-south direction (D), July 12, 2019; The Matola archaeological site impacted by urban development (E), Source: Adapted from Google Earth Pro Imagery, July 17, 2022.

The only remaining part of the site unexploited by urban structures is where a resident has an agricultural field *(machamba)* and areas of approximately 800 m^2. Here, with the permission of the farmer, we carried out a limited archaeological survey. Agricultural activity also impacts the site but on a smaller scale since it displaces the artefacts from the original context, and the entire area of the site has been occupied. Despite these constraints, the nameplate that identifies the site placed beside the road ensures some kind of protection since it shows that the site is protected by Law nr. 10/88. It is also recommended that the culture services at the Matola municipality should protect the small area that remains (e.g. sealing off the area with a fence) to serve as an example for future generations.

One of the major problems currently in the municipality of Matola (similar to in other municipalities across the country) that affects the known and as yet unmapped archaeological heritage is the lack of archaeological surveys. For example, the research I did in the Matola municipality in 2021, in the ambit of this project, revealed that the municipality services have not yet carried out AIA studies, but the information we share

about the need to develop such studies is useful for future processes[137] (see more discussion in Chapter 6).

Figure 8.9. The Campoane archaeological site is impacted by urban expansion and economic activities, such as salt production. Source: Adapted from Google Earth Pro Imagery, July 17, 2022.

8.1.3. Campoane Site

Campoane is another coastal Stone Age site (-26 01 17.9, 32 26 39.6), located on the banks of the Umbeluzi River in the intertidal zone, at 6 km east in a straight line from the Matola site (Fig 8.9). The area is characterised by vegetation consisting of mangroves and muddy soils, and is influenced by tides, causing periodical inundation. This site was possibly used for fishing and exploration of other marine resources (possible molluscs and crabs that occur normally in this type of environment, as described by (Hockey and Bosman 1986, Horwitz, Magges and Ward 1991, Mitchell 1996). Now the site is completely degraded, mainly owing to anthropogenic factors. Currently the area is exploited by *Salinas Golfinho*, *Lda* (a salt production company). Small dams were opened to contain sea water to produce salt, and channels have been excavated to control sea water during high tide, so as not to flood or contaminate the dams. These activities, including the construction of infrastructures to install the water-pumping system moved large volumes of sediments that changed the internal context and site stratigraphy. This area is not under intense construction or use. However, local communities extract shells here that are used in lime production. The mangroves here are also used for firewood. These low intensive activities still affect the archaeological context of this area and continue to accelerate their degradation. Unlike other sites visited in the disturbance assessment surveys in 2019, which have been excavated to some degree, the Campoane site has not yet been the focus of systematic archaeological research; thus, it is not well documented. We observed in Campoane a near-total

[137] Matola Municipal Council, Municipal Secretary, N/Refª Nr. 82/CMCM/SM/075/21, April 8, 2021.

disappearance of an archaeological site. However, it would still be opportune to carry out a broader archaeological study around this area to ascertain its archaeological context and possible satellite sites.

Figure 8.10. Salt production and shell extraction in the Campoane site area, July 12, 2019.

8.2. Case-Study 2: Chongoene and Xai-Xai Shell Middens

Following the field school activities in 2019, archaeological disturbance assessment surveys were carried out along the coastline of the area between Xai-Xai beach and Chongoene beach.[138] Our research team brought together researchers from UEM, UniSave, technicians from the Gaza Provincial Directorate for Culture and Tourism and from Uppsala, Sweden.

This campaign combined several scientific objectives, such as archaeology, history, geography, geology, biology as well as cultural heritage management. The work expanded the goals of the disturbance assessment surveys carried out in the Zitundo, Ponta Mamoli, Matola and Campoane sites described above, to also include the following goals:

- Monitor the Xai-Xai airport camp construction and assess local conditions for cultural impact assessment studies;
- Inform participants about the importance of an Archaeological Park in Chongoene, as a long-term conservation measure for the shell middens;

[138] The field school was organised by Prof. Solange Macamo, Prof. Paul Lane and myself, aiming to train BA students in archaeological surveys and scoping activities on a multidisciplinary basis. It was also centered on my PhD training program.

- Training of students from UEM, UniSave and technicians from the Gaza Provincial Directorate of Culture and Tourism on subjects related to the Biocultural Heritage Project in Mozambique and Chongoene Archaeological Park; and
- Implement and evaluate the archaeological site form register.

In this area, shell middens have been reported since colonial times. For example, Wells (1943) and van Riet Lowe (1943) documented shell middens containing pottery material and parts of a human skeleton (femur). More research about these shell middens came with Barradas (1968), Martinez *et al.* 1969 and Derricourt 1975). Based on preliminary excavations and surface collections on Chongoene shell middens, Martinez (1976) proposed a 'phase I of the Southern Mozambique kitchen midden tradition' and dated it to the pre-early Farming Community period. At Nova Mambone, in the district of Govuro, north of Inhambane province, (Dickinson 1971) reported shell middens. Owing to the archaeological value of the Chongoene and Xai-Xai shell midden sites, they were visited by R. Inskeep from Oxford University in in 1982. P. Sinclair contributed further to the analysis and interpretation of Chongoene and Xai-Xai archaeological material (Morais 1988:53, 76, 80, Adamowicz 2003). Other shell middens were also reported in Chibuene and Bazaruto (Sinclair 1987:85–87, Ekblom 2004:21), and recently at Inhaca Island (de Boer 2000), in Afungi Peninsular (Adamowicz 2013, 2016), in Praia da Rocha where shellmiddens are found with charcoal, potsherds and a human burial dated to c. 700 BP (Matias 2019) and in Praia de Chizavane northeast of Chongoene (Robb *et al.* 2021).

The evidence presented above shows that molluscs have been important for the nutrition of communities over time. Shell middens are an important resource for understanding resource use over time and also the mobility and movements of populations with different economic orientations. Potentially, they can also contain human burials, as has been shown in South Africa (Schoute-Vanneck and Walsh 1959, 1960), Derricourt 1975, Hall 1980, Robey 1980, Hockey and Bosman 1986, Horwitz, Magges and Ward 1991, Fisher *et al.* 2000, Breen and Lane 2003, Jerardino 2016, Cooper *et al.* 2018). Thus, shell middens must be carefully assessed case by case.

Figure 8.11. Ceramic material in a shell midden identified during the field school in Chongoene, July 14, 2019.

Figure 8.12. Different moments during the field school in the Chongoene and Xai-Xai coastal line area, July 14, 2019.

During the fieldwork, several shell middens were identified, and some Early Farming Communities (EFC) ceramics were recorded (Fig 8.11 and 8.12). The shell middens are mainly composed of brown mussels (*Perna perna*) and oysters (*Saccostrea cucullate*). These resources have long been exploited for domestic consumption by local communities, and this practice continues today (see below the discussion in chapter 9.3.1). Through the surveys, several new archaeological sites were identified and classified using the assessment system, which was explained in Table 7.1.

On the coastline, it was found that all the shell middens are about to disappear. Wind and water erosions are intensive, and these natural factors, although affected by sea-level change, are a great risk. Constructions, mostly for tourist resorts with clearance of vegetation, will re-activate the sand dunes and allow for wind erosion. Shifting sand dunes is a major shift to shell midden preservation, and many shell middens are now exposed. Local farming, although mostly small scale using simple hoes, can also damage the middens, as can movement in and through the dunes (Cf. Horwitz, Magges and Ward 1991). Therefore, there is a risk of losing forever a valuable archaeological cultural heritage. There is an urgent need to develop research on rescue archaeology to document some of the archaeological and cultural heritage that still exists in this area, especially since construction and development projects, such as airports, roads and harbours, are being planned and implemented.

In October 2018, China Aviation International Construction and Investment Co Ltd started the construction of Xai-Xai Airport in the Nhacutse locality, Chongoene District. This construction project, based on Newspaper reporting in *Jornal o Público* (May 3, 2021), covered 140 hectares, which had numerous family cemeteries, 366 family homes, and agricultural fields (Fig 8.13). The Chinese government financed the infrastructure with more than USD 70 million (idem).[139] However, the project was implemented without any Archaeological Impact Assessment (AIA) or cultural or Social Impact Assessment. In addition, monitoring activities were not planned during the construction project period. As a result, the project caused controversy when residents were deprived of access to their fields and 182 family graves were exhumed.[140]

[139] In *Jornal o Público*, May 3, 2021, pg.2, Edition nr. 545.
[140] Ibid.

Figure 8.13. The Xai-Xai airport construction site (-24 53 40.8, 33 44 56.13), July 15, 2019.

Figure 8.14. Workshop and field visit to the Xai-Xai airport construction site (-24 53 40.8, 33 44 56.13), July 15, 2019.

To facilitate this controversy and as part of the fieldwork, Prof. Solange Macamo organised a meeting with the Xai-Xai city delegation of culture, the UniSave delegation and the Chinese delegation (who represented the construction project and the building company) (Fig. 8.14). After the meeting, it was officially recognised that no AIA activity or rescue archaeology had been carried out on-site to safeguard the local cultural heritage and that this was in breach of the Mozambique legislation. Although it was recognised that great harm had already been done, the Chinese contractor was willing to collaborate to try to solve the problem as far as possible. On the airstrip site, which was currently under construction, the team were therefore permitted to make a brief archaeological survey across the area and several ceramic scatters were located.

This evidence testified to the need for further AIA and linked rescue archaeology activities on the site. Continuing, Dr Solange Macamo also issued a letter to help the Gaza Provincial Directorate for Culture and Tourism, showing how to implement the Regulation to undertake rescue archaeology research. Although there is not yet a formal procedure for how to plan and carry out an AIA and the linked rescue archaeology activities, the negotiations had positive outcomes in a closer collaboration between municipal and district authorities (including the province) and the DAA, which will facilitate future communication as already discussed in Chapter 6.

In addition, the collaboration resulted in the formation of the Chongoene Cultural Heritage Park- (which also attracted some international funding through the Gerda Henkel Foundation, with the principal investigator Prof. Solange Macamo). Although the plans for this museum are still being developed, it can potentially act as a supporting instruction to monitor and safeguard heritage in the nearby municipalities and surrounding districts. Further, the construction of a harbour and a road linking the harbour with the inland were being planned to restart soon.

Table 8.1. Assessment summary of sites of case-study 1 (criteria are explained in Chapter 7.2.3)

Heritage Type		Integrity	Anthropogenic and Natural Threat levels	Scientific potential	Local Heritage Value	Local Nature Value
Archaeological sites						
Zitundo -26 44 40, 32 49 30		Low	Erosion, farming activities, sand extraction, and resident activities	High	Low	Not Present (NP)
Ponta Mamoli -26 42 33, 32 53 50		Low	Implementation of tourist activities	High	Low	NP
Matola -25 57 45, 32 27 50		Low	Farming activity, urban occupation	High	Low	NP
Campoane -26 01 38, 32 26 73		Low	Salt exploration and extraction of natural shells underground	High	Low	NP
Chongoene Shell middens	-25 05 59.8, 33 46 51.5	Low	Wind and water erosion, tourist establishments, movements to and from the sea by local communities	High	Low	NP
	-25 06 03.1, 33 46 70.2	Low				
	-25 05 59.7, 33 46 49.3	Low				
	-25 09.9 82, 33 77 86.9	Low				
	-25 05 58.9, 33 43 56.5	Low				
Sacred forest						
Zitundo sacred forest -26 44 51.61, 32 49 34.83		----	Note assessed	High?	High?	High?
Airport field						
Xai-Xai airport field -24 53 40.8, 33 44 56.13		NP	The airport construction works destroyed all archaeological heritage material that was on the site	NP	NP	NP

The assessment classification of the sites as presented here shows a low integrity of the archaeological sites (Table 8.1). The low integrity ranking is due to the continuous negative action exerted by natural factors, constructions and small-scale use that continually alter their archaeological context. Local Heritage Value is also low because few members of the local community are aware of the existence of these sites, even though they are in their area. For various reasons, district and provincial cultural services do little to ensure the conservation and preservation of the sites. However, local heritage sites such as the Zitundo heritage forest have a high local value, and even though this has not been visited, it is classified here as high. In addition, had the study been expanded to include a cultural impact assessment with the inclusion of the construction of family graves (now lost through the airport construction), the assessment would have been even more severe in terms of the impact of construction. In the next chapter, I will present the steps in a developed archaeological and heritage assessment, which could also be included in a social or cultural impact assessment.

9. Archaeological and Heritage Impact Assessment

One of the recommendations of the 2019 field school discussed in Chapter 8 was to conduct rescue archaeology research in the coastal zone of Xai-Xai and Chongoene to document and assess the archaeological, historical and cultural sites of this area. Based on the experience and reflection on the necessities for cultural heritage management, a second archaeological fieldwork was carried out between July and August 2021. This work had the ambition to approach the area as if it was under investigation through an AIA process.

This design was in part provoked by the start of the construction of the harbour road and the linked constructions, which by the time of the survey had been completely halted but might be resumed. The negotiation of land rights during the construction between the project developer and the local traditional authorities and village secretaries also stirred considerable tension and suspicion. Since no Archaeological Impact Assessment (AIA) had been done in the prior stages of construction, it was seen as unlikely that the contractors would commission any AIAs, or rescue archaeology activities should the road construction resume.

Accordingly, the 2021 fieldwork had much more ambitious goals than the previous case-study surveys:

- Continue with an archaeological survey to locate more archaeological and cultural sites and biocultural elements in the local community;
- Do a risk assessment of archaeological and cultural sites in terms of erosion, disturbance by infrastructure, agricultural activity, etc;
- Assessment of biological values and status of cultural sites and sacred forests.
- Assess the protected status of archaeological and cultural sites in terms of traditional custody or local authorities' mechanisms;
- Document traditions and practices identified as important by community representatives and local guides.

Currently, the administrative political division of the districts of Chongoene and Xai-Xai is separated into two municipalities, but owing to their proximity, the areas have similar geographical and topographical conditions. The Xai-Xai side has more infrastructure and buildings (both private houses and tourist facilities), while the Chongoene side retains more of the natural dune shrub landscape. Here, buildings are restricted to a few tourist lodges that are more carefully placed among the dune vegetation, with dense vegetation along the coast that shows little human impact. Unlike the field school campaign in which the work was carried out along the coastline, in this second campaign, I continued with the survey towards the inland, across the dunes, until close to residential areas located at c. 1.5 km straight in from the coast.

Xai-Xai and Chongoene are slightly different in character in terms of tourist development. Chongoene is low-key, snuggled into the dunes with smaller buildings, while Xai-Xai has larger resorts and more intensive farming activities, which make a greater impact on the dune vegetation. The effect of the construction and building of the road

in Chongoene (as also through natural winds) is also shown in the fact that roads are sanded over by shifting sands, making it difficult at times to reach Chongoene unless with a very strong 4x4 car.

9.1. Step 1: Community engagement

Our approach was to develop our research project with responsibility, respect, trust and reciprocity between the different stakeholders involved to generate mutual benefits between local communities and the scientific community. Our fieldwork followed the CARE principles to ensure that this research creates collective benefits and does not inflict on local community authority or control. Since the local community members are active leaders in the stewardship of their data, they have rights, and we need consent to collect and use their data. After finishing with the search, the results will also be shared with the local community, the provincial and district authorities (see discussion in Chapter 7.3.2).

Before the start of the fieldwork, we followed the customary procedures of contacting the traditional authority. This process is a good ground for collaboration with the community on local heritage. The inclusion of local heritage values is an important part of Mozambique's archaeological practices, as discussed here in Chapter 9 (cf. Saetersdal 2004, Jopela 2010, 2011, Jopela *et al*. 2012, 2018, Jopela and Fredriksen 2015, Macamo and Ekblom 2018, Ekblom *et al.* 2024). In this thesis, I am making the argument that a similar procedure should be a mandatory part of Heritage Assessments linked to Impact Assessments, though it must be adapted to the practices and wishes of each local area, as Mozambique is a highly diverse country. Informing yourself of the practices and steps to follow is the first step in any heritage assessment procedure.

Local community engagement is an integral part of CARE principles, which allows the local community to help shape and control the purpose of our work. Doing so is one way this research will benefit the local communities. Following this approach, we created value for local communities and ensured an inclusive assessment of heritage, recognising their rights and the power of heritage ownership (cf. Carroll *et al.* 2021, Robinson *et al.* 2021, Proffitt 2021, Hensel *et al.* 2023). A community engagement meeting was held in the home of the first traditional chief or *régulo* in *Nhafumuine*, where all local meetings and cultural and traditional ceremonies take place. In the meeting, the following representatives participated: Mrs. Celso Simbine (head of the Chongoene locality), Ernesto Mutemba (head of the Culture, Youth and Sports Department of Chongoene district), Arnaldo Macucha (interim community leader), other community members (the community council) invited to the meeting and our research team (four graduate students from the UEM, the DAA and myself).

The meeting began with greetings and introductions of the participants according to local practice (Fig. 9.1). This was followed by my giving a presentation on the objective of our research project and working methodology. I asked permission for our research and community collaboration and asked the community if there were any suggestion for questions that could be integrated into our research. Afterwards, there was a phase of debate and evaluation made by the local authorities about the

Figure 9.1. Different moments during the local community engagement in Nhafumuine/Chongoene, July 31, 2021.

value or usefulness of our research for the locality and the possible impacts that could arise from this project. Mrs. Celso Simbine, Ernesto Mutemba and myself played an important role in explaining and convincing the local community of the real reasons for the research, requesting collaboration with the community and promising to work without infringing on local norms and rules.

Through this engagement, we were assigned two local guides and were formally authorised to conduct archaeological research in the areas in collaboration with the community (Fig. 9.1). It was specified that we were not allowed to visit or make any type of intervention in the locally protected forests (referred to as sacred forest) or on burial sites, without the permission and monitoring by the local authority. The acceptance of our research and the local community council's instructions about when and how data regarding their heritage could be collected and in which land our research team could enter is an effect of a sense of community control and governance. They decided all access conditions for their cultural heritage (cf. Carroll *et al.* 2020, Sterner and Elliott 2023). Further, the local community had some challenges with the local cultural heritage management that official management institutions could assist with. This aid could empower local community interests to safeguard their cultural heritage. As a way of expanding local capability and capacity, during the fieldwork, the local guide was trained on how to identify and record archaeological sites, including assessing the factors that impact archaeological, historical and sacred sites.

During the community meeting, the community representatives mentioned the existence of three sacred forests (*Xikongonyi, Likhanisso and Nhaudzole* and two sacred graves). These are places with high cultural value for the community; typically, they are ancestral burial sites and/or places where the spirits of the ancestor's dwell. They are places where ceremonies are made asking for rain, expulsion of locust pests (*ndongwé*), as well as other ritual practices that involve the community. The local community expressed deep concern for the protection of the forests, wanting to discuss measures to guarantee the protection and conservation of these forests. Now, such measures seem far from being realised owing to continued urban growth, agricultural practices and firewood extraction.

Figure 9.2. The Macamuine sacred sites, to the left and the Macamuine régulo's home, to the right, August 02, 2021

In this case, we did not visit these places owing to the absence of appropriate people to conduct traditional ceremonies to allow us entry, this was in fact interlinked with the 'disturbance' incurred through the building of the Chongoene road, which happened without due authorisation from the local chief and which, when he died was seen as a contributing cause. During the community meeting, the representative of traditional leadership and the council members initially differed in opinions for us to visit the cultural sites; some were in favour, others were against, while some remained silent on the issue. This was partly due to the events that had taken place following the negotiations around the access road to the port.[141]

On the Xai-Xai side, the community engagement process was less complicated, and as prescribed by local leaders, we did not need to bring together as many local stakeholders as possible. With the Macamuine neighbourhood secretary, Mr. Munguambe (the local guide), we visited the Macamuine ancient sacred site,[142] and the Macamuine régulo's home,[143] including the Macamuine community forest (Fig. 9.2 and 9.3). Mr. Munguambe recommended finding another local stakeholder, such as Sr. Mussebene Mondlane, who, from 1970–2018 was responsible for controlling the mussel collection in the Xai-Xai beach area in coordination with the Macamo lineage.

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[141] During the community meeting, the representative of traditional leadership and the council members initially differed in opinions for us to visit the cultural sites; some were in favour, others were against, while some remained silent on the issue. This was partly due to the events that had taken place following the negotiations around the access road to the port. The traditional chief who had authority in parts of the area covered by the road had passed away and it was he who gave the permission for the road to be built. Many linked his death with the building of the road and the displeasure of the ancestors. The community were still negotiating a replacement chief – a negotiation that was taking a long time because of the complication of the road. Our project inevitably became entangled in this discussion. In practice, there was no one 'authorised by the ancestors' (so to speak) to carry out the required ceremonies, but also because of the highly sensitive nature of this matter. I felt that it was better simply to wait until these matters had been negotiated by the local community.

[142] The site is still intact but currently lost his local heritage value since 1974 during the Transitional Government period, when the Frelimo Government banned traditional and religious authorities. Although their importance and legitimacy in local communities, they were seen as compromised with the enemy in an attempt to radically change the governmental structure inherited from the colonial era. In its replacement, new power structures were introduced, such as popular assemblies, dynamizing groups, popular courts, etc., who started to perform many of the functions previously performed by community authorities. Also, many practices described as traditional were banned from the public sphere (Meneses 2015, Forquilha 2020, cf. Manjate 2022:20, 203-204).

[143] In Macamuine, the *régulo's home* it is one of the main sacred sites in this village. Here all the traditional ceremonies and rituals takes place to bless all events and projects that take place or when implemented.

Figure 9.3. The current state of the Macamuine community forest, August 02, 2021.

Even though legislation potentially recognises such living cultural heritage sites, there is not yet a formalised procedure to include them in impact assessment surveys. The same is the case for family burials. This is particularly detrimental to local history since much of the practices, memories and histories around these places are orally transmitted, and the place itself (though ephemeral) acts as a memory node of these histories and practices.

9.2. Step 2: Documenting any Existing Damages from Construction

Currently, in the Chongoene District, major infrastructures are being built as part of the so-called Chongoene Development Corridor, budgeted at over USD 700 million. Starting with the airport mentioned above in chapter 8.2, it is planned to include a port and access road to the port, whose works will be carried out in the coming years. A Chinese company, Dingsheng Minerals, has a concession term of 25 years in the Chibuto district, Gaza province to explore ilmenite (titanium and iron oxide) in heavy sands. According to the plans, a deep-water port to export this product will be constructed in Chongoene (as reference point -25 05 22.3; 33 48 46.7).

