

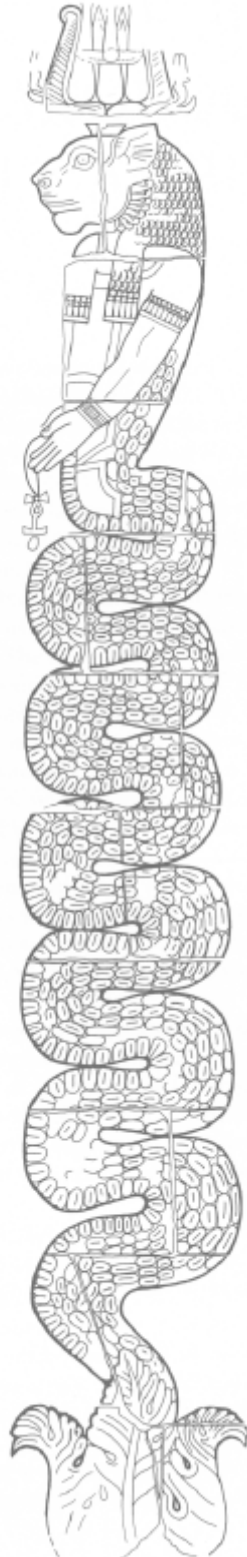
The Archaeological Sites of The Island of Meroe



Nomination File: World Heritage Centre

January 2010

The Republic of the Sudan
National Corporation for Antiquities and Museums



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National Corporation for Antiquities and Museums

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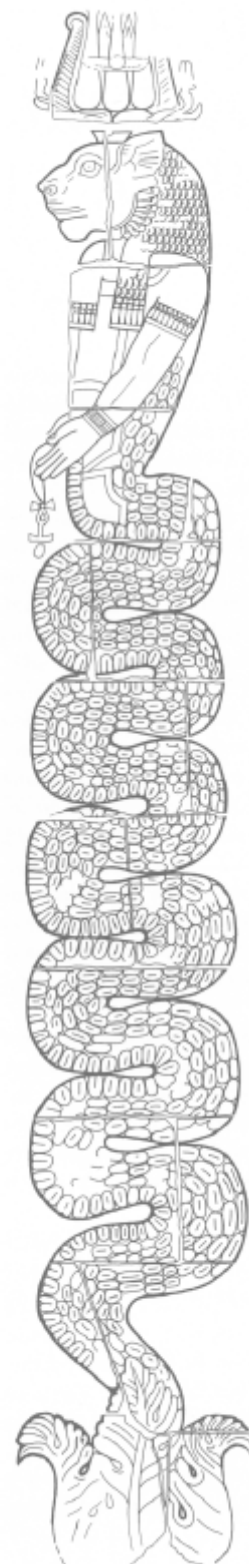
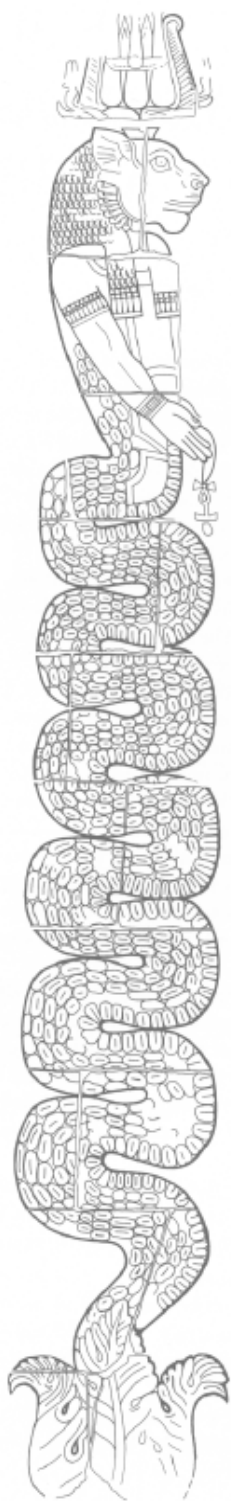
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Executive Summary

State Party The Republic of the Sudan

State, province, or region River Nile State, Shendi Province

Name of property The Archaeological Sites of the Island of Meroe

Geographical coordinates:

(maps 1-19)

Meroe town site (Meroe 1) latitude N 16° 56.111', longitude E 33° 42.852'

North and South cemeteries (Meroe 2) latitude N 16° 56.243', longitude E 33° 45.423'

Musawwarat es-Sufra latitude N 16° 24.649', longitude E 33° 19.705'

Naqa latitude N 16° 16.121', longitude E 33° 16.420'

Textual description of the boundaries of the proposed property

Meroe: The site of Meroe is over 3 km east–west and more than 1 km north–south. It is bordered by the Nile on the western side, where the town site is located, and by the sandstone plateau on the edges of the desert, where the pyramids dominate the landscape.

Musawwarat es-Sufra: The monuments of Musawwarat es-Sufra are located in a basin surrounded on almost four sides of the site by a chain of hills.

Naqa: The ancient relics of Naqa are bordered by a chain of sandstone hills on the eastern side, while the areas to the north, south, and west consist of flat plains crossed by annual rain channels (wadis).

Statement of outstanding universal value

The Island of Meroe is the heartland of the Kingdom of Kush, a major power in the ancient world from the 8th century BCE into the 4th century CE. *Meroe* became the principal residence of the ruler, and from the 3rd century BCE onwards it was the site of most subsequent royal burials. It also has evidence for industrial activities, particularly iron-working.

The nominated sites (the Meroe town site with the North and South cemeteries, Musawwarat es-Sufra, and Naqa) comprise the best preserved relics of the Kingdom of Kush, encompassing a wide range of architectural forms and occupying a range of environments. They testify to the wealth and power of the Kushite state and to its

wide-ranging contacts with the Mediterranean and Middle Eastern worlds: this is the meeting place of the Pharaonic and Classical worlds and Sahelian Africa.

Criteria under which inscription is proposed (and justification for inscription under these criteria)

- **Criterion ii:** *exhibit an important interchange of human values over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design*

The archaeological sites of the Island of Meroe provide a detailed insight into the interchange of ideas between central Africa and the Mediterranean world along what was the major corridor to and from Africa over a very long period during the ancient world. The interaction of local and foreign influences are demonstrated by the architecture, art, iconography, religion, and language.

- **Criterion iii:** *bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

All aspects of Kushite civilization were largely expunged by the arrival of Christianity on the Middle Nile in the 6th century CE. The nominated properties with their wide range of monument types, well preserved buildings, and potential for future excavation and other avenues of research are unique testimony to this, perhaps the greatest civilization of sub-Saharan Africa.

- **Criterion iv:** *be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history*

The pyramids at *Meroe* are outstanding examples of this highly distinctive Kushite funerary monument, and their intimate association with the well preserved remains of the urban centre is noteworthy. The evidence for iron-working is of considerable importance for studying the role of Meroe in the diffusion of metal-working technology in sub-Saharan Africa.

At *Naga* the ‘Roman kiosk,’ with its juxtaposition of architectural and decorative elements from Pharaonic Egypt, Greece, and Rome as well as from Kush itself, and the Lion Temple, which preserves superb reliefs of the Kushite gods and royalty, are of especial importance.

Musawwarat is a unique architectural ensemble with temples, courtyards, and domestic buildings, as well as major installations connected with water management, quarries, and industrial areas.

- **Criterion v:** *be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change*

The major centres of human activity far from the Nile at *Musawwarat es-Sufra* and *Naga* raise questions as to their viability in what is today an arid zone devoid of permanent human settlement. They offer the possibility through a detailed study of

the palaeoclimate, flora, and fauna of understanding the interaction of the Kushites with their desert hinterland.

Name and contact information of official local institution/agency

National Corporation for Antiquities and Museums (NCAM)

Address: PO Box 178, Khartoum, Sudan.

Tel. /fax: + 249 183 786784

E-mail: teharga2008@yahoo.com

**The Archaeological Sites of
The Island of Meroe (Sudan)**

1 IDENTIFICATION OF THE PROPERTY

1. a State Party

Democratic Republic of the Sudan

1. b State, province, or region

River Nile State

1. c Name of property

The Archaeological Sites of the Island of Meroe

1. d Geographical coordinates

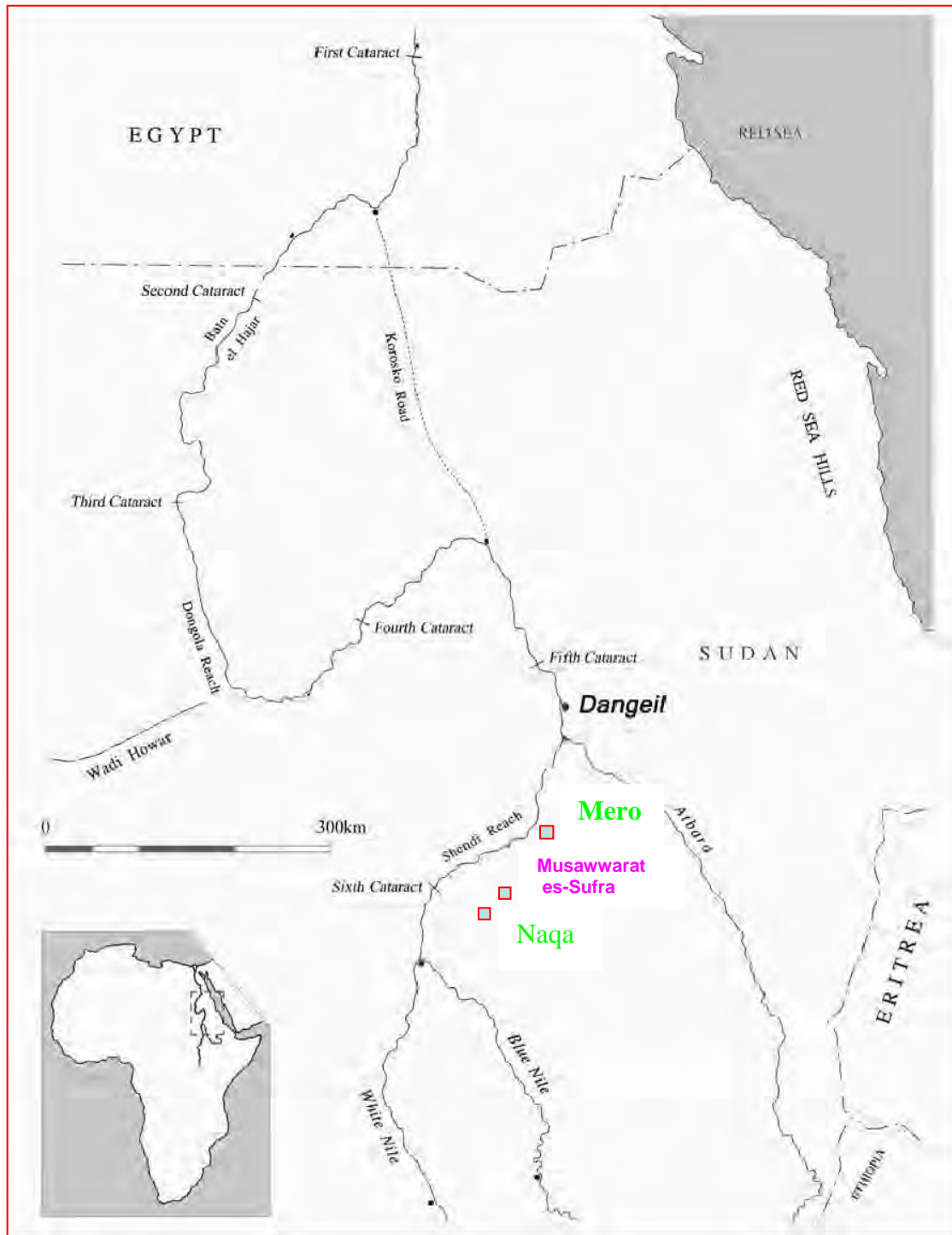
Meroe town site	latitude N 16° 56.111’ longitude E 33° 42.852’
North and South cemeteries	latitude N 16° 56.243’, longitude E 33° 45.423’
Musawwarat es-Sufra	latitude N 16° 24.649’ longitude E 33° 19.705’
Naqa	latitude N 16° 16.121’ longitude E 33° 16.420’

1. e Maps and plans, showing the boundaries of the nominated properties and buffer zones

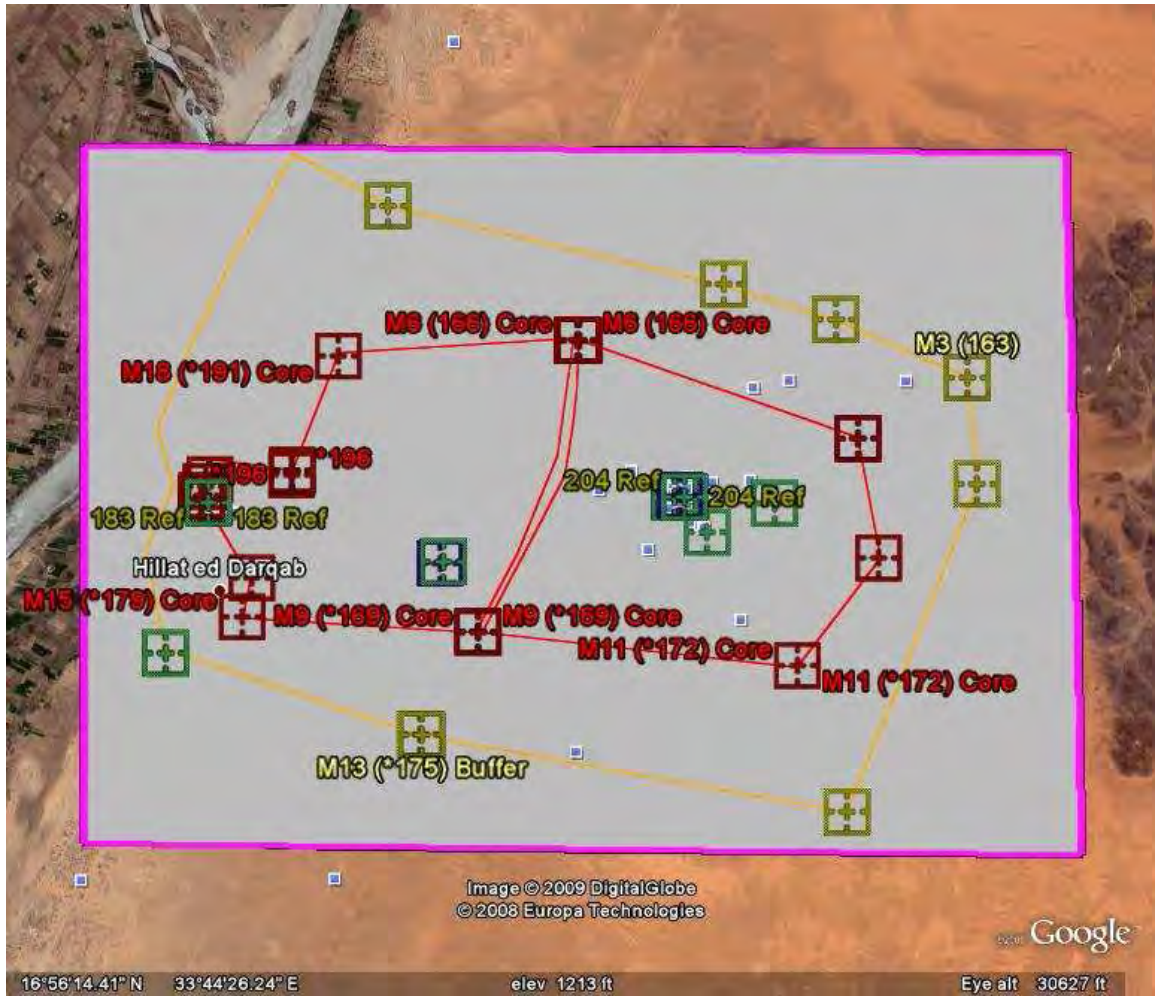
-List of maps and plans:

(2-7 and 9-18: Mario Santana; 9: D. Wildung; 8: Shinnie, Bradley and Grzyzmski)

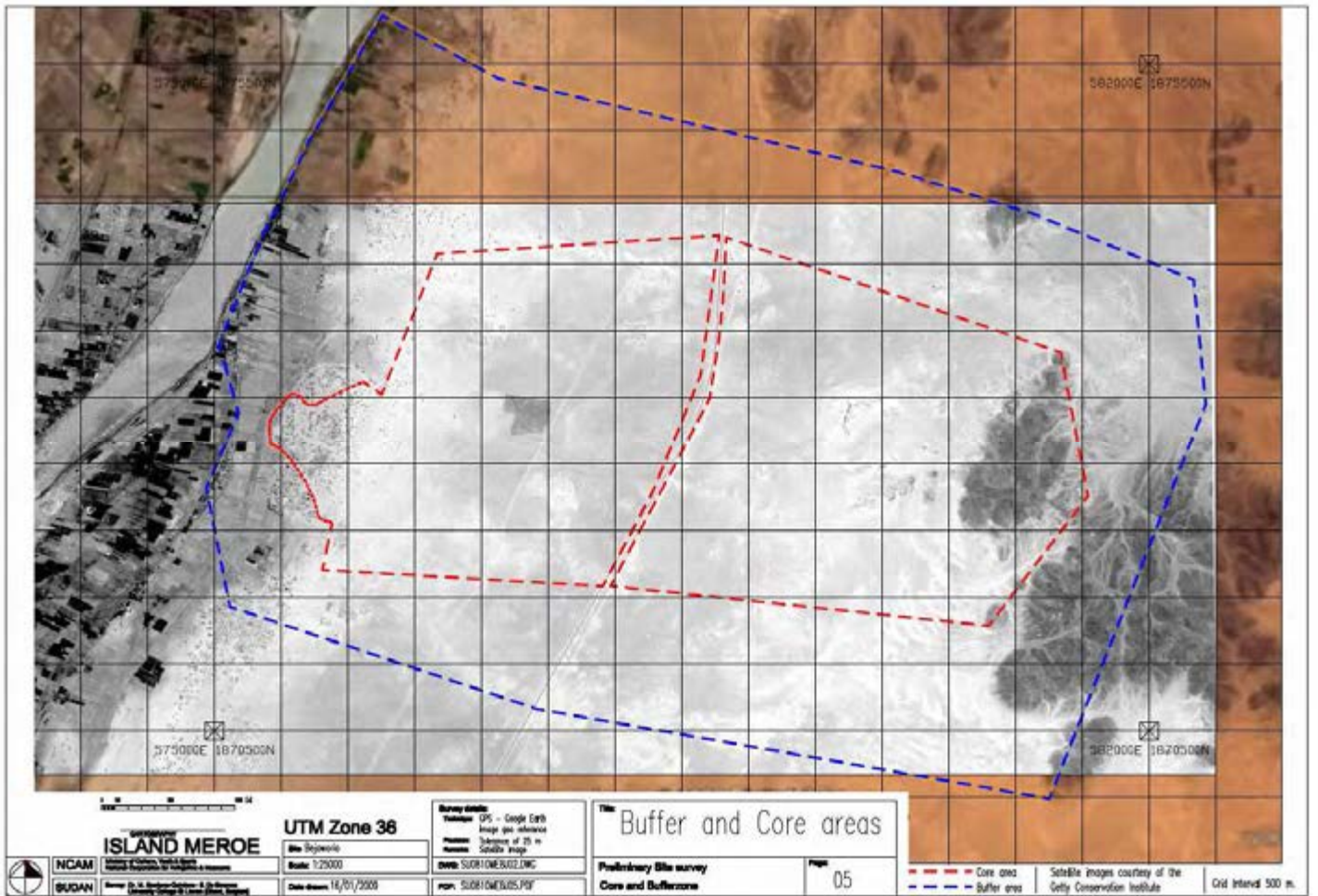
1. Map of northern and central Sudan showing the location of the nominated properties. (scale 1/300km)
2. MEROE (Begraveya) : boundaries on google image.
3. Meroe: Buffer and Core areas. (scale 1/100m)
4. Meroe: Core Area (west). (scale 1/100m)
5. Meroe: Core Area (East). (scale 1/1000m)
6. Meroe: Core Area: Specific. (scale 1/100m)
7. Meroe: Core Area: Specific. (scale 1/100m)
8. Meroe (west: Royal City) (after Shinnie, Bradley and Grzyzmski) (scale 1/100m)
9. Musawwarat el-Sufra: boundaries on google image.
10. Musawwarat es-Sufra Buffer and Core areas. (scale 1/100m)
11. Musawwarat es-Sufra Core area. (scale 1/100m)
12. Musawwarat es-Sufra Core area: Specific (hafir area). (scale 1/100m)
13. Musawwarat es-Sufra Core area: Specific (area of Great Enclosure). (scale 1/100m)
14. Naqa: boundaries on google image.
15. Naqa: Core and Buffer Areas. (scale 1/1000m)
16. Naqa: Core Area. (scale 1/1000m)
17. Naqa Core Area: Specific. (scale 1/200m)
18. Naqa Core Area: Specific. (scale 1/200m)
19. NAQA Site Plan (courtesy of Professor D. Wildung). (scale 1/100m)



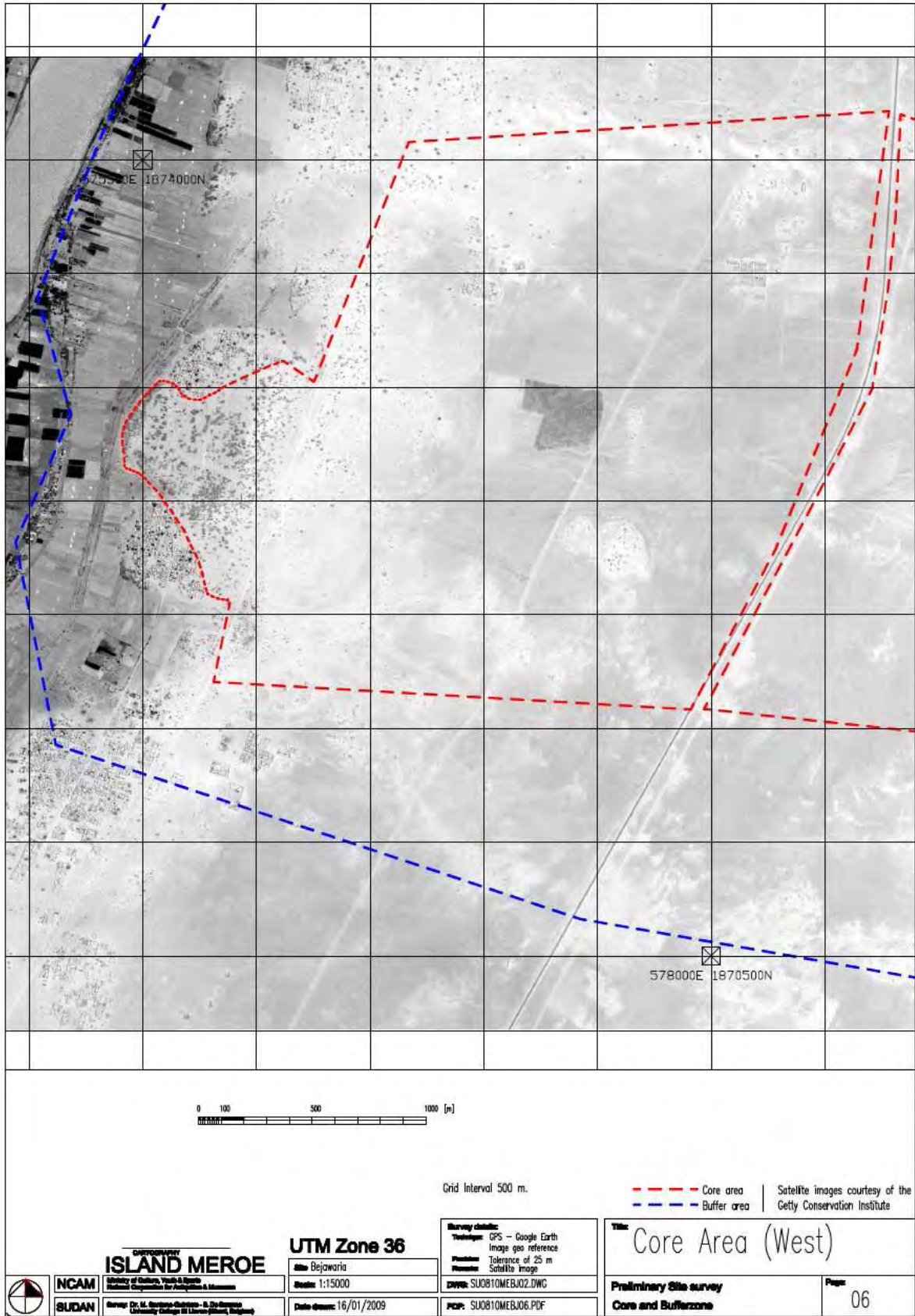
1. Map of northern and central Sudan showing the location of the three sites of nominated property



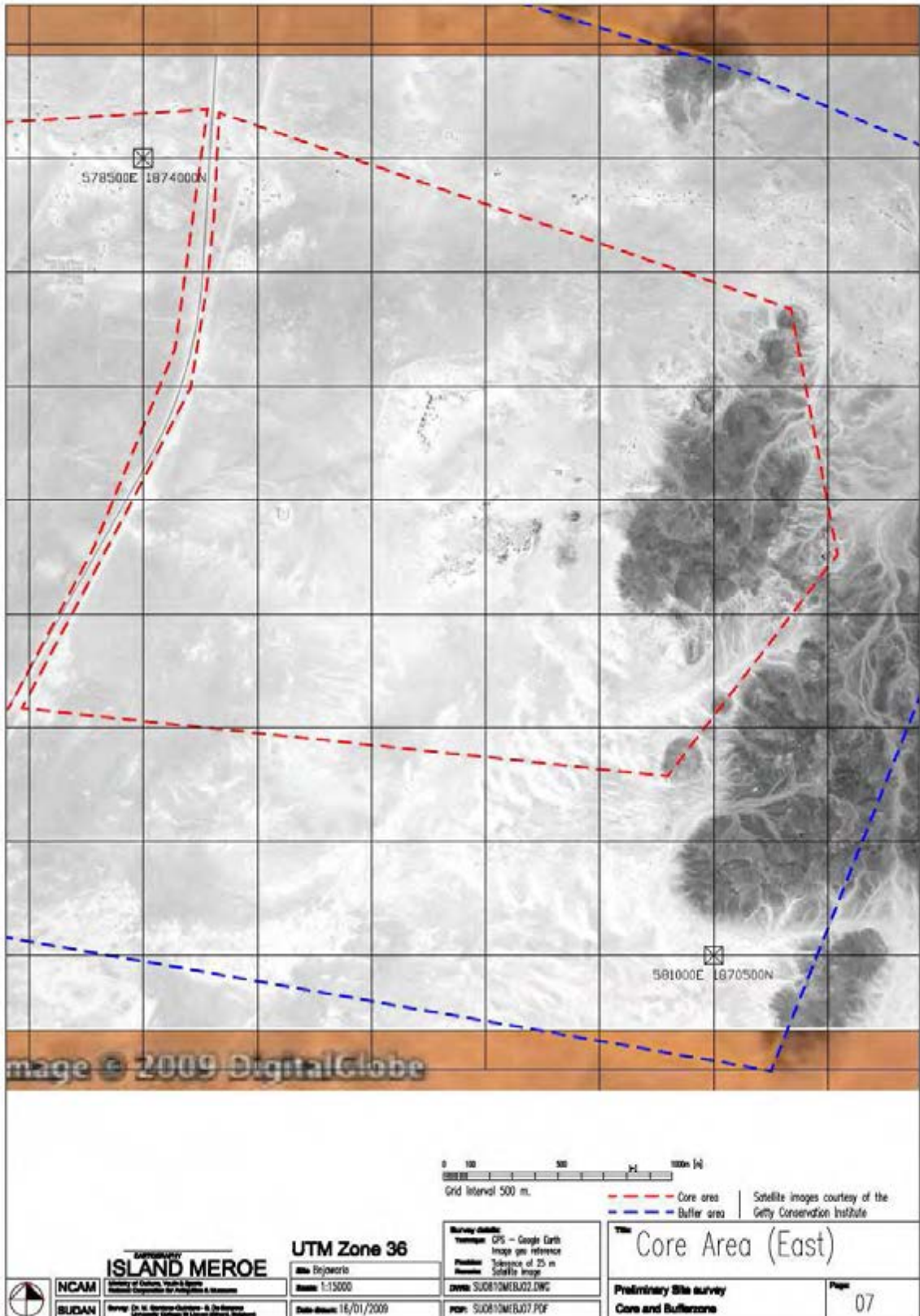
2. MEROE (Begraveya) : boundaries on google image



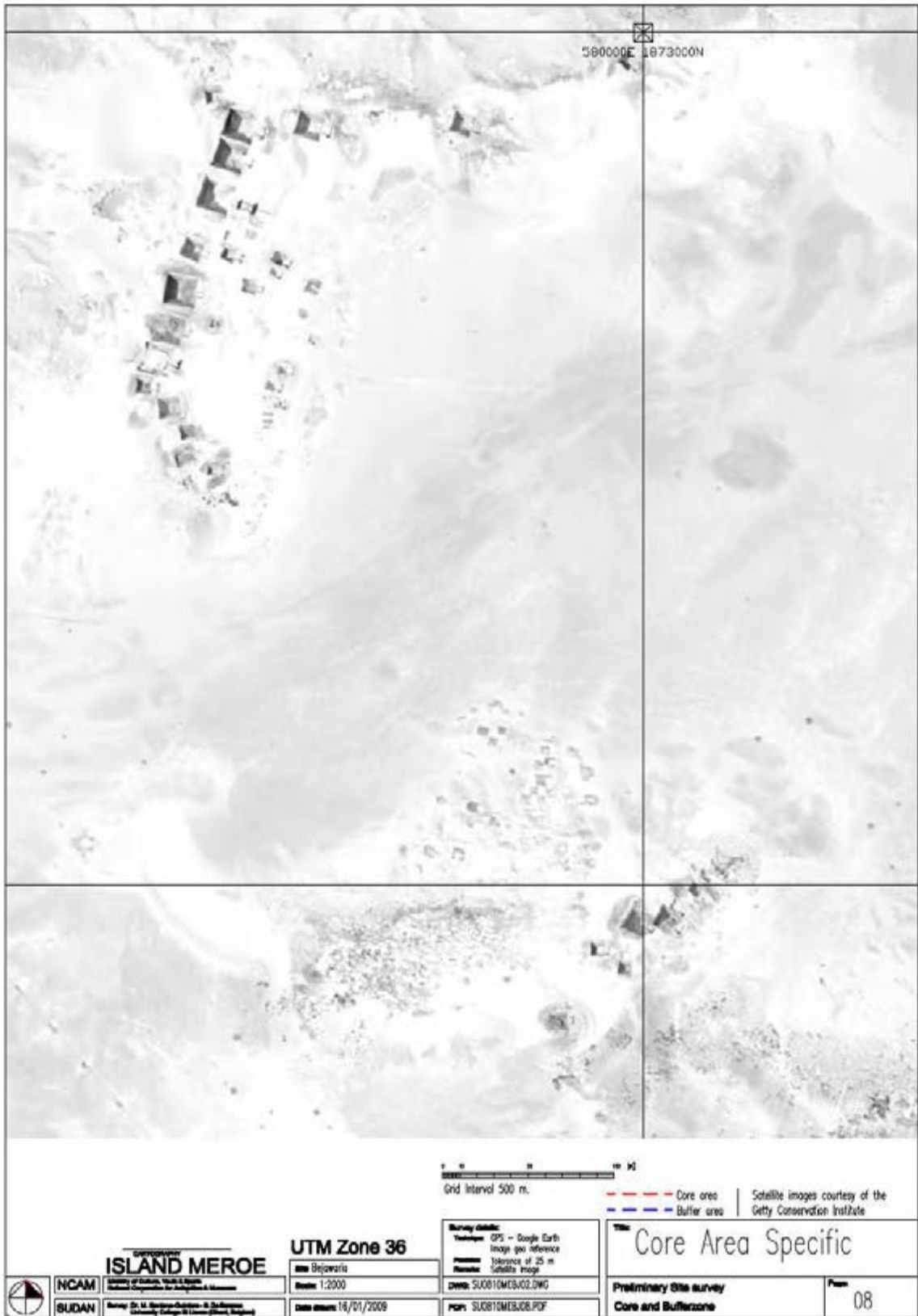
3. Meroe: Buffer and Core areas



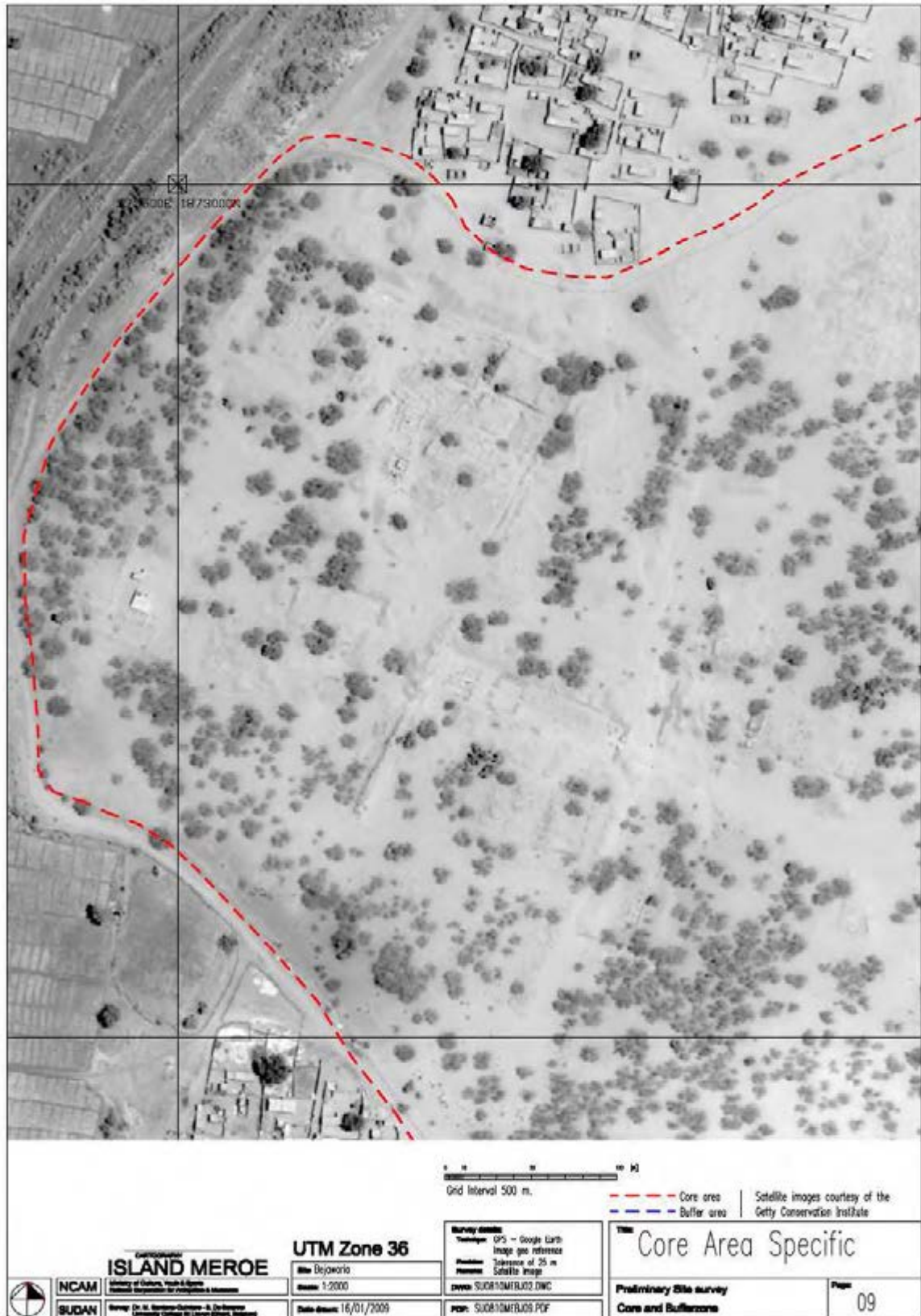
4. Meroe: Core Area (west)



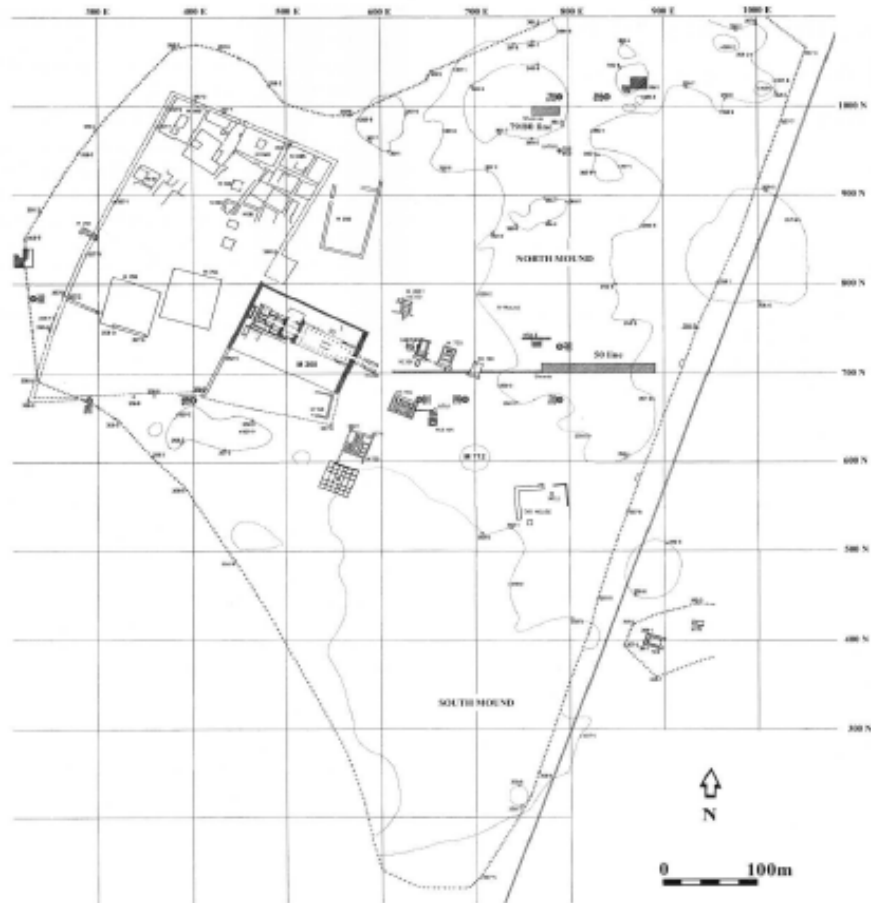
5. Meroe: Core Area (East)