The construction work was expected to start in January 2022 and end by 2025. As reported through the media outlet the Club of Mozambique (2021), the project was budgeted at over 324 million USD, financed by the consortium Power Chine Hubei Engineering, sanctioned by the highest governmental authority. The construction, based on the agreement with the province should have been preceded by engineering and environmental impact studies (Club of Mozambique 2021). As part of this project, the construction of an access road was started, 7.81 km in a straight line from the Chongoene village through the *Nhanfumuine* community and over the dunes to the sea (from point -25 01 24.4 / 33 47 36.4 to point -25 05 22.3 / 33 48 46.7, see the figures 9.4 and 9.5 below). The road construction works were suspended from April 2021 onwards after citizen protests. The administrative authorities claim that the project proponents do not have the construction license or the required land deed, the so-called Right to Use and Benefit from Land (DUAT). In addition, this project did not carry

out a pre-development AIA, which should either be integrated into the EIA or made independently.

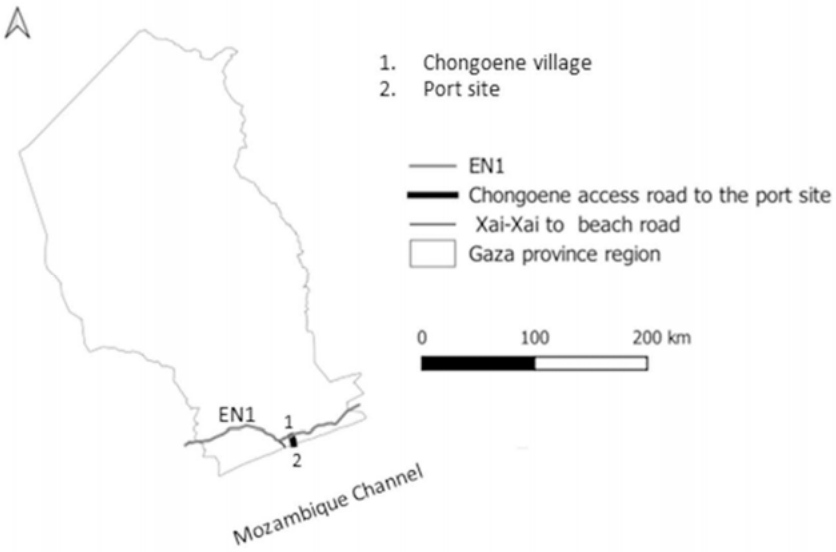

Figure 9.4. Map showing the Chongoene access road to the proposed port site in relation to the National Road nr. 1 (EN1) and the Chongoene village.

Figure 9.5. The images of the access road to the dock site, embargoed by administrative authorities, August 06, 2021.

Dr Solange Macamo was contacted by municipal and district authorities who were worried about this large-scale development conflicting with tourism development and the marketing of a rather low-key tourism that integrated with the existing dune vegetation. Heritage was seen as one way to convince higher authorities to stop the road building and other similar large constructions that had started to destroy this landscape. Thus, municipal authorities wanted assistance in terms of heritage protection but also more broad support since maintaining this highly sensitive area largely intact was a high priority.

In the coastal ecosystem, the coastal dunes that protect that area were excavated without guidance from environmental managers. I observed many shell middens destroyed, and archaeological material scattered on the ground. As discussed in the previous chapter, once the vegetation cover is removed, the road construction also accelerates

wind erosion in this area. The Chongoene road is now difficult to drive even with a very strong 4x4, and the unfinished access road is now sanded over (Fig 9.5). The lack of assessment as had occurred during the construction of Chongoene Airport, described in Chapter 8.2, was thus repeated also here with severe effects on the environment and archaeology.

9.3. Step 3: Documentation of Living Cultural Heritage

One of the most important heritages in these areas is the heritage related to marine resources, particularly mussel exploitation. I therefore decided to document the oral histories and practices around this. This information is also an important reference when attempting to understand the archaeological record of shell middens, as discussed at the end of this chapter. Between the area that extends from the beach of Xai-Xai to the beach of Chongoene, in the intertidal zone, the beach rock has a width of approximately 60 to 80 metres.[144] This stone is regarded as sterile when mussels, oysters and other resources do not grow on it. It is fertile when it generates useful resources for the communities. There are areas where it produces only one type of product or both (mussels and oysters). In the productive zone, the beach rock is divided between communities along its approximately 8 km length to avoid conflicts of interest or resource competition. Each part of these divisions has a place dedicated to ceremonies, which is regarded as a sacred place.

9.3.1. Maritime Ceremonial Sites

The beach rock division takes the following designations: *Xiduene*, *Beruti/Lhambelueni, Xavanine* and *Nhahulene* stone.[145] Each rock had specific locations for holding a traditional ceremony in the sea for mussel and oyster collection permission, according to local tradition (Fig. 9.6 and 9.7).

The mussel harvest is preceded by a ritual dedicated to the spirits of the ancestors. Immediately after this ritual, community members are allowed to begin harvesting the mussels in the rocks. People could perform the mussel-opening ritual on the rock during low tide or perform such rituals on the sandbank when the site has permanent water, such as at the *Lhambelueni* site. These sites hold high cultural value. In the past, the local practices and rotation in exploitation between the areas allowed the mussels and oysters to grow properly for a period of three to six months. However, currently, these divisions are no longer respected, and the community do not follow such restrictions on the beach (Mrs Mussebene Mondlane, August 2, 2021, and Bernardo Macambaco and Mateus Chambisso, August 21, 2021, personal communication).

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[144] The resources were disrupted when the former Chongoene Hotel was built in the *Chicuanguene* area as it blocked access for communities.

[145] These different designations of the sea stones connote the names of the first families that occupied and settled in this coastal area. Their meanings can be translated from the local language *Xichangana* or *Changana*. *Lhambelueni* derives from the term *Kulhamba* which means taking a bath or washing, since there is permanent water in this part of the stone and to extract the mussels, you need to dive. The word *Xavanine* derives from the local family name, *Xavani*. Thus, *Xavanine* means the area occupied by members of the *Xavani* family. By extension and when applied to sea stone it means the portion of the stone that in past times was managed by the *Xavani* lineage. Likewise, *Nhahulene* means the area or zone occupied by the *Nhahule* lineage, and which is part of the Chongoene community. Also, when applied to sea stone, this term denotes the part of the stone that belongs to the *Nhahule* family.

Figure 9.6. Hypothetical representation of the division of the beach rock for the collection of mussels and oysters by local communities

Figure 9.7. Left, Prof. Solange Macamo conversing with three ladies who were patiently sitting on the shore of the Xai-Xai beach, waiting for the sea to calm down so they can extract mussels. On the right, some men fishing, July 14, 2019.

9.3.2. Documentation of Mussel Exploitation

In the area between the beaches of Xai-Xai and Chongoene, there are many ancient and recent shell middens. Bunches of mussels or individuals are cut with a machete from the rock (Derricourt 1975). After removing the mussel from the stone, it is carefully cleaned from various impurities such as algae, empty shells, pebbles, grass and leaves carried from the bank to the rock by water, as well as very small mussels that are of no use. Extraction of mussel meat may be done by cracking, baking and boiling (Sinclair 1987:77, Horwitz, Magges and Ward 1991). Cracking and baking are the older methods used to process mussels before the introduction of pots, metal containers and pans or in the absence of these.[146]

[146] Boiling the mussel facilitates the easy removal of the meat, as it relaxes the mussel muscle; Cracking is a method of opening the shell with an implement, but it is not easy to extract the meat or it does not remove all of it, because the muscle that connects the meat to the shell does not relax. The baking method, although it offers the advantage of being able to relieve the management of pots and would process a lot of mussels at the same time, it has the disadvantage that the final product contains sand, since the mussel are placed on the ground, covered by sand and burned by firewood. When the mussel feels hot, it opens, and sand enters. The mussels can then be washed, but some sand remains. When eating these mussels, it is not pleasant. This method can be identified by the presence of charcoal and partially burned shells in the shell middens.

Figure 9.8. Community members collecting and processing mussels at Nhahulene rock, August 21, 2021.

Figure 9.9. Community members processing mussels after leaving the sea, August 21, 2021.

In the Xai-Xai and Chongoene coastal areas, the baking method was used to process mussels before the introduction of metal containers (Mr. Bernardo Macambaco, in personal communication, August 21, 2021). Nowadays most residents use metal pans to boil mussels. No current example of the baking method was seen during the fieldwork and informants also had no knowledge of whether baking was still practiced. Similarly, local communities no longer use ceramic pots to process mussels.

The March equinox is a period when the brown mussel beds are most exposed in the Natal north coast (Horwitz, Magges and Ward 1991).[147] In Chongoene and Xai-Xai coastal areas, the traditional mussel collection season (referred to by the local name *Tsiko*) depends on the moon's cycle, as the moon influences tidal behaviour. When the mussel is mature, a good harvest can only be made during low tide. Harvesting is made during the summer in the new moon, during a period of five to seven days (Fig. 9.8). In addition, the mussel can be harvested during the transition phase, from half to full moon, which normally lasts three to four days. Currently local communities no longer obey these dedicated collection periods. Another aspect that determines the behaviour of the tides and the mussel harvest period in this area is the direction and speed of the wind. The wind that blows from west to east is favourable, with low strength to the point of calm water conditions. The northwest-to-southeast wind is favourable, as it pushes back the water to the sea and calms the tides. The east-to-west wind is unpleasant according to informants, as 'it stirs the sea'. The same happens with the southeast-to-northwest wind. Usually, the winter is not a good time to collect mussels, as the sea is rough most of the time (Mr. Mateus Chambisso, personal communication, August 21, 2021). During the fieldwork, the sea was rough all day, but even so, I saw local communities taking the risk to go out looking for mussels, and the mussels they collected were small, as illustrated in Fig. 9.9.

Despite efforts to broadcast my intensions to simply document practices, our presence had worried some collectors, thinking that we wanted to interdict the mussel harvesting. This response shows the problematic legacy of earlier interventions in terms of shell-fishing and lack of trust from community members. Hopefully, there is now the opportunity to build mutual trust again with the Chongoene Museum. These traditional practices that regulate the exploitation of mussels could be revitalised and combined with the tourist exploitation practised in this area, something that is now attempted through the Chongoene Heritage Park (Henderson *et al*., 2021; Macamo, 2021).

9.3.3. Molluscs and Livelihood Security

It is important to have information on the nutritional value of molluscs for the human diet to assess their importance to local communities and understand the reasons for their use and management of these resources over time and over an extensive geographic area.

The East African littoral (from Mogadishu in Somalia to northern Mozambique) and the southern African coastal zone (from southern Namibia to southern Mozambique) are areas rich in shellfish that constitute a very important supplement resource for the diet of communities, mainly in the coastal areas (Robey 1980, DNAC 2011, Breen and Lane 2003). The shell middens are the main archaeological features that can be linked to this resource use. The shell middens often contain lithics and ceramic material, which shows that humans occupied these areas and explored shellfish since prehistoric times (Jerardino 2016, Kyriacou 2017, Cooper, Green and Compton 2018, Robb *et al*. 2021). Marine shells have been used for bead production and to decorate pottery (Breen and Lane 2003). Mussel shells, in particular, were also used as spoons (Mitchell 1996), for religious purposes (le Roux and Badenhorst 2016), and shells generally are used to temper clays.

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[147] March equinox is when the sun crosses the equator from south to north on March 19, 20 or 21 every year (https://www.timeanddate.com/calendar/march-equinox.html).

Shell middens are mostly composed by brown mussel (*Perna Perna*), although other shell material has been reported in many sites in South Africa, such as the Ingane River mouth and Tongaat Variant on the Natal coast, dated to the LSA (Schoute-Vanneck and Walsh 1959, 1960), the Enkwazini LFC archaeological site on Zululand coast (Hall 1980), the Mpambanyoni LFC site on the Natal southern coast (Robey 1980) and the coastal area of Transkei (Hockey and Bosman 1986). Shell middens containing complete sequence of EFC have been found at the Natal northern coast (Horwitz, Magges and Ward 1991). Marine shells are also found at Waterfall Bluff rock shelter in eastern Pondoland, the Eastern Cape Province (Fisher *et al*. 2000) and at the Sibudu Cave in KwaZulu-Natal, where shell fragments are associated with archaeological layers from the Middle and Later Stone Age (MSA) and EFC (Plug 2006, le Roux and Badenhort 2016, Kyriacou 2017). Further, exchanges during the LSA included seashells and lithic raw material in the southeastern region of South Africa such as KwaZulu Natal, Transkei, the northeastern Cape, Lesotho and the eastern Orange Free State (Mitchell 1996). The occurrence of these shell middens in different places over long periods of time directly proves that shellfish meat is part of the diet of several communities. The result of nutrient analyses of Natal rock oysters (*Striostrea margaritacea* and *Saccostrea cucullata*), as also brown mussel (*Perna Perna*), black mussel (*Choromytilus Meridionalis*), granular limpets (*Scutellastra granularis)*, granite limpets (*Cymbula granatina*), and variable limpets (*Patella concollor*) shows that many of these shellfish contain relatively large amounts of protein, fat and energy, which are important to human health (cf. Hockey and Bosman 1986, de Boer 2000, Kyriacou 2017).

The protein content of granite and granular limpets and natal rock oysters is only slightly lower than that of lean red meat from wild game animals and domestic cattle. The glycemic starch content of limpets, mussels and oysters is unlikely to differ much from that of lean red meat (3g/100g). The fat content of granite and granular limpets, cape rock oysters and black and brown mussels are similar to that recorded for wild game eaten in southern Africa (Kyriacou 2017).

From this analysis, it is concluded that molluscs have a relevant value in human nutrition, which is why local communities exploit these resources for food, often without observing measures for sustainable exploitation. The exploration of molluscs constitutes an economic strategy (cf. Horwitz *et al*. 1991) for the survival of the communities. For example, in Chongoene today, local communities not only exploit mussels for consumption in their families but also sell them in the village, acquiring money with which they can satisfy other needs of their lives.

Table 9.1. Comparative analysis of the nutritional value of some molluscs (Kyriacou 2017).

Mollusc types / species	**Protein content (g/100)**	**Lipid Content (g/100 g)**	**Energy (KJ/100 g)**
Granular limpets	18.2 g/100 g	2 g/100 g	400 KJ/100 g
Granite limpets	16.6 g/100 g	2 g/100 g	400 KJ/100 g
Natal rock oysters	16.1 g/100 g	2 g/100 g	350 KJ/100 g
Brown mussels	11.5 g/100 g	2.6 g/100 g	350 KJ/100 g
Variable limpets	10.9 g/100 g	0.9 g/100 g	250 KJ/100g
Black mussel	9.1 g/100 g	1.1 g/100 g	250 KJ/100g

Since mussels are a marketable product, local communities explore mussels intensively to support their livelihood, the intensity which can lead to overexploitation. The overexploitation of mussels is reported as a cause of species size reduction, the disappearance of the brown mussel *Perna Perna*, and the change of the intertidal community (change in organism size and species composition) (Hall 1980, de Boer 2000, DNAC 2011, Robb *et al.* 2021). In Chongoene, modern shell middens only consist of black mussels, which are also visible in the beach rock. It suggests that brown mussels are disappearing, and according to the nutritional analysis made above, black mussel species have a low nutritional value by comparison. However, in prehistory, the sea temperatures ca. 10 000 BP also contributed to the change from black mussels to brown mussels, as reported in Nelson Bay Cave, South Africa (Mitchell 1996). Thus, other ecological factors may be the reason for the disappearance of brown mussels in the Chongoene and Xai-Xai areas. Future and more detailed research may clarify this matter.

Table 9.2. The Chongoene sacred sites assessment summary.

Heritage Type	Integrity	Anthropogenic and Natural Threats levels	Scientific potential	Local Heritage Value	Local Nature Value
Sacred sites					
Nhahulene beach rock -25 05 59.4; 33 47 02.2	High	No apparent treats on the site but currently the local community no longer performs rituals on the site	Low	High	Not applicable (NP)
Mwaluti Mythical and Sacred Lagoon -25 0515; 33 44 6.2	High	Dry (long period without rain falling)	Low	High	NP
Mount *Mwampatlha* or Bald mount -25 05 47.3; 33 46 30.1	High	Wind, rain, motor sport and decrease of traditional practices in the local community	Low	High	NP
Sacred forest					
Xirime sacred forests in Banhine community	Moderate	Grazing animal, agricultural activities, firewood extraction around the forest	High	High	High

Traditional and administrative authorities in Chongoene and Xai-Xai coast should promote joint actions for the active and sustainable management of mussel collection as a means of valuing these resources, avoiding their early and overexploitation in order to ensure more nutritional gains (protein, lipids and energy) from shell fishing, for good health, economic benefits for the population and the alleviation of poverty (cf. de Boer 2000, Bar-Yosej 2010), DNAC 2011, le Roux and Badenhort 2016, Kyriacou 2017, Robb *et al.* 2021). As shown here the heritage places are important for regulating extraction and should thus be documented and listed (Table 9.2). Thus far obstruction of access to traditional areas have been negative to the conservation of shellfishing

resources. If such interventions are not implemented, local communities will always be responsible for the disturbance of shellfish, not allowing their reproduction and development and causing the extinction of certain species and unbalance of the marine ecosystem (cf. Hockey and Bosman 1986, Robb *et al.* 2021).

Figure 9.10. The location of the Banhine community from Chongoene village (Source Google Earth Pro, imagery date: December 14, 2015).

9.3.4. Sacred Forests

In the Chongoene area, prehistoric archaeological sites do not by default have a high cultural value and are unknown by most of the local community. However, as elsewhere in Mozambique and as discussed in Chapter 1, there is a strong and living heritage practice locally. The local community uses sacred forests as a place to perform traditional practices or community rituals as part of their day-to-day lives. For reasons I explained above, we were unable to visit the sacred forests in the Chongoene area but travelled instead further inland to the sacred forest of *Xirimeni* (with coordinates -24 52 12 / 33 50 30). This is located further in the northern part of the district, in the Banhine community, 17 km from Chongoene village (Fig. 9.10).

The sacred forest has a perimeter estimated to 188.4 m or 2826 m^2 as the total area (see below the figure 9.11). Here is the 'home' for the spirits of ancestors. In the middle, there is a sacred tree (*Gandzelo*), where prayers and offerings are made

Figure 9.11. The Xirimene sacred forest and its sacred tree, August 14, 2021.

during traditional ancestor invocation ceremonies for rain making and for protection against pests, to ensure good production and harvesting in farming. This includes protection against all kinds of evil that can afflict the local community (Fig. 9.11). Next to the forest there is a grave of the founder of this community (Mr. Mbinguani) deceased during the Nguni raids led by Gaza State (personal communication by Mr. Jonas Ndimande, the Banhine traditional leader). The Gaza State attacked and defeated the *Khambane* State in 1889 led by Xipenenyane Mondlane (ca. 1860–1889). The *Chirrime khokholo* was conquered after a resistance of 19 or 20 days. The attack on the *Khambane* State was intended to punish a vassal state that after 1862 had become almost independent, showing signs of rebellion in 1885/7. It also allowed the Gaza State to redistribute land and people (Liesegang 1986). Therefore, the *Chirrime Khokholo* is a place with high cultural, historical and political values for the country and requires much effort to achieve a sustainable management of the cultural and natural heritage that still exists there.

The forest patch presents few diversities of plant species; however, it has some native plant species, such as *mafureiras* (*Trichilia emetica*), fig trees (*Ficus carica*) and other unidentified species. These species currently represent a tiny part of the old growth vegetation, and more detailed studies can help to identify and reconstruct the old local environment. Beyond offering cultural services, no type of fauna that inhabits the site was identified. The forest does not appear as a specific source of ecosystems services as it is too small to provide food plants and animals. However, these small wooded patches are important for collection of medicinal plants (Fig 9.12), and for construction materials, firewood, water. They could also be attractive for tourism, and be used for scientific and didactic use (cf. Simbine 2013). This site also holds a high cultural value for the entire Banhine community and for the entire Chongoene district, even

though its biological value and integrity is degrading. Its integrity is threatened by firewood collection and agricultural activity which is intensively practised in the surroundings. Little by little, farming fields occupy the forest space, since there is no buffer zone. In addition, the cattle grazing in this place displaces some ceremonial objects placed on the grave, like small pots, which are of high cultural value.

Nhaudzolene, *Xikongonhi* and *Likhanisso* are other sacred forests reported during the Nhafumuine community engagement meeting. All are located in Chongoene, but they were not visited at this time. Sacred forests, as indeed all forests, are very important for ecosystem preservation. They constitute a conservation *in-situ* of biodiversity (Daniel *et al.* 2012) and prevent erosion reduce the impact of climate change, produce oxygen, etc. These sacred forests in Chongoene are protected by traditional practices, e.g., spiritual beliefs, myths, and taboos, which, when inculcated in individuals, produce socially accepted moral values that make community members respect the forests.

Another example of a protected site is a bald mount, i.e. a small hill without cover vegetation (cf. Fig 9.13) located 300 metres from the shoreline. This site constitutes another sacred ceremonial place where traditional rituals are performed. It has high cultural value, but its integrity is threatened by wind and rain erosion, and tourists often practice motorsports on site. Placing nameplates and description plates can help minimize human impact on the mountain.

Figure 9.12. The valley of the Chongoene coast and the top of the bald mount on the right, August 21, 2021.

Figure 9.13. A trader selling traditional medicine in the coastal area of Xai- Xai and Chongoene, August 02, 2021.

9.3.5. Other uses of the forest areas

Extraction of traditional medicinal plants is a common cultural practice in the Xai-Xai and Chongoene coastline forests. These medicinal plants treat various ailments, such as stomach aches and bowel syndromes, diarrhoea, diabetes, asthma, sexual dysfunction, moon disease, and unlucky issues (based on information from a seller of traditional medicine, personal communication, August 2, 2021, at the site of sale of the medicine, shown in figure 8.13).

It is estimated that about 60% of the Mozambican population uses traditional medicine as the main means of health management.[148] About 80% of the total three billion people in developing countries have medicinal plants as their primary source of medicine for their health (Simbine 2013). The knowledge of the curative value of medicinal plants constitutes a heritage of high local cultural value that needs to be documented and preserved for future generations. The continuous use of medicinal plants also requires the protection and preservation of natural ecosystems. A study for identification, registration and cataloguing of medicinal plants existing in this area is recommended, and consequently its communication to the public.

9.4. Step 4: Mapping of Historical Buildings

Although the Chongoene district has many historical and cultural monuments, management activities for this valuable cultural heritage still need to be strengthened and included within the local school curriculum and tourist activities.

All buildings erected before 1920 are automatically declared as classified cultural heritage assets (Law nr. 10/88 of December 22). Thus, from a historical point of view, the registered monuments in the Chongoene district have a high scientific value (Table 9.3). They witnessed the colonial presence in this area and the installation of the first administrative services for the colonial project. According to Mr. Ernesto Mutemba, the first colonial settlements would have been here in Chongoene, and later in the downtown area of Xai-Xai. The lack of funds constitutes a major problem in financing the management services and the promotion of historical monuments in Chongoene. However, some monuments that still present a good state of conservation and with resistant structures are used to provide public services. For example, the monument of ancient school A for the indigenous population is in ruins, possibly built before 1912 and was associated with a church that is now also destroyed. Next to the ruin is the Limpopo Polytechnic Medium Institute.