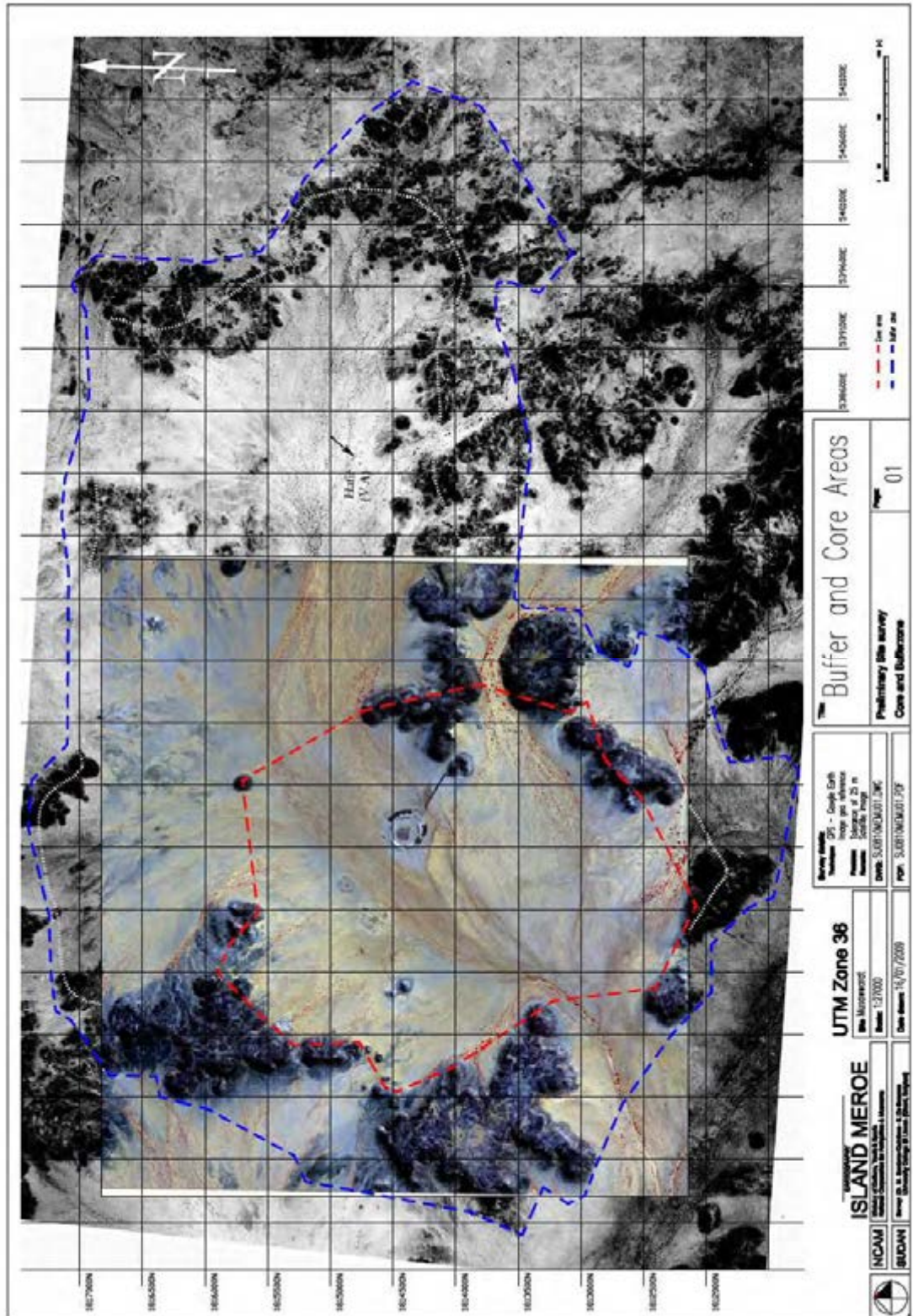
6. Meroe: Core Area :Specific



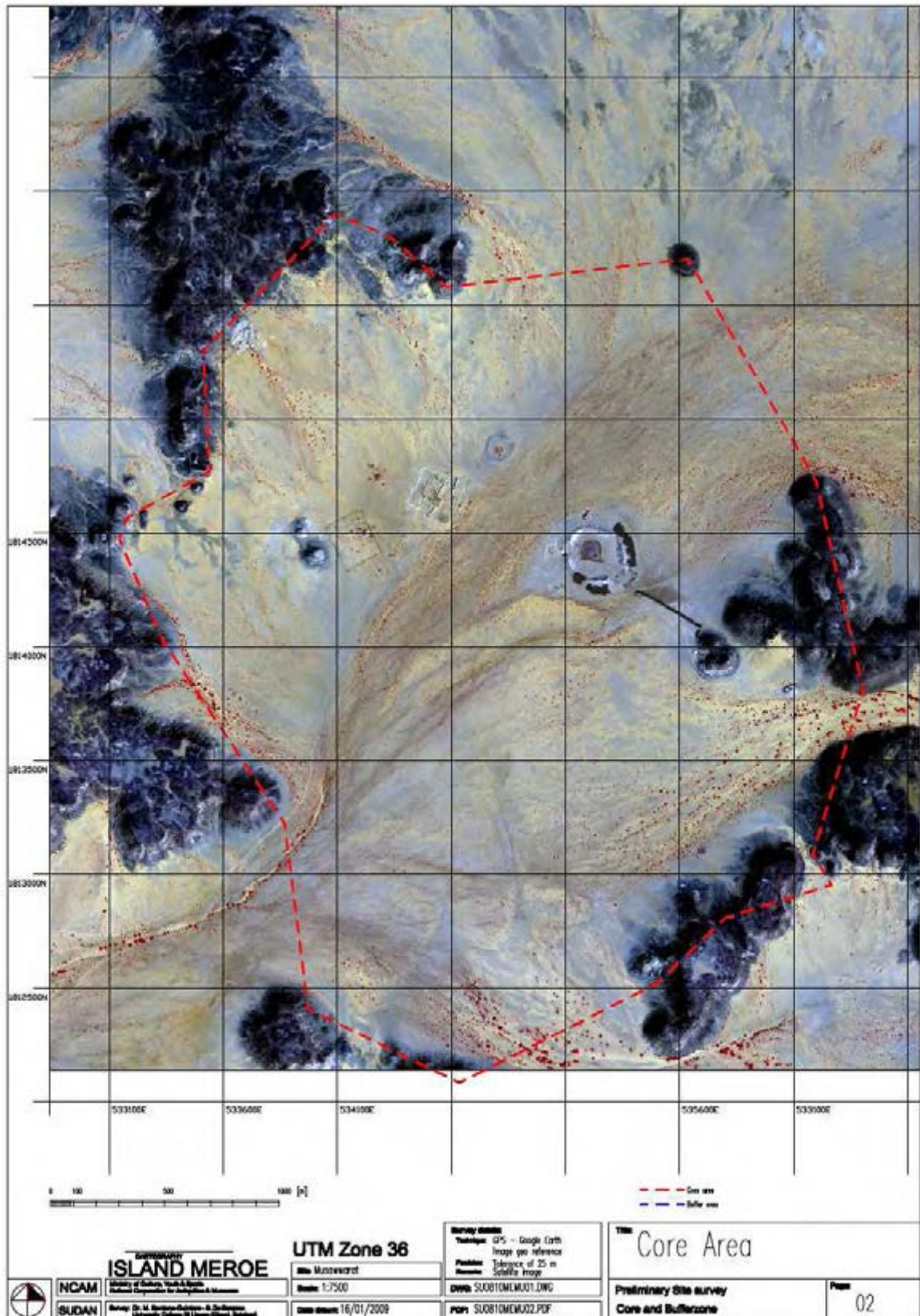
7. Merowe: Core Area: Specific



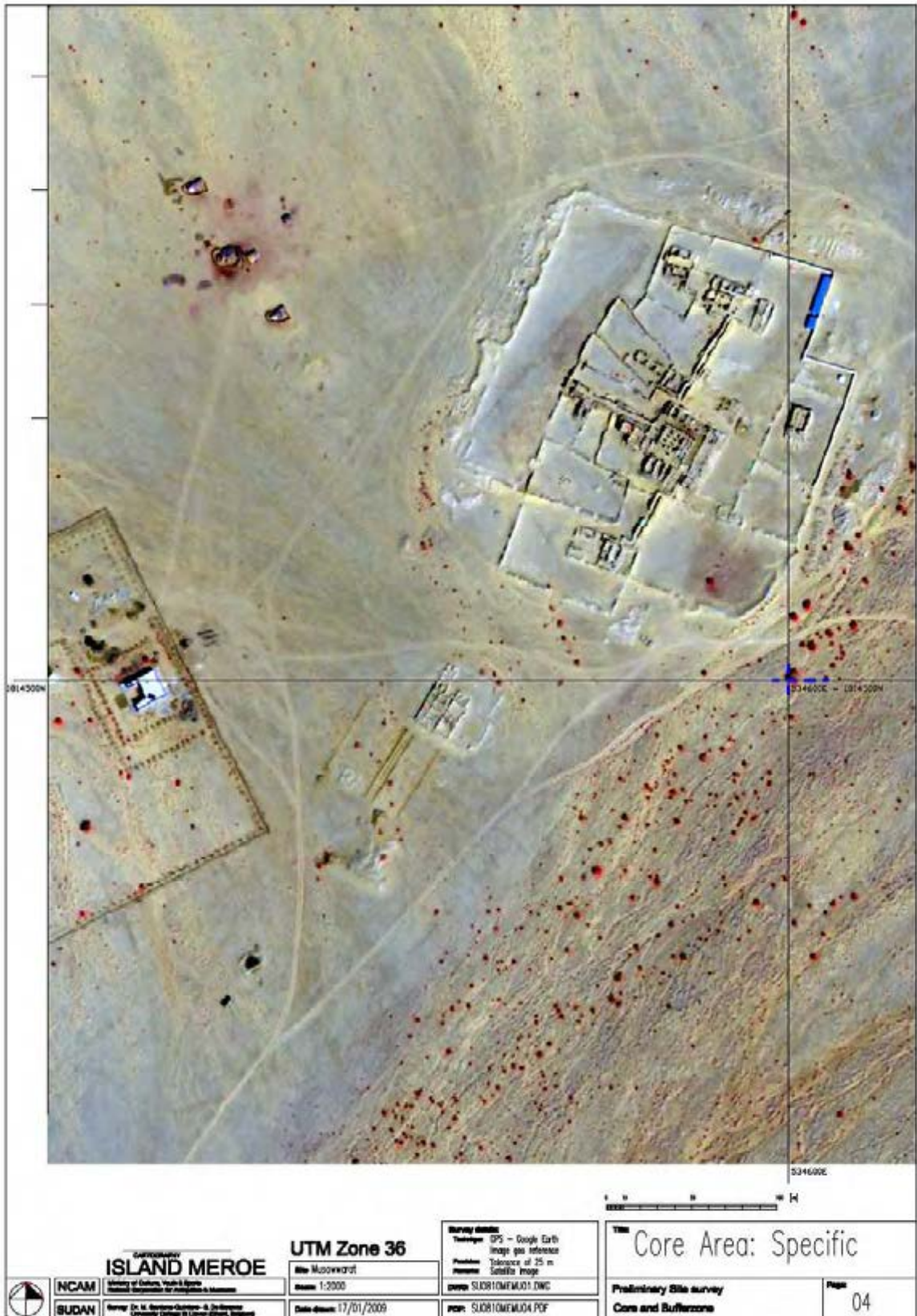
8. Plan of MEROE (after Shinnie & Bradley and MJE, with addition by K. Grzyzmski) 8. Meroe (west: Royal City) (after Shinnie, Bradley and Grzyzmski)



10. Musawwarat es-Sufra Buffer and Core areas



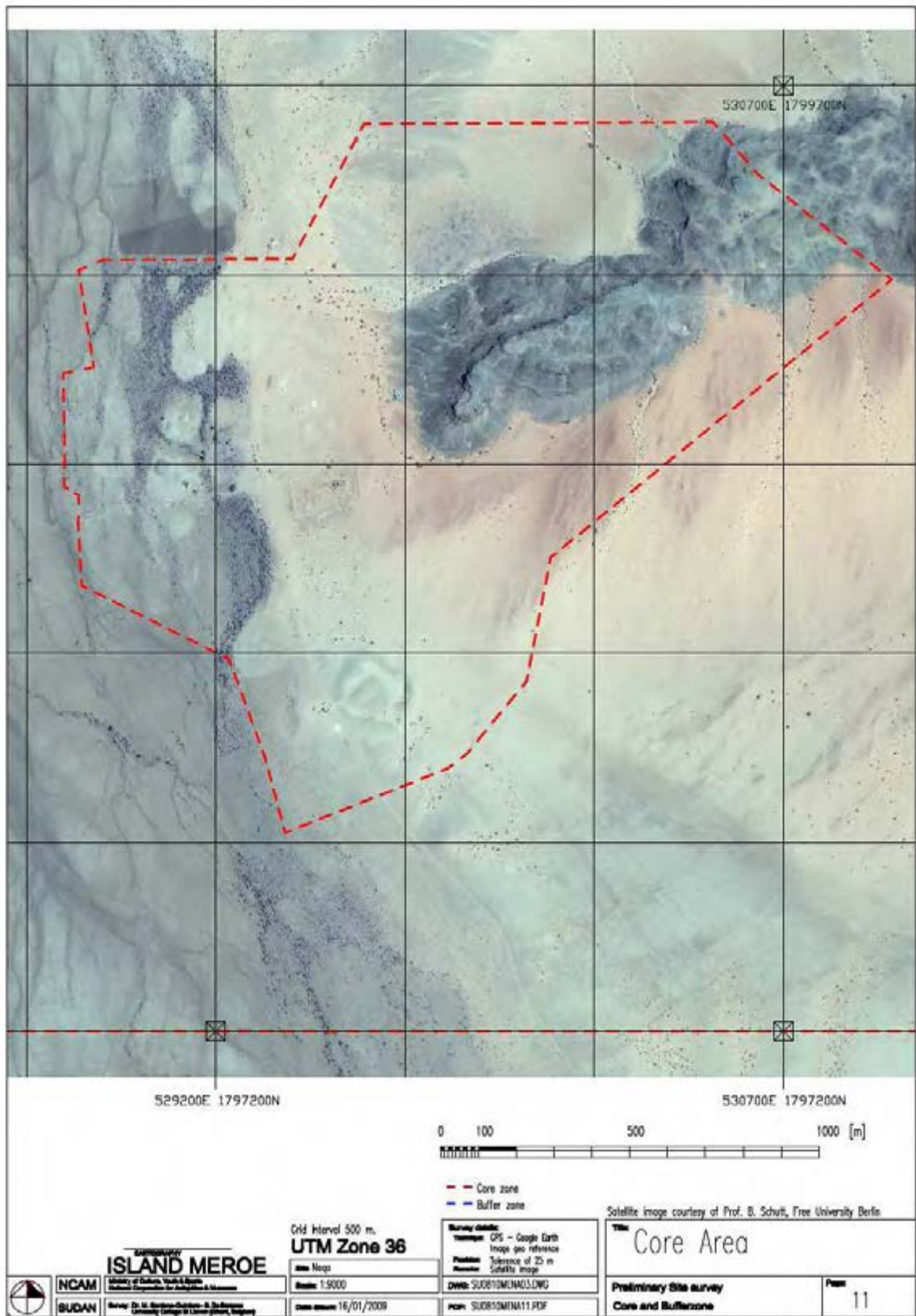
11. Musawwarat es-Sufra Core area



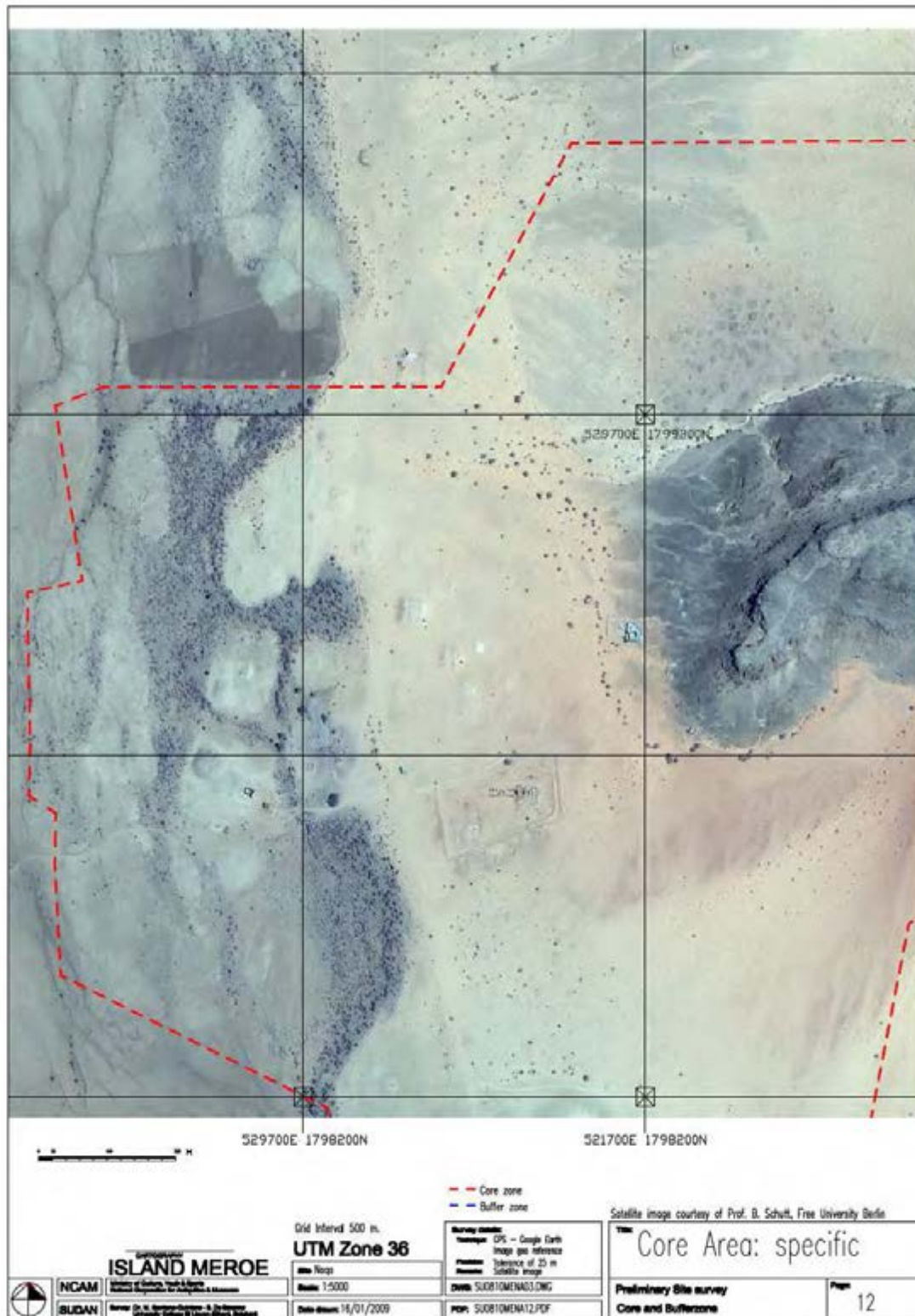
13. Musawwarat es-Sufra Core area: Specific (area of Great Enclosure)



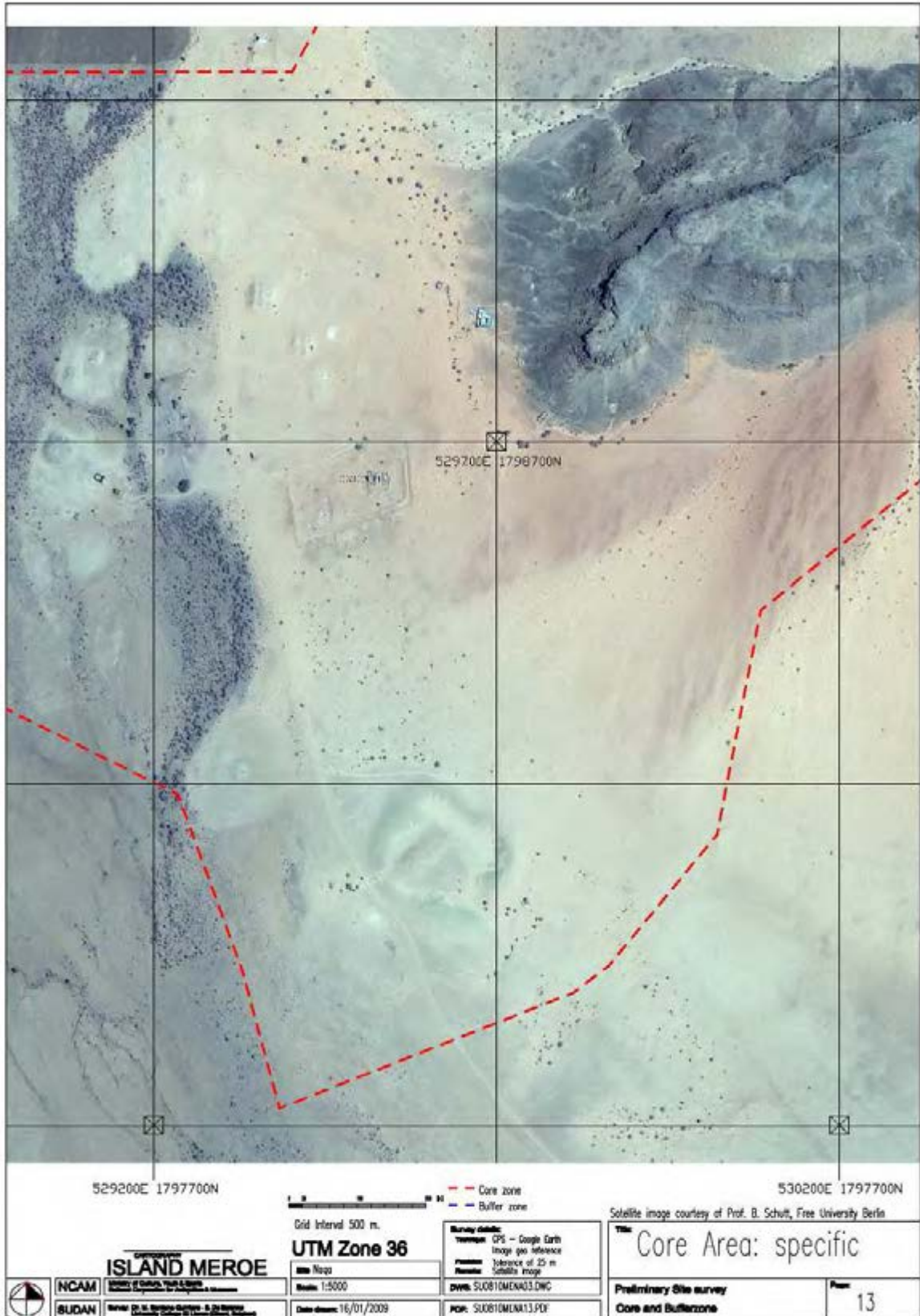
14. Naqa: boundaries on google image



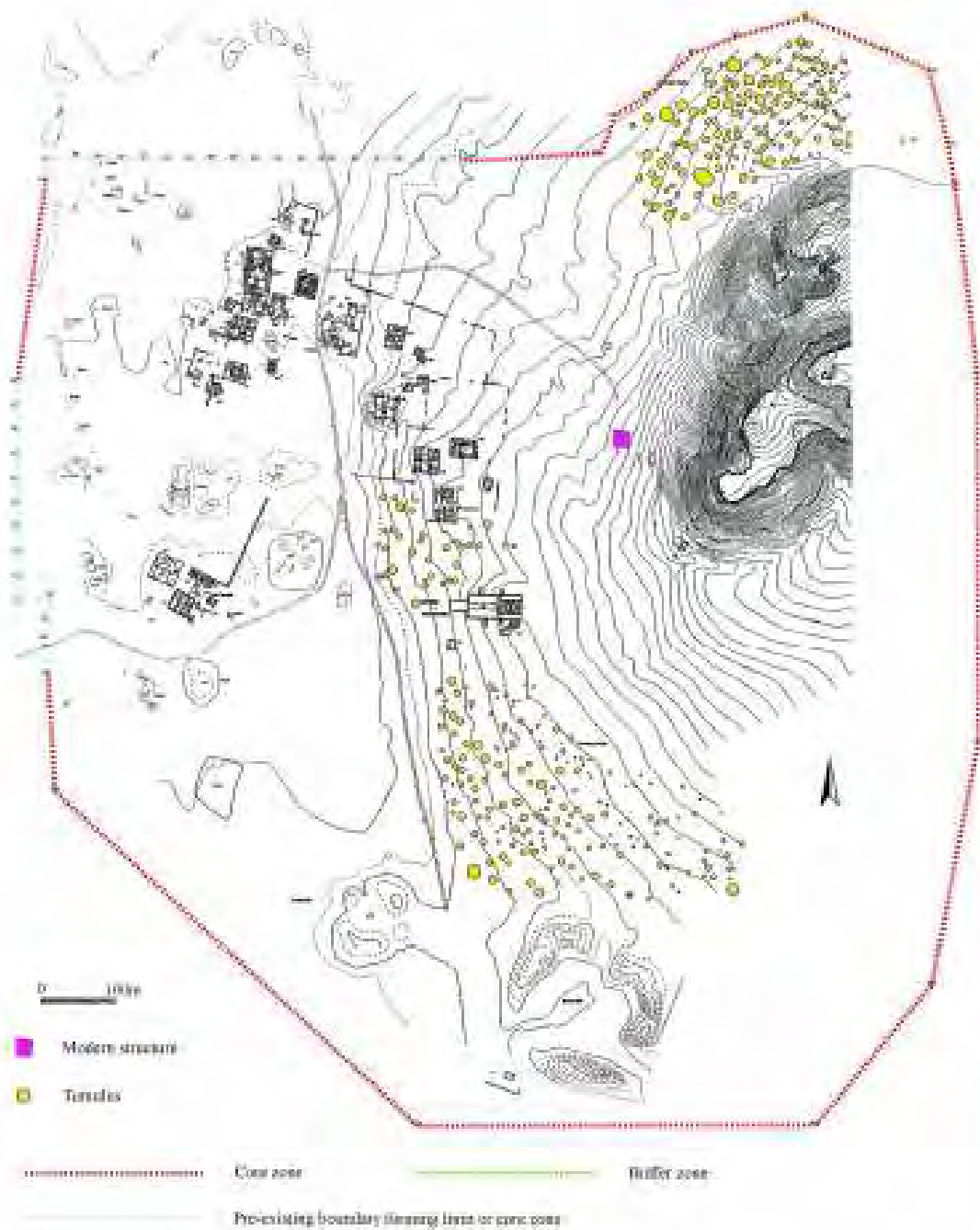
16. Naqa Core Area



17. Naqa Core Area: Specific



18. Naqa Core Area: Specif



19. NAQA Site Plan (courtesy of Professor D. Wildung)

1. f Area of nominated properties and proposed buffer zones

Site n°	Name of the component part	Region(s) District (s)	Coordinates of the central point	Area of nominated property (ha)	Area of the buffer zone (ha) if any	Map n°
001	Meroe 1	River Nile State	latitude N 16° 56.111', longitude E 33° 42.852'	612,551	1718,031	1,2,3,4,7 and 8
002	Meroe 2	River Nile State	latitude N 16° 56.243', longitude E 33° 45.423'	674,904	The same	1,2,3,5 and 6
003	Musawwarat es-Sufra	River Nile State	latitude N 16° 24.649', longitude E 33° 19.705'	836,570	2653,64	1,9,10,11, 12 and 13
004	Naqa	River Nile State	latitude N 16° 16.121', longitude E 33° 16.420'	231,852	9509,92	1,14, 15,16,17, 18 and 19
Total area				2357,36	13881,7	

2 DESCRIPTION

2. a Description of the Nominated Property

2. a. 1 General introduction

The nominated property, ‘The Archaeological Sites of the Island of Meroe,’ comprises the sites of Meroe, Naqa, and Musawwarat es-Sufra. The term ‘Island of Meroe’ refers to the area of the present-day Butana and Keraba regions between the Blue Nile, the White Nile, and the Atbara River, located between longitudes 33° 07’ and 33° 56’ E and latitudes 15° 30’ and 17° N. The geology of the region consists mainly of four formations:

- a. the basement complex;
- b. the Nubian series;
- c. the alluvium; and
- d. the surface deposits of wind-blown sand.

The basement complex consists of metamorphic and sedimentary rocks and is assumed to be of Pre-Cambrian date (Whiteman 1971, 5). It also includes some igneous rocks thought to belong to later geological formations. The largest outcrop of the basement complex in this region is located at the Sixth Cataract of the Nile about 80km north of Khartoum. Another outcrop lies at Gebel Qeili, about 120km north-east of Khartoum. A broad ridge of small outcrops extends from the Sixth Cataract to Gebel Qeili. This ridge corresponds to the watershed north and south of it (*ibid*, 112). With the exception of these outcrops, the region is mostly covered with thick layers of clays (*ibid*, 140). The Nubian series dominates the majority of the area and rests on the rocks of the basement complex (*ibid*, 52–53).

Large areas of alluvium dominate the area located close to the Nile. The wind-blown sands are found in areas of extreme aridity with an annual rainfall of less than 500mm. In the Butana, the main concentrations of these “sands” are found at the headwaters of wadis such as the Wadi Hawad and Awateib. These sands are thought to be the product of alternating wet and dry climatic phases working on the underlying rock (Khidir A. Ahmed 1984, 10). The so-called Hudi Formation, named after a locality in eastern Sudan, occurs at isolated spots to the south-east of Meroe.

Sources for the study of early climates in the Sudan are extremely limited. Most palaeoclimatic reconstructions deal with the period before 3000 BP. The evidence is primarily derived from geomorphological and biological data. The evidence for climatic change in Sudan during the Quaternary is based partly on the distribution of Neolithic implements and sub-fossil shells on drainage systems such as the Wadi Howar in northern Darfur. These indicate much greater rainfall in the region: sub-fossil snail shells provide excellent indicators for the aridity of the present-day climate compared with that in the Neolithic Period.

The climate has become gradually drier from Neolithic times onwards: drier conditions have been attested by comparison with those of the Early Khartoum phase. The Shaheinab Phase is marked by the absence of swamp-dwelling animals. Two

radiocarbon dates have been obtained from Shaheinab: 5060 ± 450 BP and 5446 ± 380 BP. However, Arkell believed that rainfall was still about 400mm/year at Shaheinab at that time. Although this evidence is remote in date from the Kushite period, it nevertheless gives an idea of the desiccation process in central Sudan over time. Details on the climatic conditions for the Meroitic period are lacking. An absence of settlements in Lower Nubia has been noted for the period of the 1st millennium BCE (Firth 1912, 21–23; Griffith 1924, 116–117). Adams (1977, 242) related this phenomenon to a fall in the Nile flood levels. This is an indication of a drop in annual rainfall in the Upper Nile regions, particularly on the Ethiopian plateau, and consequently in central Sudan.

However, faunal and floral evidence from Meroe is indicative of higher rainfall at the time of the Kushite Kingdom by comparison with today's climate in central Sudan. In Meroe, the overall trend shows a steady decline in the relative importance of cattle in relation to caprovines (Carter and Foley 1980, 304). The change in the relative proportions of cattle and caprovines has been attributed to ecological changes in the exploitation territories of these animals:

‘.....the natural cover of the Butana is likely to have been almost continuous stands of the herb *Blepharis* sp. Both sheep and camels eat *Blepharis* by preference and only in dire necessity will they eat other grasses. On the other hand, cattle prefer grasses where available and will only eat leaves of *Blepharis* during the dry season if other grazing is not available. The marked change in the cattle/caprovine ratio could be accounted for by over-grazing of *Blepharis* stands in the immediate vicinity of Meroe by the caprovine population, resulting in a decline in the number of caprovines which the grazing could carry, and the concomitant increase in the proportion of cattle represented. The presence of the three subsidiary peaks in the caprovine graph ... subsequent to the initial peak in spit 16 could be interpreted as cyclic recovery of the *Blepharis* stands after the initial overgrazing’ (*ibid.*, 304–5).

One conclusion based on the bone analysis is that the area in Meroitic times had a higher rainfall (*ibid.*, 308), but evidence from other bone assemblages does not support this hypothesis. Moreover, in a urban centre like Meroe, variations are likely to occur in patterns of meat consumption and disposal of bone (*ibid.*, 308). Other studies suggest that the climate in the region during Meroitic times was as arid as it is today. It has been also argued that the increase of goats (an animal with a large capacity for adaptation to difficult grazing conditions) in some bone collections is an indicator of an arid climate. The *hafirs* may also indicate both a period of water scarcity, with fragile ecological conditions and strategic measures taken to counteract this scarcity (Ali Tigani El Mahi 1991). However, Shinnie considered it impossible to establish a town the size of Meroe in a region of erratic rainfall such as that prevailing today in the area (Shinnie 1976, 90) and Pliny, writing in 61 CE, talked about greener vegetation and forest around Meroe (Shinnie 1976, 20). It should be noted that the present desert environment in the Meroe region is not itself totally a product of the climate but is partly the result of human intervention. This is clearly illustrated by observing the area within the archaeological site of Meroe, where protection from overgrazing and the cutting of wood has allowed the re-establishment of an acacia forest. The present dry conditions are to some extent a man-made phenomenon resulting from the over-exploitation of the natural resources.

There is evidence pointing to the fact that even as late as the 16th–18th centuries, the Sudano-Sahelian zone was much wetter than it is today. Arab sources record that ‘...the region is well-endowed with rainfall so that the famine could not break out’ (Nicholson 1978, 5). The earlier commentators identify the Butana as the area bounded by the Nile, the Atbara, and the Blue Nile, the term applying to a region which covers more than 3° of latitude and more than 450km in extent. This encompasses a vast area with marked variations in climate, topography, resources, etc. In a survey of the Meroitic hinterland Crowfoot (1911, 9) referred to the subdivisions of the area into the Keraba, a stony and gravelly country on the north-west, and the Butana, the clay plain to the south-east, and he noted that the majority of sites are located in the former area. Adams (1973, 2) referred to the Eastern Butana as an area of superior grazing resources and the Western Butana as having a higher agricultural potential.

Today, most of the region lies within the zone of tropical continental climate with variations in rainfall and temperature from south to north. The rainy season lasts five to eight months in the southern and only one to three months in the extreme northern part of the region. The annual rainfall ranges from 100 to 500mm and temperatures can rise up to 43°C (116°F). There are considerable fluctuations in the amount of annual rainfall from year to year.

As to the vegetation cover, the region falls within the zone of semi-arid desert acacia scrub and short grasslands of north-central Sudan. The vegetation consists of grasses and herbs and thinly distributed scrub bushes with bare areas between. The bare areas are increasingly extensive as one moves north. Various factors account for the distribution and growth of vegetation: topography, the texture, depth, and salinity of soil, and water conditions. This situation prevails in the soils of the Nubian Series. On the fringes of the Butana Plain to the south-east on the soils overlying the Basement Complex, repeating stands of grass can be observed. These consist of alternating small grass patches and bands of tall grasses, a pattern that is attributed to differences in surface soils.

2. a.2 Kushite utilization of the Keraba and Western Butana

Many factors (economic, political, etc) have encouraged extensive Kushite settlement in the Island of Meroe. The main urban centres were located on the banks of the Nile: the most important of these are the capital city of Meroe and the site of Wad-ban-Naqa. The sufficient amount of annual rainfall and the ideal distribution of alluvial deposits were the crucial factors behind the spread of settlement away from the Nile Valley. Naqa and Musawwarat es-Sufra are certainly the biggest centres of the area. The whole of the western Butana and Keraba is dotted with a series of small centres (Basa, Um-Usuda, Geheid, Muraba, Alim, Gebel Hardan, etc). With the exception of the sites of Naqa and Musawwarat, the settlement pattern is very simple and characteristic of the region: it consists of a temple and a *hafir*. This setting, beside the economic necessity, has ritual significance: this arrangement was respected even in sites situated within the Nile Valley where the need for the *hafir* as a source of water did not arise, such as the Sun Temple at Meroe M250 (Ahmed Hakem, 1972, 642). All these sites are religious centres, with the exception of Naqa, which is the only substantial settlement in the Keraba. Naqa is also exceptional in that it is the only site in the Keraba where an Egyptian-type temple can be found.