The monument in which the district health services operate was built in 1915 and served as a colonial administration with an attached prison. The former house of the colonial administrator still functions as the district administrator's house. The monument of the school for white and assimilated people currently operates as a school and still provides educational services. The district health services operate in a monument built in 1915, which was currently rehabilitated by World Vision (Mr Ernesto Mutemba, personal communication, August 9, 2021). Chongoene offers good ecological conditions for human settlement and is located in the highlands

[148] *Jornal Notícias* (October 13, 2021, p. 31).

Table 9.3. The Chongoene monuments and massacre sites assessment summary (criteria are explained in Chapter 7.2.3)

Heritage Type	Integrity	Anthropogenic and Natural Threats levels	Scientific potential	Local Heritage Value	Local Nature Value
Historical Monuments					
School A, for the indigenous population, dated before 1912	Low (in ruins)	Abandoned ruins	High	High	NP
Current district hospital building, dated from 1912	High	Constant use of infrastructure	High	High	NP
Building of the former colonial governor's office, dated from 1915	High	Constant use of infrastructure	High	High	NP
Former house of the colonial administrator, dated from 1915	High	Constant use of infrastructure	High	High	NP
Building of the current district health service, dated from 1915	High	Constant use of infrastructure	High	High	NP
Colonial Official school, dated about 1915	High	Constant use of infrastructure	High	High	NP
A well dated from 1916 -25 05 52; 33 47 14.3	Moderate	Garbage in the well, the abandonment and lack of conservation	High	Low	NP
Memorial sites					
Ka Tenente massacre site	High	No threats but there is no nameplate	High	Low	NP
Maciene mass grave -24 59 44; 33 50 12	High	Grass, wind, rain	High	High	NP

Figure 9.14. The Maciene mass grave memorial monument, August 09, 2021.

as opposed to Xai-Xai, which is in the lower zone and often suffers from flooding. Owing to the existence of the Limpopo River, the port was built. This conditioned the development of various economic activities and the provision of services, including the construction of other crucial infrastructures for the development of the city.

The Chongoene District has five massacre sites perpetrated by Renamo during the 16-year war. One such site is the *Ka Tenente* massacre site. Here is the residence of the former tenant of the Armed Forces of Mozambique (Mr. Francisco Salomão Matias), where, in May of 1991, 14 people were murdered. Another site is the Maciene mass grave site (with coordinates -24 59 44 / 33 50 12) where 24 people killed on the road in November 1992 were buried (Fig .9.14). The Anglican Church built the tomb and fence wall. Every year, there is a ceremony to honour the dead (Mr. Ernesto Mutemba, personal communication, August 9, 2021. The site is protected by Heritage Protection Law (Law nr. 10/88 of December 22).

9.5. Step 5: Mapping of Archaeological sites

Having mapped the existence of local heritage sites and related practices when it comes to biocultural heritage, we will now discuss the archaeological heritage as mapped through the surveys carried out during this project. Most of the archaeological sites are located on top of coastal dunes and in the valleys that separate the dunes (Fig 9.15). These archaeological sites are similar in character, with the same type of materials (mainly shells and ceramics scattered on the surface) exposed by wind and thus visible. In the areas with coastal shrubs/forests, ceramic sherds also occur but are not easy to see and identify owing to dense vegetation. Due to similarities in the character of the sites, the occurrence of the same materials and the same form of distribution, it is more appropriate to designate them as an archaeological site complex of Chongoene and Xai-Xai than to single out each site (Fig. 9.15, 9.16). Since the concentration size is limited, these were probably temporary sites in which local communities settled to process marine resources and now constitute open-air archaeological sites. The sites are close to each other, making it difficult to delimit the areas of the individual sites. However, our site delimitation or definition depended on the density of the material in each location. A site was defined based on the location of at least ten archaeological finds on the surface by evaluating their distribution concerning the peripheral zone and the centre. On the Xai-Xai district side, the landscape and archaeological contexts are partially altered owing to intense human activities, mainly more open agricultural fields in the dunes and many tourist establishments installed along the coastline, as in Ponta Mamoli described above in Chapter 8.1.1. On the Chongoene side, the archaeological sites still retain their original appearance, as there is a lower degree of infrastructure here.

Sacred and archaeological sites were mapped and assessed in the coastal areas of Chongoene and Xai-Xai. To better represent the geographical area where each cultural heritage belongs, they will be presented separately. The evaluation and assessment process are based on Ekblom *et al*. (2024a).

Table 9.4. Xai-Xai cultural and natural heritage assessment summary.

Heritage Type	Integrity	Anthropogenic and Natural Threat levels	Scientific potential	Local Heritage Value	Local Nature Value
Sacred sites					
Macamuine *régulo's* home -25 05 39.1; 33 43 25.6	High	No threats in the site	High	High	Not applicable (NP)
Macamuine ancient sacred site -25 06 26.2; 33 45 03.7	High	Agricultural fields around the site	High	Low (abandoned site)	NP
'*Xiduene* beach rock' -25 07 14.5, 33 43 40.1	High	No apparent threats on the site but currently the community no longer performs rituals on the site	High	High	NP
'*Beruti* beach rock' -25 07-00.7; 33 44 15.2	High	No apparent threats on the site but currently the community no longer performs rituals on the site	High	High	NP
'*Xavanine* beach rock' -25 06 42.7; 33 45 18.7	High	No apparent threats on the site but currently the community no longer performs rituals on the site	High	High	NP
Community Forest					
Macamuine Community Forest -25 05 46.3, 33 44 06.4	Low	Grazing animals, wildfires, agricultural activity, dry, lack of community monitoring	Low	Low	Low
Archaeological sites					
Point 113 (*Xinunguine* A) -25 07 11.4; 33 42 50.0	Moderate	Agricultural activity, wind and rain	High	Low	NP
Point 114 (*Xinunguine* B) -25 07 13.8; 33 42 50.6	Moderate	Agricultural activity, wind and rain	High	Low	NP
Point 115 (*Xinunguine* C) -25 07 10.0; 33 42 46.2	Moderate	Agricultural activity, wind and rain	High	Low	NP

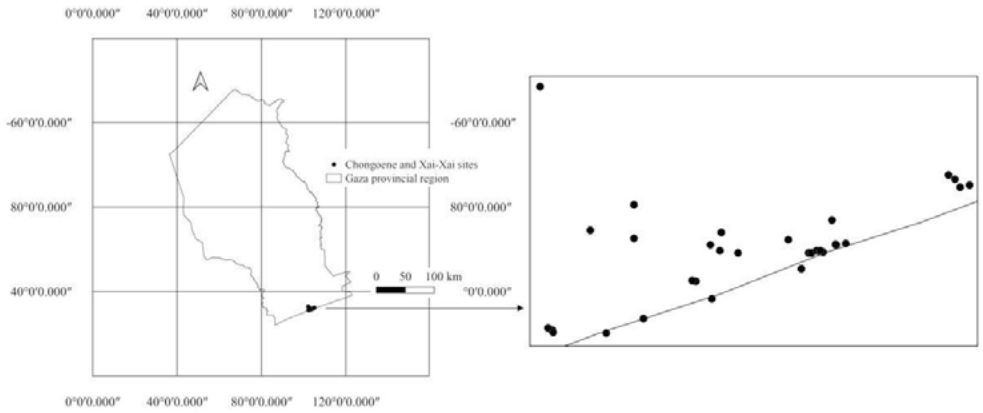

Figure 9.15. Distribution map of sites in the study area.

9.5.1. The Xai-Xai Coastal Area

The sacred sites were recorded in the Macamuine area. All sites are still well preserved and present high cultural integrity. They have high scientific and heritage values, as the local communities still respect such sites, despite the fact that cultural practices at the Macamuine ancient sacred site and marine sites are currently abandoned. Future studies in the field of cultural anthropology may provide more exhaustive explanations about their local heritage values. Although Macamuine Community Forest presents low levels of integrity, scientific potential, local heritage value and local nature value, its existence demonstrates a positive attitude taken by administrative authorities and the local community towards the management of natural landscapes, forestry and environmental protection.

Here, I recorded three archaeological sites, which now constitute the only sites formally registered in this area, and which is low compared to Chongoene, where more intense surveys have been carried out (table 9.4). These sites are composed of ceramics and shells, which occur in the *machambas*, where the artefacts are revealed by intense agricultural activities and because of the wind that erodes the open field in the dunes.

Figure 9.16. Students surveying and recording archaeological sites during fieldwork, August 03,2021.

9.5.2. Chongoene Coastal Area

As already discussed above, archaeological sites have been reported in Chongoene by several studies since the end of the first half of the 20th century (see discussion in Chapter 8.2). Still, knowledge about these sites within the community is weak. For instance, I was unable to visit the place where João Morais made archaeological excavations in the late 1980s, because the person who used to be a local guide and knew about the place, had died. There is a lack of efforts by responsible authorities to disseminate knowledge about the existence of the archaeological heritage in the local community. As a result, although such archaeological sites have a high scientific value, they have low local heritage value at the moment. Just like natural factors, human factors also contribute to the degradation of archaeological sites, reducing their integrity, as shown in the table below. The Chongoene archaeological and biocultural heritage park, which is under development, could solve this problem, disseminating the local archaeological heritage to the whole public.[149]

Table 9.5. The Chongoene archaeological sites assessment summary.

Archaeological sites					
Heritage Type	Integrity	Anthropogenic and Natural Threats levels	Scientific potential	Local Heritage Value	Local Nature Value
Point 80 (*Nhahulene* A) -25 05 59.5; 33 45 43.4	Moderate	Wind, rain, loc. in a parcelled area for tourist exploitation, *machamba*	High	Low	Not applicable (NP)
Point 81 (*Nhahulene* B) -25 06 00.1; 33 46 49.1	Moderate	Wind, rain	High	Low	NP
Point 82 (*Nhahulene* C) -25 06 00.0; 33 46'49.2	Moderate	Wind, rain	High	Low	NP
Point 83 (*Nhahulene* D) -25 05 59.9; 33 46 50.0	Moderate	Wind, rain, charcoal production, and firewood extraction	High	Low	NP
Point 84 (*Nhahulene* E) -25 05 59.5; 33 46 51.5	Moderate	Wind, rain, path on the site	High	Low	NP
Point 85 (*Nhahulene* F) -25 05 58; 33 46 56.4	Moderate	Growth of grass	High	Low	NP
Point 86 G (*Nhahulene* área) -25 05 58.4; 33 46 58.9	Moderate	Vegetation cover	High	Low	NP

[149] https://www.uem.mz/index.php/noticias-recentes/1455-uem-municipio-de-xai-xai-e-distrito-de-chongoene-assinam-acordo-para-criacao-do-parque-arqueologico.

Table 9.5. continued

Point 87 (*Nhahulene* H); -25 5 57.78; 33 46 59.98	Moderate	Wind, rain	High	Low	NP
Point 88 (*Nhahulene* I) -25 5 57.67; 33 45 26	Moderate	Wind, rain, grazing, uncontrolled fires, path on the site	High	Low	NP
Point 89 J (*Nhahulene* área) -25 5 57.7; 33 45 26.1	Moderate	Wind, rain, grazing	High	Low	NP
Point 90 (*Nhahulene* K) -25 03 25.1; 33 42 38.8	Moderate	Wind, rain, grazing, uncontrolled fires	High	Low	NP
Point 91 L (*Nhahulene*) -22 05 93; 033 43 19.2	Moderate	Gazing, uncontrolled fires	High	Low	NP
Point 92 (*Nhahulene* M) -25 05 40.8; 33 45 27.7	Moderate	Wind, rain	High	Low	NP
Ponto 93 (*Nhahulene* N) -25 05 51; 33 47 23.6	Moderate	Wind, rain, wildfire	High	Low	NP
Ponto 94 (*Nhahulene* O) -25 05 52.2; 33 45 17.6	Moderate	Wind, human circulation over the site	High	Low	NP
Point 95 (Nhahulene P) -25 05 52.1; 33 47 14.4	Moderate	Wind and rain	High	Low	NP
Point 97 (*Nhanfumuine bairro 4 B, Kalamuxane*) -25 04 47.4; 33 48 58.9	Moderate	Wind and rain	High	Low	NP
Point 103 (*Nanfumuine*) -25 04 51.6; 33 49 05.5	Moderate	Raine, roots, grazing	Moderate	Low	NP
Point 105 (*Xitimaine*) -25 04 56.7; 33 49 18.6	Moderate	Grazing animals, wildfire, wind and rain	High	Low	NP
Point 106 (*Nhahulene* Q) -25 05 29.5; 33 47 10.6	Moderate	Grazing	High	Low	NP
Point 111 (*Chicuanguene*) -25 04 58.5; 33 49 10.1	Moderate	Wind, rain, path through the site	High	Low	NP

9.5.3. Analyses of Archaeological Findings

During the surveys, shell middens with ceramic material, mussel shells (mainly *Perna Perna*), and hooded oyster shells (*Saccostrea cucullate*) were identified at several locations. Together with sea snails (sea Rapanas) shells in small quantities (similar as

reported in Robb *et al*. 2021). We encountered local communities (mostly women) collecting and processing black mussels (*Choromytilus meridionals*), and a few individuals were looking for oysters. The pottery analysed here results from surface collections in the following sites: 1. *Praia de Chongoene 2019* (a site located during the field school), 2. *Nhahulene* C *(Xitimanine*), 3. *Nhahulene* E, 4. *Nhahulene* M, 5. *Nhahulene* Q, 6. *Nhafumine bairro* 4 *(Kalamuxane)*, 7. *Xinunguine* A, 8. *Xinunguine* C, and 9. *Praia de Chongoene*.

For further laboratory analysis, 81 examples of ceramic fragments were collected, with a total mass of 4.2 kg. Body sherds which were undecorated, and undiagnostic body shapes were left *in situ*. The collection criteria were determined by the presence of decoration motifs, rim, good state of conservation (surfaces not eroded) and presenting a considerable size (not less than 2.5 cm) that allows their handling during the laboratory analysis. These ceramics materials were collected to obtain any possible information on the function and status of the above archaeological sites (the habits and ways of life of the populations, socio-economic status of their producers or local communities), to assess contacts between local or regional communities and chronologies of this region (cf. Orton, Tyers and Vince 1997:24–36, Huffman 2007, Pikirayi 2007, Pikirayi and Lindahl 2013). In addition to ceramics and shells, other material was identified, such as pieces of blue and white glass (probably contemporary), a piece of metallic material in an advanced state of degradation. Diagnostic pieces were also collected here.

The ceramics were in a high state of fragmentation and could rarely be reconstructed to their original forms. The analyses here are based on the presence of a few essential fragments that were intact enough to allow for the reconstruction of the original shapes (shoulder, neck and rim), profile and decoration. The macroscopic ceramic descriptions were made consulting the works of Sinclair (1986), Morais (1988), Pikirayi (1993:120-143), Ekblom (2004), Macamo (2006), Huffman (2007), Fleisher and Wynne-Jones (2011), Pawlowicz (2013) and Madiquida (2015). As these works are slightly different in their use of terminology, I decided to follow a combination of the terminology of Pikirayi (1993:120-143), Huffman (2007) and Sinclair (1986). For the description of colouring and technique, I used Shepard (1985). These works helped to identify, characterise, name and compare the essential ceramic attributes, e.g., decorative motifs, original forms, the part of the object where the decorative motifs often occur, production characteristics, clays, colour, pastes, rim type, surface treatments and hardness. The analyses also helped to correlate or establish cultural parallels between the Chongoene and Xai-Xai ceramic with other ceramic traditions previously known in the country, in southern and eastern Africa. Ceramics are presented here based on shape and decoration type (see Appendix 3).

Description

Clay colour of pastes and surfaces

There is no simple relation between the colours of unburnt and fired clay. Thus, it is impossible to make definite assessments from potsherds available to recognise the original clay colour employed in the ceramic products. To deduce the clays and paste colours of the Chongoene and Xai-Xai collection, I have used the Munsell Soil Color Chart and made some generalisations between natural clay colour and paste colours as defined in Shepard (1985:16-17; 107).

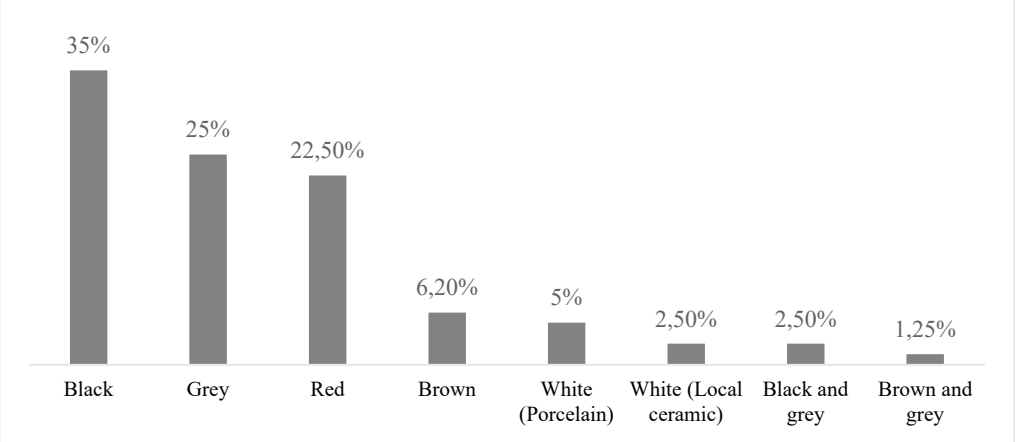

Figure 9.17. Paste colours.

Potsherds with black paste may result from all clay colours, and grey pastes may result from all clay colours. Brown-paste potsherds may result from yellow, red, brown, grey, and black clays. Potsherds with red colour may result from yellow, red, brown, grey, and black clays. Potsherds with white paste may result from white clays that are naturally free from iron oxide, neutral grey and black clays, or residual clay.

The colour of unburnt clay primarily depends on two classes of impurities: organic matter and iron compounds. Clays that are relatively free from impurities are white. Organic matter that settles in lakes, swamps and estuaries makes a clay grey turn blackish, depending on its amount and conditions. This class of clay is common in surface clays of recent origin. Hematite and the hydrated forms of ferric oxide, goethite and limonite produce red, browns and yellows (Shepard 1985:16-19). Geographically, flood plains separate the coastal dunes of Chongoene and Xai-Xai from the agricultural fields and residential areas towards the interior. This narrow coastal strip occupies almost the entire southern area (Sheldon and Penvenne 2020, Muchangos 1999:18-28) and is the area of many lagoons and swamps. Possibly, the clays were extracted in these places by potters. Detailed geomorphology and ethnographic studies in the region can help to identify the exact area of clay exploration and manufacture of these ceramics.

Inclusions

Nonplastic elements or temper are commonly added intentionally to clays to increase paste consistency, and to facilitate uniform drying. Tempering also reduces the fragility of the ware, preventing deformation or cracking while drying and in use. Nonplastic material counteracts excessive shrinks of ceramic bodies in drying and firing (Shepard 1985:14-15, 24-31, Balme and Paterson 2006:239). The inclusions can be macroscopically identified in case of inorganic materials (e.g., sand, mica and crushed ceramics) and organic material (crushed shells, small wood shavings, charcoal). However, clays may also be naturally tempered, and some clays already contain silt or sand grains as a natural temper. In addition, owing to their smaller size and their rarity in potsherd paste, small wood shavings and pieces of charcoal can have been mixed into the clay accidentally. Shells could have been collected locally in shell middens and processed by the potter. The use of shells to temper clays might be one of the reasons for shell midden disturbance. Sand might be added to the clay intentionally or result from clays deposited by streams on flood plains, which are often sandy or interbedded with sand and silt (cf. Shepard 1985:11, Lindahl and Pikirayi 2010).

The description of texture carried out here is based on the grade scale for sediments (Wentworth's size classification) (Munsell 1994 and Shepard 1985:118).

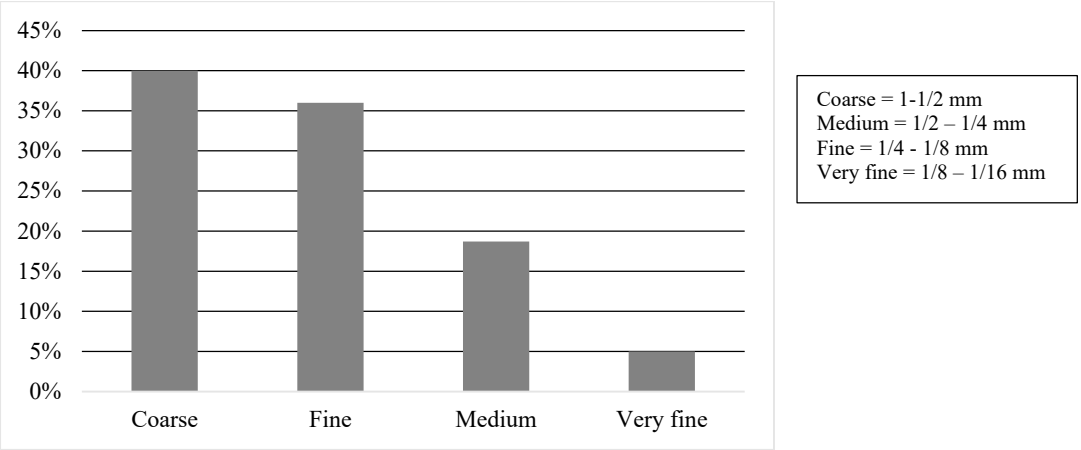

Figure 9.18. Assemblage texture.

Forms, paste texture, surface colour and firing method

Hands, feet and manual instruments were the techniques used to knead the clays. Paste potsherds with different thicknesses (which on average measure 9.3 mm), semi-wavy external surfaces and irregular ring-opening diameters denote that a coiling method was employed for the construction of the shapes of the forms (Shepard 1985:56–59, Balme and Paterson 2006:239, Rodrigues 2006).

The differentiation of texture paste may indicate that these pottery sherds were made in different areas and by potters with different skills. The presence of pottery sherds with deformed walls, some parts of the same sherd overheated, or external and internal surfaces with different colours denotes that this collection was cooked in open fires. The following table summarises the surface colours identified in all sherds.

Table 9.6. Colour frequency on potsherd surfaces.

	Surfaces		**Total**	
	External	**Internal**		
Color type	Grey, light grey, red	White, grey, brown, black	17	21.2%
	White	Grey and white	9	11.3%
	Brown, duck brown	Red, brown, grey, black	31	38.8%
	Red, brown, grey	Red, grey, brown, white, black	18	22.5%
	Black, brown	Red, brown, black	5	6.2%

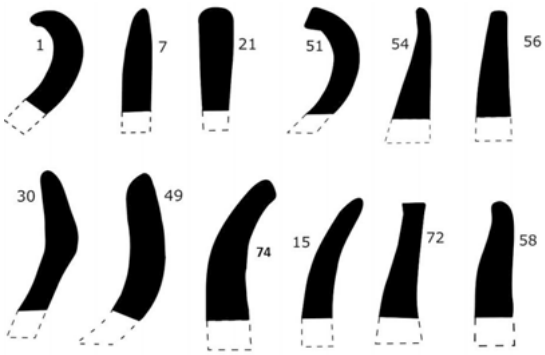

Figure.9.19. Rim types found in the assemblage: Fnr. 1. Bevelled rim; Fnr. 7. Straight pointed rim; Fnr. 15. Reentrant pointed rim; Fnr. 21. Straight rounded/concave rim; Fnr. 30. Semi-bevelled and pointed rim; Fnr. 49. 'S' type rim; Fnr. 51. Inverted fluted rim; Fnr. 54. A variant of semi-bevelled and pointed rim; Fnr. 56. Semi-reentrant flated rim; Fnr. 58. A variant of semi-reentrant and concave rim; Fnr. 72. Semi-reentrant, fluted and bisseled rim; Fnr. 74. Reentrant and fluted rim.

The variety of colours on both surfaces described in the table above is a reflection of many factors. The firing process causes a change in the colour of fired objects. Carbonaceous clay that is not fully oxidised will be grey or a greyish tone of brown or a yellowish colour. Colours become darker and less pure as the iron oxide is added to the solution in the glass formed in the body. The iron oxide may also react with other parts of the body during the firing stage or may be reduced to the ferrous state in which it is an active flux. As a result of these reactions, the light yellow and reds change to yellow, brown, dark red or brown, chocolate brown and even black. The particular colour depends on the form and amount of the iron oxide, the composition of the body and the firing atmosphere (cf. Shepard 1985:23-24, Balme and Paterson 2006:240).

All ceramics were fired in open fires or in a reduced firing atmosphere with an excess of carbon monoxide (CO), ammonium (NH3) and methane (CH4), which prevented full oxidation. As a result, the ceramic forms have mainly black or grey colours on both surfaces, e.g., on sherds find number (Fnr.) 21, 24, 25, 34, 48, 53, 59, 60, 61, 62. The open-fire method surrounds the pottery with fuel above ground, and the vessel is placed upside down in the earth. Therefore, it becomes difficult to retain the heat to benefit the pottery and oxidize the internal surface. Further, this firing method can create discolouration by deposition of soot or local reduction, or they can be defects from fire-clouding (Shepard 1985:75-77, Maritan *et al.* 2006, Balme and Paterson 2006:240). Since the fuel is in direct contact with the pottery, it can cause overheating, resulting in a dark brown core, such as for sherds Fnr. 17, 18. Sherds Fnr. 5, 6, 11, 28, 30, 32, 61 and 77 have some black parts and are examples of low-fired pottery caused by carbonaceous matter as a signal of incomplete oxidation resulting from short firing, low temperature, or insufficient oxygen in the firing atmosphere (Shepard 1985:21).

Pottery hardness depends on clay compositions, pot size, non-plastic material, texture, firing conditions etc., (cf. Shepard 1985:113-117). There is no surface treatment after drying and firing the form. 72.5% of potsherds present good hardness, while 27.5% have low hardness and are pervious, e. g., sherds Fnr. 11, 69, 71, 73, 75 76, 77. This low hardness may result from short-time firing, deformed walls, and thin parts with coarse texture. In addition, since these sherds have been exposed to atmospheric agents, such as humidity, heat and wind, their hardness has decreased.

Discussion

Each potsherd has one or two decorative motifs, which often occur on the rim, neck and shoulder and they were made before firing the object. Based on the description and characterisation of types and motif decorations from the ceramic typologies of Chongoene and Xai-Xai, a cultural parallelism can be established with the major pottery traditions known in southern Africa (cf. Cruz e Silva 1977, Morais 1988, Sinclair 1987, Huffman 2007, Pikirayi 2007, Pikirayi and Lindahl 2013). However, it is not possible to establish strong correlations between local and regional typologies types (cf. Kohtamäki 2014:98, Costa 2007:129).

Ceramics with an S-shaped profile, and a band of comb impressions in neck-rim and horizontal line impressions in the shoulder, e.g., sherds Fnr. 1, 4, 5 and 6, constitute examples of Ziwa pottery, belonging to the Nkope branch of Urewe tradition, reported in Zimbabwe and dated to AD 300–500 (Huffman 2007:135-137), including other areas of Central Africa (Lake Victoria), Swaziland, adjacent coastal regions of South Africa, and much of the interior highlands (Pikirayi 2007). Gokomere-Ziwa types also have been reported here in Chongoene, Xai-Xai and Chizavane (Robb *et al.* 2021). Shell impressions (either vertical, oblique, horizontal or zigzag patterns, often performed on the rim and shoulder), incised lines (oblique and horizontal, often placed on the neck and shoulder) and finger impressions identified in Chongoene are typologies of Silver Leaves facies, Kwale branch of Urewe Tradition. In Mozambique, these decorative types are similar to the Matola Tradition, dated to AD 110–240, in terms of human development this period is associated with Early Farming Community (EFC) occupation in southern Mozambique and which is synonymous with Early Iron Age (Sinclair 1987:67-73, Sinclair 1991, Horwit *et al.* 1991, Ekblom 2004:77, Macamo 2006:60, cf. (Sadr and Sampson 2006, Kohtamäki 2014:29, Madiquida 2015:23).

In the southern Africa region, the Matola tradition is related to many ceramic facies, e.g., Silver Leaves in South Africa, dated to AD 250-395, Kwale tradition in Kenya dating back to AD 270 ± 110, AD 260 ± 110, and the Nkope tradition in southern Lake Niassa in Malawi dated to AD 360 ± 120, 775 ± 100 (Sinclair 1986, Huffman 2007:123, Kohtamäki 2014:29, Pawlowicz 2013, Mathoho 2020:56–58) and Manda ceramics dated approximately to AD 7th century (Fleisher and Wynne-Jones 2011). Typologies of the Matola tradition, although occurring frequently throughout the coastal zone, also cover the interior areas of Mozambique. More archaeological research on the EFC occupation is needed to explore the Matola pottery context to allow a better understanding of their dispersion. This should include a reassessment of similarities and prevalence of decorative motifs, fabric etc., to explore complex relationships and interactions between coastal and inland communities, enabling a continued debate on this topic.

For now, only some broad comparisons can be made. A horizontal line of shell impressions in the shoulder of potsherd Fnr. 4, which creates raw triangular punctates was reported on the Swahili coast sites of Manda (cf. Fleisher and Wynne-Jones 2011) and Mikindani, dated to the second millennium (Pawlowicz 2013). Line impressions described in Matola pottery also are part of Ziwa facies typologies, mostly dated to AD 300–550 (Huffman 2007:135–140). Another notable decorative type present in Chongoene and Xai-Xai is cross-hatching, e.g., sherds Fnr. 19, 49, 54, 58 and 70. This type of geometric motif was made inside triangular figures, e.g., sherd Fnr. 56, over herringbone decorations, e. g., sherd Fnr. 70 or appear executed individually e.g., sherds Fnr. 19, 49, 54, 58, 70 and 74. The herringbone-decoration type was reported

on stonewalled buildings to symbolise residences of chiefs and kings, e.g., at Great Zimbabwe (Pikirayi 2007). Cross-hatching motifs have been reported as Kgopolwe facies (AD 130–1350) and Ndondondwane facies (AD 750–950) both of the Kalundu tradition (Huffman 2007:249, 311).

Typologies of triangle motifs have been reported in many sites along the eastern African coast and their hinterland areas, from Somalia to Mozambique. This typology is technically known as Triangular-Incised Ware (TIW) or Tana tradition, referring to the local pottery of early settlements and the emergence of Swahili farming communities, developed from the Kwale tradition and range mostly between AD 6th–9th centuries (Breen and Lane 2003, Fleisher and Wynne-Jones 2011, Helm *et al*. 2012, Pawlowicz 2013), which also has morphological technical typologies parallels with the Matola tradition. The TIW, in its early phase, shares extensive borrowings from the Chushitics motif decoration and coiled rims (Shipton 2013, Shipton *et al.* 2016).

Double lines of zigzag shell-impressions motifs on the shoulder of the objects, e. g., potsherds Fnr. 69 and 77, are yet another decorative motif that occurs in Chongoene. Despite this particularity, zigzag-incision decorations associated with other motifs were often reported in many sites of inland areas, e.g., the early sequence of Olifantspoort and Madikwe facies (AD 1300–1500), Thaberg facies (AD 1700-1840) of Urewe tradition, including Happy Rest facies (AD 500–750) of the Kalundu tradition (Huffman 2007:190, 196, 198, 234), and on the eastern African coast (Fleisher and Wynne-Jones 2011). Punctates, comb impressions, cross-hatching and incised line motifs have also been reported in the Chicumbane archaeological site in Limpopo National Park (Ekblom *et al.* 2024b).

Similarities of Matola pottery was reported in northern Mozambique. Decorative motifs such as comb impressions are part of the Nampula ʻC' traditions, dated to AD 900-1100. Shell impression in rim is characteristic of the lower Monapo tradition c. 200-500/700 AD, the upper Monapo tradition c. 700–100 AD, the Nampula ʻB' tradition c. 450/550–800 AD and the Nampula ʻC' Tradition c. 800–1100 AD. Incised lines were identified in as part of the Nampula ʻA' tradition c. 100–450 AD and the late Nampula 'A' tradition c. 450–550 AD. Punctates were identified on the Xakota archaeological site, dated to 4 BC–100AD and also occur in the late Nampula tradition c. 800. Herringbone motifs were grouped in the Lumbo tradition c. 1500–1700 AD (Adamowicz 1990).

13 potsherds are undecorated. Potsherd Fnr. 7 is perforated in the neck. Ceramic perforation as a decoration technique was reported in the Mut 2 archaeological site (Mathoho 2020:124–125) and ceramics perforated on the neck with usage marks were classified as part of K2 pottery facies of Kalundu Tradition (AD 1000–1200) (Huffman 2007:281). The hole in sherd Fnr. 7 shows no traces of use. It does not appear to be strong enough as an element with which to hang the object to facilitate its transport. If not simply a decorative element, it could have served to limit the highest level of the liquid contained so that it would not overflow, possibly used to conserve liquids. The jars, hemispheric and ovoid vessels from Chongoene and Xai-Xai were used for common domestic purposes. The most likely function would have been mussel processing and food and liquid storing. Local communities used pots to boil seawater to obtain salt (Sinclair 1987:77-78). In general, the extraction of sea salt appears to begin with the EFC (Been and Lane 2003). Additional trace analysis may confirm these assumptions and certify the true use of ceramics. Currently, the communities of Xai-Xai and Chongoene use metal pots to boil the mussels. Some prefer to boil the mussels

right after extracting them from the rocks, while others (those who live near the sea) select mussels from the harvest and boil them at home. Many shell middens can be found around their residences (see figures 9.8 and 9.10 above). Porcelain potsherds (Fnr. 78, 79, 80 and 81) have a thick line painted in blue on the inner rim of the plate and appear to be recent fragments left by cattle herders.

9.6. Discussion

In this chapter, I have presented and tested the four-step process of heritage and archaeological assessment based on the methodology outlined in Chapter 1. The four steps included community engagement, documenting any existing damages from construction, documenting living cultural heritage, mapping archaeological sites, and recording and classifying.

Community engagement in Mozambique should be the starting point for the success of all types of archaeological research in the field, including all cultural heritage management activities, such as archaeological impact assessments. It is through community engagement that archaeologists and the local community establish a relationship of trust, mutual help and a combination of local and scientific knowledge on cultural heritage management. This strategy relates directly to the CARE principles discussed above and in detail in Chapter 7.3.2. By sharing the research objectives with the local community, the local community members were able to participate directly in research, help in the identification of cultural heritage elements and share their meaning and values with our team. The community engagement work and collaboration resulted in the documentation of local heritage sites and ecological knowledge and practices linked to these, which would have been missed in a more conventional assessment survey focusing solely on archaeology.

With community engagement, local authorities and local members are involved in archaeological research to ensure their rights to local heritage stewardship. This inclusion during the research process will make it possible to achieve long-term and sustainable research outcomes. The methodology is essential in our context, where most elements and resources of the cultural and natural heritage are found in rural areas, managed by local knowledge through traditional practices, and passed from one generation to another, embodying living and biocultural heritage knowledge. Urban development and the high population occupancy rate in the coastal areas of Chongoene and Xai-Xai put pressure on the existing natural resources. For example, farming activities and cattle grazing, intensive exploitation of marine resources, exploitation of firewood, and extraction of medicinal plants are being practised by local communities for subsistence resources, in a context of high unemployment in the country, as explained in Chapter 2.

On documenting any existing damages from construction, the local administrative authorities have to ensure that development projects implemented in the province and district area carry out pre-archaeological impact studies, not only for the management of the cultural heritage existing there but also for local heritage sites and any linked practices. This will contribute to minimising social and cultural conflicts, enable a sustainable management of cultural and natural heritage, and guarantee employment opportunities for cultural heritage managers and the local community as a condition for sustainable economic development. Measures for the sustainable exploitation of natural resources that still exist are needed, as well, and monitoring human activities

is required to minimise their impact, e.g., the agricultural activities at the top of coastal dunes. Environmental managers could better suggest how to ensure the ecological conservation of this area and economic development planning must include the planning of cultural heritage management activities. Since the Iron Age, the Chongoene and Xai-Xai coastal areas are favourable for human settlements owing to good ecological conditions and have several resources that attract populations. This is witnessed by the presence of many archaeological and cultural sites. All this heritage is at risk of disappearing if sustainable management measures are not taken, in the short and medium term. Therefore, continuous archaeological impact studies are needed to protect the existing cultural heritage.

Archaeological sites, sacred sites, and living cultural heritage were recorded during the fieldwork. All this heritage was mapped and classified using the three-tier classification system method described in Chapter 7.2.3. The use of this method was practical and flexible; practical because it is simple to use in the field and to communicate their results, and flexible because it works for both archaeological impact assessments and general archaeological research, while also including local heritage and biocultural heritage. The form used to register archaeological, cultural and historical sites proved to be relevant because it is simple and allows for a collection of all useful information about these components directly in the field. This information is later used in the analysis and interpretation of the results. Both the three-tier classification system method and the registration form used here work for general archaeological research and archaeological impact assessments. Therefore, these two research tools are suggested to be used in archaeological research in any part of the country.

The results of the disturbance assessment surveys reveal that human factors, even those of long-term low intensity, combined with natural factors contribute to the definitive degradation of archaeological sites and natural landscapes. Archaeological sites located near urban areas are likely to suffer much more from human impact. The implementation of development projects and the tourist industry in ecologically sensitive areas, such as the coastal dunes of Chongoene, without first making a pre-archaeological impact assessment, contribute to the degradation of the archaeological and natural heritage, creating conditions for the imbalance of ecosystems. In the following chapter I will first summarise the main points brought forward in this thesis and then recommend clearer steps to be taken to ensure effective cultural heritage management and rescue archaeology operations. Here I will also explain more at length how and why such steps are beneficial to Mozambique.

10. Conclusion and a Way Forward

This work analyses rescue archaeology activities in Mozambique from the colonial period to the present to find new means of integrating rescue archaeology operations in management of cultural heritage and archaeological impact assessments. Cultural heritage is a western term which initially meant physical objects or places. Later, the understanding of cultural heritage developed to incorporate various practices, tangible and intangible elements, and ways of interpreting, valuing and managing things in contemporary society and our everyday lives. Heritage is the multiple processes of meaning-making that occur as material heritage or intangible heritage events that are performed, identified, defined, managed, exhibited and visited. Heritage in this sense is a subjective political negotiation of identity, place and memory, a 'moment' or a process of reconstructing and negotiating cultural and social values and meanings (Holtorf 2011, Tengberg *et al.* 2012, Smith 2012, Petursdottir 2012).

In the first part of this concluding chapter, I will first summarise the discussion in the proceeding chapters. In the second part of this chapter, I will discuss in much more detail the possible paths Mozambique can take to build the system of cultural heritage management in relation to AIA procedures and rescue archaeology and how to integrate this better with landscape planning. Furthermore, I will present some recommendations that, in addition to being a form of conclusion of this work, also serve to advance the discussion on the future of rescue archaeology and cultural heritage management in Mozambique.

10.1. Summarising the Thesis

The concept of cultural heritage management was developed in archaeology as a western approach around the 1970s, concerned with the management of cultural heritage elements (McManamon and Hatton 1999:114, Fowler 1982, Praetzellis 2012:320–321, Little 2012:397). The concept has since been broadened significantly since.

This research integrates rescue archaeology activities in Mozambique within sustainable management of cultural heritage. The results of this research were planned and carried out following the purposes, aims and methodology presented in Chapter 1. Furthermore, the first part of the work provides a framework for the main concepts and terms used, and I discuss the overview and the different limitations and applications of these concepts which have been used throughout the thesis. Mozambique's geographic background was presented in Chapter 2, which provides a crucial background understanding of the current state of rescue archaeology and its challenges and possibilities in the sense of how heritage can be better incorporated into development projects and how rescue archaeology can positively impact these aspects.

Chapter 3 offered an overview of the emergence of cultural heritage protection globally, international agreements for cultural heritage protection and the formation of rescue archaeology. This information is the basis of understanding the origin and

development of different forms of protection and management of cultural heritage and how they were adopted in various parts of the world. This part also includes content on the involvement of local communities and the public in archaeological research and cultural heritage management activities.

A comparative analysis of cultural legislation in southern Africa and the management of rescue archaeology activities was presented in Chapter 4. Analyses of formal documents and research papers were combined with interviews with nine practitioners working in South Africa and Zimbabwe. Here, more focus was given to the main actors, institutions' management systems, 'good' practices and some challenges in each country, which are important learning lessons for Mozambique. I stress here that the organisation of the sector market or state is of less relevance than how actors are organised and stress the importance of transparency between actors for professionalisation among archaeologists, which makes the sector stronger.

The legislation of archaeological research in Mozambique was discussed in Chapter 5, which presented the main weaknesses of the administrative structure and the policy of cultural heritage management and rescue archaeology. The interviews presented in this chapter allow understanding of the imbalance between policy as prescribed through the law and the actual everyday practices and negotiations – as shown here, the lack of procedures and guidelines results in the confusion of roles and responsibilities, which not only results in low compliance in the law but also makes it very difficult to comply to the law. It is argued that this is an underused opportunity for sectorial development and archaeological professionalisation, leading also to fewer employment opportunities locally.

Chapter 6 analysed rescue archaeology activities in Mozambique from the colonial periods to the present and, based on the overview, describes the sensitive and critical social and political elements that affect this activity. The increase in rescue archaeological activities from the 1990s was described and discussed. The available archaeological reports from the rescue archaeological activities were grouped by sector to understand potential differences in compliance. Available Environmental Impact Assessment (EIA) reports were analysed in terms of content. Also, this chapter contains interviews, and the combination of analyses of reports and interviews confirms that there is very low compliance with the law. Workshops were organised to discuss the procedure of rescue archaeology and showed similar results. The discussion in the chapter makes clear that the current system must be complimented with procedures and guidelines.

The importance of archaeological data management was stressed in Chapter 7. The chapter presented basic standards for archaeological, historical and sacred site registration and assessment classification criteria. In addition, I also discussed how local community data governance can be empowered, including the authority to control local data, researchers' responsibility in local communities and the respect for the rights of local communities. After presenting the available National Archaeological database with modifications and additions, I discussed possible solutions for archaeological data, along with some benefits and imminent challenges for opening archaeological data in Mozambique to the general public.

The site form registration and assessment classification criteria were tested out in selected case-study areas presented in Chapter 8. During the fieldwork, the archaeological and cultural potential for the sites was identified, mapped, and assessed, as well as the critical elements that endanger these sites. Chapter 7 discussed and assessed the

status of previously known and important archaeological sites in the southernmost part of Mozambique. The first case-study on disturbance assessment surveys revealed that archaeological sites in urban and peri-urban areas are impacted by human and natural factors. Population growth, urban expansion and tourist activities practised in areas with archaeological sites but without providing measures to protect these sites destroy cultural heritage. As shown, several sites have already been encroached upon. In case-study 2, focusing on Xai-Xai and Chongoene, the degree of disturbance from development constructions without Archaeological Impact Assessments is evaluated.

Continuous rescue archaeology research can minimize adverse effects of natural and human factors on cultural heritage that is in danger, as exemplified in Chapter 9. The chapter outlines the basic elements for the engagement of local communities during the archaeological fieldwork and cultural impact assessment. Development projects in Chongoene continue to be implemented without monitoring by a cultural impact assessment. The chapter maps and assesses the result of the second case-study fieldwork and presents the impact of the development project in the Chongoene coastal zone. Analyses of ceramics from Chongoene and Xai-Xai reveal that this area has been occupied by farming communities since the first millennium AD. Further, it describes mussel exploitation practices on the beaches of Chongoene and Xai-Xai and presents the sensitive aspects of this practice. As shown, cultural and traditional practices regulating mussel exploitation in the coastal zone have been abandoned.

10.2. The Status of Heritage Management

Good management of cultural heritage not only allows the use of heritage by our present generations but also enables future generations to enjoy the heritage (UN 1987:50-51, Lowenthal 2005, Pace 2012:275, Keitumetse 2016:9, Holtorf and Bolin 2024). Sustainable cultural heritage management is essential to achieve sustainable development (Labadi, Giliberto, Rosetti and Yildirim 2021, Cross and Giblin 2022, Katapidi and Robinson 2022). Many countries are motivated to adopt ‘culture-engaged actions’ through a biocultural heritage approach to explore the diversity of local knowledge to manage natural and cultural heritage, integrating national, regional and international management practices. This should prioritise participatory processes and enable local community ownership to contribute indirectly to broader aspirations for peace, social inclusion, freedoms and cultural diversity (UNCED 1992, UN 2012:10, Keitumetse 2016:10, UNESCO 2018, Poole 2018).

Rescue archaeology activities have different names in different parts of the world (Alexander 2011, Silberman 2012, Demoule 2012, 2016, Ndlovu 2014, cf. Zorzin 2015), though here I have consistently used rescue archaeology as it is the term used in Mozambique. In the colonial periods, many development projects did not implement rescue archaeology activities. After national independence and with the adoption of a neoliberal policy, coal extraction, hydrocarbon and dam-construction projects started to conduct cultural impact assessments and led the rescue archaeology industry. However, the same doesn’t happen for state organised road and bridge construction projects, urban expansions, installations of power lines, etc. As I hope to have shown in this thesis, any law or policy (including its deficits) must be understood in its historical context. To remind the reader of this, a clear example is in the previously mentioned interviewees commenting on the main archaeological regulation (Decree nr. 27/94 of July 20):

> Interviewee 8: [...] the law has the prerogative to give the general lines of the process, but due to the context in which the law was written, two years after the civil war, then this same law needs to be very clear and detailed about rescue archaeology. Aspects such as qualification of the people, reports, technical elements of the research, fieldwork, management plans, community interaction, dissemination plans, and monitoring plans during project development. So, the law has many gaps in those aspects that I just mentioned. Many elements are needed to be considered in rescue archaeology.