An important feature of these Kushite settlements is the absence of fortifications. Warfare and defence seem not to have had any effect in the shaping of the Butana and Keraba settlements as a whole nor on individual sites or structures. A religious importance was perhaps the strongest element in the stabilization of such a settlement pattern. The temples were the focal point of their respective surroundings, exerting great influence and power. It is no doubt through such religious institutions that the central government was able to exercise its maximum power and control on the population.

Another feature of this settlement pattern is the absence of extensive cemeteries in the area. Scattered groups of tombs are occasionally found along the courses of wadis and on the slopes of hills. It can thus be concluded that the sites of the western Butana and Keraba were possibly permanent centres for semi-nomadic pastoralists. There were no changes over time in the settlement pattern and even of individual structures. The temple and the *hafir* remained basically unchanged, suggesting a continuous occupation by the same cultural community. They formed an integral part of the Kushite kingdom, the other centres of which lay within the Nile Valley. The hinterland sites depended upon the Nile centres for political leadership, economic and trade outlet, and more importantly for the supply of building technology. At the same time they in their turn were important religious centres of the kingdom and provided the government with political and economic power (*ibid*, 645).

2.a.3 Meroe

(maps: 1-8 ; plates :1 and 4-12)

The site of Meroe is located on the right bank of the Nile about 220km north of Khartoum (coordinates town site: 16° 56.111' N 33° 42.852' E – Map sheet NE-36-O). The protected area covers about 4km². The settlement lies several hundred metres to the east of the Nile and is partly overlain by the modern villages of Deraqab and Kigeik. The north and south (royal) cemeteries occupy low hills at the edge of the plain 4km to the east. In the plain are a number of temples, a *hafir*, the western pyramid cemetery, and cemeteries of the less wealthy inhabitants of the city. The Atbara to Khartoum railway cuts through the eastern edge of the settlement. Today the site is frequently referred to as Begraweya.

RESEARCH

The mention of Meroe by some classical writers has aroused the interest and curiosity of European travellers and adventurers since the early 18th century. The first suggestion that the ruins of Begraweya should be identified with the site of Meroe known from the classical sources was made by James Bruce during his passage through the area in 1772.

Burckhardt noticed the ruins of the town in 1814, but he underestimated their importance. A few years later two French scholars (Frédéric Cailliaud and Linant de Bellefonds) accompanied the army during the Turco-Egyptian conquest of the country (1821) and left valuable descriptions of the monuments of Meroe. The British traveller George Hoskins visited the site in 1833 and one year later the Italian adventurer Giuseppe Ferlini, motivated by the previous accounts, destroyed many pyramids there in his fruitless search for ancient treasures. The first scholarly work

was undertaken by the Royal Prussian Expedition (1842–44) led by Carl Richard Lepsius.

Bruce's suggestion was first tested and proved correct by the excavations of John Garstang (1910–14)¹ who uncovered large areas in the settlement as well as excavating parts of the vast popular cemetery. Less than ten years later, George Reisner excavated the three pyramid fields of the Kushite capital.

The site then remained untouched until the 1960s, when large sections of the town site were excavated by the combined mission of the Universities of Calgary and Khartoum. This was followed by a brief intervention in 1992–93 by the Humboldt University (Berlin). Today the town site is being studied by the mission of the Royal Ontario Museum and the University of Khartoum, whilst the German Archaeological Institute is dealing with the 'Royal Baths.' NCAM is conducting conservation and restoration work on the pyramids under the direction of the architect F. Hinkel.

OVERVIEW OF THE HISTORY OF THE SITE

Occupation of the site began in the 10th century BCE and it had developed into an important settlement by the 8th century BCE, if not earlier. The site became one of the royal residences of the kings of Kush, who were buried in the south and north cemeteries from the early 3rd century BCE. The city was possibly captured by the Aksumites in the mid 4th century and it was probably abandoned before the introduction of Christianity into the area during the latter half of the 6th century CE.

In the 5th century BCE the Greek historian Herodotus was informed while on a visit to Egypt of a fabled city of the Ethiopians, 'the burnt faced ones,' lying far to the south (II,29). This is the first known mention of the city. Referred to in the Graeco-Roman world as Meroe, its Kushite name was variously spelt Bedewi, Medewi, and Bedewe. A number of later Hellenistic and Roman writers provide additional information on the city, but thereafter it lapsed into total obscurity. In the modern era it was rediscovered by the Scottish traveller James Bruce while on his way down the Nile from Ethiopia. He passed the ruin field in 1772 and saw 'heaps of broken pedestals and pieces of obelisks,' leading him to write 'It is impossible to avoid risking a guess that this is the ancient city of Meroe' (Bruce 1790). Archaeological excavations in the royal cemeteries by E.A.W. Budge of the British Museum were begun immediately after the conquest of the region by the Anglo-Egyptian forces in 1898, and in the city in 1909, and these have continued sporadically up until the present day. Unfortunately much of this work was only published in a summary fashion by the excavators, and in some cases, there is no detailed information about the history, development, and topography of the ancient city.

Meroe lies in the savannah belt on the south side of the Sahara in an area which today receives approximately 100mm of rainfall annually. However, it is its proximity to the Nile which makes the region viable for sedentary human activity, and this seems to have been the case throughout the city's history.

¹ The excavations of the Liverpool University Institute of Archaeology at the site of Meroe began in winter 1909–10 and continued in December 1910–February 1911 (second season), winter 1912 (third season), winter 1912–13 (fourth season), and winter 1914 (fifth season). The funds were subscribed by a Committee that included members from Great Britain, Belgium, Denmark, and Germany.

Excavations have not unnaturally concentrated on the more monumental structures, and even in those areas have rarely penetrated through to the first phases of occupation. What little evidence there is indicates that the earliest inhabitants lived in circular timber huts, and this occupation has been dated to the 10th century BCE by the radiocarbon analysis of associated material (Robertson 1992, 45). At this time little is known about the political and settlement history of the middle Nile Valley. In the early 11th century BCE Egyptian control of the valley as far upstream as the Fourth Cataract lapsed. By at least the mid 8th century a new state had arisen, based at the downstream end of the Fourth Cataract, which was powerful enough to invade, conquer, and then control Egypt for almost 100 years. Meroe lay within the ambit of this kingdom, the Kingdom of Kush (not to be confused with the earlier kingdom of that name, which was based at Kerma).

The importance of Meroe can first be documented at the time of the Kushite invasion of Egypt. An extensive cemetery, situated on a projecting spur of the plateau 4km to the east of the settlement, contained graves, many of which are clearly of wealthy and important individuals (Reisner 1923, 36ff). The nature of the funerary customs, and of the artefacts buried with the deceased, indicate that these people were subjects of the kings of Kush. By this date Meroe, although displaying a few regional characteristics, was an important and wealthy centre of Kushite culture.

The earliest Kushite kings were buried at el-Kurru and later at Nuri, both in the original heartland of the kingdom. However, there was a royal residence from, at the latest, the reign of Tanwetamani (664–c 656 BCE). A cache of statuettes of deities and votive offerings found within an area at Meroe now known as the ‘Royal City’ contained pieces bearing the name of King Senkamanisken, who reigned from c 643–623 BCE. Architectural fragments bearing inscriptions that refer to Aspelta (c 593–568 BCE) and several of his immediate successors indicate that those kings were erecting religious monuments within the settlement (Török 1992, 115ff). Among the temples was one to the chief god of the Kushite state, Amun. Several inscriptions, the earliest of King Irike-Amanote (c 431–405 BCE), make it clear that by that date Meroe was the principal residence of the king, although it may not be correct to think of it in terms of a modern political capital. The religious centre of the state remained at Gebel Barkal and the kings continued to be buried there until the early 3rd century BCE.

King Arkamani-qo was the first ruler to be buried at Meroe, and most later rulers and their families were interred there, initially in the South Cemetery, the site of the early cemetery noted above. By the mid 3rd century BCE the royal burial ground was moved for reasons of space a few hundred metres to the north to an isolated rocky ridge, where all later rulers were buried. The typical royal funerary monument was the pyramid, of a form derived from those built by Egyptian dignitaries south of Aswan during the Egyptian New Kingdom. These monuments, ranging in size from c 4.5m up to 17.5m square at the base, were steep-sided, the faces usually at an angle of between 60° and 73° (the angle of the Giza Great Pyramid is 51° 52'). In the earlier period they were constructed of sandstone blocks revetting a rubble-filled core. The latest pyramids were faced in brick or coursed rubble. However, as many if not most of the pyramids were rendered in a lime mortar and then painted, the differences in quality of construction will not have been apparent.

Attached to the eastern face of the pyramids was a funerary chapel of from one to three rooms, often profusely decorated within with reliefs. These reliefs most

frequently show the enthroned ruler receiving offerings or approached by a priest with a censor. The iconography is basically Egyptian in inspiration but exhibiting many original features.

This typifies the attitude of the Kushites to Egyptian religion and kingship ritual, where they borrowed only what they considered to be useful and freely modified and added to what they borrowed. The pyramid was a solid structure, the burial being placed in a tomb hewn in the living rock beneath it and entered down a long sloping stairway.

The rulers and their families were probably buried with rich grave goods, but all the royal tombs had been robbed well before the arrival of archaeologists at Meroe. One royal tomb was actually robbed by workmen building the adjacent tomb, by digging a tunnel through from one to another. This was carefully blocked and the crime was only discovered by the excavator George Reisner in the 1920s. One very fine cache of jewellery belonging to Queen Amanishakheto survives. This was found by Ferlini, the treasure hunter who in 1834 set about demolishing the pyramids in a quest for gold. There was a seemingly unique small chamber in Amanishakheto's pyramid near the apex in which her personal jewellery was buried.

In Nubia there was a long tradition of sacrificing or ritually slaughtering humans and animals on the death of a ruler and important personages, and this continued at Meroe. As well as humans, horses, camels, and dogs were deemed the most suitable victims (Reisner 1922, 181; Lenoble forthcoming). Broadly contemporary with the beginning of royal burials at Meroe, the official residences of the city were enclosed by a stout wall 3.5–7.75m thick, defining a roughly rectangular area (George 1914, 9). The function of this wall is unclear: although at first sight it appears to be defensive in character with its projecting towers, one temple was constructed abutting its outer face during its building phase, thus to some extent negating its defensive capabilities. Defence against flooding from the river has also been advanced to account for its construction.

A new Temple of Amun was erected on the east side of the Royal City (Garstang *et al* 1911, 11ff.). This was the second largest of the Amun temples in the kingdom and was presumably designed to replace the earlier temple of the god at Meroe which had stood in the Royal City. Unusually for Amun temples, it faces not towards the river but towards the desert. This is one of a number of indications that the topography of the area in the 4th century BCE was markedly different from what it is today. The Nile is a dynamic river and is constantly shifting its course, creating new islands and sometimes washing others away. Excavations immediately to the east of the 'new' Amun temple have found thick deposits of Nile silt and very little early occupation material, prompting the suggestion that when the temple was built the main river channel ran to the east of the city, which stood on an island (Bradley 1982, 167).

Within the royal enclosure the so-called 'Roman Baths' functioned as a water sanctuary, probably connected with festivals performed by the king on the occasion of the beginning of the annual inundation (Török 1992, 117). As the Nile rose, water passed along a system of conduits into the ritual basin. Subsequent modifications to this water system suggest that the river channel was progressively moving to the west away from the city, which was united to the mainland by the 3rd century BCE.

In the late 1st century BCE Egypt was conquered by the Romans, who immediately began negotiations with the Kushites at the southern frontier, at Aswan. However, it

was only after a large-scale raid by the Kushites on Aswan and full-scale military reprisals by the Roman prefect Gaius Petronius that a *modus vivendi* was established. Striking evidence of these operations was found at Meroe by Garstang. He uncovered the remains of a temple decorated within with fine wall paintings depicting the rulers with bound prisoners. Immediately in front of the threshold of the temple a twice life-size bronze portrait head of the Roman emperor Augustus had been buried which may well be loot from the Kushite raid on Aswan (Bosanquet 1912). The Roman writer Strabo wrote that the Kushites destroyed a number of imperial statues during their attack (XVII, 53-4). At Hamadab a few kilometres to the south of the city the entrance to a temple is flanked by two large inscribed stelae. One of these appears to contain an account of these activities. It would be extremely interesting to view the campaign through the eyes of the Kushites, but as the inscription is written in Meroitic it cannot unfortunately be deciphered (Griffith 1917, 168).

In the wake of these activities renewed contacts with the Graeco-Roman world appear to have brought about a renaissance, which can be observed particularly in Kushite architecture. The greatest builders of this era were the co-rulers King Natakamani and Queen Amanitore. They built temples throughout the realm and at Meroe constructed a kiosk within the forecourt of the Amun temple.

At this time a number of domestic structures that had been built on the Nile silt to the east of the Amun Temple were demolished and a monumental avenue leading up to the temple was laid out, flanked to right and left by smaller temples (Shinnie 1984). Developments continued elsewhere in the city. There were numerous modifications and new constructions within the Royal City, and before the end of the Kushite state the defensive wall had become totally obscured by the build-up of occupation material, in places overbuilt. A similar fate befell the water sanctuary which was superseded by a large building, perhaps to be identified as a store house (Garstang 1912, 5 and pl. VI).

In its heyday the city covered a considerable area, and today the large mounds strewn with pottery, brick, and stone testify to long and intensive occupation. Many of the mounds will cover the remains of domestic buildings belonging to the ordinary inhabitants of the city, the population of which has been put at 20,000–25,000 (Grzymski 1984, 289). Shinnie excavated two small areas of this kind and found a continuous sequence of domestic occupation from the 10th century BCE until the 4th century CE, most of the buildings being of mud brick (Shinnie and Bradley 1980, 13ff.).

The economy of the city will have been dependent to a large extent on the agricultural potential of the area. The fertile Nile banks will have been extensively irrigated, as they are today, with the help of the *shaduf*, a primitive water-lifting device. Whether the more technologically advanced and efficient *saqia* (water-wheel) was available at this time is still the subject of debate. The people will also have practised animal husbandry, and Shinnie found evidence for the consumption of cattle, sheep, and goats for food.

The presence of the royal court at Meroe at least for part of the year will have been a dramatic stimulus to the local economy. Service industries will have abounded as well as such specialist occupations as architects, master builders, sculptors, and wall painters. Fine craftsmen will also have been kept busy supplying many of the luxury items that have been found in quantity from the royal and aristocratic tombs to the east of the city.

The importance of iron working at Meroe has elicited much discussion. One early commentator, observing the large mounds of slag on the site, christened Meroe the 'Birmingham of Africa,' and many have seen Meroe as playing a pivotal role in the diffusion of iron working to sub-Saharan Africa (Sayce 1912, 55). However, more recent work elsewhere on the continent has now cast severe doubts on this and even on the scale of iron working at Meroe (Trigger 1969).

One complex of pottery kilns was excavated at Meroe towards the northern edge of the city but has yet to be published in detail. The diversity of forms and decorative motifs, particularly of the fine painted wares found at Meroe, suggests that the city was a major pottery production centre.

Trade may have been one of the main wealth-generating activities of the state. Large deposits of ivory and hardwoods have been found in royal palaces and storerooms elsewhere in the kingdom and these may have been two of the mainstays in this trade, gold being another. The large number of fine objects of Egyptian and Graeco-Roman manufacture found in the Meroe tombs indicates that this trade was not all one-way, although whether much of this material arrived at Meroe as a result of commerce or by gift exchange between rulers is unclear. Among the finest objects of this nature to have been found at Meroe is a *rhyton* of the Athenian potter Sotades, who worked in the period around 400 BCE (Dunham 1963, 383).

The last Kushite ruler who can be tied to an absolute chronology is Teqerideamani, who is recorded on a graffito at Philae executed during the reign of the Roman emperor Trebonianus Gallus (251–53 CE). Thereafter there were at least five further rulers, and scholars have variously suggested that the last of these was laid to rest in the north cemetery at Meroe with all the customary honours, around either 320 or 350 CE. Later burials in the Kushite tradition and under pyramids have been found in the western cemetery.

A number of factors have been suggested to explain the downfall of the kingdom and the loss of prominence of Meroe itself. One notable feature of the later burials in the north and west cemeteries is the redistribution of wealth, as illustrated by the grave goods and the size and elaboration of the tombs and tomb monuments. It can be observed that the rulers were becoming less rich relative to their upper-class subjects. This reduction in wealth differentials may have seriously affected the ruler's ability to undertake patronage and hence to guarantee the loyalty of his subjects. This may explain the fragmentation of the kingdom in the late period with the growth of local elites.

Also connected with the amount of the ruler's disposable wealth will have been a diminution of trade between central Africa and the Mediterranean world. This was partly the result of the impoverishment of the late Roman Empire and partly a result of the increased utilization of the Red Sea route as opposed to the Nile valley. The Aksumites of the Ethiopian highlands were the chief beneficiaries of the former trade route, and their status as trade rivals of the Kushites has even been cited as the reason for open conflict between the two powers. Two Aksumite inscriptions and one Aksumite coin are known from Meroe and have been related to the campaign of the Aksumite King Aezanes recorded on an inscription found at Aksum in Ethiopia. This may record activities by Aezanes in the Nile Valley in the mid 4th century CE.

In the plain to the east of the city, between it and the royal cemeteries, Garstang excavated a large number of graves of the more humble strata of society (Garstang *et*

al. 1911, 29). The latest of these appear to postdate the last royal burials. They are associated with new types of pottery and other artefacts and are laid to rest under tumuli rather than under pyramids. This evidence implies that many of the features of Kushite civilization had gone out of fashion by this time. To some extent the veneer of Egyptian civilization, one of the hallmarks of Kushite culture, was being stripped away and there was a re-emergence of many of the older cultural traits which are seen throughout Nubian history from the earliest times until the arrival of Christianity in the 6th century. Occupation material contemporary with these late burials has not been noted within the city, which appears to have lain abandoned from that date up until the present day.

MAIN FEATURES OF THE SITE: THE TOWN

The Enclosure Wall: The Royal City is the name given to the area within the enclosure wall which contains the so-called 'Roman Bath' and the remains of many structures of a palatial nature. The irregular trapezoidal enclosure, 295–365m long by 195m wide, is bounded by a wall which still stands in places to a height of 3.5m. There are four gates, possibly with guard chambers and *ascensi*. The wall thickness varies, the north wall between 3.5m and 5.5m, the south wall 3.85–7.75m, and the west wall 3.6–4.6m. The wall was built on sand and was the same thickness to its full height, with well dressed faces and roughly dressed blocks in the core. No bonding material was used and little attempt was made to bond the facing to the core. Blocks vary considerably in size: facing stones were 300–400mm high, 300–500mm wide, and 300–700mm long, blocks in the core were generally a little larger. Some of the blocks bear masons' marks in Greek. There is very little evidence from which to date the construction of the wall, but Török suggests the mid to late 3rd century BCE to the mid 2nd century BCE. By the 1st century CE some of the sections of wall were in such a state of disrepair that they were overbuilt by other structures, although elsewhere on the circuit gates remained in use.

Building M 95, 194, and 195 (the 'Royal Bath') The basin and apsidal structure lay in the centre of a complex of rooms, originally perhaps separate buildings within a *temenos*, but later linked by corridors. First-period walls were of red brick on broken-stone foundations. The basin was 2m deep and 7.5m square, and entered by a flight of steps along its east side. On its south side were six water outlets supplied by an aqueduct, brick-built, vaulted, and cement-lined, 700mm wide by 1.5m deep. The outlets of the spouts were plugged by stoppers. The south wall survives 1m above the ledge of the basin. It is decorated with faience plaques, alternate figures of lions and bulls in stone, two painted serpents and an elephant, and three free-standing statues, the central one a harpist, that on the left a musician playing the pipes. Originally the nearby *exedra* probably had seven seats, the ornamental arm rests in the form of griffins.

The building functioned as a water sanctuary but the falling level of the Nile made first the gravity-fed aqueduct and then the aqueduct fed by a *shaduf* inoperative. At that time the sanctuary was demolished after the statues and column drums had been carefully placed in the basin. Presumably it had only been operative at the time of the high Nile and was associated with the inundation, the New Year and, by extension, the cult of the ruler.

Building M 292 This was a small rectangular temple, c 14m by 14.5m, orientated north–south, with its entrance to the south. Its 3m thick walls had been rebuilt several times, slightly altering the orientation and radically reshaping the interior. There was 3m of deposit between the earliest and latest floor surfaces. The earliest building had mud-brick walls, the second building was constructed partly of dressed sandstone blocks. The penultimate (third building) phase consisted of a rectangular chapel and a porch built of dressed sandstone blocks. The interior walls were all plastered and painted with scenes including enthroned gods with goddesses standing behind, and a footstool with images of bound prisoners. They are faced by a male and in the other case by a female ruler. The similar size and pose of the male and female rulers, implying that they were of equal status, suggests that they are Natakamani and Amanitore. The iconography is unusual but not unique: there are parallels in Temple F at Naqa. The burial of the head of Augustus was associated with this phase. It is of the *Prima Porta* type, which first appears on coins in the east in 27/26 BCE, but did not become dominant before 25/23 BCE. Although it is generally considered to be part of the booty taken from Syene in the autumn of 25 BCE, Török suggests that it came from a statue erected at Qasr Ibrim during the Roman occupation of that site from 25 to 21 BCE, although he does not explain how it subsequently came to Meroe. The head had been placed in a pit filled with clean sand 1m in front of the threshold.

It has been suggested that the temple was dedicated to Amun. In the two later building periods the floor was raised by 1.3m, new bases were placed on the cut-down columns, and the interior was filled with rubble to form a plinth above the level of the contemporary floor, which had been plastered and moulded on the edge.

OTHER MAJOR STRUCTURES OUTSIDE THE ROYAL CITY

The *Temple of Amun* is the largest structure on the site (about 135m long). It is oriented east–west with the main entrance on the east. It is constructed of mud and red bricks with door jambs, columns, pylons, and the main sanctuary of Nubian sandstone. It is approached along a *dromos* which over time was lined with small temples and, close to the pylon, by two stone rams on either side. As in many of the Kushite temples of Amun, it consists of an outer courtyard, a hypostyle hall, several ancillary rooms, and a sanctuary. The western end of the building lay adjacent to the eastern wall of the Royal City.

The *Lion Temple*, dedicated to the cult of Apedemak (Lion God), is located on a heap of iron slag immediately to the east of the town site. It is a double-chambered temple built of sandstone and decorated with reliefs. The entrance to the building is approached by a flight of steps and originally was flanked by two lion statues.

The *Sun Temple* (M 250) is located approximately 1km from the town. Older foundations in the *temenos* are to be associated with fragments of an inscription of Aspelta (593–568 BCE). The site was used for over 600 years. The temple plan was influenced by Ptolemaic models: it is an amalgam of local and foreign architectural influences. The *temenos* wall, of red brick 2.7m thick, encloses an area 112m square, and was entered through two stone gateways on the main axis and also by two openings to north and south. The temple was set on a podium 2m above the *temenos*. In its fourth building period it was provided with a stepped *crepidoma* (the *crepidoma* was inspired by Hellenistic architecture). Consequently, this building period cannot predate the turn of the 4th and 3rd centuries BCE. It may be dated perhaps to the first

half, or the middle of, the 2nd century BCE. Finally, in the fifth building period an exterior colonnade with 72 columns was added.

To which god it was dedicated is unknown, but it was almost certainly not an Egyptian deity. It is associated with the triumph of the sovereign over his enemies – perhaps the sanctuary was reserved for the cult of the dynasty. Queen Amanishakheto in the company of Akinidad was represented on the north *cella* wall. It is tempting to suppose that M 250 was the scene of the unification of the Amun worshipped in Meroe City with Re.

The decoration of the east front of the pylon towers of the court building consists of sunken relief representations of bound captives whose bodies are covered by large cartouches. On the south tower the cartouches were inscribed with Meroitic hieroglyphs, while the north tower cartouches were left blank. The topo- and/or ethnonyms in the south tower cartouches cannot be identified.

Various war scenes were recorded on the north front. From east to west these are:

- soldiers wounding the hind legs of horses with their daggers and fighting infantrymen;
- fighting infantrymen;
- marching soldiers and a chariot;
- a fortress;
- a village with native huts and trees.

The eastern third of the south front of the court building is occupied by massacre scenes, the ultimate models of which can be identified within the sphere of New Kingdom iconography.

Another relief presents a topographically and typologically accurate representation of the cult building complex as it appeared in the late 1st century BCE. At the northern end of the relief register are the *temenos* wall, trees in the *temenos*, and the temple with its pylons enclosing a colonnade. Further to the south stand the high altar and the kiosk. In front of the first pylon of M 250 is a man facing right and before him there are other figures walking to the right (south). The ritual act that constitutes the actual theme of the relief is performed at the high altar in front of the kiosk. The top of the high altar is approached by a ramp from the left. Two figures ascend this ramp. It has been suggested, probably correctly, that the altar is the scene of a human sacrifice. In this context the many jars filled with human bones and charcoal discovered by Garstang within the *temenos* are particularly relevant.

The ***Western Cemetery*** contains more than 500 graves, some of which are pyramids, and it is considered to be the burial ground for the princes and nobles of Meroe. Some of these burials were richly furnished. In Beg.W.5, five skeletons lay beside that of the main burial, a queen of minor rank. One of the skeletons was clearly that of a maidservant, who was found clutching to her breast her mistress's mirror and a bag containing the lady's jewellery (four bracelets of gold and carnelian, four necklaces of gold and cut glass, and six pairs of gold earrings). The excavators believed that all the servants had taken poison prior to the burial (Dunham 1924, 5 ff.; Dunham 1963, 118 ff.).

The ***Southern Cemetery*** contains more than 200 graves. The earliest burials can be classified into two types:

- Rectangular pits oriented east–west in which the non-mummified body was placed in a contracted position on its left (?) side on a wooden bed (?)
- Narrower rectangular pits oriented east–west or north–south, containing a mummified body in a wooden coffin frequently covered with a bead net in the manner that was typical for Egyptian Third Intermediate Period burials

It would appear that the graves of the earliest two or three generations can be dated to the decades extending from the late pre-25th Dynasty period to the early 25th Dynasty period, i.e. to the times before and around 747 BCE.

At least three members of the royal family were buried in this cemetery; Beg.S.132 is probably the burial of a wife of King Tanwetamani (664–after 656 BCE). Some of the graves are marked by *mastabas* and pyramids. When the burial of rulers began at Meroe in the 3rd century BCE they were initially interred in the southern cemetery, the tombs being crowned by pyramids.

The *Northern Cemetery* is exclusively the royal burial ground of the rulers of Meroe. It contains 44 pyramids, of kings, queens, and crown princes, all but six of whom were reigning monarchs. It would appear that the rulers were mummified in some fashion, laid in wooden anthropoid coffins on raised masonry benches whose sides were sometimes carved with divine figures. In Beg.N.16 the king's mummy had been hacked to pieces by the robbers, but the hands remained, with two gold bracelets at the wrists and nine silver rings on the right hand and ten on the left. A number of tombs contained evidence for sacrifice. In Beg.N.5, for example, there were the remains of several animals in the tomb, along with their human attendant.

Many of the pyramids of Meroe are in a good state of preservation. In the earlier period they were constructed of a single or double revetment of sandstone blocks enclosing a rubble-filled core. The latest pyramids were faced in red brick or were of coursed rubble. Little or no attempt was made to try to bond the facing stones into the core and hence these structures are inherently unstable. One pyramid, Beg.N.7, was originally of smaller size but was then encased in a larger structure. Pyramid Beg.N.16 is unique in that it has a chamber within. On the construction of pyramid Beg.N.36 it appears that the chapel of Beg.N.16 had to be demolished and the pyramid was rebuilt to include the funerary chapel within it. The pyramids were constructed using a *shaduf*, and four of them retain the upright timber (Cedar of Lebanon) in their centres.

The tombs beneath the pyramids were structurally independent. Sometimes they lie centrally under the superstructure, but frequently they are well off alignment and occasionally not even under their tomb monument. Hinkel maintains that often the pyramid could not have been constructed until after the tomb had been sealed and the descandary filled. This is certainly the case for many of the funerary chapels, which are built on the descandary fill. The latest tombs in the cemetery were entered via a vertical shaft and the mouths of these shafts were sealed by the pyramid, which here must postdate the burial.

Most of the funerary chapels were constructed of dressed sandstone blocks on which the reliefs and inscriptions, in both Egyptian and Meroitic languages, were carved. In the later chapels, however, the structure was made of red brick with thin sandstone slabs being used to veneer the interior so as to allow for the relief carving. At Meroe three major decoration types have been identified. The earliest, dated to the 3rd century BCE, comprises Egyptian offering scenes with inscriptions in hieroglyphs.

The second type, dating from the late 3rd century BCE into the early 1st century CE, has a mixture of scenes, Book of the Dead vignettes, and ritual scenes of the sort seen in New Kingdom temples. The latest type falls into two sub-groups, type C(1), confined to the chapels of King Natakamani, his queen Amanitore, and their son Arikhankharer, and type C(2) found in all later royal funerary chapels. The former subgroup illustrates a renewed passion for Egyptian religious forms and demonstrates a precise and scholarly knowledge of Egyptian sources. Type C(2) is very consistent, with the surviving walls almost invariably showing either a prince with an incense burner fumigating the enthroned ruler or Nephthys and/or Anubis pouring a libation offering. The ruler is usually depicted sitting on the Lion Throne under a canopy, often under the protection of a winged figure of Isis who stands behind.

Evidence for the *quarrying* of sandstone is to be found on many of the hills in the vicinity of the Northern and Southern Cemeteries. The quarries to the east of the Northern Cemetery are of especial interest because they have underground galleries.

Lenoble (1992) has suggested that there was a *ritual site* on the upper slopes of the prominent, isolated, flat-topped Gebel Ardeb, where vast quantities of pottery sherds are to be found, while on the top of the hill there are a few rock pictures and some stone settings

Heaps of iron slag in the immediate neighbourhood (east) of the town bear witness to intensive *iron making and working* on the site. The earliest fragment of smelting slag has been radiocarbon-dated to 514 ± 73 bce, whilst the earliest smelting furnaces have yielded the dates 520 ± 100 ce, 310 ± 100 ce, 280 ± 100 ce, and 210 ± 100 ce.

2.a.4 Musawwarat es-Sufra

(maps: 1 and 9-13 ; plates :2-3 and 13-18)

GEOGRAPHICAL LOCATION

Musawwarat es-Sufra is situated at the head of Wadi el-Banat, in the Keraba region about 35km from the Nile and 180km north-east of Khartoum (coordinates: $16^{\circ}24.649'$ N $33^{\circ} 19.705'$ E). The ruins of the site are located in a large basin surrounded by low sandstone hills. The protected area covers over $600,000\text{m}^2$.

RESEARCH

The site, known to the Kushites as Aborepe, was first mentioned by Linant de Bellefonds (1822) and was visited a few months later by Frédéric Cailliaud. As with many sites of the Kushite civilization, the first detailed scholarly description of the monuments was made by Carl Richard Lepsius, head of the Royal Prussian Expedition. The first archaeological investigations were undertaken by the Butana Expedition (Humboldt University, Berlin) in the late 1950s and 1960s directed by the late Professor F. Hintze and then, after a gap of some decades, by Professor S. Wenig (during the 1990s and the early years of the present century). The Humboldt University mission is still active in its research and protection programme on the site under the direction of Dr Claudia Näser.

Over the last few centuries many functions have been suggested for the ruins on the site, among them a convent or college, a palace associated with hunting, a hospital for malaria sufferers, a *khan* or desert rest-house, a centre of pilgrimage, an elephant training camp, and a venue for the royal hunt.

MAIN FEATURES OF THE SITE

The main features of the site are the so-called 'Great Enclosure,' the 'Small Enclosure,' the Lion Temple, the Great *Hafir*, a smaller *hafir*, the quarries, and some minor temples and other structures. An additional *hafir* lies some distance away from the main site further up the wadi.

The *Great Enclosure* is located at the western part of the site and occupies an area of more than 55,000m². Constructed throughout of sandstone, it consists of a number of individual buildings, store rooms, workshops, kitchens, walled enclosures, and ramps. The walls were covered in a hard white plaster and were probably painted. Eight major phases of rebuilding dating from the Napatan period onwards have been recognized; the orientation of the different phases varies between 4° and 5° 20', presumably because it was determined by the position of certain stars. It is thought that the rebuilding was a religious necessity to re-orientate the complex as the stars moved, not the result of an architectural need to rebuild.

One of the main features of the complex is a central structure, Temple 100, built on a high platform and similar in some respects to the Sun Temple (M 250) at Meroe. The temple is surrounded by a colonnade and some of its columns bear very beautiful and interesting reliefs. There is some debate about the function of this structure. Some scholars consider it to be a royal throne room and that Musawwarat was a temporary royal residence. However, others maintain that it was a temple and cite a number of features to support their assertion:

Case for temple Many architectural features of a type confined, according to Wenig, to sacral buildings such as *torus* moulding, *cavetto* cornice, the *lisene*, the *uraeus* frieze, the slightly protruding plinth (but note his admission of the presence of a *torus* and *cavetto* in the royal palace at Wad ben Naqa!).

Case against Sanctuary with many openings into it, very unusual in temple architecture in the Nile Valley – no parallels, columns outside bear reliefs associated, according to Török, with the coronation.

According to Wenig the main entrance was for the king and the side entrance, surmounted by a triple *protome* with two female deities, was for the queen. Temple 100 is dated on stylistic grounds to the later 3rd century BCE.

The following reliefs have been identified on the columns:

North column:

- King before Amun-Khnum and Satis, squatting child represents the Nile source?
- King with archer's loote between Horus and Thoth and Isis offering crown of Lower Egypt – *coronation scene*

North/central column:

- King holds prisoner, before Apedemak and his consort Ameseme (falcon headdress) – *greeting scene*
- King before Sebiuwerker? (god of Aborepe), Isis behind – *election scene*

South/central column:

- Armed king with hunting sandals before Amun-Khnum, Arensnuphis behind – *election scene*
- Armed king with hunting sandals before divine couple, goddess Isis?

South column:

- King before Apedemak, crown prince? Behind – opening of the garments – *transfer of power*
- King before Amun and Mut. Amun offers *ankh*, king offers pectoral – *coronation scene*

The column bases consist of an elephant flanked by two lions and a lion flanked by two elephants in high relief.

Ramps and several corridors connect the central structure to other parts of the complex, which includes one similar (though two-roomed) building Temple 200, a palatial complex (Rooms 210, 211, 208, 209), and what has been claimed as a suite of bedrooms for royal use, for the cultic wedding, complete with high windows and an erotic graffito on its exterior south wall (Rooms 507, 508, 509). One of the courtyards contains a temple (Temple 300).

Recent Humboldt University excavations led to the discovery of a pottery workshop for the manufacture of Meroitic fine ware in the northern part of the complex and the remains of an extensive garden complex in one of the eastern courtyards (117), possibly irrigated through pipes (canals) from water tanks supplied from the Great *Hafir*, located several hundred metres to the east, via an aqueduct. Plants were brought from the Nile valley in pots, the pots were broken, and the plants, set in their Nile alluvial soil, were placed in the centre of pits dug in lines forming avenues. Although elaborate, this garden only appears to have functioned once.

Most of the walls of the complex bear graffiti: there are 2000–3000 pictorial graffiti and *c* 160 secondary inscriptions, many of the Meroitic period. Among them are many representations of elephants, which, along with the presence of the ramps, has led some scholars to assume that elephants played an important role in the use of the building (one graffito actually shows an elephant on a ramp). There are also mason's marks in Meroitic and Greek characters.

The *Small Enclosure* lies a short distance from the previous site, occupying an area of about 1883m², and is built mostly of sandstone with minor usage of red brick. It consists of a large courtyard and 34 rooms, each approximately 8m long and 6m wide. There were at least three phases of construction. After its excavation in 1961–62, Hintze identified the building as a seasonal residence of the King of Kush.

No *tombs* of the Kushite period and no extensive *settlement* remains have been found at Musawwarat, although there are traces of occupation, probably for priests and workmen who may have lived in timber huts. A post-Meroitic and a medieval Christian cemetery are known.

The *Lion Temple*, dating to the second half of the 3rd century BCE on the evidence of the cartouches of King Arnekhamani still preserved on its walls, is located on the eastern part of the site across the wadi from the Great Enclosure. It is a single-chambered temple built entirely of sandstone blocks, oriented east–west with the main entrance (pylon) facing east. The temple was originally planned with four columns, but before the execution of the column reliefs the plan was altered and six columns were erected. The pylon collapsed shortly after the completion of the relief decoration of the exterior and interior walls and was quickly rebuilt from the blocks of the first pylon, but without relief decoration. These works were carried out by Arnekhamani. The inscriptions are in Egyptian hieroglyphs and among them is the earliest epigraphic evidence for Apedemak, here referred to as ‘lord of Naqa and lord of Musawwarat.’

The temple’s single room combines the functions of the inner rooms of the traditional multi-roomed cult temples. In the interior are scenes depicting the king greeting individually the gods Apedemak, Sebiumeke, and Amun. Other scenes show the election of the ruler and the coronation. The six scenes on column 4 present a summary of the principal concepts of legitimation: legitimation by Amun of Napata and Amun of Kawa (i.e. legitimation in the individual parts of the kingdom); legitimation by the royal ancestor[s]; legitimation by Apedemak, the god of the temple, and by the “local” god Arensnuphis. The concentration within the same room of cult acts which were usually located in different rooms of a temple not only indicates that one-roomed Meroitic sanctuaries, though built for a seemingly different type of divine cult, had in fact some basic correspondence with the traditional cult and ritual forms that were associated with the multi-roomed sanctuary type. In the same manner as the multi-roomed temple, the one-roomed sanctuary was conceived to explain the rules of cosmic order and present and embody the created world.

The lower parts of the columns bear reliefs of animals partly characterized as divine powers. It is a special feature of the 3rd century BCE architecture of Musawwarat that column bases were decorated with figures of a triumphal character. It appears that the griffin, as well as the lion, was taken from Ptolemaic Egyptian iconography on account of its triumphal connotations. The griffin was a form of Amun in Egyptian iconography and at the same time an image of the victorious ruler annihilating his enemies – an assimilation of the king and the god.

On the lower parts of the walls under the representation of the king before Amun in the southern half of the west wall are represented a lotus, a seated lion, and an elephant. In the northern half of the base register, a striding lion and an elephant are depicted under the representation of the king before Apedemak and his consort. On the eastern wall are two elephants and a further three prisoners, one elephant on a cord, the end of which is held by Sebiumeke in the main register scene above, while elsewhere there are herds of cows being driven by herdsmen. The cows and their milk were gifts of Apedemak, not offerings being made to him.

The left half of the temple was, at least iconographically but probably also in other respects, dominated by Amun, while the right half ‘belonged’ in a similar sense to the Lion God. The side-wall reliefs depict in a concentrated form the legitimation of the king by Amun, Apedemak (and other gods), his acting as High Priest, and the adoration of the local (?) god Sebiumeke.

On the exterior the side walls depict the king and prince before a group of gods with Apedemak, depicted as a god of war, in the lead. On the southern half of the back

wall the king stands before Apedemak while beneath are two elephants and nine prisoners. On the northern half the king is with the god Sebiuwerker. Beneath this is a row of *ankhs* reflecting that god's fertility and life-giving aspects.

In ancient times the temple collapsed outwards and, when excavated in the 1960s, almost all the wall blocks survived as they had fallen. These were re-erected and a new roof was constructed for the temple.

A number of *other smaller temples* have also been excavated but were mostly in a bad state of preservation. One of these appears to have been re-used as a church. Temple IIa is still visible protected by a modern shelter.

Three *hafirs* were located in the vicinity of Musawwarat es-Sufra, of which the so-called 'Great *Hafir*' is the largest monument of its kind in Sudan. It is 250m in diameter, and excavated 6.3m into the ground, the upcast being deposited in a circular mound around the basin. Designed to collect rainwater, its storage capacity has been estimated at about 130,000m³.

Three main *quarries* are located on the plateau to the east of the site, but there are several elsewhere in the vicinity.

2. a .5 *Naqa*

(maps: 1 and 14-19 ; plates :3 and 19-20)

– GEOGRAPHICAL LOCATION

The site of Naqa, the Kushite Tolkte, is located about 170km north-east of Khartoum, 35km from the Nile and about 15km south of Musawwarat es-Sufra (coordinates: 16° 16.094' N 33° 16.335' E ('Roman' Kiosk) – Map sheet NE36-O). The archaeological remains cover an area about 1km long by 600m wide.

– RESEARCH

The site was, like Musawwarat es-Sufra, visited and described by most of the 19th century travellers and scholars who passed through the region, among them Linant de Bellefonds, Caillaud, Hoskins, and Lepsius. Lepsius drew a largely accurate topographical map of the main features of the site. At the beginning of the 1980s the mission of the University of Tübingen (Germany) copied the reliefs and the inscriptions of the Lion Temple.

Since 1996, the investigations and conservation work on the site have been undertaken by the Archaeological Mission of the Ägyptisches Museum, Berlin.

MAIN FEATURES OF THE SITE

The *Lion Temple (Building 300)* is located on the western side of the site. It is a single-chambered building, entirely built of well-cut sandstone blocks, and preserved to almost its original roof height. It is oriented east-west, with the main entrance (pylon) facing east, and measures 11.86m long and 10.41m wide over the pylon. Presumably the internal columns were made of wood and hence will have been devoid of decorative scenes. The temple is dated to the reign of Natakamani and

Amanitore in the 1st century CE. The extant building is not the first on the site: an earlier temple, perhaps of Apedemak, stood on the site of Natakamani's temple. Under the walls of the extant building remains of an earlier temple have recently been identified.

In this temple there are on the southern side (left of the temple axis) only male and on the northern (right of the temple axis) only female deities. The two temple halves are associated with different deities, the left half with Apedemak and the right with Amun. The iconographic equilibrium shifts there from the dualism of Apedemak–Amun to the dualism of king–queen. This reflects the co-rule of Natakamani and Amanitore, a new development or perhaps a unique case in Kushite history. The equal status of the king and queen is clear on the reliefs, nowhere more so than on the exterior of the pylon. Here the rulers are shown at the same scale and performing identical tasks, smiting the enemies of Kush.

Running up the edges of the pylon towers are unusual representations of Apedemak with the body of a snake rising from a lotus bud.

On the south external wall the co-rulers, accompanied by the prince, adore the lion god Apedemak, along with Horus, Amun of Napata, Khonsu (identified as Aqedise in the Meroitic hieroglyphic inscription accompanying his image), and Amun of Pnubs (Kerma). In the southern half of the west wall the king, and in the northern half the queen, are legitimated by Apedemak. In the north external wall reliefs the co-rulers and the prince adore Isis, Mut, the 'goddess with the falcon(s),' Ameseme, the consort of Apedemak, Hathor, and Satis. Here the co-rulers and the prince thus act as Osiris, Isis, and Horus and the scene articulates the concept of dynastic legitimacy viewed from the particular aspects of Horus, son and heir of Osiris, and of Isis. The queen wears a Kushite skullcap-crown with a diadem ornamented in front with two *uraei* wearing the Red and the White Crown respectively and a vulture head.

The scenes on the west (main) wall of the interior represent the legitimation of Natakamani and Amanitore by Apedemak and Amun in the presence of Prince Arikankharor. The deity in the other, northern, half of the main wall is identified as Amun by his crown superstructure (two tall plumes and a sun disc) and the ram's horn curling around his ear. He appears with the same attributes in the centre of the interior north wall as well, where he is represented *en face*. This indicates that he was fused with a Hellenistic deity.

On the southern half of the west and in the centre of the south wall Apedemak is represented with a bearded human head shown *en face*. The identity of the god is indicated by his elephant throne and *hemhem* crown. There can be no doubt that in these images Apedemak was fused with Serapis. In the north ("female") half the queen appears alone before the enthroned Zeus–Amun–Serapis.

There are two symmetrical scenes on the door jambs. On the left side stands the king, on the right the queen. Both appear dressed as a High Priest before the cult statue of the enthroned Apedemak.

The *Kiosk (Building 361)* is a small rectangular sandstone structure lying a few metres to the east of the Lion Temple. Today it is preserved almost up to its roof level. The monument shows architectural and decorative elements drawn from Pharaonic Egyptian, Hellenistic, and local artistic milieus. The excavators consider that it is a shrine devoted to the goddess Hathor.

The *Amun Temple (Building 100)* lies to the east of the previous mentioned structures. It is oriented east–west and built of sandstone and of red and mud bricks. The doorways, the columns in the hypostyle hall, and the sanctuary chamber are built of stone, whilst the walls are of mud brick with the external faces revetted in red brick. Special bricks with a *torus* moulding are found at the external corners of the building. Presumably the whole structure was rendered in plaster, masking the different constructional materials used. The temple is approached from the western side up a long ramp rising to a height of 2m, between two rows of six ram figures, each protecting statues of Natakamani as Khonsu,² interrupted in the centre by a sandstone kiosk. The kiosk, completely decorated on the inside walls, was the first station of Amun of Naqa after he emerged in his barque from the interior of the temple. The main pylon is decorated with reliefs of the king and queen (Natakamani and Amanitore) before various gods and with many inscriptions. Two columned halls are located before the triple sanctuary. A thirteenth ram is to be found at the back of the temple behind the sanctuary. This is an unusual feature in Amun temples: it is possible that this ram marks the beginning of an avenue leading to the mountain or to Temple F. This area may have functioned as a so-called ‘anti-temple,’ the ram and altars being an offering place for the general populace, who were able here to approach close to the sanctuary (they were not allowed entry into the temple itself). There are also other structures on the southern and northern sides of the temple. The central axis of the temple and the whole of the sanctuary chamber was floored in irregularly sized sandstone slabs, whilst the rest of the temple had hard earth floors.

The preserved Meroitic hieroglyphic scene legends distinguish four Amun gods in the temple: Amni Notete (Amun of Thebes), Amni Berote (Amun of Bero, perhaps of Meroe), Amni Tolktete (Amun of Naqa), and Amni Mede[w]i[te] (Amun of Medewi). The human-headed Amun of Thebes wears the double-feather crown with sun disc, a *uraeus* above the forehead, and the vertical crown streamer. Amun of Naqa is ram-headed and wears the double-feather crown with sun disc and a *uraeus* above the forehead. Amun of Bero and Amun of Medewi are similarly ram-headed. The obvious iconographic similarities between Amun of Naqa and Amun of Napata indicate that the god of Naqa emerged as a hypostasis of the god of Napata. The upper register of the north jamb of Door I represents the king being embraced by Amun of Thebes. In the corresponding inner thickness scene he is conducted into the temple by Amun of Medewi. In the upper register of the south jamb the queen is being embraced by Amun of Naqa and in the inner thickness scene she is conducted into the temple by Amun of Bero.

In this temple, as in the Lion Temple, the left side is associated with the king and with the god to whom the temple is dedicated, and the right side is associated with the queen and with the *synnaos* of the lord of the temple.

Lintel II presents the co-rulers wearing the panther skin which makes clear that behind Door II the rulers act as High Priests of the dual cult of Amun of Naqa and Amun of Thebes. The reliefs of Door III show the prince adoring Sebiuemker (north jamb), Arensnuphis (south jamb), Amun of Naqa (north inner thickness) and Amun of Thebes (south inner thickness). In their traditional place left and right of the door, Sebiuemker and Arensnuphis appear here as guardians of the inner rooms of the sanctuary.

² The best preserved mummified figures of the king from between the ram’s legs were found hidden in the kiosk, others were in different rooms of the temple.

The cube-shaped column capitals in the hypostyle hall present a concentrated, symbolic summary of dynastic ideology: Their four sides display the cartouches of Natakamani, Amanitore, and Arakakhatani side-by-side, surmounted by double *shu* plumes and flanked by the figures of the Two Ladies, the crown goddesses Nekhbet and Wadjet.

On the north side of the *pronaos* is Room 106, which was only roofed at its western end and is considered by the excavators to have been a solar court. Within it was a square dais 1.58m in size approached from the east by six steps. All its surfaces were lime-plastered, the sides painted with two pairs of Nile gods binding the *sma* symbol. On top of it is a small sandstone altar.

The sanctuary chamber was the only room built in its entirety in stone, all the walls being decorated with reliefs. On both sides of the room a procession of Nile gods behind the king and queen move towards the back of the chamber where two representation of Amun are seated, one in human form and the other ram-headed. Some of the huge roof blocks weigh 10 tonnes. The outer wall of the sanctuary are also decorated with reliefs. The sandstone altar was set in place before the floor was paved. It had been deliberately covered by re-used red and mud bricks. The sides of the altar depict Horus and Thoth binding the *sma* symbol, above which are cartouches of Amanitore and Natakamani. On the other two sides the lower registers have two crouching Nile gods binding the *sma* symbol which carries the names of the king and queen. In the upper registers the goddess Meretis is shown with behind her the kneeling king with his left fist raised, followed by the jackal- and the falcon-headed souls of Dep and Nekhen.

The temple appears to have been destroyed by an earthquake which caused the walls to fall, the east wall falling *en masse*. Lion gargoyles remain *in situ* in the fallen wall. However, in the hypostyle hall some of the columns in the northern half collapsed after those of the southern half, some of the drums from the southern columns being found beneath the fallen columns of the northern half. In the hypostyle hall and in Rooms 102 and 103 a great amount of charred wood from the roof, of palm trunks, lies very close to the floor level, along with fragments of carved timber and gold foil (furniture), a shrine, chair, and stool (Kroeper 2006).

The small *temple of Queen Shanakdakhete* (Temple F) is located close to the base of the *Gebel*. It was dedicated to the ram-headed Nubian Amun, who is enthroned at the east end of the building receiving visiting deities from the west. The Apedemak dwelling in Temple F was depicted on the main wall and on the opposite wall next to the entrance. By contrast, the enthroned Apedemak figure on the south-east wall must be the resident of another temple.

On one relief the curious object in the right hand and under the right elbow of the prince may be identified as a water sack, i.e. an attribute and gift of the Nubian desert hunter and warrior deities Apedemak and Sebiemeker as well as of the Nubian Amun in the Meroitic period.

The earliest known inscription written in the indigenous language of the Kushites, Meroitic, runs around the niche in the centre of the back wall of the temple.

The Archaeological Mission of the Ägyptisches Museum, Berlin, is in the process of excavating another *temple* (Building 200) belonging to a poorly known Kushite king (Amanakharem) dated to the 2nd century CE.

The greater part of the *settlement* remains unexcavated and represents a big potential for archaeological research. There are large mounds covered with potsherds and remains of building materials. As part of the current project many of the buildings visible on the surface have been cleaned and their wall lines disengaged from the adjacent deposits to facilitate their detailed planning.

The *quarries* are located on Gebel Naqa to the east of the site at the edge of the plateau.

A large *hafir* is located on the southern side of the site.

On the northern side of the site is a vast *cemetery* of large stone tumuli that has not yet been excavated. One grave in the south cemetery, where the monuments are small stone tumuli, was excavated by Hintze in 1958 and found to be of post-Meroitic date.

2. b History and development

2. b. 1 A brief history of the Sudan

The Sudan is not only the largest country of Africa, it is also one of the regions of this continent that is richest in archaeological remains. The human presence in this part of the Nile Valley can be traced back over hundreds of millennia. The situation of the Sudan on the southern frontier of Egypt and its extension southwards into the heart of equatorial Africa, eastwards to the Red Sea Coast, and westwards into the Great Sahara, has made the country a meeting place for many peoples and cultures. The Sudan represents today a harmonious marriage between Arab-Islamic culture and those of traditional Africa.

During its very long history, the Middle Nile Region has witnessed the emergence of two powerful African civilizations. The first, the 'Kingdom of Kerma,' named after its metropolis located about 30km to the south of the Third Cataract of the Nile, occupied the Sudanese historical scene for more than one thousand years (c 2400–1500 BCE). This kingdom constituted a serious threat to Pharaonic Egypt, to the extent that it obliged the Egyptians to build a series of mighty fortresses at the Second Cataract to protect their southern frontier and to secure their trade routes tapping the wealth of Central Africa. The long conflict between the two states ended with the downfall of the Kingdom of Kerma towards the middle of the 2nd millennium and the annexation of the country down to the Fourth Cataract into the Egyptian Empire. The Egyptian occupation of the region lasted into the 11th century BCE.

The 9th century BCE witnessed the emergence of the second, centralized, Nubian power, the Kingdom of Kush. This civilization can be divided into two periods, the Napatan and the Meroitic, after their respective capitals. Napata is situated in the region around Gebel Barkal, about 50km downstream from the Fourth Cataract. The Napatan kings were the real inheritors of the Pharaonic kingdom. They occupied Egypt for nearly a century, at that time ruling over a vast empire extending from the Mediterranean Coast into the heart of Africa.

For unknown reasons and at a disputed date, the 'capital' of the kingdom was transferred from Napata to Meroe, located on the right bank of the Nile between the Fifth and Sixth Cataracts. However, neither of these two sites should perhaps be considered a capital city in the modern sense. The seat of power rested with the king, and it is known that he journeyed annually throughout his realm, at least in the earlier

Kushite period, when the capital will have been peripatetic. Kushite royal activity was to some extent concentrated from the 4th century BCE onwards in the so-called 'Island of Meroe,' the fertile region bounded by the Nile, the Blue Nile, and the River Atbara. Here, the Meroites developed one of the most glorious civilizations of Africa which survived up to the middle of the 4th century CE. They built highly decorated temples for the newly introduced god Apedemak (the Lion God), buried their kings and queens in chambers under beautiful stone-constructed pyramids, developed the technology of iron smelting, one of the earliest areas to do so in Africa, and introduced a new script, the 'Meroitic' language, which has not yet been deciphered.

The Kingdom of Kush collapsed, partly as a result perhaps of an Axumite invasion and the intrusion of foreign tribes into the Nile Valley, towards the middle of the 4th century CE.

A new cultural tradition prevailed in the Sudan during the 4th and 5th centuries CE, widely known as the Post-Meroitic Period. One of its most distinctive features is its burial mounds, often of considerable size. The country was converted to Christianity in the 6th century and three Christian kingdoms were established in the Middle Nile Region: Nobatia, in the north with its capital at Faras, Makouria in the centre, with its capital at Old Dongola, and Alodia in the south, with its capital at Soba East. Later, the two northernmost kingdoms were united into a single kingdom (Makouria), with Old Dongola as the capital. The Christian Kingdoms came to an end during the 14th and 15th centuries and an Islamic state of the Funj was established with its capital at Sennar on the Blue Nile.

The Islamic state of Sennar, in its turn, was brought to an end by the Turco-Egyptian invasion in 1821 and the country became part of the Egyptian state (the Ottoman Empire). Turco-Egyptian rule was overthrown by the Mahdist Revolution and the liberation of Khartoum in 1885. The Battle of Omdurman (1898) between the Mahdist army and the Anglo-Egyptian troops resulted in the annexation of the Sudan and its administration under the Anglo-Egyptian Condominium up to the independence of the country on 1 January 1956.

2. b. 2 The Kushite Civilization and the Island of Meroe

The Kushite State emerged in the 9th century BCE after a long period of Egyptian colonization (16th–11th centuries BCE) and a 'dark age' during which the political conditions in Nubia remain poorly documented.

The Kushites established their capital at Napata (Gebel Barkal), located on the right bank of the Nile about 40km downstream from the Fourth Cataract. This was previously the main religious centre of the Egyptian New Kingdom administration in Nubia. The Kushites ruled over Egypt for almost a century (8th–7th centuries BCE), a period known to Egyptologists as the XXVth Dynasty. The first kings were buried at el-Kurru, a few kilometres downstream from Gebel Barkal, then at Nuri on the left bank of the Nile. Two groups of royal tombs marked by pyramids have been excavated at Gebel Barkal itself; the exact place of the rulers buried within them in the Kushite royal chronology has not yet been clearly defined. A contemporary important settlement in this region is Sanam Abu Dom, located on the left bank of the Nile about 15km downstream from the pyramids of Nuri. The four sites, together with the post-Meroitic tumuli field of ez-Zuma, constitute the first Sudanese property

inscribed on the World Heritage List in 2003 as a serial nomination, 'Gebel Barkal and the sites of the Napatan Region.'

The period during which Gebel Barkal remained the principal political and religious centre of the empire is known to students of Sudanese history as the Napatan period (kingdom). During the 3rd century BCE, for reasons which are far from clear but may well be the result of dynastic change, the site of the royal burials was shifted southwards to Meroe, which may have been the principal royal residence for centuries. The shift of focus from Napata to Meroe has been associated by some archaeologists with an invasion against Napata, led by the XXVIth Dynasty Egyptian pharaoh Psammetik II at the beginning of the 6th century BCE. However, the main royal cemeteries of Napata remained in use for more than two centuries after the Egyptian invasion, and so Napata is generally considered to be the first centre of the Kushite Empire down to the reign of Nastasen, the last king to be buried at Nuri about 310 BCE. The Napatan Period can be characterized by the clear Egyptian influences manifested in the religion, art, language, etc.

Some sites of the southern region have shown evidence of Napatan occupation, with official activities at Meroe beginning in the 7th century BCE. From the 3rd century BCE onwards most, though by no means all, royal constructions (temples, palaces, pyramids, etc) were concentrated in the Island of Meroe. The Meroites erected their main centres on the banks of the Nile as well as in its hinterland. Tens of important centres are known from the region, the most important of them being the 'capital,' Meroe, and the sites of Naqa and Musawwarat es-Sufra. The Kushites at this time developed a civilization that was mostly sub-Saharan in character, but they retained their Mediterranean links.

Meroe survived into the middle of the 4th century CE and came to an end under the pressure of tribal migrations from outside the Nile Valley and an Aksumite invasion. The millennium and more of Kushite dominance of the region had witnessed the development of a new language (Meroitic) culminating in the invention of an alphabetic script written in a hieroglyphic and cursive form, a new cult (the Lion God), a distinctive art, and the spread of iron working.

3 JUSTIFICATION FOR INSCRIPTION

3. a Proposed statement of outstanding universal value

3. a. 1 *Brief synthesis*

The Island of Meroe is the heartland of the Kingdom of Kush, a major power in the ancient world from the 8th century BCE into the 4th century CE. *Meroe* became the principal residence of the ruler, and from the 3rd century BCE onwards it was the site of most subsequent royal burials. It also has evidence for industrial activities, particularly iron-working.

The nominated sites (the Meroe town site with the North and South cemeteries, Musawwarat es-Sufra, and Naqa) comprise the best preserved relics of the Kingdom of Kush, encompassing a wide range of architectural forms and occupying a range of environments. They testify to the wealth and power of the Kushite state and to its wide-ranging contacts with the Mediterranean and Middle Eastern worlds: this is the meeting place of the Pharaonic and Classical worlds and Sahelian Africa.

3. a. 2 *Criteria under which inscription is proposed (and justification for inscription under these criteria)*

Criterion ii: *exhibit an important interchange of human values over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design*

The archaeological sites of the Island of Meroe provide a detailed insight into the interchange of ideas between central Africa and the Mediterranean world along what was the major corridor to and from Africa over a very long period during the ancient world. The interaction of local and foreign influences are demonstrated by the architecture, art, iconography, religion, and language.

Criterion iii: *bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

All aspects of Kushite civilization were largely expunged by the arrival of Christianity on the Middle Nile in the 6th century CE. The nominated properties with their wide range of monument types, well preserved buildings, and potential for future excavation and other avenues of research are unique testimony to this, perhaps the greatest civilization of sub-Saharan Africa.

Criterion iv: *be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates (a) significant stage(s) in human history*

The pyramids at *Meroe* are outstanding examples of this highly distinctive Kushite funerary monument, and their intimate association with the well preserved remains of the urban centre is noteworthy. The evidence for iron-working is of considerable

importance for studying the role of Meroe in the diffusion of metal-working technology in sub-Saharan Africa.

At *Naqa* the 'Roman kiosk,' with its juxtaposition of architectural and decorative elements from Pharaonic Egypt, Greece, and Rome as well as from Kush itself, and the Lion Temple, which preserves superb reliefs of the Kushite gods and royalty, are of especial importance.

Musawwarat is a unique architectural ensemble with temples, courtyards, and domestic buildings, as well as major installations connected with water management, quarries, and industrial areas.

Criterion v: be an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change

The major centres of human activity far from the Nile at *Musawwarat* and *Naqa* raise questions as to their viability in what is today an arid zone devoid of permanent human settlement. They offer the possibility, through a detailed study of the palaeoclimate, flora, and fauna, of understanding the interaction of the Kushites with their desert hinterland.

3. a. 3 Integrity

The integrity of the sites (the Meroe town site, the North and South cemeteries, *Musawwarat es-Sufra*, and *Naqa*) conform with the requirements of the World Heritage Committee, as set out in the *Operational Guidelines*.. They have been subject to no inappropriate interventions of any significance since their abandonment and their places in the natural landscape have not been compromised or degraded.

3. a .4 Authenticity

The authenticity of the sites is also in conformity with the requirements of the Committee. The treasure hunting of Ferlini in the 1830s (see 2.1.c above) was undeniably very deleterious to a small number of the pyramids in the Meroe cemeteries, but the overall appearance of the ensembles has survived.

A certain amount of restoration has been carried out since the mid 20th century, most notably on a small number of pyramids and a few buildings (eg the 'Royal Baths' and the Kiosk at Naqa). Whilst the materials and techniques employed do not in certain instances conform with current conservation principles and practice, which have made considerable advances since these works were carried out, the precepts of the Venice Charter (1954), the Nara Document (1995), and the concept of *anastylosis* have not been violated. Two or three small pyramids have been completely rebuilt, with a didactic purpose, in order to demonstrate how they would have appeared in antiquity.

3. a. 5 Management and protection

The overall framework for the management and protection of the nominated sites is set out in Chapter 5 below. The sites are owned and managed by the National Corporation of Antiquities and Museums (NCAM) on behalf of the Central Government of the Republic of the Sudan. They are protected by the provisions of the *Antiquities Protection Ordinance* of 1999 (see Appendix 1). All the components of the property are well guarded by civil guards and a police force.

The *Transitional Constitution of the Sudan* (2005) contains some contradictory articles related to tourism that have given rise to tension between the local administration (State/Province level) and the Central Government. The matter has been discussed at many meetings and workshops and agreement has been reached on a number of points. A Management Council is being set up and the revenue of tourism from the sites will be shared between NCAM and the Department of Tourism in the River Nile State, the technical tasks (research, protection, restoration, etc.) being the responsibility of NCAM.

3. b Comparative analysis (including state of conservation of similar properties)

The Meroe sites can be classified and evaluated in several ways:

- In *structural/architectural* terms (i.e. as pyramids);
- In *functional* terms (i.e. as cemeteries);
- In *geographical* terms (i.e. as sites in the Nile valley);
- In *temporal* terms (i.e. as representatives of the later Kushite civilization, from the 3rd century BCE to the 4th century CE, when the source of power moved southwards from Gebel Barkal).

3. b. 1 The pyramids of Meroe

The pyramid is a feature of the architecture of early civilizations in many parts of the world: the ziggurats of Mesopotamia, the prehispanic temples of central America, and the tombs of the early Egyptian pharaohs are among the most famous. The pyramids of the Napatan and Meroitic cultures are much smaller than these great monuments (the largest are no more than 17.5m square at the base), and they are more steep-sided, at angles between 60° and 73° to the horizontal (compared with the 51° 52' of the Great Pyramid at Gizeh).

In structural and architectural terms they may therefore be deemed to be a distinct sub-set of the overall pyramidal form.

3. b. 2 The Meroitic royal cemeteries

Nowhere in the world are there royal cemeteries in which all the many tombs are in pyramidal form. The renowned groups of funerary monuments in pyramidal form in Egypt (at Saqqara and at Gizeh, for example) are not made up of the large numbers of pyramidal tombs that distinguish the Kushite cemeteries.

3. b. 3 Meroe and Egypt

Distribution maps of archaeological sites and settlements clearly indicate that the Pharaonic civilization dominated the Nile valley as far as the Fourth Cataract at its greatest extent, until the reign of Thutmose I in the early 11th century BCE. Thereafter this region, known under the general title of Nubia, developed independently, by the mid 8th century BCE becoming powerful enough to control Egypt for nearly a century. It was from this period onwards that the Kushite rulers developed the practice of burying themselves and their family members under monuments that reflected the power of the Pharaohs.

3. b. 4 Meroe and Gebel Barkal

The group of sites that make up the World Heritage site of *Gebel Barkal and the Sites of the Napatan Region* were inscribed on the World Heritage List in 2003. The official UNESCO brief description of this property is as follows:

These five archaeological sites, stretching over more than 60km in the Nile valley, are testimony to the Napatan (900 to 270 BC [BCE]) and Meroitic (270 BC to 350 [CE]) cultures, of the second kingdom of Kush. Tombs, with and without pyramids, temples, living complexes and palaces, are to be found on the site. Since Antiquity, the hill of Gebel Barkal has been strongly associated with religious traditions and folklore. The largest temples are still considered by the local people as sacred places.

In its evaluation as the Advisory Body for cultural heritage to the World Heritage Committee, ICOMOS stated that ‘This culture does not exist elsewhere and its remains are unique.’ Chapter 2.2.b (‘The Kushite Civilization and the Island of Meroe’) demonstrates that this statement is not fully justified. It makes clear that the history of Kush falls into two distinct periods. The first saw Napata (i.e. the country of which Gebel Barkal was the main city) as the first centre of the Kushite Empire down to the reign of Nastasen, the last king to be buried at Nuri about 310 BCE.

The shift of focus southwards down the Nile from Napata to Meroe has been associated with an Egyptian invasion of Napata at the beginning of the 6th century BCE. Some sites of the southern region have shown evidence of Napatan occupation, with official activities at Meroe dating from the 7th century BCE onwards. However, from the 3rd century BCE onwards most royal constructions (temples, palaces, pyramids, etc) were concentrated in the Island of Meroe. The Kushite civilization that developed from this time onwards, until the middle of the 4th century CE, was mostly sub-Saharan in character but retaining its Mediterranean links.

It may be claimed with justification that the two areas, Napata and the southern area around Meroe, are complementary and represent the two distinct periods of the powerful Kushite kingdom.

It was recognized in 2003 by ICOMOS that at the Gebel Barkal sites ‘deterioration is evident, mainly as a result of exposure to difficult environmental conditions’ and that ‘the foreign expeditions are implementing conservation measures.’ In inscribing the Gebel Barkal properties on the List, the World Heritage Committee requested “...the State Party to work with the World Heritage Centre to finalize the management plan, including an active conservation programme with priorities, budget, appropriate staff and timelines.” The Draft Management Plan for Gebel Barkal was received by UNESCO in November 2007 and is in the process of approval and implementation.

The states of conservation of the listed sites and of those that are the subject of this nomination are directly comparable. The draft Management Plan submitted with the present nomination (Appendix 3) is closely aligned on that for the Gebel Barkal sites.

3. a. 5 Summary

The section of the Nile Valley centred on the Island of Meroe evolved from the gradual southward movement of the centre of power of the Kushite lands in the 6th century BCE as a result of renewed Egyptian (and later Roman) pressure from further

down the valley. The resulting culture developed a character that distinguished it significantly from the northern culture, already given World Heritage recognition with the inscription of the Gebela Barkal Napatan sites in 2003. The exceptional qualities of uniqueness in terms of form and function that they possess and their location and relationships with neighbouring sites therefore make them worthy of inscription on the World Heritage List as an independent group.

4 STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY

4. a Present state of conservation

4. a. 1 Meroe

No complete *pyramid* has been discovered since the site was visited by the 19th century travellers (see 2.a.3 above). Most of the pyramids stand to half their original height. Their summits of most of them have been demolished, mainly in 1834 by the Italian adventurer Ferlini in search of treasure. The rectangular funerary chapels added on the eastern sides of the pyramids are in a ruinous condition, apart from those that have been reconstructed during the last two decades.

The buildings of the *Royal City*, built in stone and mud and fired bricks, are also in ruins. Many sections of the enclosure wall are preserved almost to their original height, together with some small temples that could be restored. However, vast areas of the town have not yet been excavated.

4. a. 2 Musawwarat es-Sufra

The *Lion Temple* has been restored up to roof level. A considerable part of its relief decoration is preserved on the inside and the outside of the walls.

Some walls and temples of the vast *Great Enclosure* complex survive to their upper levels. Within the building many thousands of graffiti dating from different periods of the occupation of the site have been preserved.

The *Small Enclosure* is in a ruinous condition.

The enormous water reservoir known as the *Great Hafir* has been seriously affected by modern excavation work.

Numerous other small structures, quarries, and *hafirs* are today in a satisfactory state of conservation. Many parts of the site have not yet been excavated.

4. a. 3 Naqa

The pylon of the *Lion Temple* is intact and the walls are preserved to their upper level. The reliefs on the outer walls are well preserved, but those on the inner walls have been more severely eroded.

The unique building known as the *Kiosk* is preserved nearly up to roof level. Most of its exceptional architectural and artistic motifs survive in good condition.

The main pylon of the *Temple of Amun* stands to its original height and its reliefs and inscriptions survive. Many walls and columns, along with the *dromos* (with its twelve ram statues), are in a satisfactory state of conservation. However, the decorated kiosk located in the centre of the *dromos* is in a poor state of preservation.

Temple F stands up to almost half of its original height, but it has lost the greater part of its decorations.

The *quarries* and the *hafirs* are intact, but vast areas of the town site and the cemeteries have not yet been investigated.

4. a. 4 General comments on conservation

– GENERAL PRINCIPLES

Although some of the problems of conservation originated in human activity, specifically through the uncovering of the remains, the main threats at present arise through natural processes, mainly wind erosion and water damage. Some of these recommendations for the conservation of the sites are simple, would cost very little, and could be implemented more or less immediately. Others are far more ambitious and could only be undertaken in the longer term with substantial funding.

– THE NEED FOR A CONSERVATION PLAN

Because of the great importance of conservation and the complexity of the issues surrounding it, a separate Conservation Plan is required, in addition to or as part of the Management Plan. Its production should be the principal management objective following the achievement of World Heritage Site status.

– RESTORATION AND RECONSTRUCTION POLICIES – RESTORATION, RECONSTRUCTION, RE-CREATION, AND REPLICATION

There has to date been some restoration or reconstruction of the remains employing a variety of methods at all three sites. International agreements make it reasonably clear in what circumstances work of this type can be undertaken without being judged to detract from the authenticity of the remains, which it is essential to safeguard on World Heritage sites. What has been done so far in no way affects the authenticity of the three sites, but future works need to be planned to take account of the provisions of international agreements.

Five international documents are relevant:

- The International Charter for the Conservation and Restoration of Monuments and Sites (the Venice Charter), 1964, Articles 9–13
- The ICOMOS International Charter for the Protection and Management of the Archaeological Heritage (the Lausanne Charter), 1990, Article 7
- The Australia ICOMOS Charter for Places of Cultural Significance (the Burra Charter), 1999, Article 1
- The Riga Charter on Authenticity and Historical Reconstruction in Relationship to Cultural Heritage (2000).

- The *Nara Document on Authenticity* (1994).

In the light of these agreements, four treatments of archaeological remains can be defined:

- *Restoration*: returning the existing fabric of a place to a known earlier state by removing accretions or by reassembling existing components without the introduction of new material (the reassembly of existing components is also known as *anastylosis*).
- *Reconstruction*: returning a place to a known earlier state by the introduction of new material into the fabric.
- *Re-creation*: the speculative creation of a presumed earlier state on the basis of surviving evidence from that place and other sites and on deductions drawn from that evidence, using new materials.
- *Replication*: the construction of a copy of a structure or building, usually on another site or nearby.

It seems doubtful that re-creation or replication, effectively ruled out by these agreements except in very special circumstances, will ever be put forward as means of interpreting the Island of Meroe sites.³ However, restoration and, to a lesser extent, reconstruction have been carried out at these sites. Restoration is certainly permitted, as long as the process is planned and executed according to the best conservation practices. Reconstruction is more problematic, and any proposals would have to be tested against the detailed provisions of the relevant agreements.

Material considerations at the Island of Meroe sites which would affect the interpretation of these international agreements are concerned with conservation. One example is the rebuilding of enclosure walls which shelter buildings from winds and the resulting sand erosion. The form of the rebuilding and whether the walls should be set on the foundations of ancient walls in the same position or elsewhere (perhaps obscuring or damaging other important archaeological features) are matters which would need careful consideration.

Another example is the reconstruction of parts of buildings where some of the elements are missing. This will involve the use of some modern materials, although there are strong advantages in removing fallen decorated stonework from the ground surface where it is damaged by wind erosion and the passage of humans and animals. Another material advantage is that sensitive restoration and limited reconstruction can greatly enhance the interest of the sites for visitors and can help them to understand the significance of the remains.

In conclusion, the methods of restoration and reconstruction previously employed at the Island of Meroe sites are broadly in line with current international agreements. However, future work would have to be carried out in the context of overall conservation plans where the justification for restoration and reconstruction was made explicit and the methods adopted were set out in detail.

³ Re-creation has already been undertaken in Meroe, particularly in the Northern Cemetery where at least one pyramid has been built from the ground upwards using new materials. Such work has now ceased

Most of the monuments on these sites are built of friable sandstone which is poorly resistant to natural and man-made degradation. There is an urgent need for a major conservation project to be undertaken on the pyramids of Meroe. A few pyramids and funerary chapels have been reconstructed by NCAM under the supervision of the late Dr F. Hinkel. Similar work should be carried on the main monuments of Naqa and Musawwarat es-Sufra. Repairs and conservation/restoration are being executed by the archaeological missions working on these sites. These are:

- *Meroe town site*: Ontario Royal Museum and the University of Khartoum:
- *Meroe Royal Baths*: The German Archaeological Institute.
- *Musawwarat es-Sufra*: Humboldt University, Germany.
- *Naga* : The Egyptian Museum of Berlin.

Detailed proposals made by these institutions are set out in Appendix 2.

4. b Factors affecting the property

4. b. 1 Development pressures

Threats

- a. Urban expansion is a potential threat to the authentic appearance of the site of Meroe. This problem is not encountered at the sites of Musawwarat es-Sufra and Naqa.
- b. The plateau located to the east of the pyramids of Meroe, which is rich in minerals, especially iron ore, could potentially become a mining site in the future.

Comments by State Party

Reinforcing the Antiquities Protection Ordinance (APO) and other legislative measures at the State (local) level is essential for the preservation of the site of Meroe and its landscape. The creation of the management council for the property made up of a number of stakeholders will reduce the risk of conflict of interest towards the property.

4. b. 2 Environmental pressures

Threats

- a. Desertification and wind erosion are the major threats, especially at the pyramids of Meroe.
- b. Some parts of the sites of Musawwarat es-Sufra, Naqa, and the Meroe town site occasionally suffer from summer rains.

Comments by State Party

Threat a. should be tackled with the assistance of the Department of Forestry ‘stakeholder’ and international assistance. The impact of threat b. can be reduced by the installation of good drainage systems on the most vulnerable monuments.