From the 1990s, cultural heritage management activities began to be integrated into environmental impact assessments and regulated by state and international laws. Here, the cultural heritage management activities are the logical consequences of rescue archaeology activities. This means that archaeologists and cultural heritage managers are contracted to support project developments within the management of existing cultural resources in the area covered by the project (Fowler 1982, McManamon and Hatton 1999:120, Praetzellis 2012:20). I have argued consistently through this work that good practice in rescue operations requires clear policies and procedures to ensure ethical practices. In my previous chapter, I hope to have shown how more inclusive approaches can open many types of knowledge to be documented and also shared, which may provide inspiration for how to strengthen local livelihood and self-determination.

Mozambique is rich in natural resources, and these conditions attract foreign capital investment. Development projects and extraction of natural resources with an impact on the environment must be preceded by rescue archaeology for the sustainable management of cultural heritage. By doing so, the country's economic policies will promote the development of cultural industries and create more jobs in response to population growth and scarce job opportunities. The cultural heritage management institutions should allocate rescue archaeology management services to the local state bodies. This will disperse the now concentrated responsibility to the central body DNPC and allow the monitoring of development projects at the provincial or district level (or potentially municipal authorities in the large cities). Although much effort has been made in the country to develop archaeological research and cultural heritage management actions, there is still a gap in cultural impact assessment, as shown here. The lack of funds and institutional capacity building remain major challenges for the culture sector. However, as discussed here, there are openings for the sector to fund itself through revenues incurred simply by following the law. The 0.5% of the total cost of the project, as regulated through Decree nr. 27/94, article 12, could potentially fund the development of an infrastructure for monitoring on national, district and provincial levels.

Many international countries, commonly funded by the World Bank, have been strong investors in infrastructure. The degree to which these investing countries or organisations currently follow AIA (or, more broadly, environmental impact assessments) and the subsequent procedures depend on the country and the organisation. It may appear as if China, in terms of being a major investor in sub-Saharan Africa with their 'Belt and Road' initiative (McBride, Berman and Chatzky 2023), are particularly bad at following regulations (cf. Lane *et al.* 2017). However, as shown here, there is no international contractor or investor which can be finger-pointed as particularly lacking in compliance, as generally, AIAs are still more of an exception than a rule.

In practice, though, whether or not the legislation is followed comes down to the policy of the subcontracted construction company or management organisations. It can also be guided by the subcontracted EIA company, which should guide the whole process

of all aspects of an EIA process, including archaeological and social impact assessments. Nevertheless, even for a company who have strong ambitions to follow the law and regulations, it is challenging in the current organisation of the heritage management system. Though employed at UEM and with proper insight into responsible authorities, I struggled to find and contact responsible officials, and they themselves were unable to inform me of the proper procedure or simply shifted the responsibility to another authority. The lack of guidelines and procedures, weak law enforcement and a fragile organisation of rescue archaeology activities are probably some of the contributing reasons why many development projects do not perform AIA studies in Mozambique (see more discussion in Chapters 8 and 9).

Despite these challenges, some projects do comply with the archaeological regulation and do pre-development AIA, as discussed in Chapter 6, both to document heritage and also to take measures against the destruction of selected heritage. These companies are also bound by ethical and operational producers from funders (see, for instance, King *et al*. 2014) or from operating in an international market with internal rules of Corporate Responsibility, such as the World Bank and the European Union. Thus, since in the region, a pre-development archaeological impact assessment normally takes place within the environmental impact assessment, in Mozambique, cultural heritage management authorities are challenged to align cultural impact assessment with environmental impact assessment legislation (Decree nr. 54/2015). Updating cultural legislation and promoting coordination of ministries are goals that should be added to guidelines creation.

In summary, the current policy of cultural heritage management in Mozambique is not effective and lacks clear procedures to manage rescue archaeology activities. Within the administrative structure of cultural heritage management, the roles of various actors involved in rescue archaeology operations are not specified and still need to be delimited. By following the structure or hierarchy of local state bodies, it is possible to build a solid management structure for rescue archaeology activities from the central body to the base. A weak organisation of cultural heritage management institutions and a lack of procedures for rescue archaeology operations result in many development projects not complying with the law.

Similarly, Mozambique still does not have a clear archaeological data-management policy, even though expanding archaeological research in in the country will depend on effective and secure data management. I have argued here that cultural heritage legislation and guidelines should specify how archaeological data should be managed and how knowledge should be available and disseminated to the general public to attend to various interests, such as for education, research and country planning. Archaeological data should be available online, adhering to the FAIR principles. Institutional capacity building is needed to enhance data openness. The DAA/UEM offer good conditions to implement the FAIR principles. However, an independent institution should be created to manage archaeological data and to avoid conflicts of interest between different research departments (who also carry out contracts) and cultural heritage management institutions (who monitor, and quality assures archaeology). Cultural heritage management institutions should implement standardised criteria for site assessments and registration during archaeological fieldwork.

In addition, community archaeology and attention to local heritage places need to be formalised as part of the commitment to preserve intangible heritage. Community archaeology, as discussed in Chapter 3.3, developed in the 1950s when archaeologists

were called to collaborate with local communities (Fagan 2004). In the 1970s, archaeologists were demanded to make their research relevant to the public, promoting cultural heritage management activities and disseminating their findings to the public (Oldham 2017). Community and public-based archaeology are common practice in Africa and in Mozambique (Macamo and Ekblom 2005, Chirikure and Pwiti 2008, Macamo and Ekblom 2018). In Mozambique, community and public-based archaeology are embedded in the archaeological practice and have been used recurrently with the involvement of communities and the general public. Still, this practice has been largely at the direction of individual researchers and is not specified in policy or procedures. Thus, there is still a need for directives and methodological and policy guidance, and this can be improved by applying the biocultural heritage approach and the CARE principles.

10.3. Recommendations

Considering the problems mentioned in the previous chapters, as a conclusion of this thesis I present possible recommendations to improve archaeological research and cultural heritage activities in Mozambique that can be taken or implemented in archaeological research and by cultural heritage management services. The recommendations developed focus on the following areas:

- Improvement of administrative structure and cultural heritage legislation.
- Increase the involvement of provincial, district and local authorities in cultural heritage services.
- Create rescue archaeology impact assessment guidelines.
- Improve the archaeological database and use of GIS tools.
- Improve the information management system and local community engagement.

10.3.1. Administrative Structure and Cultural Heritage Legislation

The DNPC should restructure the cultural heritage management system, in particular regarding rescue archaeology activities. Cultural heritage legislation needs to be revised, updated or amended, to adapt to the needs of the current debate on cultural heritage management to make explicit the decision-making process. Legislation should present requirements and procedures for the involvement of local communities and local authorities in the management system to ensure inclusiveness, transparency and sustainability of cultural heritage management in general and following the CARE principles.

The provisions for rescue archaeology activities in Mozambique are less defined and regulated compared to other countries in the region, such as Botswana, Namibia and South Africa, but on the other hand, more specified than yet other countries, such as Zimbabwe (see Chapter 4). These conditions offer few possibilities to improve the rescue archaeology industry, and the transformation of the sector in the country. The archaeological regulations must identify the institutions and roles of the actors involved in the management of rescue archaeology and cultural heritage management in general. Provisions for protecting cultural heritage are provided by EIA legislation, including legislation for the exploitation of natural resources and for the construction of infrastructure such as roads and dams. Currently, there is a lack of coordination and cooperation between different state sectors in the implementation of cultural heritage

legislation. The law specifies that the state should ensure compliance with the cultural legislation and policies; however, since there are no procedures or guidelines, the lack of compliance is not defined as a criminal act by the current law. Thus, compliance with the regulation becomes entirely voluntary, made by some individuals and companies with extensive experience in archaeological research. Hence, many projects do not develop pre-development AIAs, as exemplified in Chapter 6. In addition, the regulation, or at least the linked procedures, must specify in detail how the pre-development AIA process should be organised and clearly define the steps to be followed.

10.3.2. The Involvement of the Provincial, District and Local Authorities

Efforts undertaken to involve municipalities in this work to explore how we can build a better process fell short, as the municipal authorities did not respond to my queries. The Maputo municipality did not respond at all, while the Matola municipal authorities responded, explaining that they do not carry out or demand AIAs. The state needs to improve the cultural heritage legislation, complement it with specific regulations and guidelines and align these with the environmental legislation and other national legislation, such as Decree nr. 55/2016, Law nr. 1/2018. This decree establishes in article 8, point 2, that the state is guided by the principles of decentralisation and subsidiarity. The provincial and district delegations and municipal services should be empowered to allow part of the archaeological and cultural impact assessment activities to be coordinated directly from the provinces and districts, with the coordination and cooperation of the DNPC in Maputo.

The DNPC should then create conditions for the monitoring, supervision and inspection of rescue archaeology activities by formally decentralising its activities to the provincial capitals, districts and localities. Another aim could be to establish criteria for the accreditation of archaeologists and their registration for better coordination and control of professionals and the work they do. The allocation of not less than 0.5% demanded by the regulation in development projects should be shared among small services and involve all social actors along what can be called the *chaine operatoire* of rescue archaeology activities. This process-based way of working should define the role of the project proponents involved in cultural heritage management issues, and not just the monetary transaction. It will allow the inclusion and participation of all stakeholders in the management system, something that will also create more job opportunities in the country.

For a multicultural and very vast country like Mozambique, the expansion of a building and extractive industry applied in different parts of the country without pre-development AIAs is a great creates greater challenges for the management of cultural heritage. We run the risk of destroying archaeological and cultural sites and losing knowledge of the diversity of the past, histories that we have only begun to investigate. It is unsustainable to build cultural heritage management only at DNPC, which is clearly lacking the resources to carry out its legislated responsibilities across the country. Meanwhile, the administrative division of the country recognises the provincial, district and municipal authorities. These structures are not being utilised for monitoring the cultural heritage management to the degree they should be, based on the national principle of decentralisation. In part, the lack of involvement of these authorities is owing to a lack of specification in the regulations and procedures. One could follow the example of the Land Law nr. 19/97, in which different national structures, in a decentralised manner, participate in the management of land titles and monitoring of

concessions.[150] Since the DNPC is sadly understaffed, it is unable to cover the entire country. Still, even if there was a large programme of training and a significant increase in DNPC staff (and a great effort was made by Dr Solange Macamo in this endeavour when she was the DNPC director), it would be challenging for the DNPC to carry out its duties nationally, as it would make policy and procedures inefficient and laborious. Mozambique and other countries in the region have great challenges in terms of procedures for ensuring compliance with the cultural heritage legislation, as has been discussed above.

The country also needs to train and hire more qualified staff. This has now been made possible through the BA programme in archaeology at the DAA, which started in 2011. Importantly, the country also needs to expand services to province and local levels where the projects take place and promote a collaborative environment with local communities through a further decentralisation process. These measures, in turn, will contribute to economic, institutional, and social development.

10.3.3. Rescue Archaeology and Impact Assessment Guidelines

A rescue archaeology impact assessment consists of the identification of the existing cultural heritage in an area covered by a development project, documenting the existing resources and assessing their importance as well as the project's impact on the heritage covered. The assessment also includes measures to evaluate the project's impact to ensure the sustainable management of cultural heritage. However, the absence of guidelines for rescue archaeology research can compromise rescue archaeology activities and cause much frustration for all actors involved in the process. Examples of this lack of guidelines can be seen in the situations described throughout Chapters 6 and 9, where no AIA assessments had been done, sites were discovered during construction with subsequent rescue operations were needed or long-lasting conflicts and community conflicts arose because of lack of proper consultancy. In chapters 8 and 9, I also demonstrated how these problems will spill over into environmental degradation, which will have a double effect on archaeological sites and livelihoods.

The lack of compliance or monitoring causes problems that a proper cultural impact assessment could avoid, as argued here. In addition, an archaeological investigation would cause delays when begun at a late phase. Rescue operations could potentially become more expensive if done after the construction has started, especially in a future system where construction companies are held more responsible.

Various constraints may arise, for example, if a certain development project would not undertake rescue archaeology research, it would negatively impact cultural heritage. This impact would create conflicts with local communities when their heritage is destroyed. The cultural heritage authorities would, in turn, be obliged to embargo the project. If the conflict created is not resolved in an orderly fashion, the project owners and the cultural heritage authorities will be engaged in court issues. Another embarrassment could arise when rescue archaeology operations are conducted, and cultural heritage authorities are not satisfied with the report. They could demand a repetition of the study and delay the development proposed. All these tasks require additional service and more time and resources than usual. As a way of preventing these strains, I suggest that rescue archaeology activities should be planned from the beginning of

[150] *Lei nr. 19/97, de 7 de Outubro. Aprova a Lei de Terras and Leis nr. 6/79, e 1/86, de 3 de Julho, e 16 de abril. Boletim da República, I serie, nr. 4.*

any project that could have a negative impact on ecosystems. All these requirements and procedures must be included in the cultural legislation in the country and become part of established practice.

As discussed in the preceding chapters, the lack of specification of procedures in the legislation brings confusion, ambiguity and different understanding of rescue archaeology activities. New regulations should identify the phase in which rescue archaeology should be made in relation to the development proposed. What steps should the project developer follow to fulfil rescue archaeology operations? The procedures must also include other information, such as:

- Clearly identifying who is responsible for organising the archaeological and cultural impact assessment and providing the type of information to be contained within the process instruction;
- Identify the type of information that should be included in the research reports and when and where they should be submitted with deadlines for submission of reports;
- Specify the procedure and responsible authorities for the licensing process, including appeals and monitoring of compliance;
- Present all stages of rescue archaeology activities;
- Determine the period of validity of cultural impact assessment studies;
- Provide the qualifications required for consultants of rescue archaeology activities;
- Point out the focus of rescue archaeology activities or which aspects rescue archaeology should research and be part of the report;
- Clearly define the responsibilities of consultants or archaeologists and project proponents, cultural heritage authorities and other relevant stakeholders;
- Identify the type of projects that require monitoring by rescue archaeology activities, etc;
- Determine what the procedure is for projects that do not carry out cultural impact assessments.

In terms of process steps, licenses for archaeological research should be issued according to the regulation when the project's viability is proven for example, whether the objectives of the proposed project seek to answer questions relevant to the development of a certain theme within the discipline. It should also prove the existence of funds to finance the intended activities, demonstrate the existence of a qualified team to develop the activities as well as present a detailed plan for the activities, which, when not complied with, causes the licence to be cancelled.

Any development project should only be allowed to start its activities after completing a pre-development AIA and submitting a satisfactory report to the responsible authority.

The inclusion of archaeologists in the staff of the large Ministry of Land and Environment would be beneficial for the ministry's involvement in actions for preserving and protecting the environment and to better ensure compliance with cultural impact assessment studies by development projects. This situation will make it possible for the ministry to be independent of opinions issued by other sectors. For example, the Ministry of Culture and Tourism can currently be exempt from the imputed responsibilities by not requiring cultural impact studies when asked to give an opinion on EIA reports (see the interview of March 07, 2023) since the DNPC does not currently have archaeologists or cultural heritage managers. However, the DNPC must fulfil its mission

when asked to do so and ensure conditions for constant monitoring and inspection of its activities. As a member of the committee that gives an opinion on EIA reports (see the interview of March 07, 2023), the Ministry of Culture and Tourism should be the first state body to demand compliance with cultural legislation to guarantee the sustainable management of cultural heritage. The regulation should establish clear measures for projects that do not carry out pre-development Archaeological or Cultural Impact Assessments.

10.3.4. Archaeological Databases and GIS

In developing new procedures for CHM in Mozambique, designing this with the aim of using digital infrastructure to manage information can be very beneficial. A digital pipeline for information creation, management, and dissemination has many benefits, both in efficiency and cost. As discussed here, a digital solution should comply with the FAIR principles, and this will require the definition of data structures, formats, and standards to be efficient and sustainable. The full definition of such technical solutions is beyond the scope of the current project, but an example can be seen in the format of coordinate systems used to describe the location of sites. Proper coordinates enable the accurate use of spatial information in GIS.

To better manage archaeological data, it is suggested that a database be created that is capable of integrating all archaeological data at a national level and that is accessible online (see Fig. 7.4). With well-defined data formats and information structure, including geospatial information, this database can be integrated with GIS for many added benefits. For example, when integrated into rescue archaeology operations, the database presented above in Fig. 7.4 can be used to anticipate the magnitude of the impact of development projects when it comes to cultural impact assessment and the many areas where we need additional surveys to assess impact. This database will provide opportunities for timely responses to impeding or unfolding risks and disasters on archaeological sites, monuments and other heritage places. Beyond archaeological research and cultural heritage management, this archaeological GIS database will be useful for other activities, such as public works, education, environmental management, urban planning, and agricultural and forestry exploration (cf. Katsamudanga 2022). For this to be fully realised, there is also a need for capacity building in using GIS or geospatial tools by professionals in the cultural heritage management sector. The technical systems needed should generally be Open Source and available at no cost (QGIS and PostgreSQL/PostGIS, for example)[151] (Löwenborg 2022, Coetzee, 2022).

10.3.5 Information Management System

For the good management of archaeological data and other cultural heritage management activities in the country, it is recommended that the DNPC, the DAA and the CAIRIM, in collaboration, create a webpage accessible to everyone. This webpage can be hosted at the UEM and complement the actions of creating a national archaeological database and opening archaeological data following the FAIR principles (as discussed in Chapter 7).

[151] https://maeasam.org/archives/.

Table 10.1. Information for a Cultural Heritage Resource Webpage.

Policy & Procedure	Database	Facilitation/Dissemination
Links and summaries of Cultural legislation and complementary legislation	Archaeological research projects (completed projects and ongoing projects).	Research permit forms for traditional, underwater and rescue archaeology
List of institutions that manage archaeological research (including their responsibilities)	Site form register for archaeological sites, historical sites, sacred and cultural sites, and underwater archaeology sites	Payment models for archaeological permits Application forms for archaeological research permits
Announcements of projects that require monitoring by rescue archaeology activities	Archaeological research reports (traditional archaeology, rescue archaeology and underwater archaeology)	Archaeological research publications
Application forms to remove soils which may destroy cultural sites	Archaeological database (traditional archaeology, rescue archaeology and underwater archaeology)	Crimes against cultural heritage (reported cases, ongoing cases and closed cases)
Application forms to export and lend cultural heritage properties	Maps of archaeologically sensitive areas and Cultural heritage list	World heritage sites (and criteria demands)
A list of archaeologists and registration criteria	Cultural heritage sites classification criteria	National inventory of cultural heritage
EIA and AIA reports	Period of Validity of the EIA	Media on cultural heritage (news, videos, photos, cultural events)

The webpage will allow quick access to information and data to all at reduced cost. This will make archaeological research processes more flexible since (meta)data and data will be accessible. This would bring together the different institutions and entities involved in the management of cultural heritage in the country. Having information in one place and freely accessible to everyone will also make the processes of archaeological research and cultural heritage management transparent. In general, the webpage would integrate different archaeological data including other information on the management of cultural heritage (Table 10.1). Much of this information I have already compiled, and DNPC would be the most appropriate home for such a webpage; however, currently, there is no structure to house this. Hence, a set of files has been uploaded to Zenodo to make them available (see Appendix 4).

10.3.6 Community Engagement

The community engagement is part of community-based archaeology (Fagan 2004, Macamo and Ekblom 2005, Tully 2007, Chirikure and Pwiti 2008, Richardson and Sánchez 2015, Jopela and Fredriksen 2015, Sánchez 2016, Oldham 2017, Macamo and Ekblom 2018, etc.) and public archaeology approach (Atalay 2006, Byrne 2012, Verlaan 2013, Richardson and Almansa-Sánchez 2015, cf. Oldham 2017) discussed

above in Chapter 3.3. Since community-based and public archaeology incorporate principles of local community engagement, such as community organisation, fairness, justice, empowerment, participation and self-determination (McCloskey 2011:3–4), it is also in close connection with the CARE principle approach (Carroll *et al.* 2020, 2021, 2022, Proffitt 2021, Robinson *et al*. 2021, Erickson, Selvathesan and Dickens 2022, Hensel *et al*. 2023, Sterner and Elliott 2023, Hensel *et al.* 2023, etc) discussed in section 7.3.2. Thus, to ensure that archaeological research and cultural heritage management actions in the country are effective and sustainable, it is suggested that they should be developed by observing community-based and public archaeology procedures, integrating the strategy of local community engagement and CARE principles.

Strengthening actions for local community engagement during archaeological research in the country is essential, as discussed in Chapters 1.5.2 and 9.3 since the management of cultural heritage in local communities is based on the system of living cultural heritage. The results obtained in the fieldwork, as indicated in Chapters 8 and 9, were owing to the greater engagement of local communities in the research. It should be noted that the construction of policies and strategies for the continuous involvement of local communities in archaeological research is a practice that has been implemented since 1975. This strategy contributes to greater interest in shared history, strengthens local communities and in the construction of shared identities. This can develop the spirit and values of the self-esteem of local communities. In this way, there will also be greater interest from the state in helping to ensure that CHM policies and strategies are properly applied and strengthened for the well-being of all.

10.4. Final Considerations

The ambition of this project has been to initiate a debate on the procedures and practices of rescue archaeology in Mozambique. This study offers some possibility to critically assess the current state of these activities in Mozambique and what is needed for the future.

For practical reasons, this study is focused on southern Mozambique. Much research needs to be done in other areas of the country to develop this theme and to elucidate content about the situation of rescue archaeology and cultural heritage management in Mozambique. The archaeological database that I present here not only reveals the skewed coverage of archaeological research carried out in the country but also gives us the challenge of adding more data that is still unavailable. However, it also elucidates how the information we produce can be useful to many people. Obviously, criticism and future work of this nature will contribute to improving the content.

After all, and as hinted here, one trained individual in any of the provinces or districts is enough to make a change at a local scale. In addition, archaeological companies and actors who are successful in getting contracts from developers and who can also shape the conditions of their contracts may reshape demands and expectations from district and provincial authorities and contracting companies. A follow-up of this study would be to explore such negotiations in various parts of the country, as it was not possible to include them in the present study.

In addition, more research can be done on development projects to understand the challenges they face in carrying out cultural impact studies. Based on the development projects implemented in the country, it is possible to estimate the number of annual

jobs that would be occupied by young archaeologists and cultural heritage managers and the annual gains the culture sector would make from the rescue archaeology industry.

As I have identified here, the greatest challenge lies in updating cultural laws and formulating procedures and guidelines, which must be done in collaboration with many actors. To make this happen, there needs to be some degree of prosecutorial coordination. For instance, between EIA contractors and possible archaeology, heritage and cultural/social assessment contractors, together with responsible authorities, which regulate each of these activities. In addition, there is a general need to continue training provincial and district institutions, which can be funded through the 0.5 % regulation. Only then can authorities credibly and competently demand compliance with the law.

I hope this work will be able to contribute to building archaeological and cultural heritage management in Mozambique, which can only be built through openness and collaboration between organisations, officials, experts and academics. I hope that this will stimulate such collaboration, and I am positive towards the capacity of rescue archaeology and cultural heritage, in general, to build towards a sustainable future for Mozambique.

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Appendices

Appendix 1. Detailed List of Analysed EIA assessments

Table 1. Detailed description of the EIA reports consulted at the Ministry of Land and Environment

Project; Developer	Activity; Consultant	Date /AIA
1. SADC Subregional Transport and Trade Facilitation Project[152] (P-Z1-DB0-253); Developer: *Administração Nacional das estradas* (ANE).	Rehabilitation of the N381/R2151 road (c. 163 km) Mueda to Negomano, Mueda District, Contract Nr. 04/DIPRO/2013; Engenheiros Consultores, Lda.	July 2022, No AIA
2. Port Infrastructure Construction Project to Support the Oil and Gas Industry in the High Sea Developer: Pemba Bulk Terminal, Lda	Renew and expand the current port infrastructure from the current 100 meters to 120 meters in length of the floating structure, in an area of 113 ha. Pemba City, Cabo Delgado Province; Environmental License nr 64/2014; Consultant Castro Tassule, MSc	June 2022, No AIA
3. Granite, Marble and Ornamental Stone Processing Project, Developer: Helin Mining Co, Lda	Mineral Processing (380.03 ha) Bairro dos Heróis Moçambicanos, Nhauranga & Chimoio, Manica Province; Consultant: Arnaldo Muapala, Individual Environmental	April 2022, No AIA
4. Funder: Montepuez Ruby Mining (MRM), Two Contiguous concessions (4702C and 4703C)	Exploitation of precious stones; aquamarines, garnets, ruby and tourmalines, Montepuez & Ancuabe Districts, Cabo Delgado Province	March 2022, No AIA
5. Mount Muande Mining Project, Consultant: Bioglobal Consultancy and Services, Lda	Extraction of eluvial iron mining (coarse grade iron mining for the extraction of ultrafine magnetite) Moatize, Chiúta and Changara Districts, Tete Province.	April 2022, No AIA
6. Rehabilitation project for the N104 road	Rehabilitation of the N104 (103 km), Nametil to Angoche, and construction of a new bridge over the	June 2021, No AIA

[152] This project passes through the Niassa Reserve.

between Nametil and Angoche	Luazi River, Nanhupo Town, Nampula Provicne; Consultant: Civil and Planning Group	
7. Beira-Machipanda Oil Pipeline Project; Developer: *Companhia Pipeline Moçambique-Zimbabwe, Lda;*	Construction of an oil pipeline on a section of 294,3K, Districts, Beira, Dondo & Nhamatanda Districts (Sofala Province), Gondola, Chimoio & Manica (Manica Province); Consultant: Centre for research and consultancy, Lda (CEPEC)	June 2021, No AIA
8. Road Connectivity and Regional Trade Project, Nacala Development Corridor, Niassa Province; Developer: National Roads Administration (ANE)	Rehabilitation of the R720 Cuamba-Insaca and N360 Cuamba-Metarica roads, in Niassa province; Consultant: Eduardo Langa	June 2021, No AIA
9. Project of exploration and processing of tantalite Developer: HAMC – Highland African Mining Company, Lda.	Exploration of Tantalite and associated minerals (1,080ha), License 724C valid from Jul. 19, 2004 to Jul. 19, 2029, village of Morrua, Mulevala District, Zambézia Province; Consultant: Febeca Consultoria, Lda	June 2021, No AIA
10. Mining project for aquamarine, corundum quartz, ruby, sapphire and tourmaline "Mining Concession 8921C". Developer: Ibra Moz, Sa	Mineral exploration of aquamarine, corundum quartz, ruby, sapphire and tourmaline, district of Montepuez, Cabo Delgado Province; Consultant: Enviostudos, Lda.	March 2021, No AIA
11. Ruby mining project Mining Concession 8955C, Developer: SLR mining, Lda.	Exploration of Ruby in the Namanhumbir administrative post, Montepuez district, Cabo Delgado province; Consultant: Enviostudo, Limitada Environmental Consultancy and Services.	February 2021, No AIA
12. Ressano Garcia Matola Gas Pipeline Project. Update of the Environmental and Social Management Plan (EMP) of the Operation, Districts of Moamba and Matola, province of Maputo. Developer: Matola Gas Company	Construction of a gas pipeline, about 67.7 km of the transmission line from the village of Ressano Garcia to the city of Matola and the 32 km component of low-pressure gas distribution in the province of Maputo; Consultant: EIA & Services, Lda (projects, consultancy and environmental audit	December 2020, No AIA

13. Granite, Gold and Associated Minerals Exploration Project	Exploration of Granite, Gold and Associated Minerals, Province of Manica.	October 2020, No AIA
14. Private Housing Project – Jorge Morgado.	Development and operation of tourist services and related activities; Consultant: Litanga Travel and Services	2020
15. Granite and Granulite exploration, Grant No. 9099C Developer: DFG Mozambique, Lda	Exploration of Granite and Granulite extraction, Murrumbala District, Zambezia Province; Consultant: Sorota Wamusse	April 2020, Yes an AIA was carried out
16. Heavy sand extraction – Concession 8323C; Developer: Mozambique Heavy Sands, Lda	Project for the exploration and processing of heavy sands, Chinde District, Zambesia Province; Consultant: RMS Consultores, Lda	February 2019, No AIA
17. Wind power Developer: Central Elétrica da Namaacha, As.	Installation of a wind power plant Namaacha plant in Namaacha District, Maputo Province; Consultant: Matos, Fonseca & Associados, estudos e projectos, Lda	February 2019, No AIA
18. Gold exploration project Developer: Horizontes Minerais, Lda;	Exploration for gold and associated minerals 1,187, 35ha, Manica District; Consultant: Eng. Tiago Lidimba (but no cultural and archaeological sites were found)	December 2018, Yes AI was carried out
19. Exploration project for heavy mineral deposits Developer: Tazetta Resources Lda	Exploration of heavy mineral deposits, Pebane District, Zambezia Province; Consultant: Albin Lambo	October 2018, No AIA
20. Chongoene Airport Construction Project	Airport construction in Chongoene District, Nhacutse locality, Gaza Province	October 2018, , No AIA
21. Gas pipeline Developer: ENH-KoGAS, AS	The Matola-Maputo and Marracuene gas pipeline; Consultant: Magu Adriano	June 2018, , No AIA
22. Limestone exploitation project and Gypsum production Developer: Clay & Gravel Mining, Lda	Exploration of limestone mine and plaster production, in Povoado de Nhaboa, administrative post of Muchunué, Chibabava District, Sofala District; Consultant: Abdua Gavanhica	Date Uknown, No AIA
23. Nacala Road Rehabilitation Project ER702	Rehabilitation of 20.2 km of road axis on regional road 702, which connects the EN8 to the town of	October 2017, No AIA

Developer: *Administração Nacional De Estradas* (ANE), in collaboration with LASA INDIA LEA International LTD.,	Nacala-a-Velha. Contract Nr. 76/DIMAN/2013; Consultant: Consórcio Nemus Beta Funders: Canada in joint venture with LEA associates South Asia PVT, LTD., India in Association with (as sub-consultant) *Cotop, consultoria Técnica de obras Públicas Lda., Mozambique*	
24. Rehabilitation Project for Piers 6, 7 and 8: erosion protection structures and multipurpose terminal (Port of Maputo) Developer: Maputo Port	Rehabilitation of the Port of Maputo; Development Company (MPDC); Consultant: Aurecon	March 2017, No AIA
25. Road Rehabilitation Project N1/N10 Contract Nº. 45/DIPRO/2012. Developer: *Administração Nacional das Estradas* (ANE)	Rehabilitation of the N1/N10 road between Quelimane, Nicoadala and Namacura; Consultant: Eng. Eulalia Esperança Lucas Macome.	September 2016, No AIA
26. Mapu-to-Katembe Bridge construction project Developer: *Empresa do Desenvolvimento do Maputo Sul, E.P*	Construction of the Maputo-Katembe Bridge (109 km) from Katembe - Ponta de Ouro, including the rehabilitation/construction of the roads between Katembe and Bela Vista (R403) (63 km); between Bela Vista and South Africa (N200); Consultant: *BETA, Engenharia, Gestão e Ambiente*, Lda	2014, No AIA
27. Ressano Garcia natural gas power plant project (300 MW); Developer: Gigawatt Mozambique AS.	Construction of a Ressano Garcia Natural Gas Power Plant (300 MW), including the High Voltage line that connects the Power Station to the EDM National Grid and the access road to the Power Station site from the EN4; Consultant: Vasco Junior	March 2012, No AIA
28. Maputo Ring Road Construction Project; Developer: *Administração Nacional das Estradas* (ANE)	The project works were divided into six sections: Av. da Marginal (6,325 Km), Costa do Sol to Marracuene (19,869 km), Chiango to Zimpeto (10, 506 km), N1 Zimpeto to Marracuene (15.5 km); Road from Zimpeto to Tchumene (16, 299 km), Machava junction to Praça 16 d Junho (5.5 km road; In addition six bridges were built. Two serve as a crossing for the Limpopo Line (in Albazine and Marracuene) and one	2012, No AIA

	for the Ressano Garcia line (near Matola train station)	

Appendix 2. Proposal for Archaeological, Sacred and Cultural Site form register

1. Site Identification							
Site Code				Site Name			
Y[153]	M[154]	Prov[155]	Nr.	District			
				Obs			
Coordinates[156]				Site area			
X	Latitude			Site length (max)	m	Obs:	
Y	Longitude			Site width (max)	m		
Z	Sea level			Site extent (area)	m^2		

2. Cultural landscape and site characterization					
A. Cultural Heritage Type					
	Archaeological site	**Local Heritage Value**		**Local Natural Value**	
	Cultural Site		Low		Low
	Sacred Forest		Moderate		Moderate
	Sacred Tree		High		High
	Sacred Grave	Obs:			
	Other (specify)				
B. Investigation on the site					
	Observation				
	Surface collection				
	Sample / test pit				
	Excavations				
C. Type of Site					
	Open air				
	Cave				
	Shelter				
	Submerged site				
	Other (specify)				
D. Type of archaeological resource					
	Stone artefacts				
	Rock Art				
	Ceramics				
	Iron				
	Beads				
	Shell midden				
	Grave / Human remains				
	Stone structures				
	Other (specify)				
E. Site function					
	Extraction of raw material				
	Lithic artefacts production				
	Ceramic production				
	Cast iron				
	Multi-activity site (describe)				
	Other (specify)				

[153] Use only two last digits of the year
[154] Use two numerical order for month
[155] Provincial code
[156] It is recommended to use coordinates in decimal degrees (DD) format because they are easy to work with and can be imported directly to GIS (Katsamudanga 2022).

F. Assessment criteria					
Site Integrity		**Anthropogenic Treats**		**Natural Threats**	
	Low		Low	Low	
	Inundated		Moderate	Moderate	
	High		High	High	
G. Recommendation for further action on the site					
	Archaeological excavation				
	Detailed record				
	Further survey				
	Other (specify)				
H. Site Period					
	ESA		IFS	**Scientific Potential**	
	MSA		Historic		Low
	LSA		Modern		Moderate
	IFI		Undated		High
3. Local ecosystem					
A. Description of vegetation (specify the percentage of surface cover and dominating species if possible)					
	Grass				
	Bush				
	Trees (specify possible species)				
	Other (specify)				
B. Site habitat					
	Upland				
	Lowland				
	Island				
	Dune				
	Wet land				
	Intertidal zone				
	Mangrove				
	Agricultural land				
	Community area				
	Village				
	Other (specify)				
C. Type of surface sediments					
	Clay				
	Rubble				
	Sand				
	Loam				
	Other (specify)				
4. Site sketch (indicate the north, scale and make legend if possible)					

Number of photos made on the site: ____

5. Material storage location and site form validation			
	In situ	Site author	
	Institution	Main participants must sign the form	
		Recorder name	
		Local informant	
		Archaeologist in charge	
Ref. Nr.		Date: _____ / _____ / _____	

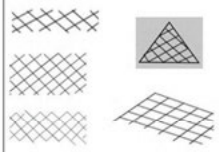
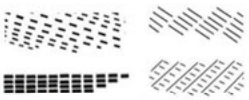
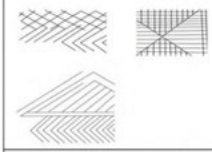
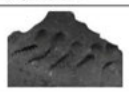
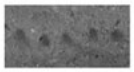
Appendix 3. Detailed Ceramic Description

Table 1. Motives and forms

Shape	Fragment type	Decoration type																	
		Comb impression	Shell-edge punctates	Finger impression	Excision[157] and shell impression	Comb and line impression	Incised lines and triangles	Shell impression	Cross-hatching	Cross-hatching triangles	Herring bone and incised triangles	Zigzag and punctates	Zigzag lines	Cross hatching and herring bone	Punctates and comb impression	Notches	Painting	Undecorated
Jar	Rim																	1
	Neck	1																
	Shoulder		1	2														
	Body																	
	Base																	
	Neck-rim	4			1			1										
	Shoulder-rim					1												
Hemispheric vessel	Rim							2	1									
	Neck							1	1				1					
	Shoulder																	
	Body																	
	Base																	
	Neck-rim	2					1	3		2	1					1		3
	Shoulder-rim	1						2										
Ovoid vessel	Rim								1									1
	Neck																	1
	Shoulder																	
	Body																	
	Base																	
	Neck-rim							1						1				
	Shoulder-rim																	
Plate	Body-rim																1	
	Base-rim																3	
Undefined	Rim						2									2		
	Neck						1	6	1		2		1		1			
	Shoulder						1	6	3				2		1			
	Body						6		1		1							4
	Base																	
	Neck-rim						1											
	Shoulder-rim							2										
Total		7	1	2	1	1	12	24	8	2	4	4	4	1	2	3	4	10
% of total		7.7	1.1	2.2	1.1	1.1	13.3	26.6	8.8	2.2	4.4	4.4	4.4	1.1	2.2	3.3	4.4	11.1

[157] Excision is when parts of the clay surface are removed or cut away from the vessel surface, while incision is cutting the pot with a sharp instrument while the clay is still wet, but don't remove the surface (Pikirayi 1993:123).

Fig 2. Illustration of motifs

Decoration mode	Type of decoration	Decoration mode	Type of decoration
	Shell impression		Comb impression and horizontal line impression
	Cross-hatching and incised triangles		Impressed lines
	Herring bone, incised lines and Cross-hatching		Shell excision
	Punctates and comb impressions		Shell-edge punctates / impression

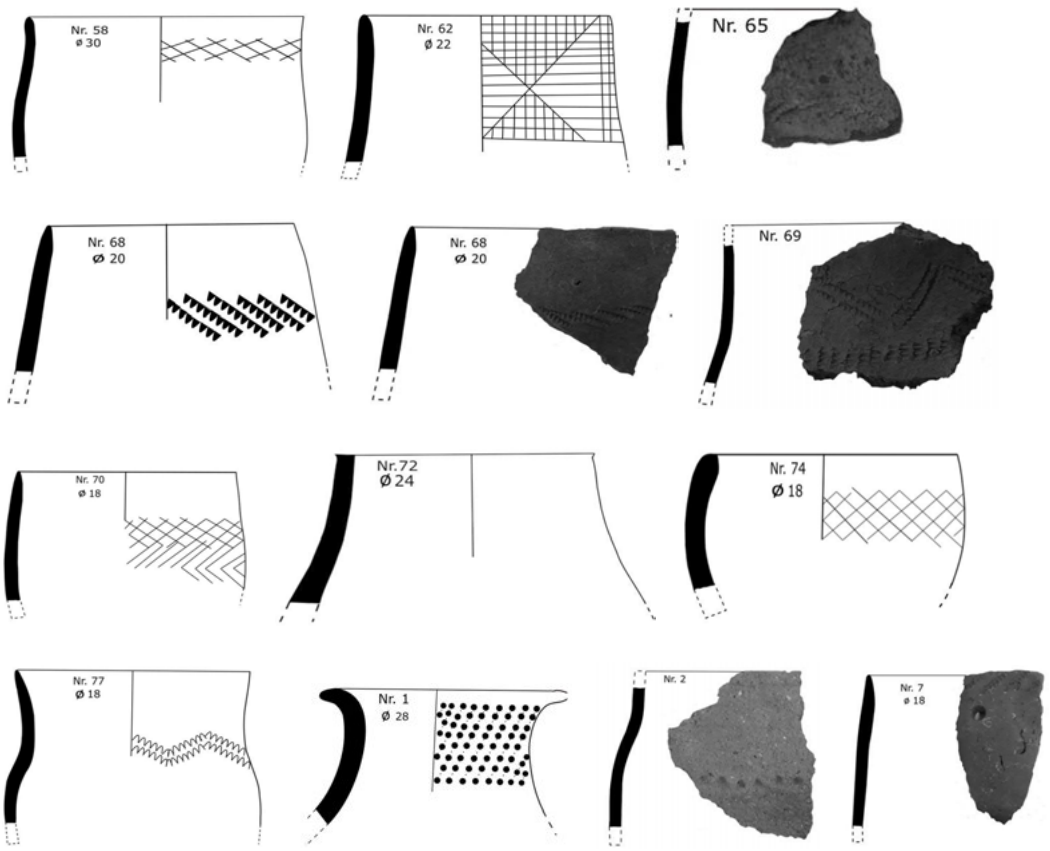
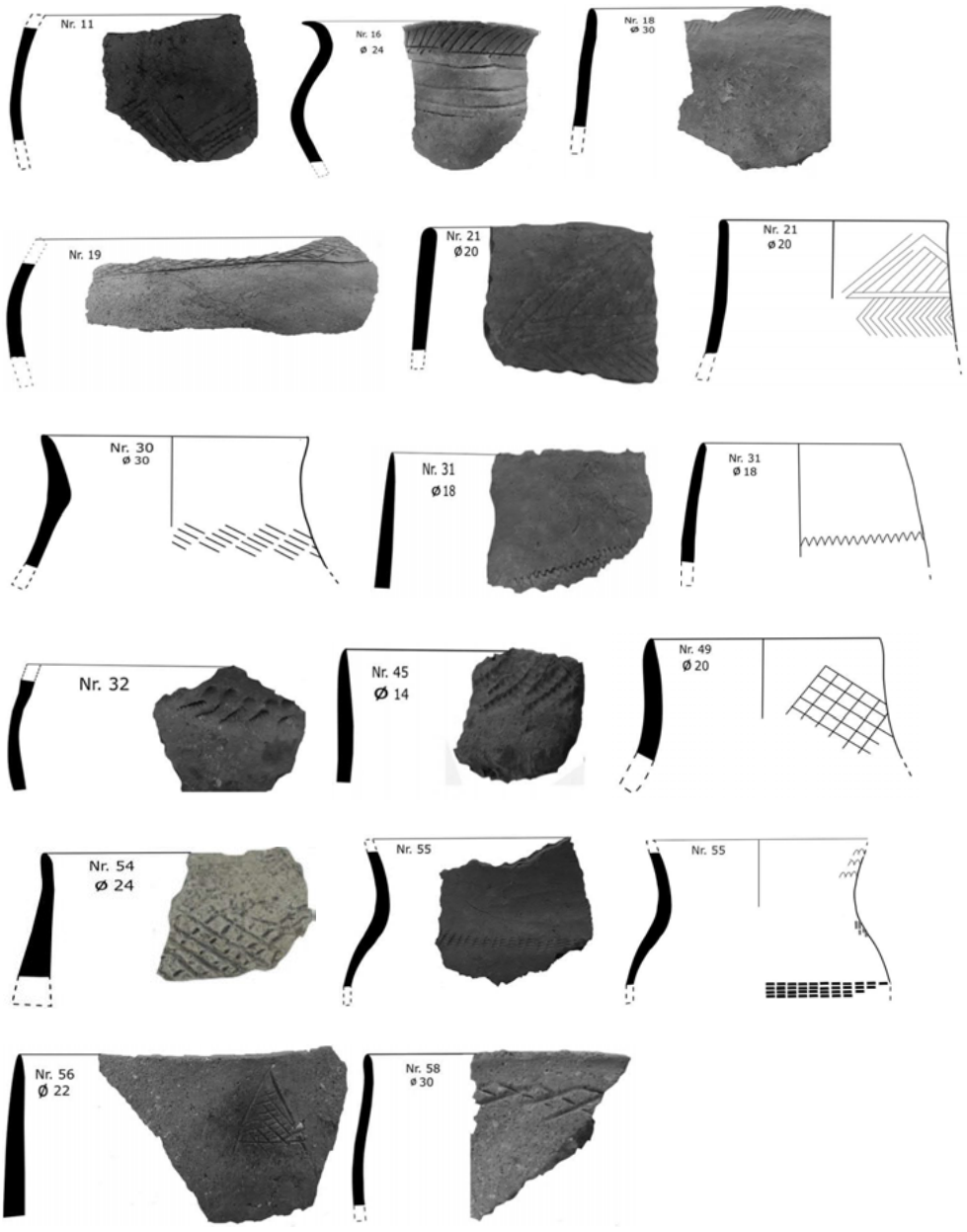


Fig 3. Ceramic drawings

Fig 3. Ceramic drawings continued


Nr. 11
Nr. 16
ø 24
Nr. 18
ø 30
Nr. 19
Nr. 21
ø 20
Nr. 21
ø 20
Nr. 30
ø 30
Nr. 31
ø 18
Nr. 31
ø 18
Nr. 32
Nr. 45
Ø 14
Nr. 49
ø 20
Nr. 54
ø 24
Nr. 55
Nr. 55
Nr. 56
Ø 22
Nr. 58
ø 30

Appendix 4. Suggestion of DD coordinates (EPSG 4130 – WGS 84)

The list shows DMS coordinates in comparison to the same coordinates in DD system (EPSG 4326 – WGS 84).