4. b. 3 Natural disasters and risk preparedness

Threat

Only a small section of the Meroe town site faces the risk of Nile floods: it has been flooded four times (1946, 1977, 1988, 1994) over the past 60 years.

Comment by State Party

Physical protection should be engineered around the western boundary of the site.

4. b. 4 Visitor/tourism pressures

Threats

The numbers of tourists and other visitors are still very limited but they are gradually increasing. The numbers of national visitors have not been monitored during the last years. Tourist numbers since 2004 have been as follows:

2004:	over 4000
2005 :	about 4000
2006:	4388
2007:	4580
2008:	over 5000

It is estimated that the annual number of local visitors over the past two years has been around 6000.

Although the average daily number of visitors is not more than 30, adverse impacts can be seen at some of these sites, such as:

- a. Wear of building stone;
- b. Inscription of modern graffiti on the walls;
- c. Dropping of waste (plastic bags) on or alongside the sites.

Comments by State Party

These problems should be addressed by means of improved guarding of the sites, clear information and defined circuits for visitors in English and Arabic, together with an adequate educational programme targeting local visitors in particular.

4. b. 5 *Number of inhabitants within the property and the buffer zone*

The core and buffer zones of Musawwarat es-Sufra and Naqa, where only a few families live in the neighbourhood, are only sparsely inhabited, but the situation at Meroe is different, as the following figures⁴ show:

	<i>Meroe</i>	<i>Musawwarat es-Sufr</i>	<i>Naqa</i>
Core zone	80	30	0
Buffer zone	1500	75	500
Totals	1580	105	500

⁴It should be noted that these are approximate figures, although they are not far from reality. The results of the recent population census (2008) will be published in the first quarter of 2009. Although the core zone of Naqa has no permanent inhabitants, it contains an historic well that is frequently used by nomads during the dry season.

5 PROTECTION AND MANAGEMENT OF THE PROPERTY

5. a Ownership

The three sites that make up the nominated property are owned by the National Corporation of Antiquities and Museums (NCAM) on behalf of the Central Government of the Republic of the Sudan.

5. b Protective designation

The property is protected by the provisions of the *Antiquities Protection Ordinance* of 1999 (see Appendix 1). This is an amended update of previous laws issued in 1905 and 1952.

5. c Means of implementing protective measures

The Protection Laws of 1905, 1952, and 1999 worked very efficiently. However, the *Transitional Constitution of the Sudan* (2005) contains some contradictory articles, especially in relation to the revenue and management of cultural tourism at the monumental sites. This has resulted in some tension between the local administration (State/Province level) and the Central Government. The matter has been discussed at many meetings and workshops and the following results were outlined or obtained:

- It is difficult to change the provisions of the *Transitional Constitution* since everything is based on the *Comprehensive Peace Agreement* (CPA) between the South and the North.
- The legislators are aware of the problem and the suggestions of NCAM will be considered after the elections of 2009 and the establishment of the new multi-party parliament. This will give NCAM more power for the administration of the archaeological resources of the country, including the nominated property.
- Until then it was agreed that the revenue of tourism from these sites should be shared between NCAM and the Department of Tourism in the River Nile State, the technical tasks (research, protection, restoration, etc.) being the responsibility of NCAM.
- It is believed that in the case of the Island of Meroe the creation of the proposed Management Council will greatly increase the power of the laws, and in particular the physical protection of the property.
- All the components of the property are well guarded by civil guards and a police force.

5. d Existing plans related to the region in which the proposed property is located

The River Nile State has no comprehensive tourist plans. According to the local authorities the following plans are being formulated. The *conservation plans* are the responsibility of NCAM. However, at the present time NCAM has no overall conservation plan for the whole property.

The archaeological missions have short- and long-term plans for the conservation of specific monuments (*see* Appendix 2). It is considered that the involvement of the directors of the archaeological missions will help in the production of a harmonized conservation plan for the different sites that make up the nominated property to be prepared, executed, and monitored in the future.

Details of these proposals are to be found in Appendix 2.

5. e Property management plan or other management system

Context of the Management Plan

(reference to plates is made to the photographs annexed to the Management Plan: Appendix 3)

The property proposed for World Heritage nomination “The Archaeological Sites of the Island of Meroe” is subject to the provisions of a management plan, which was drafted, in its final version, in January 2009. The purpose of the management plan is to ensure the effective protection and management of the property for present and future generations, thus preserving and enhancing all attributes of the significance of the site.

The management plan considers the characteristics and intricacies of the component sites constituting this property, i.e., the sites of *Meroe*, *Naqa* and *Musawwarat es-Sufra*, and was drafted with consideration to the local and national situation taking on board all aspirations for the future of the site, proposing approaches, structures and systems that are contextually realistic and effective as well as responding to the universal ethics of the World Heritage Convention and the standards governing World Heritage protection and management.

Aims of the Management Plan

The main aim of this management plan (provided in full under Appendix 3 of the Nomination File) is to fulfill the vision of the stakeholders of the site by attaining worldwide recognition of the property’s assumed outstanding universal value, protecting it, conserving it, managing and promoting it with sustainability into the future. The management plan aims as well at formulating and guiding activities to achieve the appropriate levels of management relative to a World Heritage Site. In order to do that, the plan responds to the following main objectives of:

- Establishing the cultural significance of the site;
- Providing an assessment of the current situation of the site and the key management issues standing in the way of appropriate management;
- Informing the local and national stakeholders of the site of arising key management issues;
- Presenting the results of the stakeholder consultation process and discussing the aspirations and expectations of the stakeholders with relation to the site;
- Getting the stakeholders to agree on a common vision/approach to managing and developing the site;

- Proposing solutions to the identified key managements issues of the site and integrating stakeholders perspectives on how to address them;
- Formulating policies to guide the future management of the site taking into consideration the perspectives of the stakeholders, the realities of the site and what needs to be achieved in order to address management issues in accordance with World Heritage Standards;
- Formulating action plans that aim at fulfilling the policies of the site and proposing a framework for implementing the management plan overall.

Structure of the Management Plan

The logic and structure of the management plan produced for the property proposed for nomination covers the points highlighted above as well as many more. Following is the main structure of the management plan produced in full under Appendix 3 of this nomination:

1. *Context of the Management Plan*
2. *Objectives of the Management Plan*
3. *The Site and its Attributes*
 - 3.1 *Nomenclature*
 - 3.2 *Geology and topography*
 - 3.3 *Modern communications*
 - 3.4 *Archaeological information*
 - 3.5 *The landscape today*
4. *Statement of Significance of the Site and Justification of Outstanding Universal Value*
 - 4.1 *Statement of significance*
 - 4.2 *Justification of Outstanding Universal Value*
 - 4.3 *Statements of Integrity and Authenticity*
5. *State of Conservation and Factors Affecting the Property*
 - 5.1 *General condition of the sites*
 - 5.2 *History of preservation and conservation at the serial site*
 - 5.3 *Inventory of conservation problems*
 - 5.4 *Conservation measures in place*
6. *Site Protection*
7. *Definition of site boundaries and site buffer zones*
 - 7.1 *Textual description of the boundaries of the proposed property*
8. *Management Plan*
9. *The Consultation Process*
10. *Key management issues pertaining to the serial-site*

- 10.1 *Ownership structure and responsible bodies*
 - 10.2 *Formalization of site boundaries and buffer zones*
 - 10.3 *Restricted conservation infrastructure*
 - 10.4 *Risk assessment and management*
 - 10.5 *Coordination and shared protection and management responsibilities*
 - 10.6 *Protection of the site from unsympathetic development*
 - 10.7 *Institutional strengthening*
 - 10.8 *Capacity building*
 - 10.9 *Management capacities on site*
 - 10.10 *Allocation of financial resources*
 - 10.11 *Visitor infrastructure*
 - 10.12 *Site promotion*
 - 10.13 *Sustainable use of the property*
 - 10.14 *Tourism Development and tourism infrastructure*
- 11. *Proposed Management Structure*
 - 12. *Management Plan Policies and Action Plans*
 - 12.1 *On the level of site protection*
 - 12.2 *On the level of site conservation*
 - 12.3 *On the level of site management*
 - 12.4 *On the level of archaeological work and enhancing archaeological research*
 - 12.5 *On the level of managing cultural tourism development*

Annex: Photographic Record of Rapid Condition Assessment

Site Protection

Regarding the subject of protection, aspects of management pertaining to legal and regulatory protection of the proposed World Heritage are provided at three different levels:

- The international level: through the ratification of the 1972 World Heritage Convention;
- The national (federal) level: through the competences and powers granted by the constitution of Sudan to the National Government in the field of cultural heritage protection as well as to the protection granted by the provisions of the 1999 Ordinance for the Protection of Antiquities; and, Through the Presidential Decision/Decree (no. 162 for the year 2003) for the *Confiscation of the Region of Naqa, Musawwarat and Begraweya and for the Creation and Register of a National Reserve within this Region and Managing it.*
- The state level: through the competences and powers granted by the constitution to the individual states in the field of legislating and executing powers over cultural matters of the state, as well as over state cultural and heritage sites;

A lengthy discussion around the relevance of each of these legislations as tools applied to the protection and management of the proposed World Heritage property is provided under section 6 of the management plan.

Stakeholder Participation in the Definition of the Principles of the Management Plan

With regards to the participation of stakeholders, attaining a shared understanding of the property by all its stakeholders and securing the involvement of partners and stakeholders in the protection and management of the property was achieved through the execution of a stakeholder consultation process.

It became evident from this process (involving the local and national authorities of the Sudan) that all stakeholders involved in the protection and management of the property or with interest in it (present and future) shared a common understanding of its significance, values and its potential for the good of present and future generations. This has prompted excitement and buy-in into the process of widely recognizing the significance of the property as a world heritage property, and the resulting responsibilities with regards to long-term protection and management, among others.

The Consultation Process involved the stakeholders of the property and resulted in the following:

- a. Understanding the concerns, needs and aspirations of the various stakeholders with respect to the future of the proposed World Heritage property;
- b. Informing the stakeholders about the cultural significance of the property, the outstanding universal value, the critical issues affecting the long term protection, management and sustainability of the property and the responsibilities resulting from the possible nomination of the property on the UNESCO World Heritage List;
- c. Getting all stakeholders to agree on a common vision for the property, one that takes into consideration their needs and aspirations as well as responds to the implications and responsibilities of World Heritage nomination;
- d. Getting all stakeholders to commit to the protection, management, development and sustainability of the property;
- e. Getting all stakeholders to endorse the management plan elaborated for the property and adopted as a working document, reviewed and amended every 3 years;
- f. Elaborating jointly an effective management structure that will be responsible for, take charge of and overseeing the full implementation of this management plan and the attainment of the standards that govern the protection, management and sustainability of the World Heritage property.

The stakeholders that were party to the Consultation Process are local and national and are listed on page 40 of the full management plan document provided under Annex 3 of this nomination document, as well as in Annex B of the management plan proper.

Conservation Management

Apart from the purely administrative aspects of the management plan, the document contains a detailed section on the state of conservation and factors affecting the

property (section 5 of the management plan). This section sets-out with a general description of the state/condition of each of the site constituting the serial property proposed for nomination. In general, the sites constituting the serial property suffer from slow-rate degradation and deterioration, with varying degrees, caused in the first place by exposure to the harsh effects of the natural environment. The on-going slow deterioration of the archaeological remains is accentuated by erratic and in some instances ineffective regimes of maintenance, undertaken over a number of years, which address only specific elements of the sites. Following is a general description of the condition of the various sites of the property.

Naqa

The so-called Roman Kiosk (Plate 5) is well-preserved and there are substantial remains of the Lion Temple, Temple of Amun and Temple F (Plate 6). The other remains are very ruinous. Some conservation work has been carried out to good effect: for example, the rams flanking the processional route to the Lion Temple have been reerected on their pedestals, preventing their erosion and reducing the risk of damage. Alternatively, a painted stone altar found in room 106 in the Temple of Amun was found decorated with paintings carried out in *secco* technique on lime plaster. Following its excavation, the paintings were cleaned and consolidated. Because the paintings are vulnerable to damage by visitors and from rain, the altar was documented and then protected by a covering of sand. The blocks from Temple 200 almost all of them decorated in fine, delicate relief, are at present kept next to the temple where they are covered in sand to protect them. These blocks are from the wall decoration of the temple and could be easily restored to their original positions following conservation.

Musawwarat es-Sufra

Great Enclosure: There has been damage to all architectural parts of the Great Enclosure through natural and anthropogenic processes: - intrusion of rain water into the walls and foundations, which are clay-bonded; mainly occurring in already damaged walls and walls without cover blocks - pre-existing factors such as inadequate foundations - physical processes, namely penetration of water-soluble salts (hydration and dehydration, solution and crystallisation), supported by accumulated sand dunes - wind and sand erosion, supported by accumulated sand dunes - domestic animals (sheep, goats) walking around in the courtyards - tourists climbing up or over the architectural remains or scratching graffiti into the walls.

Small Enclosure: Although the structures of the Small Enclosure were in quite good condition when excavated, they have suffered considerably because of their exposure to environmental forces and human interference.

Lion Temple: Damage to the Lion Temple has been caused by natural and anthropogenic processes: - wind and sand erosion, especially on the northern and eastern sides of the temple - physical processes of water-soluble salts (hydration and dehydration, solution and crystallisation), especially in the pedestal areas and on the northern side of the temple - damage to the reliefs from bird faeces and wasps' nests - decay of the plaster used for the restoration of the temple in the early 1970s - large cracks in the southern temple wall caused by the sinking of the pylon foundations -

damage to the reliefs by tourists. Moreover, the monument is endangered because of deteriorations of the modern roof resulting from constructional defects in the 1970s.

The defective parts of the roof allow rain water to damage further the walls and interior reliefs of the temple.

Other standing monuments: The smaller monuments on the site of Musawwarat also suffer from wind and sand erosion, the run-off from annual rainfall and uncontrolled access by tourists.

Other archaeological structures: Many archaeological features not represented by standing walls, such as the workshop areas, cemeteries, habitation sites and the smaller *hafirs*, are constantly endangered by tourist cars and other vehicles moving around the valley at will and driving right over the sites. They cause damage not only to the remains above ground but also to features below ground level.

Aside from the general description of the conditions of the individual sites constituting the property, a section summarizing conservation history occurring on these sites is provided as a means to document the historical record of past interventions. In addition to this section, a significant section entitled “Inventory of Conservation Problems” is provided (section 5.3 of the management plan), whereby a register of all conservation issues observed during the rapid assessment of conservation condition and problems undertaken on site in the context of the management plan compilation effort) is provided as a management plan for determining the following:

- Type of conservation problem;
- Description of problem;
- Cause of the problem;
- Sites where problem occurs;
- Magnitude of problem;
- Degree of complexity involved in attempting to address the problem.

The inventory segregates between man-made and naturally occurring conservation problems and is also divided under structural or material-related problems.

The inventory was very useful in quantifying the level of intervention and the resources required for undertaking conservation on site in the future. It is at the basis of the formulation of the various conservation policies and associated action plans and key indicators listed below.

Planning Cycle of the Management Plan

A realistic and effective cycle of planning and revising the management plan was set to 3-years and accepted by all stakeholders. The definition of this cycle was based on the timeframe required to address the key-management issues identified in the management plan as well as on the time required to complete all the associated action plans.

Reporting on the Implementation of the Management Plan

Reporting on the state of implementation of the World Heritage Convention and on the state of conservation of the proposed World Heritage property are activities intrinsic to this management plan as well as to its various action plans. The pertinent policies and associated action plans which respond to all issues covered by the management plan are monitored and reported upon in terms of successful implementation to the management structure designated to take on oversight and direct responsibilities over the site. This structure is detailed under section 11 “Proposed Management Structure” of the management plan document (see Annex 3 of the nomination file). It is described further below for reference.

Each of the action plans covered under the management plan of the property is monitored against a set of Key Performance Indicators. A list of the policies governing the implementation of the property’s management plan and resulting key performance indicators (pertaining to each action plan under the policy heading, included in full detail within the body text of the management plan *p.56*) are provided in the table below, they cover activities relating to protection (PP), conservation (CP), site management (MP) and the management of tourism development (MT). Otherwise, the full management plan document structures the information in the following manner:

Policy code – Policy heading and associated action plans – results expected from the implementation of each action plan - main responsible parties for implementation, monitoring and reporting - partners in implementation – timeframe for implementation – Key Performance Indicators.

Policy Code	Policy Statement	Listing of Key Performance Indicators pertaining to each action plan (action plans are provided in full with the management plan document in Annex 3) under the policy heading against which reporting will be undertaken
PP1	<i>Secure site boundaries and enforce planning restrictions in buffer zones, control access avoiding the segregation of local communities and the isolation of the site from its wider social context</i>	<ul style="list-style-type: none"> -Maps issued to relevant public bodies; -Statute of Maps officially recognized by all relevant public bodies; -Awareness activities and campaigns conducted at all levels; -WHS signs erected at all sites of the serial-site.
PP2	<i>Safeguard the integrity of the site by establishing buffer zones where special planning regulations are enforced in order to protect the significance and setting of the WHS</i>	<ul style="list-style-type: none"> -Inventory of damaging activities put together, explained and shared with relevant stakeholders; -Planning regulations in buffer zones developed and agreed upon with planning authorities; -Wider regional master plan that takes into account site attributes and sensitivities;
CP1	<i>Develop the necessary conservation tools to enable the prioritization and quantification of conservation work on site and the establishment of a site-wide conservation master plan with prioritized interventions</i>	<ul style="list-style-type: none"> -Priority areas identified; -Methodologies developed; -Specifications developed; -Monitoring and regular maintenance program established; -MOU with Foreign Missions signed; -Conservation Master Plan completed;
CP2	<i>Develop the conservation infrastructure on site by building new capacities and attracting funds for conservation initiatives</i>	<ul style="list-style-type: none"> -Packaged conservation projects with detailed budget presented for external funding; -Benchmarking of conservation methodologies and standards set; -New jobs in conservation created; -Curriculum designed.
CP3	<i>Implement priority conservation activities in order to halt the degradation of the sites</i>	<ul style="list-style-type: none"> -Drainage ditch around Temple of Amun rehabilitated; -Drainage system designed site-wide; -Drainage system built; -Localized conservation problems

		resolved (see activities for breakdown);
MP1	<i>Create and train the adequate management structure for looking after and managing the site.</i>	-New proposed structure analyzed; -Business plan completed; -New recruits identified; -Training programs designed and launched; -New workforce trained and mobilized.
MP2	<i>Manage interventions on the WH Site preventing negative impact from affecting its integrity and significance, while establishing the legal framework for managing the site and coordinating management with other stakeholders.</i>	-Management structure established; -Management structure takes charge of the management plan; -Awareness activities designed and delivered; -NCAM's role, responsibilities and jurisdiction accepted by all relevant stakeholders.
MP3	<i>Implement short and long-term site improvements with the aims of reducing the impact of negative activities on site</i>	-Village expansions within the boundaries of the site are checked; -Telegraph poles removed; -High tension pylons redirected; -Highway redirected; -Fence at Royal City repaired; -Sudan Civilization Institute compound reformed; -Resthouse west of Northern and Southern Cemeteries demolished and removed; -Visitor control measures implemented; -Vehicular control measures implemented; -Infrastructure at sites improved; -Risk preparedness activities (listed in management plan) accomplished.
AP1	<i>Increase awareness about the importance of the World Heritage Site and the results of past and on-going excavations among decision makers and the community at large.</i>	-PR campaign designed; -PR campaign implemented; -WHS site significance addressed in school curricula; -Public archaeology programs developed.
AP2	<i>Adopt a pre-emptive archaeological policy particularly in areas that could be designated for development in the future.</i>	-Pre-emptive archaeology program established.
AP3	<i>Regulate archaeological work in</i>	-Archaeological Map with risk

	<i>such a way that it serves the management strategy of the WHS.</i>	areas produced; -MOU with Foreign Missions; -University of Shendi presents its program for the WHS; -Publications issued.
MT1	<i>Establish a clear framework for organizing tourism investment and activity in relation with the WHS while protecting the resource</i>	-Document clarifying mandates presented and agreed upon; -Tourism plan produced and discussed; -Revenue sharing arrangements made.
MT2	<i>Promote the WH Site using different media channels.</i>	-Promotional campaign designed; -Promotional campaign delivered; -Media programs designed and produced.
MT3	<i>Upgrade the level of accessibility and the quality of visitor amenities within the WH Site and its surroundings for better appreciation by visitors</i>	-Ticket office at Naqaa operational; -Basic infrastructure on site established an operational; -Basic infrastructure design improved and approved by Advisory Committee and WHC; -Interpretive materials developed and produced.

Framework for the Implementation of the Management Plan

In order for NCAM, the custodians of the property, to accomplish the provisions of the management plan leading to the accomplishment of the appropriate levels of preservation, conservation, enhancement and promotion of the proposed World Heritage Site property with the support of stakeholders, it is important to streamline integrated management of the cultural heritage while identifying and segregating the different levels of responsibility and defining associated tasks in the framework of a comprehensive program for the management of the World Heritage Site.

In this respect, a site management framework was designed incorporating all concerned stakeholders in a structure, which achieves the following:

- Integrates stakeholder concerns and expectations into WHS management;
- Makes stakeholders aware of the challenges of the site and the constraints to WHS management, as outlined in this management plan;
- Provides the framework for discussing and resolving critical issues affecting the site;
- Adopts site management policies that are meant to regularize the management and exploitation of the site for the benefit of the community;
- Oversees the implementation of the management plan with its different project proposals;

- Supports NCAM in fulfilling its mandate, resolving obstacles and in implementing the management plan for the site.

The designed framework for guaranteeing effective site management is active at two levels:

- At the level of an Advisory Committee;
- At the level of an Executive WHS Management Team.

The Advisory Committee, consisting of representatives of the main stakeholders with influence over the site will be responsible for ratifying and adopting the management plan as the basis for its transactions and performance monitoring. It should agree to the principles intrinsic to the vision of the management plan, its objectives, policies and action plan. The Advisory Committee shall be guided by the principles of the World Heritage Convention and other international charters with respect to protecting and promoting the values of the site, its authenticity and integrity. The Committee shall oversee the implementation of the management plan and provide the support needed for the fulfillment of its provisions and the accomplishment of the tasks of the Technical Management Team. The Committee shall oversee proper spending of funds coming from donors. Funds should be used for implementing the projects within the management plan and others that the Committee might propose for the benefit of the site. The Committee shall consider and understand the critical issues and challenges affecting the site, discuss and find solutions for them. It is important to stress the top hierarchy of NCAM within this committee since it is the owner of the site and the body with direct responsibility for its management.

The Executive WHS Management Team, consisting of capable professional staff, is responsible for implementing the activities of the Management Plan. The principles of the plan, its policies and the principles and notions of the World Heritage Convention and other International Conventions of significance to the management of cultural heritage should guide the Executive Team in its day-to-day duties and responsibilities. The task of the Team is in the first stage to understand the management plan, develop it into a full operational document, upgrade it regularly, evaluate the site and its needs, identify constraints and propose solutions, policies and action plans, monitor and report progress. Periodic reporting to the Advisory Committee acting as the scientific advisor of the site falls also within the remit of the WHS Management Team.

The Team can draw on the resources of NCAM to fill in expertise and/or management gaps whenever required.

The Advisory Committee and the Technical WHS Management Team shall meet periodically, at least once every three months (quarterly) as well as when summoned by either one of the two bodies.

Staffing Structure of the WHS Management Team

The staffing structure of the WHS Management Team is as follows:

- One Site Director for the entire property;

- One Conservation Coordinator for the entire property;
- Three Site Managers, one for each of the sites of the property, i.e, for Meroe-Begraweya site, Naqa and Musawwarat;
- Six Assistant Managers, two per site;
- Six Technical Assistants, two per site
- Ticket Office Operator;
- Ten Guards per each site.

The duties and responsibilities of the proposed serial-site management team are provided in full in the body of the management plan.

Capacity Building

Adequate staffing of the WHS Management Team is a challenge in light of the current structure of the government's administrative system, which makes it somewhat difficult for NCAM to recruit and retain qualified and specialized personnel, essential for the long-term management of the property. While this issue is currently being debated at the level of the government of Sudan as a whole and NCAM in particular, solutions to this significant issue might take time to come and it is important to contemplate short-term solutions that respond to the immediate requirements of the property in terms of specialized management staff. The management plan addresses this issue in length under different headings pertaining to institutional strengthening (long-term solutions to resource acquisition and retention) as well as capacity building. In this respect, joint cooperation with universities, foreign missions and volunteers from the community should be heavily thought after as a short-term solution. Projects funded by donors should always integrate students and include training components to help build technical expertise. In most cases, external support is largely available and willing to contribute to resolving shortcomings; however, the challenge lies in the capacity to manage this support while making sure that it remains strategic, responding to the critical issues of cultural resource management and fulfilling the objectives of NCAM.

Alternative Financial Resources

In this respect, the role of the Advisory Committee, mentioned above, relates also to sponsoring and overseeing the implementation of this management plan to address the issues of capacity building by finding new sources of financial support for positions badly needed for the protection, management and promotion of the serial-site. The State as well as the Universities of Shendi and the River Nile have formally announced their readiness to sponsor the education, training and employment under contract of technical staff that will work under the direction of NCAM and take charge of implementing some of the provisions of the management plan whether this is in the areas of site documentation, rescue and preventive excavations, enabling works for conservation, guiding, site interpretation and site monitoring, or other relevant areas.

Status of the Management Plan

These were the main sections of the management plan for the property proposed for World Heritage nomination; other sections not covered in this part of the Nomination File are amply developed in full management plan document under Annex 3.

An advisory committee has been suggested for the management of the property. It gathers all the stakeholders on the local and national levels. It is headed by Mr Mohamed Sheikh Madani, the head of the local development committee. This advisory body will be active by the beginning of next year, after the publication of a formation decree to be issued by the governor of the River Nile State.

5. f Sources and level of finance

Funding is provided by the following sources:

- The Central Government; and
- The archaeological missions.

It is estimated that a total of *c* 220,000 USD is spent annually on the different components of the property. This sum covers:

- Salaries of the employees engaged in guarding and administrative work on the property;
- Archaeological research;
- Protection and restoration works.

It does not cover either the publication of interim or final reports or the wages of foreign experts and technicians.

International financial and technical assistance is needed for major projects on all the three sites that make up the nominated property.

5. j Sources of expertise and training in conservation and management techniques

The annual training programme of the Central Government consists mainly of training in management/administration and the promotion of technical skills.

Expertise and training of the national staff in conservation techniques are also offered by the archaeological missions, holders of the research concessions on the different sites of the property.

Many of the employees of the NCAM Conservation Section have benefited from training offered abroad by foreign archaeological missions, by ICCROM, and by other concerned international agencies.

5. h Visitor facilities and statistics

In general the tourism infrastructure on the three sites of the property is still inadequate. The following details relate to each site:

Meroe

- There is only one lavatory near the pyramids. Near the town site there is an adequate number of toilets, together with a supply of water.
- The site museum at the pyramids remains unfinished.
- There are only two small hotels beside the pyramids, with a total capacity of about 40 beds.
- The local government is considering building good access routes to the different parts of the sites, together with a rest house.
- There are no explanatory panels or directions on the site.

Musawwarat es-Sufra

- There are no lavatories for visitors.
- There are no accommodation facilities: camping is the only way of spending nights near the site. A governmental rest-house has been built within the core zone, but this is in practice of no use to tourists: it is currently accommodating government authorities and foreign official visitors. The building is provided by water from a well with a water tank and with permanent electricity from the national electric grid.
- A 30km tarmac road is to be built by the local government to facilitate access to the site.
- Explanatory panels have been erected near the main monuments of the site.
- A small site museum has been established within the enclosure wall of the Great Enclosure.

Naqa

- An adequate number of lavatories are located near the entrance to the site.
- There are no accommodation facilities: camping is the only way of spending nights near the site.
- A project for a site museum is being studied by a sponsor through the good offices of the holder of the Egyptian Museum of Berlin research concession.
- A 30km tarmac road which branches off the road leading to Musawwarat es-Sufra is to be built by the local government to facilitate access to the site.
- There are no explanatory panels or directions on the site.

Statistical data relating to visits to the sites are given in 4.b.4 above

5. i Policies and programmes related to the presentation and promotion of the property

There are no clear programmes related to the presentation and promotion of the entire property. Appendix 2 gives details of the specific programmes of the international missions for individual components of the property. It is essential that a harmonized programme for the presentation and promotion of the property that conforms with the approved management plan should be worked out by NCAM in consultation with the

authorities of the River Nile State, the archaeological missions, and the other stakeholders.

5. j Staffing levels

At the national level, the following management structure and staffing applies:

NCAM is attached to the Ministry of Culture, Youth and Sport. Although its Director is responsible to the Minister, NCAM has its own independent budget and administration. The general policy of NCAM is set by a board of nine members on the basis of the proposals of its Director and is approved by the Council of Ministers. The members of the board are the Director himself, a representative of the employees, and seven individuals representing other disciplines and functions related to the mandate of NCAM.

Overall, NCAM has 409 employees headed by a director general and is subdivided into three main departments:

- The ***Fieldwork Section*** section is responsible for surveys, excavations, salvage work in connection with development projects, physical protection of the sites, coordination of the work of foreign and national archaeological missions, and supervision of the tourist activity on the monumental sites. The personnel of this section consist mainly of graduates of national and foreign faculties of archaeology, some of them holders of Master and PhD degrees, together with technical assistants and the site guards. Most members of this section have acquired an adequate training in field activities.
- The ***Museums Section*** is responsible for the administration of museums all over the Sudan and the organization of temporary exhibitions both inside the country and abroad. Its personnel is also recruited from archaeology and history graduates. Some of its curators have higher degrees in museum science and have benefited from intensive training courses in famous international institutions such as the British Museum and the Louvre. It has also a considerable number of trained technical assistants and supervisors of exhibition galleries.
- The ***Restoration Section*** is responsible for the restoration and preservation of movable objects in the different museums/stores and of immovable antiquities. Its members are graduates in conservation, restoration, fine arts, chemistry, and architecture. Some of them have higher degrees and have participated in specialized courses both inside the country and abroad (most of these training courses were organized by ICCROM). The section has a well trained technical staff, some of whom have been working for NCAM since the UNESCO Nubian Campaign of the 1960s and have acquired considerable experience in the restoration (specially of pyramids), dismantling, transportation, and re-erection of monuments.
- NCAM also includes an ***Administrative and Financial Section***, which also includes the departments of personnel management and public relations, a ***Photography and Library*** section, and a ***technical workshop*** staffed by trained masons, carpenters, etc.).

The three sites that make up the nominated property have a very small staff consisting of:

- An antiquities inspector resident at the town of Shendi, 40 km from Meroe and *c* 60 km from Musawwarat es-Sufra and Naqa;
- Four technical assistants;
- Over twenty permanent and temporary recruited guards; and
- A significant police force on each of the sites.

Major works on the property are carried out by staff resident in Khartoum. It is essential to expand the permanent staff at the property significantly, especially after the completion of the museums and the accommodation facilities at Meroe and Naqa.

6 MONITORING

6. a Key indicators for measuring state of conservation

(reference to the plates is made to the photographic record annexed to the Management Plan, Appendix 3)

The key indicators are provided in the table below. They are reviewed on a quarterly basis by the Advisory Committee and their respective time frames for completion are included within the table. The reports pertaining to the assessment of the degree of implementation of the indicators shall be kept with NCAM. Note that due to the fact that conservation problems are diverse and spread-out across the site, a detailed conservation plan forms part of the main activities listed in fulfillment of the implementation of the management plan for the proposed World Heritage Site property. The required conservation plan is expected to produce an accurate mapping of conservation issues on site alongside a comprehensive quantifiable record of the state of conservation and of the level of efforts and resources required to undertake conservation.

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
CPI	<i>Develop the necessary conservation tools to enable the prioritization and quantification of conservation work on site and the establishment of a site-wide conservation master plan with prioritized interventions</i>					
	Main issues: rapid assessment of site conditions and conservation interventions, adhere to international standards in conservation work, development of conservation infrastructure.					
	Associated activities:					
	- Undertake the rapid assessment of the condition of the sites and identify areas of priority and rapid	- Areas of priority intervention identified; -Methodologies for addressing	NCAM, University of Shendi, Foreign Missions active on site.	WHC and other international organizations.	Year 2	-Priority areas identified; -Methodologies developed; -Specifications developed; -Monitoring and regular maintenance program

	<p>intervention; - Review and design methodologies for the consolidation of structural problems at pyramid sites; - Identify major conservation risk areas and develop detailed design schemes for repairing damage; - Develop design specifications for conservation work across the three sites and use as a basis for training conservation staff and for quantifying conservation work; - Invite conservation specialists to design solutions for the various conservation problems of the site and conduct on-site training for the emerging conservation capacity; - Monitor and re-evaluate ulterior</p>	<p>structural problems at pyramid sites developed; -Risk preparedness achieved; -Specifications for conservation developed and used for quantification of resources required; -Special methodologies developed in accordance with international standards; -Ulterior conservation/restoration work re-evaluated and repaired; -Regular monitoring and maintenance system established, site</p>				<p>established; -MOU with Foreign Missions signed; -Conservation Master Plan completed;</p>
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	<p>conservation/restoration works with regards to their suitability and effectiveness and agree on a methodology to maintain/repair old restoration works;</p> <p>Establish a system for regular monitoring and maintenance of site remains in order to limit the deterioration of the fabric;</p> <p>Enforce provisions for implementing preventive conservation and the protection of exposed remains in accordance with the terms of the contract with archaeological missions;</p> <p>Elaborate all of these issues in the framework of a conservation master plan with identified specialist and financial resources.</p>	<p>problems identified before they become accentuated;</p> <p>-Archaeological missions form part of the conservation plan delivery;</p> <p>-Comprehensive master conservation program guides interventions on site</p>				
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
CP2	<i>Develop the conservation infrastructure on site by building new capacities and attracting funds for conservation initiatives</i>		NCAM	University of Shendi Foreign Missions	Year 3	
	Main issues: conservation aid and subsidy, training conservators and developing new expertise, establishing a suitable conservation infrastructure to respond to needs.					
	Associated activities:					
	<ul style="list-style-type: none"> - Seek government as well as private sector subsidy; - Adhere to international standards in conservation; - Train and develop qualified conservators and craftsmen; - Work closely with the University of Shendi and other universities to form conservation capacities and integrate those in NCAM activities on site; - Create jobs in the field of conservation, with adequate 	<ul style="list-style-type: none"> -Alternative funds allocated to support conservation activities on site; -All training and implementation of conservation works benchmark with international standards; -Conservation workforce boosted; 	-	-	-	<ul style="list-style-type: none"> -Packaged conservation projects with detailed budget presented for external funding; -Benchmarking of conservation methodologies and standards set; -New jobs in conservation created; -Curriculum

	<p>incentives, to cover the needs;</p> <ul style="list-style-type: none"> - Exploit available international training opportunities adequately; - Work towards the establishment of a formal curriculum in conservation studies in the country; 	<ul style="list-style-type: none"> -Established partnerships that help address capacity shortages; -Long-term conservation capabilities being formed; 				designed.
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<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
<i>Implement priority conservation activities in order to halt the degradation of the sites</i>		NCAM	University of Shendi, Foreign Missions	<i>Year 3</i>	
Main issues: address flooding and site drainage issues					
Associated activities:					
<ul style="list-style-type: none"> - Re-assess the effectiveness of the drainage ditch around the Temple of Amun at Naqa and repair where necessary; - Design and build drainage systems for the ruins in the Royal City as well as the monuments at Naqaa (Lion Temple and Kiosk) and the Great Enclosure at Musawwarat; - Clean-up bird faeces and wasp nests causing the decay of the plaster used on the Lion Temple (Musawwarat); - Take immediate actions to document and consolidate/conservate ancient 	<ul style="list-style-type: none"> -Temple of Amun protected from torrential flows; -Long-term resolution of drainage issues; -Short-term conservation issues dealt with; -Most fragile and important elements on site protected and conserved; -Localized 				<ul style="list-style-type: none"> -Drainage ditch around Temple of Amun rehabilitated; -Drainage system designed site-wide; -Drainage system built; -Localized conservation problems resolved (see activities for breakdown);

<p>plaster traces surviving on various monuments across the serial-site;</p> <ul style="list-style-type: none"> - Re-erect and shelter specific chapels at the pyramid sites at Meroe with the aim of protection ancient reliefs from further degradation; - Consolidate and provide a sacrificial coat to the fragile mud structures within the Temple of Amun at Naqa; - Consolidate pylon foundations of the Lion Temple (Musawwara) and halt water ingress from the roof; - Remove and relocate to safe location the spoil heaps resulting from informal excavations of the Great Hafir at Musawwarat; - Check the expansion of the vegetation cover at the Royal City in Meroe by securing the fence and preventing goats from spreading tree-seed across the site; - Identify and extract vegetation growing within ancient structures and on archaeological walls in accordance with a well 	<p>conservation problems on main monuments addressed;</p> <ul style="list-style-type: none"> -Visual and physical impact of spoil heaps resolved; -Vegetation damage checked; -Localized water damage prevented from becoming a major structural and conservation problem; 				
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<p>established methodology (Meroe-Royal City and Naqa – Lion Temple);</p> <ul style="list-style-type: none">- Respond locally to water damage created by gathering water and formation of pools and address the problem holistically via the implementation of well-designed water drainage systems/solutions.					
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6. b Administrative arrangements for monitoring the property

The overall monitoring will be coordinated by NCAM and executed by the Restoration Section in close cooperation with the archaeological missions working on different sites of the property:

- *General supervision and coordination:*
National Corporation for Antiquities and Museums NCAM
P.O. Box 178, Khartoum, Sudan
Tel.- Fax: +249 183 786784
Email: teharga2008@yahoo.com
- *Meroe (Town Site):*
Dr K. Grzymski, Royal Ontario Museum Canada
Email : krzysg@rom.on.ca
- *Meroe (Royal Baths):*
Dr Simone Wolf
German Archaeological Institute, Berlin
Email : sw@dainst.de
- *Musawwarat es-Sufra:*
Dr Claudia Naser
Humboldt University, Berlin
Email : claudia.naerer@online.de
- *Naqa:*
Professor Dr Dietrich Wildung
Egyptian Museum, Berlin
Email : d.wildung@smb.spk-berlin.de
or
Dr Karla Kroeper
Egyptian Museum, Berlin
Email: k.kroeper@smb.spk-berlin.de

6. c Results of previous reporting exercises

The following publications contain reports on work carried out by the relevant missions (*see also* Appendix 2):

Hinkel, F.W. 2000. 'The royal pyramids of Meroe. Architecture, construction and reconstruction of a sacred landscape', *Sudan & Nubia* **4**, 11–26.