Table 1. Revised list of coordinates for archaeological sites

Site	DMS		DD		Period	Location
	Y	X	Y	X		
12 A. Dendane	-25 05 00	33 47 00	-25.08401903	33.78295041	LFC	Gaza
2/75	-23 50 00	32 02 00	-23.83407296	32.03291775	LFC	Gaza
4/75	-23 58 00	31 56 00	-23.96739967	31.93291525	LFC	Inhambane
5/75	-23 58 00	31 57 00	-23.96739972	31.94958226	LFC	Inhambane
Agia de Peiseira	-23 51 30.5	32 00 25.6	-23.85921058	32.00669490	MSA/LSA	PNL
Aldeia Muçulmana?	-20 10 00	34 46 00	-20.16759478	34.76631722	LFC	Sofala
Alto Changane	-24 18 15	33 37 45	-24.30488818	33.62878288		Gaza
Amuralhado Gomene	-13 07 00	40 33 00	-13.11798413	40.5497789	LFC	Cabo Delgado
Antioca	-25 01 03	32 40 58	-25.01738584	32.68289413	ESA/LSA	
Ao lado da montanha	-17 27 54	35 01 37	-17.46495903	35.02688336	LFC	Caia
Ao lado do cemitério muçulmano	-17 27 14	35 01 37	-17.45384863	35.02688338	LFC	Caia
Ao lado do embondeiro	-17 26 44	35 01 46	-17.44551609	35.02938344	LFC	Caia
Arboa (Beguerua)	-21 54 15	35 26 25	-21.90500829	35.43993825		
At Zemba	-19 18 00	33 21 00	-19.30097027	33.34962367		
B Chalane (Porto)	-21 19 15	34 01 30	-21.32170111	34.02463261		
B Machachuana	-21 23 45	33 56 30	-21.39669716	33.94129738		
Baia dos Cocos	-24 03 32	35 29 59	-24.05962640	35.49937852		
Bajone	-17 12 30	38 50 00	-17.20942381	38.83307261		
Bassope	-25 42 42	32 07 15	-25.71175251	32.12087996	ESA/MSA	
Bazaruto Praia Oceanica	-21 43 50	35 28 00	-21.73140587	35.46632810		Inhambane
Bazaruto Praia Oceanica II	-21 46 35	35 27 35	-21.77723690	35.45938340		Inhambane
Beguerua	-21 52 3.0	35 25 15	-21.86834341	35.42049349		
Benfica	-25 53 15	32 24 15	-25.88814535	32.40375197		Xai - Xai
Berute sacred rock	-25 07 00.7	33 44 15.2	-25.11754515	33.73717156	Sacred site	Xai - Xai
Bilene Praia Oceânica	-25 19 00	33 14 00	-25.31734022	33.23293805	LSA/LFC	Gaza
Boane	-25 57 02	32 18 58	-25.95064228	32.31618324	ESA/MSA	Boane
Boane I	-26 03 00	32 19 00	-26.05063779	32.31624955	ESA/AS	Maputo
Boane II	-26 03 02	32 18 59	-26.05063779	32.31628289	ESA/MSA	Boane
Boane IV	-26 03 02	32 18 59	-26.05063779	32.31628289	MSA/LSA	Maputo
Bunganine	-25 20 00	32 13 00	-25.33400332	32.21624994	ESA	Maputo
Byarinama 2 pan	-23 01 37.9	31 46 13.0	-23.02797224	31.76985929	MSA/LSA	PNL
Byarinama 3	-23 02 35.0	35 47 19.5	-23.04384215	35.78841500	LSA	PNL
Byarinama 4	-23 00 25.2	31 50 03.6	-23.00777894	31.83391623	LSA	PNL

Byarinama pan	-23 01 15.3	31 45 11.6	-23.02169472	31.75280341	LSA	PNL
Cabeceira Grande	-14 58 00	40 40 00	-14.96788129	40.66644616	LFC	Nampula
Cabeceira Pequena	-14 59 00	40 44 00	-14.9845471	40.73311417	LFC	Nampula
Caimane Cave	-25 41 02	32 08 38	-25.68395383	32.14398055	MSA/LSA/FC	Gaza
Cardiga 8	-26 19 00	32 17 00	-26.31729246	32.28291456	ESA	Maputo
Catembe	-26 00 02	32 33 58	-26.00064075	32.56618834	ESA/LSA	Katembe
Catembe	-26 00 00	32 34 00	-26.00064075	32.56625501	ESA	Maputo
Catuane Velho	-26 48 02	32 13 58	-26.8006043	32.23287841	ESA/LSA	Matutuine
Catuane Velho	-26 48 00	32 14 00	-26.8006043	32.23291174	ESA/LSA	Maputo
Caverna da machamba do Moura	-26 19 00	32 08 00	-26.31729202	32.13291139	MSA/LSA	Maputo
Caverna de Goba (Fronteira)	-26 16 00	32 06 00	-26.26729414	32.09957753		Maputo
Caverna do rio Umbeluzi	-26 11 00	32 09 00	-26.18396468	32.14957889		Maputo
Caverna Mwenzi	-14 48 23.9	33 34 56	-14.80785337	33.58185938		
Cavernas da machamba do Moura	-26 19 02	32 07 58	-26.31732535	32.13287806	MSA/LSA	
Conheciro de Revez Duarte	-26 02 02	32 23 59	-26.03393878	32.3995847	MSA/LSA	
Chaimite	-24 39 45	33 19 45	-24.66320398	33.32877548	ESA/LFC	Gaza
Changalane I	-26 15 00	32 05 00	-26.25062817	32.08291058	ESA	Maputo
Changalane II	-26 18 00	32 08 00	-26.30062609	32.13291145	LSA	Maputo
Changalane III	-26 15 02	32 03 59	-26.25062812	32.06627689	ESA/MSA	Changalane
Changalane III	-26 15 00	32 04 00	-26.25062812	32.06624356	ESA/MSA	Maputo
Changalane IV	-26 15 02	32 04 58	-26.25062817	32.08287724	ESA/MSA	Changalane
Changalane IV	-26 15 00	32 05 00	-26.25062817	32.08291058	ESA/MSA	Maputo
Changalane V (Portas de)	-26 19 02	32 07 58	-26.31732535	32.13287806	ESA/MSA	Changalane
Changalane V (portas de)	-26 19 00	32 08 00	-26.31729202	32.13291139	ESA/MSA	Maputo
Chibuene	-22 02 02	35 19 30	-22.03472385	35.32465776	LFC	Vilankulos
Chicolone	-14 24 00	32 50 00	-14.40123605	32.83295641	LFC	Tete
Chicuanguene	-25 04 58.5	33 49 10.1	-25.08360247	33.81909006	LFC	Chongoene
Chidenguele	-24 56 30	34 11 00	-24.94235990	34.18295929	LFC	Gaza
Chifumbazi	-14 21 00	32 55 00	-14.35123899	32.91629146	EFC/LFC	Tete
Chiloane Island	-20 39 00	34 56 00	-20.65090368	34.93298623	LFC	Sofala
Chimae	-23 55 00	32 03 30	-23.91740239	32.05791800	LFC	Gaza
Chipala	-25 02 00	32 15 00	-25.03401721	32.24958499	ESA	Maputo
Chirime	-24 52 15	33 50 30	-24.87152897	33.84128563	LFC / Sacred forest	Chongoene
Chitulo xa Mpepo	-20 10 00	34 46 00	-20.16759478	34.76631722	LFC	Sofala
Chizungune	-21 50 30	35 26 45	-21.84251141	35.44549407		
Chobotahomu	-26 01 00	32 56 50	-26.01730775	32.94681856	LFC	Inhambane
Chongoene	-25 06 00	33 47 00	-25.10068493	33.78295035	LFC	Chongoene
Como	-23 03 03	32 10 58	-23.05077776	32.18288994	MSA/LSA	
Companhia açu-careira do B	-26 25 02	32 12 59	-26.41732115	32.21627946	ESA/MSA	
Concheiros de Revez Duarte	-26 02 00	32 24 00	-26.03397212	32.3995847	MSA/LSA	Maputo
Condene II		32 09 00	-25.5506599	32.14958113	ESA	Maputo

	-25 33 00					
Costa do Sol III - II - I	-25 56 30	32 37 15	-25.94231019	32.62042302	LFC	Maputo
Criul	-24 29 02	32 07 58	-24.48400915	32.13288438	ESA/LSA	
Criul	-24 29 00	32 08 00	-24.48404249	32.13291772	ESA/LSA	Maputo
Cubue (Bengurua)	-21 54 25	35 25 45	-21.90778591	35.42882690	LFC	Inhambane
D Mapanda	-26 24 40	32 53 50	-26.41173448	32.89681613	LFC	Mapanda
Djilene	-23 44 21.0	32 29 18.9	-23.73991200	32.48817748	EFC/LFC	PNL
Dobela 2	-26 32 20	32 54 45	-26.53950665	32.91209379	LFC	Maputo
Dobela 3	-26 33 00	32 54 34	-26.55061726	32.90903813	LFC	Maputo
Dobela 4	-26 33 50	32 54 25	-26.56450553	32.90653803	LFC	Maputo
Dores	-24 11 37.8	35 20 31.8	-24.19456414	35.34181927		Jangamo
Duna Maxombe	-26 37 00	32 54 00	-26.61728097	32.89959325	LFC	Maputo
Duna Tane	-26 22 00	32 55 40	-26.36729209	32.92737249	LFC	Maputo
Dunas Massingane	-26 22 32	32 55 32	-26.37618058	32.92515019		
Estrada da Moamba-Ressano Garcia	-25 36 02	32 09 59	-25.60065768	32.16628131	ESA/LSA	Maputo
EP Faife	-26 06 00	32 56 57	-26.10063735	32.94876276	EFC/LFC	Maputo
Escola de Catembe	-26 10 00	32 34 00	-26.16729996	32.56625443	LFC	Maputo
Estação de Meteriologia	-16 13 30	39 54 45	-16.22614493	39.91226267	LFC	Nampula
Estrada da Moamba-Ressano	-25 36 02	32 09 59	-25.53396043	32.06627944	ESA/LSA	Maputo
Estrada Goba-Changalane	-26 12 00	32 09 00	-26.2006306	32.14957883	MSA	Maputo
Estrada Moamba-Catuane Km 45	-26 23 00	32 15 00	-26.38395606	32.24958028	ESA	Maputo
Estrada Moamba-Magude KM	-25 22 03	32 14 59	-25.36736855	32.24958386	ESA/LSA	Maputo
Estrada Moamba-Magude Km 28	-25 22 00	32 15 00	-25.36733522	32.24958386	ESA/MSA/LSA	Maputo
Estrada Moamba-Ressano Garcia	-25 36 00	32 10 00	-25.60065768	32.16624797	ESA/MSA/LSA	Maputo
Estrada Moamba-Ressano Garcia A	-25 36 00	32 10 00	-25.60065768	32.16624797	ESA/MSA/LSA	Maputo
Estrada Moamba-Ressano Garcia B	-25 32 00	32 04 00	-25.53399376	32.0662461	ESA/MSA/LSA	Maputo
Estrada Velha para Boane	-25 59 17	32 22 53	-25.98814079	32.38148448	ESA/MSA	Boane
Estrela Vermelha de Boane	-25 59 18	32 22 43	-25.98834077	32.37868442	ESA/MSA	Boane
Estrela Vermelha de Boane	-25 59 23	32 22 45	-25.98974071	32.37928443	ESA/LSA	Maputo
Ferro-L Matzombo	-21 25 00	33 50 30	-21.41752922	33.84129527	LFC	Inhambane
Fonte de Goba	-26 15 00	32 05 00	-26.25062817	32.08291058	MSA	Maputo
Forno do cal A	-26 26 00	32 40 00	-26.43395506	32.6662556	MSA	Maputo
Fortaleza de Sena	-17 26 51	35 02 36	-17.44746	35.04327272	LFC	Caia
Fortificação	-24 26 00	35 10 15	-24.43405254	35.17048166	LFC	Inhambane
Fortim dos Elefantes	-24 10 03	32 31 58	-24.16742514	32.53289373	ESA/LSA	
Foz do rio Lúrio	-13 31 48	40 30 55	-13.53129428	40.51505559		Memba
Gruta Kantxontxo	-14 49 11.6	33 27 42.8	-14.82110244	33.46152364		Macanga
Guija Velho	-24 13 03	32 46 58	-24.21742344	32.78289879	ESA/MSA	Guijá
Hola Hola	-21 18 00	34 18 26	-21.30086944	34.30686070	EFC/LFC	Inhambane
Ibo I	-12 21 00	40 36 00	-12.35136066	40.59978057		Gabo Delgado

Ibo V	-12 40 00	40 36 00	-12.66800947	40.59978030	LFC	Cabo Delgado
Ilha Beguera	-21 52 28	35 25 15	-21.87528751	35.42049347	LFC	Inhambane
Ilha dos Portugueses	-25 44 00	32 40 00	-25.73398638	32.66625804	LFC	Maputo
Ilha dos Ratos	-23 49 00	35 26 00	-23.81741547	35.43298887	LFC	Inhambane
Ilha Santa Carolina	-21 37 00	35 20 30	-21.61752240	35.34132577	LFC	Inhambane
Incomanine	-25 15 00	32 18 00	-25.25067404	32.29958531	ESA	Maputo
Indjuze	-15 30 04	32 18 59	-15.50117376	32.31631096	ESA/MSA	
Inhaca BM	-26 02 10	32 57 20	-26.03675134	32.95515200	LFC	Maputo
Inhaca Praia Oceanica	-26 00 00	32 50 00	-26.00064151	32.83292732	LFC	Maputo
Inhambane	-23 52 08	35 24 18	-23.86963516	35.40465481		Inhambane
Inhambane Velho	-23 48 41	35 29 21	-23.81213807	35.48882340	Historic time	Inhambane
Kalamuchane (Well)	-25 05 52	33 47 14.3	-25.09846282	33.78692267		Chongoene
Kassimatis	-25 58 00	32 26 00	-25.96730854	32.43291898	ESA/MSA/LSA	Maputo
Kuchukalana	-26 00 20	32 55 30	-26.00619707	32.92459591	LFC	Maputo
Kurumana	-25 12 00	32 07 00	-25.20067582	32.11624830	LFC	Maputo
L M 147	-26 19 10	32 38 30	-26.32007115	32.64125548	LFC	Maputo
L Mamoli I	-26 42 45	32 53 50	-26.71311008	32.89681507	LFC	Matutuine
L Mamoli II	-26 45 50	32 53 55	-26.76449672	32.89820381	LFC	Matutuine
L Mamoli III	-26 42 50	32 53 45	-26.71449890	32.89542615	LFC	Matutuine
L Matsanzanhe	-21 17 30	34 18 15	-21.29253652	34.3038051	LFC	Inhambane
Lagoa Zinave	-21 25 45	33 53 00	-21.43002868	33.88296276	LFC	Inhambane
Languana	-25 16 00	32 18 00	-25.26733994	32.29958525	ESA	Maputo
Lassembague	-21 51 10	35 51 00	-21.85362279	35.84966912	LFC	Niassa
Lumbi	-18 07 59	35 42 17	-18.13298042	35.70467386	EFC	Marromeu
Lunho	-12 22 05	34 58 59	-12.36805402	34.98296838	MSA/LSA	
M 120	-24 00 30	35 21 30	-24.00907291	35.35798678	LFC	Inhambane
M 131	-23 59 30	35 21 45	-23.99240704	35.36215358	LFC	Inhambane
M 132	-23 59 00	35 22 15	-23.98407411	35.37048711	LFC	Inhambane
M146 Bahule	-24 57 00	34 08 15	-24.95069273	34.13712497	LFC	Gaza
M34-37	-25 28 30	32 58 30	-25.47566563	32.97459875	LFC	Maputo
M4 Praia da Barra	-23 47 40	35 31 15	-23.79519450	35.52049078	LFC	Inhambane
M9 Praia de Chidenguele	-24 57 15	34 11 45	-24.95485936	34.19545952	LFC	Gaza
Macachua	-26 02 02	32 14 58	-26.03393835	32.24958154	ESA? LSA	Maputo
Macachua	-26 02 00	32 15 00	-26.03397168	32.24958154	ESA/LSA	Maputo
Macamuine old sacred site	-25 06 26.2	33 45 03.7	-25.10796229	33.75064409	Sacred site	Xai - Xai
Macamuine Regulo's home	-25 05 39.1	33 43 25.6	-25.09487949	33.72339356	Sacred site	Xai - Xai
Machacha	-25 19 00	32 18 00	-25.31733765	32.29958508	ESA	Maputo
Machaloaxene	-26 14 00	32 07 00	-26.23396235	32.11624467	ESA	Maputo
Machamba de Duarte Morais	-25 34 00	32 07 00	-25.56732572	32.11624704	MSA	Maputo
Machamba de Joao Pinto	-26 05 00	32 14 00	-26.08396939	32.23291434	ESA	Maputo
Machamba de Moura (Caimane)	-26 18 00	32 08 00	-26.30062609	32.13291145	MSA/LSA	Maputo
Machamba do Moura (Caimane)	-26 18 02	32 07 58	-26.30062609	32.13287812	MSA/LSA	Maputo

Machavele (Mazimchopes)	-24 23 02	32 36 59	-24.38401516	32.61629478	MSA/LSA	
Machecahomu	-24 38 50	33 52 50	-24.64792833	33.88017602	LFC	Gaza
Macoloe I	-11 58 40	40 34 10	-11.97915945	40.5692247	LFC	Cabo Del-gado
Magaruque	-21 58 45	35 25 15	-21.98000453	35.42049322	LFC	Inhamabe
Magude A e B	-25 01 00	32 39 00	-25.01735242	32.64959343	ESA	Maputo
Malapane I	-16 12 27	39 56 30	-16.20864591	39.94142996	LFC	Nampula
Malapane II	-16 12 40	39 55 45	-16.21225681	39.92892970	LFC	Nampula
Mamba pan	-23 57 59.4	31 49 12.3	-23.96723271	31.81966290	LSA	PNL
Mandjaringa	-25 19 03	32 23 59	-25.31737126	32.39958718	ESA/MSA	
Mandjaringa	-25 19 00	32 24 00	-25.31733793	32.39958718	ESA/MSA	Maputo
Mangulane	-25 21 00	32 26 00	-25.35066983	32.4329211	ESA	Maputo
Manguze	-24 52 30	33 53 30	-24.87569557	33.89128667	LFC	Gaza
Manjacaze I	-24 44 15	33 51 00	-24.73820184	33.84961954	LFC	Gaza
Manjacaze II	-24 33 00	33 49 00	-24.55071048	33.81628608	LFC	Gaza
Manyikeni	-22 11 00	34 52 00	-22.18415993	34.86631453	LFC	Vilankulos
Mapai	-22 59 03	32 00 59	-22.98408058	32.01628672	ESA/MSA	Mapai
Mapulanguene	-24 29 02	32 00 59	-24.48400883	32.01628196	ESA/LSA	Gaza
Marrape (S. Sebas-tião)	-22 09 35	35 26 00	-22.16055119	35.43299305	EFC/LFC	Inhambane
Masingwine	-23 13 47.8	31 35 35.6	-23.23071191	31.59279947	Historical site	PNL
Massingir	-23 53 03	32 07 58	-23.88403752	32.13288632	ESA/MSA	Massingir
Mateus	-25 33 02	32 13 58	-25.55066014	32.23288288	ESA/LSA	
Mateus	-25 33 00	32 14 00	-25.55066014	32.23291621	ESA/MSA/LSA	Maputo
Matola IV	-25 57 02	32 26 59	-25.95064267	32.44958605	MSA/LSA	Maputo
Matola IV	-25 57 00	32 27 00	-25.95064267	32.44958605	MSA/LSA	Maputo
Matola-Rio	-25 58 00	32 26 00	-25.96730854	32.43291898	MSA	Maputo
Matsanzanhe	-21 17 30	34 18 15	-21.29253652	34.30380510		
Maxakadzi I.	-23 02 05.8	32 06 54.1	-23.03572276	32.11461636	Historical site	PNL
Mazeminhama-gruta	-26 26 20	32 08 06	-26.43950882	32.13457765	EFC/LFC	Maputo
Mazeminhane	-25 33 25	32 09 01	-25.55695962	32.15038112	ESA/MSA	
Mazucana	-24 48 30	33 52 15	-24.80903194	33.87045310	LFC	Gaza
Mazucanhane	-24 44 45	33 47 00	-24.74653461	33.78295145	LFC	Gaza
Moamba	-25 34 02	32 14 58	-25.56735943	32.24958317	ESA/LSA	Moamba
Moamba	-25 34 00	32 15 00	-25.5673261	32.24958317	ESA/MSA/LSA	Maputo
Moene VI	-25 51 00	32 18 00	-25.85064674	32.29958324	ESA	Maputo
Monapo I	-15 00 04	40 14 59	-15.00121237	40.24977096	ESA/LSA	Monapo
Monapo II	-14 40 05	39 40 59	-14.66793021	39.68305978	MSA/LSA	Nampula
Monte Campote	-14 18 34	36 42 29	-14.30958005	36.70803349	LFC	Niassa
Monte Chimuala	-14 48 19.9	33 37 19.3	-14.80674238	33.62166572		
Monte Chongue	-13 03 30	35 51 30	-13.05964921	35.85801815	LFC	Niassa
Monte Kambedza	-14 58 17.7	33 33 41.8	-14.97278858	33.56124758		Tete
Monte Lua	-12 42 30	36 08 30	-12.70966935	36.14135755	LFC	Niassa
Monte Maungo A	-14 48 13.6	33 31 15.1	-14.80499232	33.52049706		
Monte Maungo B	-14 47 54.6	33 30 41.3	-14.79971482	33.51110799		
Morrumbala	-17 20 30	35 36 00	-17.34274524	35.59967316	LFC	Zambézia

Mossuril	-14 57 30	40 43 30	-14.95954847	40.7247807	LFC	Nampula
Mount Mwam-palha	-25 05 47.3	33 46 30.1	-25.09715729	33.77464463	Sacred site	Chongoene
Movene I (a, b, c)	-26 01 00	32 17 00	-26.01730586	32.28291563	ESA	Maputo
Movene II	-25 53 00	32 17 00	-25.88397852	32.2829161	ESA	Maputo
Movene IV	-25 50 00	32 16 00	-25.83398073	32.26624926	ESA	Maputo
Movene VI	-25 53 00	32 18 00	-25.88397857	32.29958312	MSA	Maputo
Mt Zemba	-19 18 00	33 21 00	-19.30097027	33.34962367	LFC	Manica
Mugwambane (06)	-22 28 20.7	31 31 59.0	-22.47322104	31.53263391	MSA/ESA	PNL
Muhekani	-15 09 20	39 18 15	-15.15675836	39.30391819	EFC/LFC	Nampula
Muringary Bay	-21 00 15	35 03 00	-21.00505260	35.04965449	LFC	Inhambane
Mutamba	-24 01 24.1	35 20 34.4	-24.02409994	35.34254197		Jangamo
Namaacha	-25 58 00	32 04 00	-25.96730748	32.06624458	MSA	Maputo
Namapa 1	-13 42 24	39 49 10	-13.70795043	39.81920799		Namapa
Namapa 2	-13 44 56	39 49 45	-13.75017030	39.82893037		Namapa
Namolepiua	-15 09 00	39 54 30	-15.15120376	39.90809716	EFC/LFC	Nampula
Ndongwe's Creek	-20 10 00	34 45 00	-20.16759474	34.74965022	LFC	Sofala
Ngomene	-22 33 00	35 13 02	-22.55000000	35.21722225	LFC	Inhambane
Ngungulane	-24 40 00	33 58 30	-24.66737211	33.97462239	LFC	Gaza
Nhacangara	-18 12 00	33 14 00	-18.20102827	33.23295709	LFC	Manica
Nhachengue	-23 53 00	35 12 00	-23.88407845	35.19965044	EFC/LFC	Inhambane
Nhahulene A	-25 06 15.0	33 46 42.2	-25.10485139	33.77800579	EFC/LFC	Chongoene
Nhahulene B	-25 05 59.5	33 45 43.4	-25.10054599	33.76167213	EFC/LFC	Chongoene
Nhahulene C	-25 06 00.1	33 46 49.1	-25.10071270	33.77992251	EFC/LFC	Chongoene
Nhahulene D	-25 06 00.0	33 46 49.2	-25.10068492	33.77995029	EFC/LFC	Chongoene
Nhahulene E	-25 05 59.9	33 46 50.0	-25.10065714	33.78017252	EFC/LFC	Chongoene
Nhahulene F	-25 05 59.5	33 46 51.5	-25.10054604	33.78058919	EFC/LFC	Chongoene
Nhahulene G	-25 05 58	33 46 56.4	-25.10012940	33.78195033	EFC/LFC	Chongoene
Nhahulene H	-25 05 58.4	33 4658.9	-25.10024050	33.78264479	EFC/LFC	Chongoene
Nhahulene I	-25 05 57.8	33 46 59.9	-25.10007385	33.78292258	EFC/LFC	Chongoene
Nhahulene J	-25 05 57.7	33 45 26.0	-25.10004600	33.75683869	EFC/LFC	Chongoene
Nhahulene L	-25 03 25.1	33 42 38.8	-25.05765894	33.71039340	EFC/LFC	Chongoene
Nhahulene N	-25 05 40.8	33 45 27.7	-25.09535177	33.75731094	EFC/LFC	Chongoene
Nhahulene O	-25 05 51.0	33 47 23.6	-25.09818506	33.78950606	EFC/LFC	Chongoene
Nhahulene P	-25 05 52,2	33 45 17.6	-25.09851829	33.75450532	EFC/LFC	Chongoene
Nhahulene R	-25 05 29.5	33 47 10.6	-25.09221310	33.78589489	EFC/LFC	Chongoene
Nhahulene sacred rock	-25 05 59.4	33 47 02.2	-25.10051827	33.78356148	Sacred site	Chongoene
Nhanfumuine bairro 4A	-25 05 52.1	33 47 14.3	-25.09849059	33.78692267	LFC	Chongoene
Nhanfumuine bairro 4B	-25 04 47.4	33 48 58.9	-25.08051927	33.81597889	LFC	Chongoene
Nhanfumuine bairro 4C	-25 04 51.6	33 49 05.5	-25.08168589	33.81781226	LFC	Chongoene
Nhaulene Q	-25 05 52.1	33 47 14.4	-25.09849059	33.78695045	LFC	Chongoene
Nhocuene	-26 08 00	32 57 00	-26.13396920	32.94959600	LFC	Gaza
Okurrine	-13 51 22	37 47 37	-13.85738440	37.79333362		Ribaué
Old Mapai Ngala	-22 53 03.3	31 56 37.1	-22.88503522	31.94322440	Historical site	Mapai
P C E 8 (Moamba)	-25 36 00	32 15 00	-25.60065792	32.24958306	ESA	Maputo

Pafuri hilltop 2	-22 27 11.7	31 19 14.3	-22.45405476	31.32021296	ESA/MSA	Pafuri
Pafuri hilltop3	-22 27 13.3	31 19 10.9	-22.45449918	31.31926849	ESA/MSA	Pafuri
Pafuri mountain	-22 26 31.7	31 19 02.5	-22.44294419	31.31693515	MSA/Historic site	Pafuri
Pafuri mountain	-22 26 39.7	31 19 14.2	-22.44516631	31.32018521	LFC/LSA	Pafuri
Penicela	-21 17 00	34 03 30	-21.28420308	34.05796672	EFC	Inhambane
Pinda	-17 22 00	35 20 50	-17.36774348	35.34689022	LFC	Zambézia
Ponta Pangaia	-21 45 40	35 26 10	-21.76195984	35.43577183		
Ponta Chuabo	-21 46 58	35 16 56	-21.78362511	35.28187970	EFC	Inhambene
Ponta das três Marias	-26 07 02	32 39 59	-26.11733581	32.66629005	ESA/MSA	
Ponta das três Marias	-26 07 00	32 40 00	-26.11730248	32.66625672	ESA/MSA	Maputo
Ponta de Ouro	-26 51 00	32 53 00	-26.85060402	32.88292539	LFC	Matutuine
Ponta Dobela 1	-26 31 00	32 55 00	-26.51728542	32.91626062	LFC	Maputo
Ponta dos C F Moamba-Magude Km 57.9	-25 10 00	32 33 00	-25.16734523	32.54959083	ESA/MSA/LSA	Maputo
Ponta Dundo 1	-21 47 15	35 27 30	-21.78834746	35.45799446	EFC/LFC	Inhambane
Ponta Dundo 2	-21 47 30	35 03 00	-21.79251307	35.04965263	EFC/LFC	Inhambane
Ponta Genganena	-21 39 30	35 26 50	-21.65918720	35.44688342	LFC	Inhambane
Ponta Mamoli	-26 42 33	32 53 50	-26.70977689	32.89681508	LFC	Matutuine
Ponta Maone	-26 01 02	32 35 59	-26.0173401	32.59958899	ESA/MSA	
Ponta Maone	-26 01 00	32 36 00	-26.01730677	32.59958899	ESA/MSA	Maputo
Ponta Miliban-galala	-26 27 00	32 55 50	-26.45062174	32.93015004	LFC	Maputo
Ponta Pangaia II	-21 45 45	35 26 02	-21.76334865	35.43354956	LFC	Inhambane
Ponta Raza	-26 03 00	32 54 00	-26.05063945	32.89959522	EFC/LFC	Maputo
Ponta Tores	-26 04 05	32 52 00	-26.06869411	32.86626112	LFC	Maputo
Ponte dos CF Moamba-Magude	-25 10 03	32 32 59	-25.16737857	32.54959083	ESA/LSA	Maputo
Portas da Changalane	-25 40 49	32 08 02	-25.68035397	32.13398035	ESA/MSA	Changalane
Porto Henrique	-26 14 00	32 25 00	-26.23396322	32.41625102	ESA	Maputo
Posto Velho da Moamba	-25 34 02	32 16 58	-25.56735953	32.28288387	ESA/MSA	Moamba
Posto Velho da Moamba	-25 34 00	32 17 00	-25.56732619	32.28291721	ESA/MSA	Maputo
Praia de Bilene	-25 19 40	33 14 00	-25.32845082	33.23293802	EFC	Gaza
Praia de Ravene	-24 17 09	35 22 08	-24.28655989	35.36854181	EFC	Inhambane
Quinta Olsa (Revez Duarte)	-26 00 02	32 29 59	-26.00064056	32.49958693	ESA/MSA	
Quinta Olsa (Revez Duarte)	-26 00 00	32 30 00	-26.00064056	32.49958693	ESA/MSA	Maputo
Quisiva	-12 37 00	40 37 00	-12.61801230	40.61644735	LFC	Cabo Del-gado
Ravene Ruins	-24 14 48.9	35 16 01.9	-24.24764481	35.26684532		Jangamo
Ressano Garcia Km 15	-25 36 00	32 10 00	-25.60065768	32.16624797	MSA	Maputo
Ressano Garcia Km 3 Sal	-25 28 00	32 00 00	-25.46732994	31.99957827	LSA	Maputo
Riane 1	-13 43 18	40 09 05	-13.72294990	40.15115914		Memba
Riane 2	-13 44 22	40 09 08	-13.74072669	40.15199248		Memba
Ribaue 1	-13 54 40	38 19 45	-13.91238192	38.32889989		Ribaué
Ribaue 2	-13 52 15	38 18 15	-13.87210637	38.30389943		Ribaué
Rio Bidongo	-26 03 02	32 05 58	-26.05063717	32.09957831	MSA/LSA	Maputo

Rio Bidongo	-25 56 28	32 06 36	-25.94114212	32.11007893	MSA/LSA	Maputo
Rio Bidongo	-26 03 00	32 06 00	-26.05063717	32.09957831	MSA/LSA	Maputo
Rio Lúrio	-13 40 15	39 51 20	-13.67211913	39.85531987		Namapa
Rio Tembe	-26 00 00	32 29 00	-26.00064052	32.48291991		Maputo
Rio Tembe (Estuário)	-26 00 15	32 29 45	-26.00480703	32.49542016	LFC	Maputo
Ruinas de Ravene	-24 14 09	35 16 05	-24.23656200	35.26770648	Historical time	Inhambane
Sancul I	-26 00 15	32 29 45	-26.00480703	32.49542016	LFC	Maputo
Sancul II	-15 31 15	40 39 00	-15.52201748	40.64977858	LFC	Nampula
Sancul III	-15 41 15	40 39 00	-15.68867502	40.6497784	LFC	Nampula
Saua	-13 58 10	38 14 25	-13.97071190	38.24000914		Ribaué
Serra Songo	-15 35 00	32 46 00	-15.58450326	32.76628634	LFC	Songo
Serra Vumba	-18 59 30	32 53 00	-18.99265219	32.88294829	LFC	Manica
Shellmidden C	-25 05 59.7	33 46 49.3	-25.10060159	33.77997807	EEFC/LFC	Chongoene
Shellmidden E	-25 05 58.9	33 43 56.5	-25.10037925	33.73197706	EEFC/LFC	Chongoene
Siaia	-24 57 45	33 46 00	-24.96319121	33.76628376	LFC	Gaza
Sitio ao O. Da Fortaleza	-20 10 00	34 46 00	-20.16759478	34.76631722	LFC	Sofala
São Jerónimo	-25 00 00	32 35 00	-25.00068634	32.58292542	LSA	Maputo
Sofala Greek	-20 10 00	34 45 00	-20.16759474	34.74965022	LFC	Sofala
Sunduine	-25 07 00	31 58 00	-25.1173459	31.96624545	ESA	Maputo
Tayia	-13 38 15	38 51 05	-13.63878667	38.85113294		Mecuburi
Tembe	-25 42 02	32 27 58	-25.700654	32.46618727	ESA/MSA	Katembe
Tembe VIII	-26 18 02	32 27 59	-26.30062706	32.46628517	ESA/MSA	Katembe
Tembe VIII	-26 18 00	32 28 00	-26.30062706	32.46625184	ESA/MSA	Maputo
Tinonganine	-26 27 00	32 38 00	-26.45062089	32.6329215	MSA	Maputo
Tototo 1	-13 43 35	38 55 25	-13.72767066	38.92335653		Mecuburi
Tototo 2	-13 43 00	38 56 22	-13.71794899	38.93919019		Mecuburi
Tototo 3	-13 44 40	38 55 25	-13.74572520	38.92335651		Mecuburi
UEM	-25 57 00	32 36 00	-25.95064309	32.59958922	EFC/LFC	Maputo
Umbeluzi V	-26 01 02	32 22 58	-26.01733948	32.38288441	ESA/MSA	Maputo
Umbeluzi V	-26 01 00	32 23 00	-26.01730615	32.38291774	ESA/MSA	Maputo
Umpala	-26 03 02	32 18 59	-26.05063779	32.31628289	ESA/MSA	Maputo
Umpala	-25 57 02	32 22 58	-25.95064248	32.38288464	ESA/MSA	Maputo
Umpala	-26 03 00	32 19 00	-26.05063779	32.31624955	ESA/MSA	Maputo
Vale do Manglimbe	-26 18 02	32 06 59	-26.30062604	32.11627777	ESA/MSA	Maputo
Vale do Manglimbe	-26 18 00	32 07 00	-26.30062604	32.11624443	ESA/MSA	Maputo
Vale do Manglimbe (Bassope #3)	-26 17 00	32 06 00	-26.28396007	32.09957747	ESA	Maputo
Vertices 227-5-227-6	-21 25 30	33 35 45	-21.42586159	33.59545686		Maputo
Vertices 227-5-227-6	-26 43 05	32 52 00	-26.7186653	32.86625884	LFC	Maputo
Vila da Maganja	-17 18 30	37 31 00	-17.30941664	37.51637884		Zambézia
Vila de Maganja	-21 25 30	33 35 45	-21.42586159	33.59545686	LFC	Inhambane
Vitori's Cave	-17 18 30	37 31 00	-17.30941664	37.51637884	LFC	Zambézia
Xacota	-13 35 08	38 49 25	-13.58684510	38.82335466		Mecuburi
Xai-Xai Praia Velha	-25 07 15	33 43 00	-25.12151713	33.71628221	EFC/LFC	Xai - Xai

Xavanine sacred rock	-25 06 42.7	33 45 18.7	-25.11254542	33.75481083	Sacred site	Xai - Xai
Xiduene sacred rock	-25 07 14.5	33 43 40.1	-25.12137828	33.72742134	Sacred site	Xai - Xai
Xinunguine A	-25 07 11.4	33 42 50.0	-25.12051717	33.71350438	LFC	Xai - Xai
Xinunguine B	-25 07 13.8	33 42 50.6	-25.12118381	33.71367105	LFC	Xai - Xai
Xinunguine C	-25 07 10.0	33 42 46.2	-25.12012830	33.71244880	LFC	Xai - Xai
Xipelweni	-23 13 16.6	31 35 21.0	-23.22204565	31.58874385	Historical site	PNL
Xisimanhane	-22 53 17.2	31 50 27.6	-22.88889587	31.84058339	Historical site	PNL
Xitimanine	-25 04 56.7	33 49 18.6	-25.08310250	33.82145122	LFC	Chongoene
Xivundxungeni	-22 53 21.8	31 55 53.8	-22.89017383	31.93119636	Historical site	PNL
Závora	-24 31 28	35 12 14	-24.52515948	35.20353766	EFC	Inhambane
Zevene (Babitine)	-25 05 00	32 14 00	-25.08401486	32.23291781	ESA	Maputo
Zitundo	-26 44 40	32 49 30	-26.74505292	32.82459120	LFC	Matutuine
	-23 54 00	32 04 00	-23.90073654	32.06625156	LFC	Gaza
	-26 37 00	32 54 00	-26.61728097	32.89959325		
	-23 37 27.8	31 55 41.2	-23.62513823	31.92769401	MSA/LSA	PNL
	-23 36 56.0	31 54 45.3	-23.61630528	31.91216594	Historical site	PNL
	-23 29 19.5	31 52 58.4	-23.48950574	31.88247128	Historical site / warhistory	PNL
	-23 22 49.9	32 20 16.4	-23.38128994	32.33748102	EFC	PNL
	-23 21 03.2	32 18 50.0	-23.35165241	32.31348061	LSA/LFC	PNL
	-22 45 28.6	31 53 30.5	-22.75873571	31.89139039	EFC	PNL
	-22 45 10.6	31 53 04.3	-22.75373593	31.88411248	LFC/Recent?	PNL
	-22 40 55.2	31 48 13.3	-22.68279476	31.80327770	LSA	PNL
	-22 27 02.3	31 19 03.5	-22.45144377	31.31721291	Historical site	PNL
	-22 26 41.0	31 22 01.9	-22.44552753	31.36676949	Historical site	PNL
	-22 50 45.1	31 57 42.3	-22.84664825	31.96133600	War memorial	PNL
	-22 53 50.1	32 00 01.3	-22.89803473	31.99994775	ESA/LSA	PNL
	-22 53 56.7	31 59 59.3	-22.89986797	31.99939218	ESA/LSA	PNL
	-23 02 08.0	32 06 44.2	-23.03633384	32.11186630	LFC/Recent	PNL
	-23 03 13.4	32 09 07.6	-23.05449972	32.15170040	LFC/Recent	PNL
	-23 45 30.8	32 03 21.3	-23.75929882	32.05550178	LSA	PNL
	-23 49 24.5	32 03 21.3	-23.82421238	32.05550158	ESA	PNL
	-23 12 14.2	31 38 30.2	-23.20471330	31.64130054		
	-22 38 28.0	31 44 48.3	-22.64190773	31.74633221		
	-22 26 48.7	31 24 00.8	-22.44766640	31.39979794	ESA? Historic	PNL
	-22 53 03.3	31 56 37.1	-22.88503522	31.94322440		
	-22 45 10.6	31 53 04.3	-22.75373593	31.88411248		
	-17 27 14	35 01 37	-17.45384863	35.02688338	LFC	

Table 2. Table of UTM coordinates combined and compared with the same geographic coordinates

Sites	Coordinates System					
	UTM / 36J		DD		DMS	
	Y	X	Y	X	Y	X
AR01	7217991	412973	-25.15367306	32.13612165	-25 0913	32 08 10
AR02	7221693	414698	-25.12034315	32.15346606	-25 07 13	32 09 12
AR03	7223395	409307	-25.10465941	32.10010881	-25 06 17	32 06 00
AR04	7227087	410561	-25.07139604	32.11278518	-25 04 17	32 06 46
AR05	7226839	407986	-25.07348067	32.08723918	-25 04 25	32 05 14
AR07	7210689	407466	-25.21927901	32.08099226	-25 13 09	32 04 52
AR08	7209148	404409	-25.23300177	32.05053987	-25 13 59	32 03 02
AR09	7214300	405596	-25.18655651	32.06267997	-25 11 12	32 03 46
AR010	7207615	404674	-25.24686094	32.05306334	-25 14 49	32 03 11
COR1 / Corrumana 1	7220957	414260	-25.12696430	32.14907576	-25 07 37	32 08 57
COR2 / Corrumana 2	7223395	409307	-25.10465941	32.10010881	-25 06 17	32 06 00
COR3 / Corrumana 3	7215492	409864	-25.17605531	32.10511252	-25 10 34	32 06 18
COR4 / Matchune	7216890	406788	-25.16324411	32.07468542	-25 09 48	32 04 29
Sacred Place	7219336	406219	-25.14112209	32.06920757	-25 08 28	32 04 09
Burial	7224263	409225	-25.09681658	32.09935302	-25 05 49	32 05 58
CE01/Cemetery	7224263	409225	-25.09681658	32.09935302	-25 05 49	32 05 58
CE02/Cemetery	7214277	404825	-25.18671552	32.05502733	-25 11 12	32 03 18
Camp 1	7216890	406788	-25.16324411	32.07468542	-25 09 48	32 04 29
Camp 2	7214954	405100	-25.18061987	32.05780331	-25 10 50	32 03 28
Camp 3	7222265	421740	-25.11556035	32.22334498	-25 06 56	32 13 24
Fishing 1	7220723	421638	-25.12947944	32.22224518	-25 07 46	32 13 20
Fishing 2	7221768	410864	-25.11944388	32.11544392	-25 07 10	32 06 56
R/AV1	7224359	412797	-25.09616055	32.13478064	-25 05 46	32 08 05
R/AV2	7223746	412551	-25.10168164	32.13230215	-25 06 06	32 07 56
R/AV3	7221123	406267	-25.12498898	32.06980596	-25 07 30	32 04 11
R/AV5	7218084	406151	-25.15242303	32.06844720	-25 09 09	32 04 06
R/AV6	7206596	411018	-25.25645259	32.11598317	-25 15 23	32 06 58
R/AV6	7224105	421674	-25.09894152	32.22279542	-25 05 56	32 13 22
SNP	7227230	404621	-25.06974114	32.05390430	-25 04 11	32 03 14
SP01	7219336	406219	-25.14112209	32.06920757	-25 08 28	32 04 09

Appendix 5. Interview Questions

Topic: Interview on Cultural Heritage Management and Contract Archaeology
Objective: Collect information and share experience on Cultural Heritage Management

Interview procedure
(Before starting the interview, the interviewee is informed about the procedures of how the interview will be conducted, to which he or she must consent or not)

1. The interview will be recorded. Accept ____ or not ____
2. Would you like to identify yourself _____ or to be anonymous _____
3. Would you be available for future contact ongoing discussion on this topic? Yes __ or not ___
4. If there are some questions you do not understand, please, ask for clarification.
5. Before making use of this information, I [the interviewer] will send to you for possible correction, comments and validation of the information.

Questions
1. What is your professional occupation of the moment?
    a) What is your role?
    b) How long you have been working in this area?
    c) What was your occupation in the last 5 years?
2. Can you describe the Cultural Heritage Management services in the country you work? [This question refers to the country where the person has worked for the last 5 years, but is open to possible comparisons with other contexts known by the interviewee]
3. Is there a structure or system that coordinates research activities within rescue archaeology.
4. Are there any institution that oversees the research activities? If so,
    a) What is the relationship between the tutelage institution with other research and education institutions, such as museums and universities?
5. In case of projects that require Pre-Archaeological Impact Assessment, what is the procedure
    for protecting cultural heritage properties that exist in the areas covered by such projects.
6. What is the procedure of contract archaeology?
    a) Is there a procurement process?
    b) Is there a licensing procedure?
    c) How transparent is the procurement process? [This question dependent on the previous one]
    d) Who prepares the terms of reference for the tender? [This question dependent on the previous one]
7. Is there a mechanism for monitoring and supervising contract archaeology activities?
    a) If yes, how is it made? And who is the responsible authority/executor of monitoring?
    b) Who evaluates the reports, and what are the elements to consider in the evaluation process?

c) How is the report ‘quality’ defined?

8. How is the management and dissemination of information managed from rescue archaeology operations? For example, how and where the information is stored (from reports to artefacts) and how is it to be found.

9. What is the role of contract archaeology as you see it [e.g., should it be research or researchable, should it disseminate]?

a) In contract archaeology activities, what should the contractor pay for?

b) At a national level, how is contract archaeology research motivated?

10. How is the intangible aspects of the heritage managed in rescue archaeology?

11. How is the country’s law safeguards each different definition of heritage?

a) How strong is the legislation? [e.g. how much is it enforced in practice or people's adherence is voluntary].

b) To what degree would you estimate that the law is enforced, both in monitoring and in pushing people to follow the law?

c) What other legal instruments are in place to ensure compliance of pre-archaeological impact assessment? [or, how much of rescue/contract Archaeology is governed by the law of the country]?

d) Do you know any cases where someone has been taken to court for crimes against the heritage law or have you been involved in such cases yourself?

e) If so, what was the process and outcome?

f) How(is) normally cultural heritage crimes are pursued?

12. Are there instructions in policy or guidelines how to work with local communities in contract archaeology activities? If so/if not

a) How do you think a collaboration with local communities can be improved during contract archaeology?

b) Have you worked with local communities in your own practice?

13. How transparent or clear the system is now, with different people who is involved in contract archaeology?

14. Is there something you think I have forgotten to ask or that you would like to add.

Thank you for your collaboration!