Hinkel, F.W. 1997, 'L'architecture méroïtique', *Soudan: Royaume sur le Nil*, 391–416, Flammarion, Paris.⁵

Wenig, S. 2004 'Die Grabungs- und Restaurierungskampagne 2004 in Musawwarat es Sufra,' *Der Antike Sudan* (Mitteilungen der Sudanarchäologischen Gesellschaft in Berlin eV), **15**, 7–16.

Wolf, S. 2001, 'Jahresbericht 2000 des Deutschen Archäologischen Instituts,' *Archäologischer Anzeiger*, 620f.

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⁵ The main activities of the late Professor Hinkel, during the last 25 years of his life, had been devoted to the documentation, restoration, and reconstruction of the pyramids of Meroe. In these articles and many other publications he describes the building techniques and materials of the pyramids, their state of conservation, and what he considered to be the most adequate ways of intervention on this unique funeral landscape. A mass of documentation has remained, after his death, at his home in Berlin. A committee of experts has been established to look after this documentation and to find a successor institute to continue the conservation work at the pyramids of Meroe. Professor D. Wildung, the director of the Egyptian Museum of Berlin, is the coordinator of this committee (d.wildung@smb.spk-berlin.de).

7 DOCUMENTATION

7. a Photographs, slides, image inventory and authorization and other audiovisual materials

table,

Plates

(Plates 2-22 by Dr. Derek Welsby)

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- (1) The pyramid of Queen Amanishakheto at Meroe (Cailliaud 1821).
- (2) The lion God Apedemak from his temple at Musawwarat es-Sufra.
- (3) The dissected Nubian sandstone plateau in the Keraba between Naqa and Musawwarat es-Sufra.
- (4) Acacia within the fenced archaeological zone at Meroe town site.
- (5) Meroe: iron slag heaps.
- (6) Meroe: The enclosure wall on the east side of the Royal City.
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- (9) Meroe: Arial view of the Northern Cemetery.
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- (15) Musawwarat es-Sufra: decorated columns and bases of the colonnade around 'temple 100'.
- (16) Musawwarat es-Sufra: one of the columns from the colonnade around 'temple 100'.
- (17) Musawwarat es-Sufra, Temple during excavations.
- (18) Musawwarat es-Sufra, Lion Temple
- (19) Naqa: The Kiosk and lion Temple.
- (20) Naqa: The rams flanking the avenue leading up to the Temple of Amun.



Plate 1 The Pyramid of Queen Amanishaketo at Meroe (Callaud 1821)



Plate 2 The Lion God Apedemak from his temple at Musmeharat es-Sufra



Plate 3 The dissected Nubian sandstone plateau in the Karada between Naqa and Musawwarat es-Sufra



Plate 4 *Acacia within the fenced archaeological zone at Meroe town site*



Plate 5 Meroe: Iron slag heaps



Plate 6 Meroe: the enclosure wall on the east side of the Royal City



Plate 7 Meroe: The so-called 'Sun Temple'



Plate 8 Meroe: General view of the Southern and Northern Cemeteries



Plate 9 Meroe: Aerial view of the Northern Cemetery



Plate 10 Meroe: Pyramids in the Northern Cemetery



Plate 11 Meroe: The quarry to the east of the pyramids



Plate 12 Meroe: Interior of the quarry



Plate 13 Musawwarat es-Sufra: General view over the Great Enclosure looking towards 'Temple' 100



Plate 14 Musawwarat es-Sufra: Aerial view of 'Temple' 100



Plate 15 Musawwarat es-Sufra: Decorated columns and bases of the colonnade around 'Temple 100'



Plate 16 Musawwarat es-Sufra: one of the columns from the colonnade around 'Temple 100'



Plate 17/ Musawwarat es-Sufra, Temple during excavations.



Plate 18/ Musawwarat es-Sufra, Lion Temple.



Plate 19/ Naqa: Lion Temple and Kiosk.



Plate 20/ Naqa: Amun Temple, avenue of rams.

7. b Texts relating to protection designation, copies of management plans or documented management systems, and extracts of other plans relevant to the property

The Management Plan (Appendix3) treats the following issues:

1. Context of the Management Plan
2. Objectives of the Management Plan
3. The Site and its Attributes
4. Statement of Significance of the Site and Justification of Outstanding Universal Value
5. State of Conservation and Factors Affecting the Property
6. Site Protection
7. Definition of site boundaries and site buffer zones
8. Management Plan
9. The Consultation Process
10. Key management issues pertaining to the serial-site
11. Proposed Management Structure
12. Management Plan Policies and Action Plans

7. c Form and date of most recent records

Annual reports of archaeological missions, 2000–2008. (NCAM)

7. d Address where inventory, records, and archives are held

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APPENDIX 1

Ordinance for the Protection of Antiquities 1999

APPENDIX 1

In the name of Allah, Most Compassionate, Most Merciful

Ordinance for the Protection of Antiquities 1999

(Translated from the Arabic)

Chapter I

Preliminary Regulations

1. The name of the Act and the date it is effective

This Act shall be called The Ordinance for the Protection of Antiquities 1999 and is effective on the date it is signed.

2. Revocation or exclusion

The new Ordinance cancels the Antiquities Protection Act 1952, but all regulations issued on its strength shall remain in force until they are either modified or cancelled on the strength of this Ordinance.

3. Explanation

In this Act, unless the context otherwise requires, the following words mean the statement before each.

Antiquities :

Means anything surviving from the ancient civilisations or past generations and has been discovered or excavated whether the object is fixed or mobile and is a hundred years or more old. The Antiquities Corporation could for technical or historical reasons consider any premises or relics of archaeological value if there is any interest for the country in its preservation. Documents, prints, some human, animal or botanical remains are also considered as part of antiquities.

Archaeological Land :

Means the land which accommodates the site of archaeological interest, or a historical building. The limits of such land shall be defined by the National Corporation for Antiquities and Museums.

Excavations :

Means all the prospecting, surveying, excavation, sounding and investigation activities for the purpose of finding antiquities deep in the earth or on the surface, or in water courses, lakes or regional waters.

A Historical Building :

Means any building or part thereof surviving from the past generations or civilisations. It becomes an object of archaeological interest according to the terms of this law.

The Director General :

Signifies the post held by the Director General of the National Corporation for Antiquities and Museums.

The Discoverer :

Means anyone who finds anything of archaeological interest and includes local or foreign archaeological missions.

The Archaeological Site :

Means any site of archaeological interest defined by the National Corporation for Antiquities and Museums, which is established by the law of the National Corporation for Antiquities and Museums 1991.

The Minister :

Means the Minister defined by the Council of Ministers.

Chapter II

Antiquities and Archaeological Sites

4. Ownership of antiquities

1. All relics or objects of archaeological interest, whether buried deep in the earth or found on the surface, are considered property of the State.
2. The Corporation is responsible for the preservation of antiquities and for assessing the archaeological value of objects, historical buildings, the archaeological sites and recording such information and is also responsible for the implementation of the terms of this law.

5. The State Power to take possession of archaeological sites

1. The State is empowered, within the terms of the law, to dispossess and to take into possession any site or historical building and has the right to invalidate any right of property essential for a passage or for a road to lead to such a site. The State also has the right to take any antiquity from a land the State does not own, provided the State pays adequate compensation to the landlord or occupant of the land for the actual losses incurred.
2. On assessing the value of land in which objects of archaeological interest are found, the value of the antiquities found deep in the earth or on the surface is not taken into consideration.

6. Prohibition of disposal of objects of archaeological interest

1. The landlord is not permitted to dispose of objects of archaeological interest found on the surface of his land, nor is he/she allowed to excavate for any relics without prior approval of the National Corporation for Antiquities and Museums.
2. Whoever excavates or disposes of relics or objects of archaeological interest thereby acting contrary to item (1) shall be punished with imprisonment for a period not exceeding 5 years, or be fined, or receive both punishments.

7. Placing posters or notice-boards on archaeological sites

1. It is not permissible to place advertisements or posters on registered buildings of historical importance, or on sites of archaeological interest, or on museums.
2. Whoever places a notice board or an advertisement poster on a registered archaeological site, a historical building or a museum shall be fined.

8. Prohibition of any modification to historical buildings

1. The landlord of any registered building of historical interest shall make no changes whatsoever and does not possess any right to demolish the building concerned, or make any modification that may change the historical shape of the structure or its artistic character. It is forbidden to construct a new building near an archaeological or historical building without the prior approval of the National Corporation for Antiquities and Museums.
2. Whoever violates the regulations of item (1) shall be imprisoned for a period not exceeding 3 years, or be fined, or receive both punishments.

9. Prohibition of the use of archaeological land for purposes part from those earmarked for its utilisation

1. It is not permitted to build, or dig irrigation channels, or make a cemetery, or a water tower, or any other activity leading to the erosion of traces of antiquities on archaeological or historically registered land. Both the planting of trees and their cutting on such land is forbidden without prior permission from the National Corporation for Antiquities and Museums.
2. Whoever is found guilty is liable to a fine punishment, or imprisonment for a period not exceeding 6 months, or may receive both punishments and should remove the damage.

10. Prohibition of building bakeries, laboratories or factories on archaeological sites

- 1 It is not allowed to build any sort of structures or roads at a distance that may affect buildings or sites of archaeological interest without the prior approval of the National Corporation for Antiquities and Museums.
2. Developmental projects may be initiated after the completion of archaeological studies and surveys provided the benefiting parties bear the expenses incurred by the studies, surveys and salvage operations.

11. Site admission powers of the staff of the National Corporation for Antiquities and Museums

1. It is possible for any staff member of the National Corporation for Antiquities and Museums to enter any archaeological or historical building or land that contains antiquities for the purpose of inspection, observation, mapping, research or taking photographs. But he/she shall observe the conditions of inspection stated in the

procedures of the Sudanese criminal law 1991, provided somebody else owns the land or the building.

2. Whoever objects or hinders the staff member of the Corporation to exercise his/her powers as stated in Article 11 (1) shall receive prison indictment for a period not to exceed a year, or a fine, or both punishments.

12. Preparing archaeological sites to receive visitors

The National Corporation for Antiquities and Museums prepares registered archaeological sites and historical buildings owned by the State for visits by the citizens, research students and tourists, and shall demonstrate or reveal the technical aspects and the historical properties for the visitors.

13. Preservation of antiquities

1. The National Corporation for Antiquities and Museums is assigned to preserve movable antiquities in museums, where they would be studied, conserved and exhibited in permanent or temporary exhibitions. The remaining antiquities shall be kept in the antiquities stores and provided with the relevant temperature conditions.
2. The National Corporation for Antiquities and Museums shall provide an authenticated and recognised map of all archaeological sites that are discovered, or are in the process of being so, or expected to yield antiquities findings.

14. The sale of antiquities

The sale or donation of registered antiquities owned by the State is prohibited. These shall be kept in museums and shall not be removed from the sphere of influence of the Corporation, except through legitimate ways according to the terms of this law.

15. Exchange of antiquities with other museums and foreign scientific institutes

It is possible for the National Corporation for Antiquities and Museum, having obtained the approval of the Minister, to exchange portable and duplicate archaeological objects with similar organisations, international museums and educational institutions provided that the Corporation feels that it will provide some benefit to the Sudan.

16. Mounting temporary exhibitions of antiquities

It is possible for the Corporation, with the approval of the Minister, to arrange temporary exhibitions of archaeological and other heritage material within the Sudan or overseas to disseminate knowledge and present Sudanese culture.

17. Reporting any new archaeological discovery to the Government

It is imperative upon whoever discovers anything assumed to be of archaeological interest or leads to such an assumption, whether he is an occupant or proprietor of such land, whether on its surface or below the surface, to report such incidents to the National Corporation for Antiquities and Museums, or to the nearest possible administrative authority. The authority thus informed shall report the news to the Corporation at their earliest possible convenience.

18. The rights of antiquities discoverer

It is possible for the National Corporation for Antiquities and Museums, with the approval of the Minister, to decide whether they would like to add the discovered antiquities to the already preserved collections in museums or to leave them in the possession of the person who found them, or in the possession of his descendants according to the following conditions :

- a. In case that the Corporation decides to keep the discovered antiquity, the Corporation shall pay the equivalent current market value of the discovered object whether it is a piece of gold, silver or jewellery, without taking into consideration the artistic or archaeological value. But if it is a treasure, the Corporation pays the discoverer four fifths of the value of the discovered treasure.
- b. The Corporation shall assess the value of the antiquity according to the current market value. The person who made the discovery may sue the Corporation into court if he is not satisfied with the value assessment made by the Corporation. He shall do so within three months after being informed of the assessed value.
- c. The person concerned, who possesses the antiquity, shall sign a concession to confirm the right of possession of the Corporation of the discovered object, after payment of compensation by the Corporation.
- d. If, on the contrary, the Corporation decides to allow the discoverer to retain possession of the object concerned, they shall then write and sign a concession to this effect and register the object concerned under the name of the discoverer. In this case possession devolves to the discoverer.
- e. The owner of the antiquity is not permitted to dispose of his/her object without prior approval of the Corporation.

19. The right of the Corporation to demand an antiquity from its proprietor

It is legally possible for the Corporation to demand from owners of registered antiquities to temporarily hand over their property to the Corporation for the purpose of study, drawing, photographing or taking a mould of it, or for the purpose of temporary exhibition. It will thereafter be returned to the owner.

20. Conservation and restoration of antiquities

Conservation and restoration of antiquities shall not be allowed without approval of the Corporation. Conservation and restoration shall be conducted under the supervision of the Corporation.

21. Prohibition of imitation and falsification of Archaeology

1. Imitation and falsification or trading in transportable antiquities is prohibited.
2. Despite the regulations of item (1) it is possible to make models, moulds or photographs of antiquities with the approval of the Corporation according to the conditions the Corporation deems appropriate.
3. Whoever violates the regulations of item (1) shall be imprisoned for a period not exceeding 7 years, or be fined, or receive both punishments.

Chapter III

Archaeological Excavation

22. Licences

1. The National Corporation for Antiquities and Museums enjoys the right to embark on archaeological excavation and to authorise missions of universities and museums to excavate on the basis of a special licence in accordance to the terms of this law.
2. It is forbidden to start excavation works on any land owned by the government, or individuals, without prior receipt of a licence issued by the National Corporation for Antiquities and Museums, or from whoever is delegated by the Corporation.
3. Licences are divided into three types :
 - a. A licence to search for archaeological sites without making any excavations.
 - b. A licence to make an archaeological survey authorising the holder to use any means of search except excavation, but authorising the holder to make preliminary diggings to ascertain the existence of archaeological objects.
 - c. A licence for archaeological excavations and to conduct a comprehensive scientific study on the site, on the archaeological findings and the environment.
4. The licences are issued, on the strength of the signature of whoever is authorised by the Corporation, after payment of the relevant fee charged by the Corporation.

23. Conditions for the issuance of licences

1. It is possible for the Corporation, or whoever it may authorise, to issue licences referred to in Section 23 (3) for individuals, institutions or missions which satisfy the following conditions :
 - a. The institution must possess an adequate scientific competence to enable it to complete surveys, prospection, study and excavation work in this field.

- b. The institution must have the financial capability to pay for all the operations carried out according to the approved plans, on the specified period and to pay the expenses of maintenance, study and publication activities.
 - c. The institution concerned has already published or made arrangements for the publication of results of excavation work they conducted in the past.
2. The licensed authority shall undertake to do the following :
 - a. To maintain the site and any antiquities he discovers and to submit a comprehensive report on his achievements.
 - b. To hand over to the Corporation all antiquities he has discovered and all copies of the documents pertinent to the special survey, prospection and excavation.
 3. The Corporation shall have the right to :
 - a. Participate with any archaeological mission to investigate the existence of antiquities on a site provided the Corporation states its financial, scientific and technical participation conditions on the excavation licence.
 - b. Add any conditions the Corporation deems appropriate to any licence.
 4. Any archaeological mission authorised to conduct archaeological activities shall be accompanied by a representative of the Corporation whose expenses shall be borne by the licence holder. This representative shall submit an administrative and scientific report to the Corporation at the end of the mission's work.

24. Request for licence

The application for a licence made to the Corporation shall include the following details :

1. Name of applicant, academic qualifications and his past experience in archaeological excavation and publication works.
2. The boundaries of the archaeological site intended to be surveyed and excavated.
3. A summary of the excavation plan and the work programme.

25. Special licensing conditions

1. The applicant for a licence must satisfy the following :
 - a. Shall be a representative of a non-profit seeking scientific institution or is affiliated with a non-profit scientific institution.
 - b. The archaeological mission shall be composed of a panel of specialised scientists in archaeology, architecture, drawing, survey and excavation, documentation, maintenance or affiliated sciences.
 - c. Excavation works shall be continued as agreed with the Corporation.
 - d. Reports shall be submitted to the Corporation on the excavation work with the results and all details on discovered archaeological remains.
 - e. Maps/plans and sections are drawn according to the internationally and scientifically recognised standards. These plans shall contain the details of

conditions of archaeological remains at the time of discovery in a way so as to enable their re-structuring or rebuilding.

- f. A list including the relevant scientific details on all the discovered and transported antiquities shall be compiled and submitted to the Corporation at the end of the excavations, together with a complete collection of copies of the maps, plans and photographs.
 - g. To publish, within two years after the termination of the excavation works, a scientific publication to show the general results of the excavations, mentioning the names of the sites where the antiquities were found, and what has been done. To present two copies of such a report or publication to the Corporation.
2. The licence holder must do the following :
 - a. Present 10 books, with the publications of articles, he issues on his excavation works and results to the Corporation.
 - b. Arrange at his own expense the area in which he made his excavations and display the most important archaeological remains left on site. Provide clues or indications to show the sequences of archaeological stratifications and the different eras that have survived.
 3. No part of any building shall be removed or transported before satisfying item (e) of Section (25).

26. The termination of a licence, its withdrawal or cancellation

1. The Corporation shall either terminate or withdraw the licence if the holder deviates from or violates any conditions of the licence.
2. The licence shall be terminated if the holder suspends his activities for two seasons in two consecutive years without permission or an acceptable reason. A new licence may be authorised for another archaeological mission, which satisfies the conditions, on the same archaeological site.

27. Rights of scientific property

1. The National Corporation for Antiquities and Museums shall preserve the rights of scientific property on the results of excavations and research conducted by archaeological missions. It will offer them a priority right on publications of the antiquities they discovered and will register the photographs of their discoveries in the publications of the museum in which the archaeological remains are exhibited or stored. The study and publication shall be conducted within 10 years after the date of the discovery.
2. The Corporation undertakes to create links among national societies and organisations functioning in the field of archaeology and similar foreign societies, institutions and organisations and co-ordinate archaeological activities among them for the aim of gaining experience and effecting close observation so as to avoid loss of antiquities.

28. Ownership of discovered antiquities

Ownership of all discovered antiquities rests with the Government and is kept in museums for exhibitions and study, whereas it is possible for the mission which made the discovery, after the approval of the Minister to :

- a. Take moulds of the discovered antiquities and their photographs, drawings, maps and plans.
- b. Take duplicate pieces of antiquities discovered on the same site and which are similar in material, type, description, historical significance and artistic value, which the Corporation may dispose of on duplication grounds, after the publication of all information related to these antiquities for the sake of briefing countries overseas on the civilisations of the Sudan which prospered in the past. The licence holder may specify such artefacts for exhibition in museums open to the public in his/her own country for an exhibition period not exceeding two years.
- c. Borrow antiquities for the purpose of temporary exhibition or study.
- d. Study, draw or photograph objects he/she discovered, which are kept in museums or stores.

29. Exemption from Customs

1. The foreign archaeological mission holding a licence is allowed to import its equipment free of customs and other levied taxes on the entry of such equipment into the Sudan.
2. Customs law is applied in case of disposal of equipment belonging to archaeological missions to non-government organisations or individuals.

30. Recovery of lost antiquities

1. The National Corporation for Antiquities and Museums endeavours to recover antiquities that were taken out of the country by illegitimate means.
2. The Corporation undertakes to preserve and to recover stolen antiquities in co-operation with the judicial procedures.
3. The police is assigned to antiquities.

31. Prohibition of export and trading in antiquities

1. Trading in and exporting of antiquities is forbidden except under a licence from the Corporation.
2. Whoever breaks the rules of item (1) shall receive 3 years imprisonment, or be fined, or receive both punishments.

32. Destruction of antiquities or demolition of an archaeological building

1. Whoever intentionally destroys a recorded or recently discovered archaeological site, or demolishes with ill intention a recorded archaeological building, or part

thereof, or takes one of its stones or decorations or does anything that may change the features, shall be imprisoned for a period of not less than 3 years, or be fined, or receive both punishments.

2. If the wrong-doer of a crime stated in item (1) is a staff member of the National Corporation, or in the field of antiquities, museums, conservation, restoration at universities, or missions working in the field of archaeology, or that the piece of antiquity is important, or one of the prominent antiquities the destruction or demolition or collapse of which would lead to the loss of part of the national archaeological heritage, the wrong-doer shall be punished with imprisonment for a period of not less than 5 years, or be fined, or receive both punishments.

33. Conducting unlicensed archaeological activity

Whoever carries out survey, prospection or archaeological operations, or helps, or instigates or encroach upon registered archaeological land or site and transports antiquities from one place to another within the Sudan without a licence, shall be punished with imprisonment for not less than 3 years, or be fined, or receive both punishments.

Chapter VI

Conclusion Regulations

34. General Regulations

1. Inspectors of antiquities, museum curators and guards of museums and archaeological sites are endowed with police powers to arrest without prior legal authorisation in relation to their assigned duties, to combat illegitimate trading in antiquities and their smuggling and to combat damages against museums and archaeological sites.
2. Any antiquities which are the subject of a dispute shall be handed to the Corporation until the dispute is legally settled.

35. Power to issue regulations

The Minister, on the strength of a recommendation from the Corporation, shall issue the relevant regulations for the implementation of this law.

Certificate

This is to certify that The National Assembly has passed the Ordinance for the Protection of Antiquities 1999 in their session No. 20 of the eighth tournament dated 8th Shaaban of the year 1420 Hijriyah, which conforms to the 16th November 1999.

Dr. Hassan Abdalla Al Turabi
Chairman of the National Assembly

I agree

General (PSC) Omar Hassan Ahmed El Beshir
President of the Republic

Date : 23rd Shaaban 1420
1st December 1999

APPENDIX 2

Conservation of the Proposed Sites: Recommendations by Missions

APPENDIX 2

Conservation of the Proposed Sites: Recommendations by Missions

Specific Work Programme and Recommendations for Naqa

Professor D. Wildung (Ägyptisches Museum, Berlin)

Excavation has been concentrated on the Temple of Amun. After complete excavation and restoration, it was re-dedicated in an official celebration in December 2006. Restoration strictly follows the Venice Charter, refraining from any reconstruction and thus respecting and preserving the 'romantic spirit' of the site. Five columns of the hypostyle, collapsed in antiquity, have been re-erected. For the many finds from the temple – wall paintings, statuary, stelae – a site museum is planned to be ready in 2009. Valuable finds are kept either in the excavation house at Naqa or in the National Museum at Khartoum. The most important object, the perfectly preserved boat stand from the sanctuary now in Khartoum, will return to its original place as a replica, produced by 3D-scanner technology.

Excavation of the small subsidiary Temple 200 has produced over 1200 relief fragments of highest quality. After complete clearance (2008) at least a part of the wall decoration will be reassembled for display in the site museum.

The next focus of the Berlin team will be the Roman Kiosk (Hathor chapel). A complete recording by 3D-scanner has been the first step for the conservation and consolidation of the ruin, exclusively financed by the Friends of the Egyptian Museum, Berlin. After excavation loose blocks will be replaced: otherwise the chapel will be preserved as a ruin. The most fragile elements such as capitals will be replaced by replicas reproducing their actual appearance; the originals will be displayed in the site museum.

Next on the agenda are Temple 400 and selected buildings in the city. The final aim of the project is the creation of the Archaeological Park of Naqa, preserving the balance between natural environment, the daily life of the nomads, and the ruins of the ancient town. Any tourist installations in or near the site, including paved roads, should be avoided.

Naqa will remain an area of scientific interest for several generations. The work done by the Berlin mission is just the beginning of many decades of excavations. It is hoped that the scientific standards and the general philosophy of the actual work will serve as a guideline for future generations.

Specific Recommendations for Musawwarat

Professor C. Näser (Humboldt University, Berlin)

The Archaeological Mission of the Humboldt University plans to continue its research and its commitment to the preservation of the site. For 2007/8 necessary work on the roof of the Lion Temple was carried out. The mission is supported by the Sudan Archaeological Society (Sudanarchäologische Gesellschaft zu Berlin e.V.), which

sees the restoration work at Musawwarat as its special responsibility. It has already sponsored many of the works carried out in the last decade.

Protection, consolidation, and restoration measures are planned for the Great Enclosure. In 2006/7 a conservation campaign began which involved the basic consolidation of Temple 300. However, the scope of the measures needed to effectively secure the structure exceeds the budget that could be raised by the mission alone. The mission sees its role mainly in contributing the expertise and the means for conducting the works and developing a comprehensive site management plan.

Preservation/conservation work still required includes the following:

- *for the entire site:*
 - tourist management plan: establishing a visitor guiding system and driving and walking routes for tourists, blocking endangered sites from access, erecting information panels;
 - *archaeological features* without visible remains above ground need to be marked and protected from being driven over;
 - establishment of *better coverage by local guards*;
 - *systematic integration of the local population* into the archaeological, conservation, and tourist site management (eg by training them as guards and restorers).
- *for the Great Enclosure*
 - *systematic conservation of the architectural remains* on the basis of the existing results of the survey and the photogrammetric documentation: restoration of collapsing or otherwise endangered walls and strengthening of weak foundations; covering of open wall tops with original covering blocks or with special mortar;
 - eventually, *re-consolidation and renewed waterproofing* of the stone by chemical agents;
 - *partial reconstruction of the Central Terrace* with Temple 100 and the assemblage of Temple 300;
 - *permanent preservation measures* for doorways and thresholds and other parts of structures which undergo constant wear from tourists.
 - eventually *replacement of endangered architectural elements* (columns, sculptures) by copies;
 - *enlargement of storage and display areas* in order to save important endangered architectural objects;
 - further *clearing of courts* and removal of invasive sand dunes;
 - providing *means to conduct rainwater out* of the Great Enclosure;
 - continuation of the *re-erection of the enclosure wall*;
 - *tourist management plan*: establishing a visitor guiding system and walking paths for tourists, blocking endangered parts from access, erecting information panels, re-erection of a bridge between the Central Terrace and the northern part of the Great Enclosure;

- establishment of better *coverage by local guards*.
- *for the Lion Temple*
 - *repair of the modern roof* of the temple;
 - *consolidation of the temple foundations* if subsidence continues;
 - *removal of water-soluble salts* from the sandstone reliefs;
 - eventually, *re-consolidation and renewed waterproofing* of the stone and the reliefs, especially on the outside of the building, by chemical agents;
 - *renewal of the plaster* used to protect areas without reliefs;
 - *removal of dust* from the roof timbering;
 - *removal of bird faeces and wasps' nests* and establishment of means of preventing the nesting of birds inside the temple;
 - *renewal of the fence* around the temple and the gate.

For the Small Enclosure

- complete *cleaning* of the building;
- *consolidation of the architectural structures*;
- installation of a *visitor guiding system* with protection for endangered parts.

For other standing monuments

- the programmes set out above for the large standing structures should also be applied to the smaller features;
- the smaller features need to be systematically surveyed to assess their condition and eventually they need to be protected from damage by natural and human causes.

Specific recommendations for Meroe

The Royal Ontario Museum–University of Khartoum team

In terms of future work we anticipate excavating selected areas of the site, such as the palace M 750 as well as some buildings within the enclosed area known as the Royal City. However, the first priority will be the completion of our investigations and partial reconstruction of walls and columns in the Amun Temple as well as the removal of spoil dumps left by Garstang and Shinnie. The work has to proceed relatively slowly as we have to monitor constantly the effects of the weather. The soft material used in the construction is easily and negatively impacted by the strong seasonal rains and sandstorms.

In terms of threats and challenges to the site one can identify the following as negatively impacting the site:

- the impact of the harsh environment on structures made of the relatively soft materials.
- the impact of the dramatic growth in the number of visitors to the site.

- the fact that part of the site remains outside the fenced area, especially within the village of Deragab.
- the construction of a police guard station within the Royal City immediately on top of the unexcavated portion of the site.

Two issues are of great urgency and ought to be addressed as soon as possible without much effort and without any substantial expense:

1. The presence of armed guards on the site, while welcome in terms of security, poses also a threat with the police seemingly unaccountable to the antiquities authorities and erecting structures within the antiquities area. It is recommended that these structures, whether temporary or otherwise, be immediately re-located.

2. The influx of tourists must be better controlled by providing designated car parking outside the fenced area and outlining visitors' paths to prevent tourists from climbing on, and breaking the walls of, ancient palaces and temples.

In addition the electricity pylons need to be removed (a programme to carry out this work has now been agreed).

APPENDIX 3

Management Plan

THE ARCHAEOLOGICAL SITES OF THE ISLAND OF MEROE

MEROE (BEGRAWEYA) – NAQA – MUSAWWARAT ES-SUFRA

MANAGEMENT PLAN FOR A PROPOSED WORLD HERITAGE SITE



January 2010

National Corporation for Antiquities and Museums-NCAM

Title: The Archaeological Sites of the Island of Meroe
Meroe (Begraveya) – Naqa – Musawwarat es-Sufra
Management Plan of a Proposed World Heritage Site

Version: v.1 – January 2009

Author: Dr. Sami el-Masri (UNESCO Site Management Expert) with extracts from the “Island of Meroe World Heritage Site Management Plan” by Paul Biwell et al. Nov. 2006, and from the “Island of Meroe World Heritage Site Nomination File by Derek Welsby and Dr. Salah Mohamed Ahmad (NCAM), Nov. 2006.

Partial extracts were also taken from the Official Submitted Nomination File for Archaeological Sites of the Island of Meroe, January 2009.

A C K N O W L E D G E M E N T S

The author would like to thank the National Corporation for Antiquities and Museums and the World Heritage Centre at UNESCO for allowing him to work on the preparation of the Management Plan for the Archaeological Sites of the Island of Meroe and for entrusting him with this task. I therefore extend my gratitude to the representatives of both institutions for facilitating the implementation of this project and for providing all the support required for completing the work.

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A particular thank to HE Mohamad Sheikh Madani and for the representatives of all public and civil bodies and institutions which supported and will continue to support the management plan

Finally, special thanks are due to all stakeholders of the WHS whose valuable presence and contributions have secured the viability of the proposals within this report and shared their aspirations with respect to the future of the site.

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- Musawwarat es-Sufra.
- Naqa.

1. Context of the Management Plan

This management plan document is drafted in conjunction with the preparation of the Nomination File for the proposed WHS of “The Archaeological Sites of the Island of Meroe, Begraweya – Naqa – Mussawarat es-Sufra. The plan was commissioned by the National Corporation for Antiquities and Museums of Sudan (NCAM) and overseen by the World Heritage Centre. The author of this report was asked to conduct the necessary field assessments, research and consultations to support the elaboration of this document; this is subsequent to the preparation of a management plan in 2007 for the World Heritage Site of Jebel Barkal and the Sites of the Napatan Region, nominated in 2003. The management plans of these two respective sites have much in common.

This management plan reflects the vision of the concerned stakeholders and the wish of the State Party to achieve the right level of management expected at a World Heritage Site. This relates of course to all aspects of management including the development and promotion of the site in fulfillment of the aspirations of people, the main stakeholders.

2. Objectives of the Management Plan

The main aim of this management plan is to fulfill the vision of the stakeholders of the site by attaining worldwide recognition of its outstanding universal value, protecting it, conserving it, managing and promoting it with sustainability into the future. The management plan aims as well at formulating and guiding activities to achieve the appropriate levels of management relative to a World Heritage Site. In order to do that, the plan has the following objectives:

- Establish the cultural significance of the site;
- Provide an assessment of the current situation of the site and the key management issues standing in the way of adequate management;
- Discuss these issues with the stakeholders of the site;
- Present the results of the stakeholder consultation process and discuss the aspirations and expectations of the stakeholders with relation to the site;
- Get the stakeholders to agree on a common vision/approach to managing and developing the site;
- Propose solutions to the identified key management issues of the site and integrate stakeholders perspectives on how to address them;
- Formulate policies to guide the future management of the site taking into consideration the perspectives of the stakeholders, the realities of the site and what needs to be achieved in order to address management issues;
- Formulate action plans that aim to achieve the policies of the site and propose a framework the implementation of the plan.

3. The Site and its Attributes

3.1 Nomenclature

This serial property comprises the sites of Meroe, Naqa and Musawwarat es-Sufra (Please refer to Appendices 4 and 5 of the Nomination File for visual and cartographic reference and well as for the Nomination File, Section 7 for bibliographical references). They are described collectively in this document as the Archaeological Sites of the Island of Meroe. Use of the term 'Island of Meroe' is long established.

The area so described is not literally an island but is demarcated by three rivers, the Nile to the north-west, the Atbara River to the north-east and the Blue Nile to the south-west. The territory thus partly enclosed extends for about 300km from north to south and from east to west. However, it is only the three sites of Meroe, Naqa and Musawwarat es-Sufra, together with their buffer zones, which are proposed as a World Heritage Site.

3.2 Geology and topography

The Island of Meroe lies in the savanna belt on the south side of the Sahara in an area which today receives approximately 100mm of rainfall annually. However, it is its proximity to the Nile which makes the region viable for sedentary human activity and this seems to have been the case throughout history. The western part of the area, the Keraba, is a dissected Nubian Sandstone plateau with wide wadis, in which seasonal cultivation is possible away from the river and where sheep, goats, camels and cattle can graze. To the east and south this gives way to the cotton-soil plains of the Butana, which are ideal grazing for some time during and after the rainy season. Kushite remains are confined to the western part of the Island which shows that the culture was very much associated with the Nile.

Naqa : The site lies on open ground on the east side of the Wadi Awateib, about 30km from where the wadi joins the Nile at Wadi ben Naqa. The Wadi Awateib has been farmed extensively in the recent past as it is today, although such activities are severely curtailed during periods of aridity such as pertained in the area in the 1980s and early 90s. The hill above the site is capped with ferruginous sandstone with signs of ancient quarrying; the settlement must have developed because of the opportunities offered for agriculture by the presence of the wadi with its large water catchment area; so far, very little is known in detail about the ancient climate history.

Musawwarat es-Sufra: The site is about 15km north-east of Naqa, at the head of the Wadi el-Banat and in a natural basin about 10km across which is surrounded by flat-topped sandstone hills. The site has been described as 'the most remarkable and dramatic in the Sudan' (Shinnie 1967, 92).

Meroe: The site at Meroe may have occupied an island in the Nile until about 300 BC, deep deposits of river silt having been found just to the east of the central area, whereas the Nile now runs to the west of the site. To the east is a plain where the

cemeteries were situated. It is overlooked by low hills occupied by pyramids which were the burial places of the rulers of Kush from the 3rd century BC onwards.

3.3 Modern communications

By road the sites are reached from the main highway between Khartoum to the south and Atbara to the north. Naqa and Musawwarat are signposted from the highway but the dirt tracks to the sites are not way-marked and can be difficult to follow. Naqa is about 35km east of the highway and the drive to the site takes about an hour.

Musawwarat is reached by a branch off the track to Naqa (marked by a signpost). The northern and southern royal cemeteries at Meroe are only a very short distance east of the highway while the elite western cemetery, a *hafir*, temples and the urban centre lie up to 3km to the west. All three sites can be reached on day excursions from Khartoum and Atbara. At Meroe and Musawwarat visitors can now purchase admission tickets at the sites, although formerly they had to be bought in advance at Khartoum or Atbara. At Naqa tickets can be purchased on the site if an inspector is present, but otherwise they have to be bought at Shendi. The nearest town to the Island of Meroe sites is Shendi, just to the west of the main highway between Khartoum and Atbara. Permits to visit the sites can apparently be obtained at Shendi (this possibility was proposed early in 2005). The town has a railway station, hotel, bank and bus pick-up points. The building of a highway into Sudan from Aswan and Abu Simbel, connecting with the existing highway north of Atbara, will much improve the accessibility of the sites from southern Egypt.

3.4 Archaeological information

Naqa: At Naqa (Meroitic *Tolkte*) at least five temples along with two kiosks are visible (Plate 1). Details of the temples are as follows: The Lion Temple (Temple A) was dedicated to the lion-god Apedemak and was built in the reign of Natakamani and Amanitore, perhaps in the mid 1st century AD. Their names appear in the reliefs on the walls, which also show them being legitimized by Apedemak and Amun (please refer to Nomination File, section 2: *Description* for a historical background on the sites).

The Temple of Amun (Temple D) is approached by a processional way lined by stone rams which have been re-erected on their pedestals. A kiosk ('Temple' C) lies in front of it and the whole complex was built at about the same time as the Lion Temple. There are at least two other temples which are in a very ruinous state.

Temple F lies to the east of the other temples. The niche behind the altar bears the name of Queen Shanakdakhete (c. 170-150 BC) in Meroitic hieroglyphs which represent the earliest dated example of the script.

The so-called Roman Kiosk ('Temple' B), which has been identified as a chapel of Hathor, may have been built to form part of the approach to the Lion Temple. It is perhaps the most famous example of Kushite architecture and is unique in its remarkable combination of Egyptian forms and motifs with those derived from the repertoire of Greek, Roman and Kushite architects.

Also to be noted are Temple 200, graves, quarries and two *hafirs* and a *hafir* temple. The site of the town covers an area of about two square kilometres and is littered with masonry, column fragments and red bricks.

Musawwarat es-Sufra: There are two large *hafirs* (and three smaller examples), as well as several isolated temples, the Great Enclosure and other buildings. Few remains of dwellings and cemeteries have been recorded; the graves located so far are of post- Meroitic and medieval date.

The Great Enclosure covers an area of 55,000m² and consists of three major buildings, traditionally identified as temples, which are surrounded by enclosures, corridors and small rooms. At the centre of the enclosure is a hall with a roof supported by four columns, which is surrounded by a colonnade and on three sides by several ranges of rooms. In front of and flanking the building are the bases of two tower like structures. At the northern end of the enclosure is a similar but smaller complex ('Temple' 200).

In a walled compound on the east side of the enclosure is an isolated structure, the identification of which as a temple is not in doubt (Temple 300). The other two 'temples' are perhaps more probably throne-rooms, the whole enclosure possibly representing a temple-palace complex. Another prominent feature of the enclosure is a series of large ramps. A graffito from the site shows an elephant ascending a ramp, and it has been thought that elephants might have featured in the religious ceremonies in the enclosure or even that the enclosure was at least in part for their training for use in ceremonies or warfare. The nearby Small Enclosure is a secular enclosure of mainly economic and domestic functions.

Lion Temple: large sections of the walls had collapsed outwards allowing the excavators to re-erect the walls following its excavation in the 1960s. The temple was built by Arnekhamani between c. 235 and 221 BC and lies within an oval temenos.

Temple IIA appears to have an oval temenos. Temple IIB, the 'North Temple'. Temple IID, the 'Statue Temple', is situated south-west of the Lion Temple. A number of sandstone quarries have been identified on the western and eastern edges of the settlement area (Becker 2000).

Meroe: The settlement at Meroe consists of the so-called Royal City, the Temple of Amun with its associated structures, and the town. About 3.5km to the east lie the two royal pyramid cemeteries, with other cemeteries and a *hafir* situated between the settlement and the pyramids. Near and within the settlement are ancient slag heaps connected with iron-working. The so-called Royal City contains a number of palatial buildings with central courtyards, temples and the so-called Royal Baths or water sanctuary. A wide thoroughfare lined with tree-pits, which was probably a processional way ran through the City. It was originally enclosed with a defensive wall with gates, but in the 1st and 2nd centuries AD buildings were being erected across its line.

In front of one of the temples (M.292) was a pit containing a bronze head of Augustus; there are some upstanding remains of this building. The so-called Royal Baths are situated on the western side of the Royal City. When excavated in 1912, this

structure was interpreted as a set of baths of Roman type, but the interpretation of the building complex still remains uncertain. At the centre of the building is a large pool with steps along its east side; its south side was decorated with lion- and ox-head spouts, faience roundels and panels and by statuary which includes musicians.

The whole structure was demolished and what is probably a magazine (M.191) was erected on its site before the end of the Kushite period.

The Temple of Amun (M. 260) lies immediately to the east of the Royal City. It is the second largest Amun temple in the kingdom of Kush. A number of other temples were arranged on either side of the avenue leading to the Amun temple, as well as a building (M.750) which is thought to have been a palace.

The Sun Temple lies on the gravel plain mid-way between the city and the royal pyramids. The temple stood on a podium reached by a sloping ramp and with a colonnade running around its edge. It was entered up a shallow flight of steps through a pylon and enclosed a free-standing sanctuary chamber. A relief on the rear wall of the podium shows the building as it appeared when standing. A house in the temenos of the temple might have been used by priests.

Lion Temple (M6): two rooms set on a podium, each room with two columns to support the roof. Temples lining the processional way to the Temple of Amun: KC.100: an entrance through a pylon gives access to a columnar room beyond which the sanctuary is flanked by a room to either side. M.720 has three narrow rooms across the width of the building, the rearmost being the sanctuary. KC.102 is a temple with paintings discovered in 1975-6. KC.104 is a double temple, the two elements being mirror images of each other. KC.101 is a single-roomed structure set on a podium reached by a ramp.

Temple of Isis identified by Garstang in 1909-10 (probable). It is situated *c.* 400m north of the Royal City. The town is represented by many mounds of redbrick fragments which remain largely unexcavated. At the western and southern limits of the town are large mounds of slag and other debris from iron smelting. A Shrine of Apis is situated about 2.5km south of the main site near the village of Hamadab. The older of the two royal Pyramid Cemeteries is the southern one, where there are at least 60 examples, and MP- 8 earlier non-royal burials which were not associated with pyramids.

The pyramids of the northern cemetery, which number at least forty-four, are better preserved. Offering chapels are a standard feature of the royal pyramids. Beg.N.11 is one of the best preserved and largest examples. The late chapel Beg.N.28 has a flight of steps leading up to it. The original chapel of Beg.N.16 is covered by the later pyramid Beg.N.36.

Other cemeteries include the Western Cemetery where there were many non-royal burials in rock-cut tombs, some of which were covered by pyramids. Quarries were tunnelled into the hill-sides around Meroe following beds of sandstone.

3.5 The landscape today

Naqa: Near the centre of the site, a well, which is 60m in depth and was dug by on the orders of the Governor General Sir Reginald Wingate in 1904, has attracted a local population and regular visits from nomads. Tourists on safari or expeditions visit the site to watch the watering of animals. There is no infrastructure for visitors to the site, and access is only along tracks for which four-wheel drive vehicles are advisable.

Modern features on the site are the German dig house, which is still in use but could become a site museum or interpretation centre, and wire fences around the Lion Temple, the Temple of Amun and the 'Roman Kiosk' which were put up to keep livestock out. It should be noted that the gates are in a poor condition.

There is also a hut for the *ghaffir* near the well and a small building by the main entrance to the site on its north side to house the tourist police. 'Monumental' gateways have been erected to the north and west where the tracks enter the site. The site is surrounded by scrub, bushes and small trees, and these areas have been used for the disposal of excavation spoil. Immediately to the north of the axis on which the Lion Temple and Amun Temple lie, the remains of the ancient town are marked by a number of pronounced mounds covering an area of some 25ha and extending all the way to the present entrance to the site. The ground is littered with brick and pottery fragments. In many cases plans of stone buildings can be made out on the ground.

This is the result of the recent survey by the German mission, which involved brushing to clear surface debris in order to produce their highly accurate plan which shows the walls currently visible. It is remarkable that the majority of buildings which have yielded plans do not appear to represent normal domestic housing; several are identifiable as small temples or chapels with peristyles.

Naqa is the most untouched of the three WHS candidate sites in the Island of Meroe. Its pristine state should be carefully preserved.

Musawwarat es-Sufra: The site incorporates a compound erected by the Sudan Civilization Institute which encloses a resthouse, mosque, living quarters, a two-storey building and an unsightly water-tank tower. It is situated about 200m from the Great Enclosure. A verbal undertaking has been received by NCAM to the effect that further expansion of this compound will be halted. Additionally steps will be taken to minimize the visual impact of the existing structures by painting them to merge into the landscape. Facilities for visitors will also be provided utilizing the pre-existing buildings. The projected electricity cable line, which was to have been carried to the compound on concrete poles, will now be routed below ground from a point before it becomes visible from the archaeological site. A similar undertaking has been received concerning any tarmac road which will likewise be halted well out of sight of the remains. By the Great *Hafir* is the German dig-house. The most recent activities on the site date back to 2007 and have been connected with the digging out of the Great *Hafir* with the intention of restoring it to its ancient use as a water reservoir. The project was undertaken by the Sudan Civilization Institute, beginning in 2003 and continued on a large-scale in 2005 down to 2007. Details of the project, together with the attempts to record the archaeological features revealed by the work, are described by Scheibner (2005). Lesser, but still significant, damage was caused by the digging

of trenches for a water pipe and telephone cable across the site. On the western side of the valley smallscale quarrying for sandstone is in progress. The programme of excavation and conservation carried out by the Humboldt University has involved the rebuilding of courtyard walls as wind breaks to stop erosion. In 2004 work was completed on a museum to store and display to visitors carved stonework and sculptures previously scattered around the site and vulnerable to damage from natural and human processes. The building is open on one side so that its contents are visible from the outside. For a description of this project, see Wenig 2004.

The Lion Temple is enclosed by a modern fence and its remains are protected by a shelter wall. There are no facilities for visitors on the site and no interpretation apart from the labeling of the objects in the *lapidarium* and one information panel at the Great Enclosure and another by the Lion Temple. Clearly-marked routes around the site are lacking.

Meroe: The settlement lies several hundred metres to the east of the Nile and is partly overlain, to the north and south, by the modern villages of Deraqab and Kigiek. The north and south royal cemeteries occupy low hills at the edge of the plain 4km to the east. In the plain are a number of temples, a *hafir* (reservoir), the western pyramid cemetery and cemeteries of the less wealthy inhabitants of the city. The Atbara to Khartoum railway cuts through the eastern edge of the settlement. Today the site is frequently referred to as Begraweya, the name of a nearby village. There is a main entrance to the site with a building from where the *ghaffir* and tourist police monitor entry. The antiquities zone is fenced, but the circuit is in disrepair and at the back of the site the fence is down in several places, allowing free ingress for the local inhabitants and for the goats which graze on the site.

By the entrance is a room developed as an interpretation centre, public toilets and a tap set up by the University of Khartoum and the Royal Ontario Museum, while close by is a large walled compound containing the dig-house, which incorporates a small museum. One of the dominant features of the site are the huge spoil heaps which have accumulated since excavations began in the early 1900s. Old excavation trenches are still open, particularly a huge sondage dug in the 1960s which penetrated to the earliest occupation levels on the site. Modern settlement and activities do not obtrude unduly on the visible monuments, although much litter seems to be blown in from the nearby villages. The railway and road are scarcely visible from the main site. The Nile is not visible, although its course is marked by a line of tall palm trees. The vista between the Royal City and the pyramids is interrupted by a pylon line coming from the Fourth Cataract down to Khartoum. Agreement has been reached between NCAM and the relevant ministry to have these pylons relocated behind the hills to the east of the Royal cemeteries. The timescale for this work is unclear.

In preparation for a geophysical survey by Grzymiski of the Royal Ontario Museum in 2002, the lower branches of the acacia trees and much of the scrub on the site were cut down. This deprived goats of much of their food and discouraged them from climbing on the walls where some of the scrub had been. Some of the spoil heaps left by previous excavators were also removed, which has helped to redirect the flow of water away from endangered structures. However there are still bushes growing on ruined walls or within rooms, which need to be cut down to prevent further damage from roots and from goats. The larger trees add to the attractiveness of the area and

there is no reason to remove them unless roots threaten to damage the monuments. Midway between the settlement and the royal cemeteries is a *hafir*, smaller than Musawwarat's and in good condition until 2005 when it was clipped by a pipeline, spoil from which has been dumped on its outer bank. This is disappointing, because twenty years ago another pipeline was deliberately diverted around the *hafir*. At the site of the royal pyramids is an unfinished resthouse and a little further away is a new museum building MP- 10 (the Wadi Tarabil museum), incomplete for lack of money.

Apart from the hills on which the pyramids are built the terrain is largely flat and bare, so any new building is problematical. In the distance is the new Italian-owned guesthouse which offers superb views of the pyramids. There is no continuous fencing around the cemeteries. The siting of an unfinished rest-house to the southwest of the Northern Cemetery adversely affects the setting of the pyramids. Its construction by the River Nile State was undertaken without proper consent from NCAM and work on it was halted, but what was built still needs to be demolished.

4. Statement of Significance of the Site and Justification of Outstanding Universal Value

4.1 Statement of Significance

The Island of Meroe is the heartland of the Kingdom of Kush, a major power in the ancient world from the 8th century BC into the 4th century AD. Meroe, always a major urban centre, became the principal residence of the ruler, and from the 3rd century BC onwards the site of most subsequent royal burials.

As well as being a royal centre it has an extensive religious and domestic quarter and considerable evidence for industrial activities particularly relating to iron-working. Naqa is the only major Kushite urban centre known away from the Nile. Its presence on the banks of the Wadi Awateib, approximately 34km to the southeast of the Nile, has important implications for our understanding of the palaeoclimate and hydrological regime pertaining in the area in the later centuries BC and the first few centuries AD. Among its extant buildings the so-called Roman kiosk is an outstanding example of the importance of influences from Egypt, Greece and Rome in this sub-Saharan kingdom.

Musawwarat es-Sufra is a unique religious complex, in location, plan and architectural elaboration. As with Naqa it again raises the question of how it functioned in what is today a very arid environment and, in this context, the massive water reservoirs, the hafirs, are particularly significant. Additional importance is also provided by the over 2000 graffiti carved on its walls, most dating from the Kushite period but others of medieval and later dates; pictorial representations as well as inscriptions in Meroitic, Latin, Greek, French, German and Arabic.

These three sites comprise the best preserved relics of the Kingdom of Kush, encompassing a wide range of architectural forms and occupying a range of environments. They testify to the wealth and power of the Kushite state and to its wide-ranging contacts with the Mediterranean and Middle Eastern worlds during a period of over one millennium. Their monuments, reliefs and sculptures also highlight

the sub-Saharan African roots of the civilization – this is the meeting place of the Pharaonic and Classical worlds and Sahelian Africa.

The civilization responsible for the sites in the Island of Meroe represents a direct continuation of the political system and cultural assemblage well represented in the region of Napata at the sites of Jebel Barkal, el-Kurru, Nuri and Sanam Abu Dom. The Napatan sites were inscribed on the World Heritage List in 2003, the first nomination from Sudan to be accepted by the World Heritage Centre.

4.2 Justification of Outstanding Universal Value

The pyramids at Meroe are outstanding examples of this highly distinctive Kushite funerary monument and their intimate associations with the well-preserved remains of the urban centre is noteworthy. The evidence for iron-working in the town is extensive with massive slag heaps surviving. It is hence of considerable importance for the study of metalworking. The pyramids at Meroe are outstanding examples of this highly distinctive Kushite funerary monument and their intimate associations with the well-preserved remains of the urban centre is noteworthy. The evidence for iron-working in the town is extensive with massive slag heaps surviving. It is hence of considerable importance for the study of metalworking technology in sub-Saharan Africa of which it is one of the earliest examples.

Naqa contains two extremely well-preserved buildings, the so-called Roman kiosk with its amazing juxtaposition of architectural and decorative elements drawn from the repertoire of Pharaonic Egypt, Greece and Rome as well as from Kush itself. The Lion Temple preserves superb reliefs of the Kushite gods and royalty displaying both distinctly Kushite and African influences alongside those from Pharaonic Egypt. Naqa is also outstanding for its well, dug during the Anglo- Egyptian Condominium in 1904. This is a major source of water and is frequented by large numbers of nomads with their camels, sheep and goats. It is a vivid illustration of a pastoral lifestyle still being practiced in Northern Sudan, which has changed little over the millennia and provides a graphic insight into man's adaptation to life in an arid environment.

Musawwarat is a unique architectural ensemble with temples, courtyards, domestic buildings and perhaps royal apartments. Additionally there are major installations connected with water management, quarries and industrial areas – very fine-quality pottery was produced on the site.

The Archaeological Sites of the Island of Meroe proposed serial property provides a detailed insight into the interchange of ideas between central Africa and the Mediterranean world over a very long period along what was the major corridor to and from Africa during the ancient world. The interaction of the local and foreign influences can be illustrated in the architectural forms and practices employed, in art, iconography religion and language. The desert sites of Naqa and Musawwarat also raise the question of the interaction of the Kushite state with its extensive nomadic and transhumant subjects occupying the same region.

All aspects of Kushite civilisation were largely expunged by the arrival of Christianity on the Middle Nile in the 6th century AD. The Archaeological Sites of the Island of Meroe with their wide range of monument types, their well-preserved buildings, and

the potential they offer for future excavation and other avenues of research are an exceptional, and in the case of Musawwarat es-Sufra, a unique testimony to this, perhaps the greatest civilisation of sub-Saharan Africa. At Naqa is the earliest evidence we have for the writing of the indigenous language, known to archaeologists and linguists as Meroitic. Although probably spoken for millennia it appears to have been first written, in an alphabetic script, during the 2nd century BC. It has yet to be deciphered.

Musawwarat es-Sufra and Naqa, major centres of human activity far from the Nile, raise many questions as to their viability in what is today an arid zone devoid of permanent human settlement. They offer the possibility, through a detailed study of the palaeoclimate, flora and fauna, of understanding the interaction of the Kushites with their desert hinterland.

Meroe, sat on the banks of the Nile, occupies a different ecological niche but its development was to some extent governed by the proximity of the desert. It has already been suggested that, for example, the scale of its iron-working activities caused serious deforestation in its environs. Its relationship to the fluctuating level and course of the Nile and the changes these fluctuations made on the urban landscape and economic viability of the area can be documented on the site.

4.3 Statements of Integrity and Authenticity

The integrity and authenticity of the three sites (Meroe-Begraweya, Musawwarat es-Sufra, and Naqa) conform with the requirements of the World Heritage Committee. They have been subject to no inappropriate interventions of any significance since their abandonment and their places in the natural landscape have not been compromised or degraded. The treasure hunting of Ferlini in the 1830s (see 2.a.3 above) was very deleterious to some of the pyramids in the Meroe cemeteries, but the overall appearance of the ensembles has survived.

A certain amount of restoration has been carried out since the mid 20th century, most notably on a number of pyramids and a few buildings (eg the 'Royal Baths' and the Kiosk at Naqa). Whilst the materials and techniques employed do not in certain instances conform with current conservation principles and practice, which have made considerable advances since these works were carried out, the precepts of the Venice Charter (1954), the Nara Document (1995), and the concept of *anastylosis* have not been violated. Two or three small pyramids have been completely rebuilt, with a didactic purpose, to demonstrate how they would have appeared in antiquity. It is today very easy to identify and differentiate the old authentic fabric of the remains and modern-day interventions for the restoration and conservation of some features. The authenticity of the site is well preserved and the sites' integrity has not yet been compromised by modern development activities.

5. State of Conservation and Factors Affecting the Property

In general, the Archaeological Sites of the Island of Meroe suffer from slow-rate degradation and deterioration caused in the first place by exposure to the harsh effects of the natural environment. The on-going slow deterioration of the archaeological

remains is accentuated by erratic and in some instances ineffective regimes of maintenance which address only specific elements of the sites.

5.1 General Condition of Sites

Naqa

The so-called Roman Kiosk (Plate 5) is well-preserved and there are substantial remains of the Lion Temple, Temple of Amun and Temple F (Plate 6). The other remains are very ruinous. Some conservation work has been carried out to good effect: for example, the rams flanking the processional route to the Lion Temple have been reerected on their pedestals, preventing their erosion and reducing the risk of damage. Alternatively, a painted stone altar found in room 106 in the Temple of Amun was found decorated with paintings carried out in *secco* technique on lime plaster. Following its excavation, the paintings were cleaned and consolidated. Because the paintings are vulnerable to damage by visitors and from rain, the altar was documented and then protected by a covering of sand. The blocks from Temple 200 almost all of them decorated in fine, delicate relief, are at present kept next to the temple where they are covered in sand to protect them. These blocks are from the wall decoration of the temple and could be easily restored to their original positions following conservation.

Musawwarat es-Sufra

Great Enclosure: There has been damage to all architectural parts of the Great Enclosure through natural and anthropogenic processes: - intrusion of rain water into the walls and foundations, which are clay-bonded; mainly occurring in already damaged walls and walls without cover blocks - pre-existing factors such as inadequate foundations - physical processes, namely penetration of water-soluble salts (hydration and dehydration, solution and crystallisation), supported by accumulated sand dunes - wind and sand erosion, supported by accumulated sand dunes - domestic animals (sheep, goats) walking around in the courtyards - tourists climbing up or over the architectural remains or scratching graffiti into the walls.

Small Enclosure: Although the structures of the Small Enclosure were in quite good condition when excavated, they have suffered considerably because of their exposure to environmental forces and human interference.

Lion Temple: Damage to the Lion Temple has been caused by natural and anthropogenic processes: - wind and sand erosion, especially on the northern and eastern sides of the temple - physical processes of water-soluble salts (hydration and dehydration, solution and crystallisation), especially in the pedestal areas and on the northern side of the temple - damage to the reliefs from bird faeces and wasps' nests - decay of the plaster used for the restoration of the temple in the early 1970s - large cracks in the southern temple wall caused by the sinking of the pylon foundations - damage to the reliefs by tourists. Moreover, the monument is endangered because of deteriorations of the modern roof resulting from constructional defects in the 1970s.

The defective parts of the roof allow rain water to damage further the walls and interior reliefs of the temple.

Other standing monuments: The smaller monuments on the site of Musawwarat also suffer from wind and sand erosion, the run-off from annual rainfall and uncontrolled access by tourists.

Other archaeological structures: Many archaeological features not represented by standing walls, such as the workshop areas, cemeteries, habitation sites and the smaller *hafirs*, are constantly endangered by tourist cars and other vehicles moving around the valley at will and driving right over the sites. They cause damage not only to the remains above ground but also to features below ground level.

5.2 The history of preservation and conservation at the Serial Site

Musawwarat es-Sufra

If not otherwise stated all programmes of preservation and conservation were carried out by the Archaeological Mission of Humboldt University, Berlin.

Great Hafir: The interior of this most important feature has recently been partly dug out with the use of heavy earth-moving machinery in an attempt to restore its original function as a reservoir. At the time of writing, these works have stopped but the *hafir* is surrounded with spoil heaps which need to be removed and steps need to be taken in order to prevent the erosion of archaeological deposits now exposed in its interior.

Great Enclosure: Many walls of this structure had already collapsed, others were severely endangered. Where the cap stones were missing water could penetrate into the walls destroying them over time. From 1995 onwards, hundreds of metres of such walls were secured by a filling of a mixture of sand, earth and lime which prevents water from penetrating into the walls. Furthermore, because of weak foundations, other walls are falling apart. To stop this process, support constructions made of burnt bricks were added all over the Great Enclosure. A special problem is caused by wind-blown sand which erodes the surfaces of the buildings across the site. In front of the central temple of the Great Enclosure are several columns and column bases with reliefs. These are all more or less endangered. As a temporary measure these columns and column bases were enclosed within walls of burnt bricks. Several walls were about to collapse. In agreement with the National Corporation for Antiquities and Museums these walls were taken down and reconstructed. Where the original blocks were missing, they were replaced by burnt bricks to support the wall. The enclosure wall of the structure was consolidated and in parts reconstructed in order to regulate the access to the site, to hinder the movement of animals and to diminish the effects of the wind and sand erosion. Measures taken since 1993: - detailed survey of the state of preservation, samples taken for analysis at the ICCROM - detailed photogrammetric documentation of the standing building fabric - stabilisation and repair of broken wall fabric with brickwork - covering and repair of damaged wall tops with claymortar - clearing of several courtyards by the removal of stone fragments and excavation spoil of the 1960s - planting and maintenance of a shelter belt against wind and sand erosion - removal of large sand dunes (preventing rainwater runoff) from inside the courts and from the terraces of the Great Enclosure

as well as clearing of courtyards - building of dikes in order to prevent rainwater-runoff from the north-westerly *jebels* flooding the Great Enclosure - levelling of the colonnade surrounding the Central Temple (102/103) in order to conduct rain water away from the Central Temple and from its endangered walls and foundations - protection of seriously damaged and endangered columns on top of the central terrace with brickwork masonry filled with clean sand, to maintain a constant climate, in addition protecting these columns against sand erosion and damage by tourists - supporting endangered inner faces of doorways of the central terrace with specially made stone blocks - covering of endangered architectural blocks with sand - partial clearance and re-erection of the enclosure wall - establishment of a parking area south of the Great Enclosure - building of a small on-site museum in the Great Enclosure, where a number of architectural blocks are securely stored and displayed, and visitors receive information on the site.

Lion Temple - 1960: F. Hinkel "Studie zum Wiederaufbau des Löwentempels von Musawwarat es Sufra" - Feb. 1967: plans of the architects F. Hinkel and K. Stark - Dec. 1967-Jan. 1968: dismantlement of the temple and its complete archaeological investigation - Jan. 1969-Apr. 1970: re-erection of the temple: missing wall parts are built of burnt bricks, plastered and coloured. - chemical consolidation and hydrophobation of the temple's sandstone masonry - erection of a metal fence around the temple - Apr. 1970: official opening. Measures taken since 1993: - detailed survey of the state of preservation, samples taken for analysis at the ICCROM - survey of the state of the roof of the temple - provisional repair of the roof of the temple and preparation of a repair project - planting and maintenance of a shelter belt against wind and sand erosion (not successful, as constant watering could not be ensured) - repair of the fence around the temple - filling of depressions beside the pylons of the temple; these depressions accumulated rain water that weakened the ground below the pylon foundations - removing of dust from the interior reliefs and the floor of the temple - laying of a flooring of concrete to the north and south of the pylon of the temple in order to protect its foundations from rain water

Temple II A The small temple excavated in the 1960s had suffered severely from rain. It was protected by a roofed metal construction against rain and grazing goats. To diminish the damage from wind-blown sand, the walls of this protective structure were covered with reeds which are renewed periodically.

Building Complex III B: "Shrines" III B 1 and III B 2 Both buildings suffered severely from wind erosion and more dramatically from surface run off of the annual rains. Therefore, they were completely enclosed in the 2006 season. The cover consists of a casing of red bricks, erected around the structures without interference with the archaeological fabric above and below present ground level, and a sand fill. Measurement points indicate the position of the structures within the cover and eventually would allow its removal without damage to the archaeological structures.

Meroe

Work programme of the Royal Ontario Museum - University of Khartoum team While the royal pyramids located some 4 km east of the city were always a major tourist attraction and conservation work has been carried out there on and off for almost three decades, the Royal City escaped attention. The site is presently overgrown with

acacia trees, whose relative abundance owes much to the fence built around the protected antiquities area. This acacia forest itself is considered as a protected ecological zone. This combination of protected ecological and archaeological zones is unique in the Sudan and offers a pleasant ambience to the visitors. Because of the somewhat unsophisticated digging techniques of the early excavators who exposed large buildings without giving any consideration to the conservation and left huge spoil dumps right on site, Meroe City does not present as attractive an appearance as it could. It is for this reason that the Toronto - Khartoum team opted for a slow and careful study of the site beginning with (1) the surface survey, (2) the non-invasive exploration of unexposed structures by means of a geophysical survey, (3) mapping of the unexplored parts of the site (4) the study of certain previously excavated important buildings such as the Temple of Amun and Palace M 750. In consultation with the conservators from the Royal Ontario Museum and the Sudan National Museum one of the spoil dumps was also removed exposing the north pylon of the Temple of Amun. The pylon was partially rebuilt using the material recovered from the dump and by means of traditional building techniques still common in the Sudan. This reconstruction was undertaken not just for the beautification of the site but also as a testing ground that allows to observe the effects of the elements on the re-erected walls. In due course it is the intention to expand this reconstruction project. One cannot undertake any sensible conservation work without first fully understanding the occupation history of the settlement. Therefore, concurrently with the surface study and conservation, archaeological field research has also been carried out. The results are published regularly and a selection of finds will be displayed in the future site museum. Hand in hand with archaeological research goes the development programme for the site. It began by renovating the buildings of the permanent research station erected on the site by P. L. Shinnie. A power generator was installed there, but upon completion of the Merowe Dam and powerline, it will be possible to bring electricity to the entire area of Meroe.

Since 2005-06 clean water is freely available to the local users and visitors to the site. Sanitary facilities were erected for the benefit of the tourists next to but outside the antiquity areas, these need regular clean-ups and maintenance. Also, a new entrance to the site was constructed together with a small visitor centre where information about the site will be displayed; it currently requires some rehabilitation work.

Meroe, the so-called Royal Baths A shelter building was erected over the remains soon after the excavations at the beginning of the 20th century and was renewed some decades later, but damp from rain water falling from the roof is penetrating the south wall and damaging the plaster and paintings on its inner surface. Damage was also caused when three faience plaques were torn from this wall and stolen in 2000.

A new sealed and secure structure needs to be re-erected. Water evacuation and proper ventilation of the structure need to be integrated into the design of the new structure.

The pyramid fields: deterioration in the condition of the pyramids has been described by F. W. Hinkel (2000, 16), as follows: 'The comparison of air photos from 1966 with ones from 1978 shows alarming changes during those 12 years. Sand dunes have started to cover the ground and vegetation in the wadis as well as on the surface of the ferricrete sandstone crust in the northern pyramid field. During the last 20 to 30 years, one can observe many traces of erosion on exposed surfaces due to the action of strong wind and moving sand. Such a phenomenon might be connected with the

generally observed trend of desertification in the northern Sudan. There are a number of offering chapels which are not yet protected and are especially endangered by the increasing wind erosion of the last decades. An example of this irreparable damage can be seen on the walls of chapel BEG.N.6, of Queen Amanishakheto, where 90% of the wall reliefs were destroyed during 1989 and 1995 when protection work was stopped ...'. Since 1975 restoration and reconstruction has been in progress under the direction of F. W. Hinkel, as follows: Beg.N.19 has been restored to its original form and the new rear face of the pyramid has been given a rendered surface. Beg.N.11 and 32 have also been restored. Beg.W.18, the pyramid of Prince Taktidamani, was in danger of collapse. It was completely dismantled, provided with new foundations and re-erected. Beg.W.8 is a small pyramid for a queen. The original pyramid of coursed rubble was encased in a covering of blocks. The latter was dismantled and then re-assembled on new foundations. Up until 1999, fourteen chapels had been restored and roofed using the original blocks or prefabricated replacements.

Finds and collections from Meroe

Material from all the work at Meroe is to be found in the collections of the Sudan National Museum. The excavations of Garstang in the settlement, non-royal cemeteries and Sun Temple, were funded by a large number of institutions and individuals, many of which received a share of the finds at the end of the excavations. The bulk of the finds were donated to Liverpool where they remain in the World Museum Liverpool and in the School of Archaeology, Classics and Egyptology, University of Liverpool. Other collections are to be found in the British Museum, The Petrie Museum (UCL, London), The Ashmolean (Oxford), The Scottish National Museum (Edinburgh), The Royal Ontario Museum (Toronto, Canada), Ägyptisches Museum (Muenchen, Germany), Musées Royaux (Bruxelles, Belgium) and Ny Carlsberg Glyptotek (Copenhagen, Denmark). Some of the finds from the excavations directed by Shinnie are in the Department of Archaeology, University of Khartoum. Material from his later excavations, principally pottery, is now in Mount Royal College (Calgary, Canada). There is also a considerable amount of material stored in the courtyard of the dighouse at Meroe, particularly pottery from Shinnie's excavations, much of it unstudied. A small collection of objects is in the site museum which is MP- 15 not at present open to the public.

Of the material from the elite and royal cemeteries major collections are housed in the Museum of Fine Art Boston from Reisner's work. One wall from the inner room of the pyramid chapel of Queen Shanakdakhete is in the British Museum. Objects, mainly architectural stonework from Hinkel's activities, are stored in the NCAM resthouse behind the pyramids. Little of this material has been published in detail. Those finds housed in Liverpool were published by László Török (1997). The material from Reisner's excavations was published in the Royal Cemeteries of Kush volumes by Dows Dunham (1957; 1963) but the treatment there is rather summary. The finds from Shinnie's excavations have been published in Shinnie and Bradley 1984 and Shinnie and Anderson (eds) 2004. The publication of Hinkel's work is well advanced. Detailed studies and the publication of this vast corpus of material would do much to highlight the richness, aesthetic quality and technological expertise of Kushite material culture. It may also provide important data regarding chronology, trade and connections with Kush's neighbours particularly in Late Period Egypt and the Graeco-Roman World.

5.3 Inventory of conservation problems

The current management plan is expected to outline a regime of interventions which aim at counter-acting the processes of deterioration and instating a regular system of conservation, maintenance and monitoring at each component of the serial-site. This regime of interventions shall be further developed and structured into a full-fledged conservation plan encompassing the totality of the proposed World Heritage serial property.

Rapid assessment of the condition of the archaeological sites in question has determined a number of deterioration mechanisms as well identified external factors affecting the archaeological remains. They are presented and described in the table below:

Condition assessment	Description	Cause	Related site	Magnitude of the problem	Degree of complexity
Deterioration Mechanisms					
Structural deterioration of pyramid walls	Deterioration of pyramid core, leading to substantial stresses at pyramid corners, the formation of large cracks, bulging, coving, protrusion of core material at corners as well as in wall faces subsequently leading to large areas of collapse.	Exposure of core to rainwater action, percolation, formation of cavities and voids causing substantial structural instability and stresses.	Meroe – Northern, Southern and Western Cemeteries	High at Meroe Cemeteries	Challenging requiring special expertise, resources and set-up.
Structural instability of walls/collapse of archaeological features	Structural instability of walls, loss of wall integrity, formation of cracks and spreading of walls from the top, bulging and coving, deterioration of core integrity and mortar layers. This has led in many instances to collapse of masonry elements and of substantial sections of archaeological features.	Exposure of the core of the wall from the top, damage by water action and the loss of core integrity, formation of cavities, water channels, voids, etc. causing substantial instability, collapse and loss of historic materials.	Meroe – Sun Temple, Lion Temple, Royal City.	Medium at Meroe – Royal City;	Manageable but still requiring special expertise.
			Naqa – Amun Temple and Temple F.	High at Musawwarat	Challenging requiring special expertise, resources and set-up.
			Musawwarat – The Great Enclosure and temples.	Low at Naqa	Relatively limited intervention requiring expertise but no special provisions.
Degradation of stone/masonry elements	Degradation/disintegration of stone features/stone masonry/brick elements, powdering, pitting, flaking, loss of structural integrity,	Inherent weakness of the stone/brick, exposure to rain action, exposure to water damage caused by collecting stagnant water	Meroe – Northern, Southern and Western Cemeteries;	Low at Meroe Cemeteries	Limited, requiring expertise but perfectly manageable and time-constrained.

	distracting visual effect.				
Failure of past repair work	Use of inappropriate conservation materials leading to rapid failure of repair work.	Use of hard cement mortar in repair plaster surface causing the surface to fail quickly and detach concealing more serious damage behind it.	Meroe – Northern, Southern and Western Cemeteries.	Medium at Meroe – Pyramids and Royal Bath.	Requires monitoring, special intervention wherever failure is advanced. Special expertise and set-up is required.
Exposure and deterioration of ancient plasters	Disintegration, staining, detachment, flaking, powdering, soiling, pitting and formation of cavities, exposure of base layers, salt crystallization, formation of algae and moss,	Exposure to the elements, absence of consolidation and sheltering.	Meroe – Northern and Southern Cemeteries, Sun Temple, Royal City; Naqa – Amun Temple, Temple F.	Low at Meroe and Naqa.	Easy to deal with but requires expertise. Time constrained.
Exposure and deterioration of ancient reliefs	Abrasion, flaking, erosion of carved motifs.	Exposure to the elements, absence of consolidation and sheltering.	Meroe – Northern Cemetery.	Low at Meroe.	Easy to deal with, require no special expertise.
Deterioration of Ancient Mud brick Walls	Erosion of surface and body of bricks, formation of runnels, cavities and voids within the masonry, loss of the structural integrity of the walls.	Exposure to rain, rising damp and wind erosion.	Naqa- Amun Temple.	Low at Naqa	Easy to deal with, requires no special expertise.
Salt crystallization	Efflorescence and crypto-efflorescence of stone and brick elements, blistering,	High tenure of ground table in salts. Large differences in temperature between night and day	Meroe – all sites, Naqa – all sites,	Low to Medium at Meroe	Limited intervention at sensitive areas carrying special decorations. Special

		and the migration of salts from the ground to the masonry. Quick drying effect due to strong sun and wind.	Musawwarat – all sites; with varying degrees of influence on the historic masonry.		Intervention at the Royal Bath.
				Medium at Naqa	Special intervention at the Lion Temple B300 and the Kiosk. Requiring constant monitoring and follow-up.
				High at Musawwarat	Challenging problem requiring special design interventions at large scale if salt crystallization is to halt completely. Difficult to deal with this problem.
Vegetation damage	Formation of small and large cracks in masonry, deterioration of wall tops, impregnation of masonry features in humid humus and soil layers, staining and soiling of masonry.	Vegetation growth in and around archaeological features. Formation of micro and macro cracks through root penetration and expansion, concentration of levels of humidity around historic structures, decay of roots	Meroe – Royal City, Amun Temple and adjoining structures, Royal Baths. Naqa – Lion Temple B300 and Kiosk,	High at Meroe-Royal City	Limited intervention in archaeologically sensitive areas. Requiring regular monitoring and intervention in order to check the expansion of vegetation cover.

		and formation of voids with expanding soil substrates, etc. Formation of algae and moss and the disintegration of historic surfaces.	Amun Temple. Temple F.	Low at Naqa	Intervention mainly inside Lion Temple B300, limited and easy to accomplish once drainage system is installed.
				Absent at Musawwarat	No intervention required.
Water damage	Formation of large pits and holes undermining the structural stability of archaeological features. Large scale erosion of archaeological features.	Burrowing of water collecting in holes creating pressures and stresses. Water channeling causing the erosion of masonry.	Meroe – All Cemeteries (Tops of Pyramids); Royal City Naqa – Amun Temple, Temple F	High at Meroe-pyramids and Royal City	Challenging but can be dealt with, requires special set-up and regular monitoring and intervention to prevent problems from accentuating.
				Low at Naqa	Limited, can be dealt with without the need for special provisions or set-ups.
Factors affecting the sites					
Visual impact	Unightly effect of small and large vehicles, small or large permanent or informal structures, high tension and other types of electric poles in the background of major monumental structures	Highway crossing site; High Tension and low tension poles crossing site; Tourism resthouses; Tourism Police Headquarters within the	Meroe, Naqa, Musawwarat.	Medium to low at Meroe	Challenging. It would be probably complex to re-route the highway and relocate high and low tension electric poles within the site. The treatment

		sites; Archaeological Field Houses at Meroe – the Royal City and at Naqa.			and relocation of the Dig House at the Royal City is however manageable on the longterm.
				Very low at Naqa	It is highly possible to re-locate the Dig House, Tourism Police headquarters as well as the Ghafeer’s house in the longterm.
				Medium to low at Musawwarat	Challenging. Resthouse and facility of the Sudanese Civilization Institute and adjoining gardens could be difficult to relocate and/or reduce their visual impact on the site.
Redundant visitor infrastructure	Dysfunctional Museum at Meroe; decaying and deteriorated site panels, Tourism Police Headquarters; toilets at the Norther Cemetery – Meroe, Superstructure of Royal Baths-Royal City, Ghafeer House-Naqa.	Incomplete construction, deteriorating; Infrastructure in need of replacement/maintenance; Inadequate building design and operation.	Meroe, Naqa.	Very low	Very easy to address via relocation, refurbishment and rebuilding.

Ineffective physical protection measures	Redundant site fences.	Absence of maintenance and re-erection of damaged site fences or building of new fences.	Meroe, all sites.	Medium at Meroe Royal City (goats penetrate the site and tread on archaeological remains)	Very easy to address through the re-erection of a more solid fence.
				Low at Naqa and Musawwarat	Very easy to address. Existing fences need to be maintained and fixed where necessary.
Damaging on site activities	Excavation of the Great Hafir;	Individual initiative aiming at enlarging the catchment's area	Musawwarat	High	Manageable. Discussions with the individual conducting these activities and the State authorities should guarantee the cessation of damaging activities.
Noise pollution	Noise generated by large vehicles.	Proximity of highway and passing of large-sized vehicles.	Meroe.	Very low	Challenging: road needs to be diverted.
Graffiti	Graffiti both inscribed and engraved on ancient walls and structures.	Uncontrolled visitor behaviour.	Meroe, Naqa.	Very low	Manageable. Visitor behaviour should be monitored and controlled.
Public Safety Hazards	Threat of collapse of large masonry blocks.	Structural instability and absence of monitoring for	Meroe pyramids.	Low	Manageable. Risk areas should be

		public safety.			identified and consolidated.
Inappropriate / Inexistent site drainage	Formation of large pools that decant for long periods prior to drying-up thus causing salt damage on historic masonry, encouraging the colonization of plants and algae and exercising physical damage to structures.	Lack of proper drainage and collection of water in archaeological features due to surrounding high terrain created by tall excavation spoils. Archaeological features set in low excavated areas in relation to elevated surrounding terrain with no provision for proper drainage of rainwater.	Meroe – Royal City; Naqa – Lion Temple B300 and Kiosk, Amun Temple. Mussawarat – Great Enclosure.	Medium	Manageable. Would require special provisions for drainage design and execution but would not require extraordinary expertise to be brought in.
Inappropriate dumping of excavation spoils	Distracting heaps of archaeological spoils affect the overall settings of archaeological features.	Improper disposition of excavation spoils.	Meroe – Royal City.	Medium	Manageable. Would require funds and an infrastructure to relocate excavation spoils.
Informal lapidarium areas	Clutter of architectural masonry around excavated features.	Improper allocation of excavated remains.	Naqa – Kiosk, Amun Temple.	Very low	Limited. Requires relocation of lapidarium to areas where no visual cluttering will occur and conflict with the interpretation of the remains.
Informal and damaging	Unightly views of vehicular tracks in archaeological areas.	Uncontrolled access of vehicles into	Meroe, iron manufacture	Very low	Limited, vehicular access to sensitive

vehicular access		archaeological areas.	heaps.		areas should be banned and controlled.
Littering	Unsightly refuse in various areas of the site.	Uncontrolled dumping of garbage.	Meroe – Royal City.	Low	Challenging. Informal dumping areas should be substituted with formal areas set a distances away from the site.

In principle, after having assessed the state of conservation of the site and the factors affecting it, the main focus of NCAM's efforts for the future shall be on developing the necessary conservation infrastructure to be able to address these challenges as well as work in partnership with the University of Shendi, foreign archaeological missions and specialized conservation experts in order to design long-term conservation plans and methodologies and implement conservation projects.

5.4 Conservation measures in place

These measures pertain to the program of archaeological missions working on the sites of the Island of Meroe with many years of presence on these sites. An exhaustive list of measures to complement the program of these missions is presented in the *Action Plan* section of this document.

Naqa

Excavation of the small subsidiary Temple 200 has produced over 1200 relief fragments of highest quality. After complete clearance (2008) at least a part of the wall decoration will be reassembled for display in the site museum. The current focus of the Berlin team is the Roman Kiosk (Hathor chapel). A complete recording by 3D-scanner has been the first step for the conservation and consolidation of the ruin. After excavation loose blocks will be replaced: otherwise the chapel will be preserved as a ruin. The most fragile elements such as capitals will be replaced by replicas reproducing their actual appearance; the originals will be displayed in the site museum. The Berlin team consists of archaeologists, prehistorians, architects and restorers (who also work on the Berlin Museum Island which is on the UNESCO World Heritage List). Next on the agenda are Temple 400 and selected buildings in the city. A conservation campaign is planned which will involve the basic consolidation of Temple 300. However, the scope of the measures needed to effectively secure the structure exceeds the budget which can be raised by the mission alone. The mission here sees its role mainly in contributing the expertise and the means for conducting the works and developing a comprehensive site management plan.

Musawwarat

The continuation of protection, consolidation and restoration measures is planned for the Great Enclosure. Systematic conservation of the architectural remains on the basis of the existing results of the survey and the photogrammetric documentation: restoration of collapsing or otherwise endangered walls and strengthening of weak foundations; covering of open wall tops with original covering blocks or with special mortar - eventually, re-consolidation and rehydrophobation of the stone by chemical agents - partial reconstruction: namely of the Central Terrace with Temple 100 and the assemblage of Temple 300 - permanent preservation measures for doorways and thresholds and other parts of structures which undergo constant wear from tourists - eventually replacement of endangered architectural elements (columns, sculptures) by copies - enlargement of storage and display areas in order to save important endangered architectural objects - further clearing of courts and removing of invasive

sand dunes - providing means to conduct rain water out of the Great Enclosure - continuation of the re-erection of the enclosure wall - tourist management plan:

Lion Temple - repair of the modern roof of the temple - consolidation of the temple foundations if subsidence continues - removal of the water-soluble salts from the sandstone reliefs - eventually, re-consolidation and re-hydrophobation of the stone and the reliefs, especially on the outside of the building, by chemical agents - renewal of the plaster used to protect areas without reliefs - removal of dust from the roof timbering - removal of bird faeces and wasps' nests and establishment of means of preventing the nesting of birds inside the temple - renewal of the fence around the temple and the gate.

Small Enclosure - complete cleaning of the building - consolidation of the architectural structures - the installation of a visitor guiding system with protection for endangered parts. Other standing monuments - the programmes set out above for the large standing structures should also be applied to the smaller features - the smaller features need to be systematically surveyed to assess their condition and eventually they need to be protected from damage by natural and human causes.

Meroe

Specific recommendations for Meroe contributed by the Royal Ontario Museum – University of Khartoum team are as such: the first priority will be the completion of investigations and partial re-construction of walls and columns in the Amun Temple as well as the removal of spoil dumps left by Garstang and Shinnie. The soft material used in the construction is easily and negatively impacted by the strong seasonal rains and sandstorms. In terms of threats and challenges to the site one can identify the following as negatively impacting the site: the impact of the harsh environment on structures made of the relatively soft materials, the impact of the dramatic growth in the number of visitors to the site, the fact that part of the site remains outside the fenced area, especially within the village of Deragab and the construction of a police guard station within the Royal City immediately on top of the unexcavated portion of the site. The influx of tourists must be better controlled by providing designated car parking outside the fenced area and outlining visitors paths to prevent tourists from climbing on, and breaking the walls of, ancient palaces and temples. In addition the electricity pylons need to be removed (a programme to carry out this work has now been agreed).

6. Site Protection

Legal and regulatory protection of the proposed World Heritage Site “The Archaeological Sites of Meroe Island – Begraweya – Naqa – Musawwarat” is provided at three different levels:

- The international level: through the ratification of the relevant international conventions;
- The national (federal) level: through the competences and powers granted by the constitution of Sudan to the National Government in the field of cultural heritage protection as well as to the protection granted

by the provisions of the 1999 Ordinance for the Protection of Antiquities; and,

Through the Presidential Decision/Decree (no. 162 for the year 2003) for the *Confiscation of the Region of Naqa, Musawwarat and Begraweya and for the Creation and Register of a National Reserve within this Region and Managing it*.

- The state level: through the competences and powers granted by the constitution to the individual states in the field of legislating and executive powers over cultural matters of the state, as well as over state cultural and heritage sites;

At the international level, the Sudan ratified (in 1970) the *Convention for the Protection of Cultural Property in the Event of Armed Conflict*, known as the *Hague Convention of 1954*. Protection for Cultural Property (such as the nominated sites – since they fall under the definition of subject matter of the convention) threatened in the eventuality of an armed conflict is subject to the provisions of this convention⁶ (in legal terms of course).

Additionally, protection for the proposed sites will be extended in accordance with and subject to the nomination of the sites on the World Heritage List, as a result of the ratification of the 1972 UNESCO *Convention concerning the Protection of the World Cultural and Natural Heritage*⁷ (referred to as the *World Heritage Convention*). The convention was ratified by Sudan in 1974.

At the national level, the protection of the site is provided under *article 13 (5)* of the *Interim Constitution of the Republic of Sudan of 2005*⁸ which states the following:

“The State shall protect the Sudan’s cultural heritage such as monuments and places and objects of national, historic or religious importance, from destruction, desecration, unlawful removal or illicit export.”

The Constitution attributes to the National Government (Federal Level of Government, under which the National Corporation of Museums and Antiquities operates) exclusive legislative and executive powers in the area of national museums and national historic sites⁹. The States of the Sudan, individually, benefit from legislative and executive powers in cultural affairs pertaining to their States, as well as in state cultural and heritage sites state libraries, state museums, and other historical sites state archives, antiquities and monuments¹⁰. It is understood from this distribution of powers that a distinction exists between sites and monuments of a national character and sites and monuments pertaining to the individual States. The Constitution fails, however, to precise the nature and extents of the measures that could be adopted by the National Government and the States themselves; nor does it

⁶ <http://www.icomos.org/hague/hague.convention.html#contents>

⁷ <http://whc.unesco.org/en/conventiontext/>

⁸ This Interim Constitution is a transitory institution with the aim of regulating the affairs of the State for an intermediate period of 6 years until that time in 2009 when general elections will be held and a referendum on the autonomy of the Southern Sudan is held. It is expected for this Constitution to be revised after the elections/referendum have taken place.

⁹ *Schedule A, Article 31* of the Constitution.

¹⁰ *Schedule C, Articles 9, 33, 38* of the Constitution.

specify the criteria allowing the determination of the definition and extents of the national cultural heritage. It is expected that this area of unclarity will be elaborated in more detail after the referendum and the revision of the Interim Constitution. Nevertheless, given the fact that the sites subject to WH nomination have already been declared of national interest in the framework of the Presidential Decision of 2003 makes the National Government, represented in this case directly by the Ministry of Culture, Youth and Sports and subsequently, the National Corporation for Antiquities and Museums, directly responsible for the protection of the cultural sites located within the limits of the reserve. To that extent, the provisions of protection and management are stipulated in the 1999 Antiquities Ordinance, which was based on the 1998 Constitution of the Republic of Sudan, now replaced by the 2005 Interim Constitution. Accordingly, these provisions should be read and interpreted in conjunction with the competences attributed to the National Government (subsequently to NCAM) by the Interim Constitution of 2005.

The scope of the application of the 1999 Antiquities Ordinance is limited to antiquities, both movable and immovable and is defined as such:

“anything surviving from the ancient civilisations or past generations and has been discovered or excavated whether the object is fixed or mobile and is a hundred years or more old. The antiquities Corporation could for technical or historical reasons consider any premises or relics of archaeological value if there is any interest for the country in its preservation. Documents, prints, some human, animal or botanical remains are also considered as part of antiquities.”¹¹

The definition of archaeological site itself is given in the following clause:

“any site of archaeological interest defined by the Corporation for Antiquities and Museums”,

as for archaeological land it is given in the subsequent clause:

“the land which accommodates the site of archaeological interest, or a historical building. The limits of such land shall be defined by the National Corporation for antiquities and Museums.”¹²

This definition, albeit silent on the criteria that help define the limits of archaeological site or land, gives a large margin of flexibility to NCAM for establishing the limits of an archaeological site, and of an archaeological land. It is interesting to highlight here the distinction between the two definitions whereby the first pertains to a site where one would expect the archaeological remains to exist, while the second pertains to the land incorporating the site of archaeological interest and whose limits are left to the discretion of NCAM to determine. What is of more interest here is the flexibility given to NCAM to specify the modalities of land use within the limits of an archaeological land, this is clearly stipulated in the following clauses of the Ordinance¹³:

¹¹ Ordinance for the Protection of Antiquities 1999. *Chapter I, Article 3.*

¹² Ordinance for the Protection of Antiquities 1999. *Chapter I, Article 3.*

¹³ Ordinance for the Protection of Antiquities 1999. *Chapter II, Article 9.*

“Prohibition of the use of archaeological land for purposes part from those earmarked for its utilization

It is not permitted to build, or dig irrigation channels, or make a cemetery, or a water tower, or any other activity leading to the erosion of traces of antiquities on archaeological or historically registered land. Both the planting of trees and their cutting on such land is forbidden without prior permission from the National Corporation for Antiquities and Museums.”

Alternatively and under the section pertaining to archaeological sites:

“It is not allowed to build any sort of structures or roads at a distance that may affect buildings or archaeological [areas] without the prior approval of the National Corporation for Antiquities and Museums.

Developmental projects may be initiated after the completion of archaeological studies and surveys provided the benefiting parties bear the expenses incurred by the studies, surveys and salvage operations.¹⁴”

In the case of the proposed sites for World Heritage Nomination, the interpretation of the legal texts listed above allows for a flexible definition of site boundaries and limits of buffer zones by NCAM with reference to the definition of archaeological sites and archaeological lands under the 1999 Ordinance. The setting of these limits and boundaries is a task assigned to NCAM and the legal status of these limits is given by the 1999 Antiquities Ordinance as such:

“The National Corporation for Antiquities and Museums shall provide an authenticated and recognized map of all archaeological sites that are discovered, or are in the process of being so, or expected to yield antiquities findings.¹⁵”

The jurisdiction of NCAM over the definition and delimitation of archaeological site boundaries and related buffer zones is extended to it by the 1999 Ordinance. Restrictions applying to land use patterns and human activity within the buffer zones need to be set by NCAM and a mechanism established to make sure that these restrictions are carried into the legislative and institutional process at State level.

Apart from the competences in protection and management of the archaeological sites under NCAM’s mandate, the Presidential Decision/Decree (no. 162 for the year 2003) for the *Confiscation of the Region of Naqa, Musawwarat and Begraweya and for the Creation and Register of a National Reserve within this Region and Managing it* provides yet another umbrella of protection for the sites subject to the nomination: Bajrawiyya – Naqa – Musawwarat on a national level and establishes a committee sponsored by the President of the Republic with representatives from the following national ministries:

- The Ministry of Agriculture and Forestry;

¹⁴ Ordinance for the Protection of Antiquities 1999. *Chapter I, Article 10.*

¹⁵ Ordinance for the Protection of Antiquities 1999. *Chapter II, Article 13,2.*

- The Ministry of Interior;
- The Ministry of Irrigation and Water Resources;
- The Ministry of Culture;
- The Ministry of Environment and Urban Development;
- The Ministry of Tourism and National Heritage;
- The State Ministry of Agricultural and Animal Resources – River Nile State;
- The Sudan Civilization Institute (as Secretary of the Committee).

NCAM is represented in the Committee (currently) by the Ministry of Culture [Youth and Sports]. The limits of the National Reserve is specified in a table of coordinates (listed below) and refers as well to a list of archaeological and historic features from the nominated sites of Begraweya – Naqa and Musawwarat. These sites represent some of the main features of the archaeological sites being nominated but are not exhaustive. The boundaries of the National Reserve encompasses however all three nominated sites and their buffer zones.

National Reserve Boundaries for Mussawarat and Naqa		
Pt no.	Eastings	Northings
1	33°16.782	16°35.408
2	33°15.405	16°34.121
3	33°14.509	16°33.605
4	33°13.292	16°32.825
5	33°09.318	16°31.442
6	33°16.251	16°15.775
7	33°17.675	16°14.930
8	33°20.903	16°24.610
National Reserve Boundaries for Begraweya		
1	33°45.781	16°54.733
2	33°43.248	16°55.733
3	33°43.885	17°09.577
4	33°46.620	17°09.642

At the State level, legislative and executive powers are granted by the Interim Constitution of 2005 to cover cultural matters pertaining to the State itself (in our case, the State of the Rive Nile). This extends to *state cultural and heritage sites, state libraries, state museums, and other historical sites, in addition to state archives, antiquities and monuments*¹⁶. There is a clear segregation here between sites pertaining to the National State and sites pertaining to the State itself, and although it is most likely that the proposed sites fall under the jurisdiction of the National Government, by the token that these sites are located within the River Nile State, it imposes responsibilities on this State to legislate in favour of protecting the integrity and values of these sites. This is not only a natural consequence of the national significance of the sites themselves, but also an intention by the Government of the State of the Nile and the Ministry of Culture there to fulfill such responsibilities and reiterate the significance of these sites and the importance of safeguarding them from any likely threat that might occur through improper land use or major infrastructure or rural/urban development.

¹⁶ *Schedule C, Articles 9, 33, 38 of the Constitution.*

On the planning level, it is worth mentioning that the provisions of the Presidential Decision/Decree (no. 162 for the year 2003) with respect to fixing the limits of the National Reserve and extending the necessary planning protection for it are all respected and that the coordinates of the boundaries of the National Reserve have been safeguarded with the land office as well as with the Survey Department at Shendi (locality within the State of the River Nile where the proposed sites for nomination are situated) and produced on the official topographic maps of the State. On another level, the maps generated by NCAM as a result of the definition of the boundaries of the series sites and the respective buffer zones will be deposited with the land office and the Survey Department, in accordance with the jurisdiction of NCAM over the production of *authenticated* and recognized archaeological maps of all archaeological sites as stipulated by the Antiquities Ordinance of 1999¹⁷. The choice of the sites boundaries and site buffer zones in each case was made with the intension of including those areas and attributes which are a direct tangible expression of the “outstanding universal value” as well as areas which, in the light of future possibilities offer potential to contribute to and enhance such understanding.

The “outstanding universal value” (subject to nomination of course) of these proposed sites benefits from legislative and executive, legal and institutional as well as physical protection. Legal protection is provided by the competences and responsibilities attached to the National Government in the field of the protection of sites of national importance, the same applies to the individual States. Protection is endorsed by the designation of the area including the three series sites under discussion as a National Reserve. Institutionally, NCAM has the mandate and the responsibility to protect, manage, develop and promote sites of national significance under its jurisdiction (refer back to 1999 Antiquities Ordinance and to the administrative structure and functions of NCAM), this applies to the sites proposed for nomination. The mechanisms by which this responsibility will be exercised are specified in the section pertaining to Management further within this report, as well as in the respective action plan. NCAM is therefore of the view that adequate protection and appropriate management can be achieved via legislative, regulatory, institutional and management procedures and measures applied at the national, state and local levels to assure the survival of the property and its protection against development pressures and change that might negatively impact the outstanding universal value or the integrity and/or authenticity of the proposed property. These measures are laid out in the adjoining action plan and, the management structure/system proposed aims at assuring that these measures will be implemented.

Physical protection for the three proposed sites is a shared responsibility carried over by NCAM and the State and local authorities of the localities surrounding the archaeological sites. The specific structure that will coordinate the protection, management and promotion of the proposed series site is presented in the section on management structure below. It will include NCAM and representatives of the concerned stakeholders in the State. But the actual management of the site is NCAM’s responsibility and it would be worth explaining the situation and capacity of NCAM with regards to the delivery of adequate World Heritage Site level management.

¹⁷ Ordinance for the Protection of Antiquities 1999. *Chapter II, Article 13,2.*

The current organizational structure of NCAM incorporates the following administrative units:

- Board of Directors
- General Director
- Deputy General Director
- Department of Archaeological Inspection
 - Field Inspections
 - Archaeological Field Surveys
 - State Offices (regional offices)
- Department of Museums
 - National Museums
 - State Museums
- Department of Conservation and Laboratories
 - Conservation of Movable Archaeological Property
 - Conservation of Immovable Archaeological Property
 - Laboratories of Analysis
- Department of Financial and Administrative Affairs
 - Administrative Affairs
 - Financial Affairs
 - Public Relations
- Department of Architectural affairs
 - Architecture and Restoration
 - Services
- Library and Photography

The current structure is however under review following the issuance of the national corporations' law of 2003 which established the new institutional and financial framework for the operation of such corporations. An internal committee from NCAM was set-up by the Director General in December 2005 to review the structure of the corporation and propose one that enables NCAM to fulfill its mandate and responsibilities under the light of the latest political and economic changes taking place in Sudan.

The report of the internal committee was submitted in June 2006¹⁸, it proposed a new structure for NCAM, one which introduced the following main changes:

- The creation of a new Public Relations and Media Unit to replace the current Department of Public Relations, attached to the office of the General Director;
- The creation of a new Department of Planning, Information and Research, to include the Division of Research and Studies, the Division of Libraries and Documentation, the Photographic Unit and the Department of Human Resources and Administrative Development.

¹⁸ Report of the Committee for the Study of the Administrative and Employee Organizational Structure - NCAM. June 2006. Source: NCAM.

In summary, the mandate and responsibilities of the Public Relations and Media Unit are as follows:

- Reflect the activities of the Corporation in the different media channels;
- Focus and propagate the role and objectives of the Corporation in the Media;
- Prepare the conferences, seminars and workshops of the Corporation;
- Participate in conferences, seminars and talks relating to the field of expertise of the Corporation;
- Prepare programs and implement projects aiming at increasing and improving employee sense of belonging and faith in the corporation.

In addition to these responsibilities, the Unit was attributed the traditional responsibilities of support and protocol.

At first look, it appears that the new improved mandate of the Public Relations and Media Unit introduces advanced communication responsibilities making the task of promoting the role and objectives of the Corporation central to the mandate of the Unit. This will certainly reflect positively on the promotion of the protection and management of the sites proposed for World Heritage nomination. In fact, one of the challenges that could affect the long-term protection and preservation of the proposed World Heritage serial-site relates to limited awareness about the site's values and the current restricted contribution of the site to education and to the improvement of the socio-cultural and economic life of the inhabitants in the site areas. Such issues can only be addressed through intensive campaigning and advocacy work, which will constitute a substantial part of the portfolio of this Unit, once it is set-up.

The mandate and responsibilities of the Department of Planning, Information and Research on the other hand are as follows:

- Cater for all planning and development activities of the Corporation to include action plans and follow-up programs;
- Plan for research and studies in all aspects of the work of the Corporation;
- Assess the plans, programs and projects presented by the various departments of the Corporation, commission more studies according to scientific standards and establish the necessary priorities in the implementation of these projects and programs;
- Prepare the Corporation's performance reports, evaluate executed projects;
- Collect data, information and statistics, prepare technical studies on all subjects that might be requested by higher administration;
- Oversee human resources development;
- Oversee administrative development;
- Develop IT systems, studies and research.

The new responsibilities attached to the proposed Department of Planning, Information and Research cover strategic objectives which will help develop the capacities of the institution in terms of performance management, capacity building, prioritization of resources and financial planning. These improvements will certainly boost the capabilities of NCAM with respect to delivering the right level of management required for current as well as proposed World Heritage Sites. The activities of the proposed Department with relevance to the protection and

management of the proposed World Heritage serial-site shall be discussed in the section on management further down.

7. Definition of site boundaries and site buffer zones

Concerning the physical protection of the sites, this starts with the definition of the core zones and buffer zones for each of the respective sites (please refer to the Nomination File for a list of geographical coordinates for the sites and their buffer zones). The table below shows the justification behind the definition of the limits of each zone per site. Physical protection along these limits is provided by NCAM staff, State police as well as the State's Tourism Police present at each site. It is also worth noting that traditional and popular interest in the sites and their cultural heritage provides yet another layer of protection; in many instances this layer is organized under popular committees or cultural clubs operating from the localities surrounding the sites such as at Shendi, Kabbushiyya, Begraweya, Ba Naqa and al-Awateib.

Site name	Justification of core zone (site boundaries) limits	Justification of buffer zone limits
Meroe - Begraweya	The core zone includes the ancient town, the non-royal and elite cemeteries, the Sun Temple, its associated Hafir and the western elite cemetery. It also includes the Northern and Southern royal cemeteries and the gallery quarry to the east. The modern village of Kigiek lies outside the core zone but Deraqab to the north is included as important archaeological remains lie within the village.	The buffer zone extends from the hills to the east of the Royal cemeteries to the Nile and includes areas to the north and south of the archaeological remains which are clearly visible from them. At present, the buffer zone is cut through by modern pipelines. The latter is to be redirected in the near future to the east of the buffer zone while the telegraph pole line is no longer in use and should be removed. Modern building development should be totally excluded from the buffer zone and the unfinished resthouse a little to the east of the Southern Cemetery should be demolished and the site landscaped.
Naqa	All archaeological features directly associated with the site are included within the core zone.	The buffer zone seeks to enclose most of the environs of Naqa visible from the site. It is anchored on the three prominent hills, Jebel hardan, Nasb es-Sami and Jebel Gerai, along with the promontory to the north of Naqa on the right bank of Wadi Awateib. It includes the Kushite remains at Jebel Matruga and at the foot of Jebel Hardan and Nasb es-Sami.
Musawwarat	The core zone encloses all the structural remains directly associated with the Kushite activities at Musawwarat as well as the cemeteries adjacent to the site. Several of the quarries are also included. Within the core zone lies the	The buffer zone extends far from the site enclosing most of the area visible from it, in an attempt to preserve the desert environment which, however, is already severely compromised by

	modern compound (Sudan Civilization Institute) with its trees, well, mosque and resthouse along with the dig-house of the German Archaeological mission.	the modern constructions noted previously.
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State Police should make sure that the boundaries of the sites and their respective buffer zones are respected in accordance with the legal framework explained above. Site and visitor security are mainly provided by the Tourism Police, both entities undertake monitoring and reporting on infringements and communicate well with NCAM.

7.1 Textual description of the boundaries of the proposed property

Meroe

The site of Meroe is over 3 km east–west and more than 1 km north–south. It is bordered by the Nile on the western side, where the town site is located, and by the sandstone plateau on the edges of the desert, where the pyramids dominate the landscape. The core zone has been defined to insure the integral preservation of the ancient remains. The buffer zone has been delimited by the desert plateau on the east, the river flood plain on the west, a vast plain on the south and mountains (natural barriers) on the northern side. The objective of this is to keep the natural semi desert landscape and the traditional architecture of the neighboring villages.

Musawwarat es-Sufra

The monuments of Musawwarat es-Sufra are located in a basin surrounded on almost four sides of the site by a chain of hills. The core zone has been defined to insure the integral preservation of the ancient remains. The buffer zone has been delimited by big mountains as very clear landmarks. The objective of this is to keep the natural semi desert landscape, the wadis and the traditional architecture of the semi-nomadic population living in the area.

Naqa

The ancient relics of Naqa are bordered by a chain of sandstone hills on the eastern side, while the areas to the north, south, and west consist of flat plains crossed by annual rain channels (wadis). As at Meroe and Musawwarat es-Sufra, the core zone has been defined to insure the integral preservation of the ancient remains. The buffer zone has been delimited by big mountains as very clear landmarks. The objective of this is to keep the natural semi desert landscape, the wadis and the traditional architecture of the semi-nomadic population living in the area.

8. Management Plan

The following management plan is guided by the aspirations of the stakeholders of the serial-site proposed for World Heritage Nomination. It addresses the needs of the site

and responds to the requirements of the World Heritage Convention as stated and explained in the Operational Guidelines for the Implementation of the World Heritage Convention (WHC. 08/01, January 2008) and other related texts. The management plan first explores the results of the consultation process conducted in the presence of the stakeholders, it presents the vision for the future of the site and then discusses the key issues relevant to the management of this site, in accordance with the provisions and standards of the World Heritage Convention, it then formulates a set of policies that guide the way towards the implementation of the solutions that address the key issues of the management plan and finally, presents the action plans that implement those policies.

9. The Consultation Process

The Consultation Process was undertaken with the following objectives in mind:

- g. Understand the concerns, needs and aspirations of the various stakeholders with respect to the future of the proposed World Heritage Site, the government of Sudan and of the River Nile State being only two of these stakeholders¹⁹;
- h. Inform the stakeholders about the cultural significance of the site, the outstanding universal value, the critical issues affecting the long term protection, management and sustainability of the site and the responsibilities resulting from the possible nomination of the site on the UNESCO World Heritage List;
- i. Get all stakeholders to agree on a common vision for the site, one that takes into consideration their needs and aspirations as well as responds to the implications and responsibilities of World Heritage nomination;
- j. Get all stakeholders to commit to the protection, management, development and sustainability of the site;
- k. Get all stakeholders to endorse the management plan under elaboration for the site and adopted as a working document, reviewed and amended every 3 years;
- l. Elaborate jointly an effective management structure that will be responsible for, take charge of and oversee the full implementation of this management plan and the attainment of the standards that govern the protection, management and sustainability of the World Heritage Site.

The stakeholders that were party to the Consultation Process were represented as follows: the Advisor to the President of Sudan, the Ministry of Culture, Youth and Sports, the Legislative Council of Khartoum, NCAM, the State Ministry of Culture in the River Nile State, the State Ministry of Education in the River Nile State, the Ministry of Culture and State Information in the River Nile State, the State Ministry of Finance, the Commissioner of Shendi, the University of Shendi, the University of the River Nile, the Popular Committee for the Development of Shendi, the Tourism Office in Shendi, the State Tourism Police, NCAM Office in Shendi, the Popular Committee of Begraweya North, the Popular Committee of Begrawiyya South, The Popular Committee of Awateib, the Presidency of the National Congress in the Ba Naqa Region, the Presidency of the National Congress in the Southern Sector, the Presidency of the National Congress in the Northern Sector, the District's Attorney's Office in Shendi, the Urban Water Resources Office, the State Land Survey

¹⁹ Refer to Annex B for a full list of stakeholders.

Department, the Land Office – Shendi, the Rural Water Resources Office, the State Ministry of Tourism in the River Nile State.

All of the objectives of the Consultation Process were met, and the stakeholders formally agreed to the following policies and measures:

- Provide full commitment to the management plan and to the respect and fulfillment of the provisions and requirements of the nomination;
- Provide full commitment to sort out any community or state issues in favour of protecting the outstanding universal value of the serial-site;
- Provide full commitment to the establishment of an advisory committee that will take charge of supporting the fulfillment of the management plan, overseeing it and monitoring it while providing the necessary help to the executive body in charge of enforcing protection and management;
- Provide full commitment to gathering budgets from the governmental as well as from the private sector with the aim of implementing the management plan;
- Share responsibilities in protecting, managing the site and lifting it to the required levels of management;
- Value the recognition of the international community's for the heritage of the serial-site and consider it an achievement in itself;
- Prevent and mitigate the impact of development and tourism on the site;
- Not to compromise the importance of serial-site in any way or form;
- Promote public ownership of the site and the sense of ownership by the community;
- Involve the community in the protection, management and promotion of the serial-site;
- Make sure the community benefits directly from the sympathetic and sensitive exploitation of the serial-site;
- Provide more coordination between the local community, the University of Shendi and local, State and national authorities;
- Promote the site in collaboration with the World Heritage Centre;
- Organize promotional campaigns with the support of the University of Shendi and NCAM;
- Help resolve the situation of some of the inhabitants affected by the delimitation of site boundaries and buffer zones;
- Increase the man-power of the Tourism Police;
- Provide the necessary legislative back-up in order to provide the protection and management required for the serial-site;
- Enhance the educational potential of the serial-site throughout Sudan.

The consensus of the stakeholders for doing whatever is needed to facilitate, enable and participate in the protection, management, promotion, enhancement, development and sustainability of the serial-site and its outstanding universal value is an entry point to defining adequate and realistic policies and action plans that fulfill the vision and expectations of all stakeholders. Such a vision could be expressed in the following way:

“To gain international recognition of the significance of the archaeological sites of the Island of Meroe, Begraweya – Naqa – Musawwarat through the nomination of the serial-site on the World Heritage List, while fulfilling the aspirations of the stakeholders and satisfying World Heritage Standards of protection, management, promotion and sustainability of its outstanding universal value making it accessible to local communities who would benefit from the enhancement of the site in the future, in ways that do not diminish its significance and outstanding universal value.”

10. Key management issues pertaining to the serial-site

10.1 Ownership structure and responsible bodies

The three sites are owned by the government and administered by the Sudanese National Corporation for Antiquities and Museums (NCAM). NCAM is one of the oldest services of the Sudan Government. The first body to look after the archaeological heritage of the country was created during the British Administration in 1903. Today, NCAM is attached to the Ministry of Culture, Youth and Sport. Although, its director is responsible to the Minister, yet NCAM has an independent budget and administration. The general policy of NCAM is set by a board of nine members on the suggestion by its director and approved by the Council of Ministers. Those members include the director himself, a representative of the employees and seven individuals representing other disciplines and functions related to the mandate of NCAM²⁰.

Having said that, the management structure proposed in the forthcoming section below refers to a shared structure of responsibility, one that was agreed upon between NCAM and the concerned stakeholders in order to share responsibilities, gather more support, involve the local stakeholders and allocate additional resources outside NCAM for the protection and management of the serial-site.

10.2 Formalization of site boundaries and buffer zones

Site boundaries and buffer zone limits have been deposited with the State’s Survey Department and with the Land Office at Shendi. According to the 1999 Antiquities Ordinance, NCAM has the responsibility and jurisdiction to produce authenticated and recognized maps showing the limits of archaeological sites. These maps should, in the case of the Archaeological Sites of the Island of Meroe, show the limits of site boundaries (core zones) and buffer zones. These maps are binding by definition, however, as a measure of additional support, the Governor of the River Nile State and the Commissioner of Shendi should issue the necessary directives, regulations to enforce the statute of these maps. This is envisaged as one of the measures in the adjoining action plan to this management plan and had already been discussed and agreed upon during the Consultation Process.

10.3 Restricted Conservation Infrastructure

²⁰ For additional details on the mandate and capabilities of NCAM, please refer to section relating to Protection above.

The assessment of the state of conservation of the site (see relevant section above) has shown that the main factors affecting its condition are:

- slow-rate deterioration due to natural phenomena accentuated by the lack of structured conservation systems, such as for example a regime for undertaking conservation work, regular maintenance and monitoring of the state of the remains;
- scarcity of qualified staff to conserve the site. The reasons behind this deficiency relate to the stagnant recruitment process, the limited numbers of uncommitted jobs within NCAM which makes it difficult to fill in new positions, the scarcity of training opportunities in the field of conservation, the lack of formal academic curricula and formation in the field of conservation in the country, and the lack of professional incentives at NCAM thus leading to the departure of previously trained staff;
- Limited site management personnel to look after the site, monitor visitor behaviour, monitor the condition of the remains as well as risk areas;
- Lack of funds to implement large scale maintenance and conservation work.

The main focus of NCAM's efforts for the future shall be on developing the necessary conservation infrastructure to be able to address these challenges as well as work in partnership with the University of Shendi, foreign archaeological missions and specialized conservation experts in order to design conservation plans and methodologies and implement conservation projects. The University of Shendi, a partner of NCAM in the implementation of this management plan has already geared up to responding to the needs of development within the State of the River Nile, in the areas of archaeology and tourism management. Resources significant in numbers are enrolling in the Department of Archaeology and will certainly look to be integrated in the mechanism of protecting, managing, promoting and developing the serial-site under discussion. NCAM and the University shall collaborate together in order to formulate short-term and long-term training agreements in the area of archaeological conservation. NCAM's conservation department staff have the necessary expertise to train University students (with the support of International Agencies such as UNESCO, ICCROM, WMF, GETTY, etc.) and integrate them into the conservation program designed to address the conservation problems of the site (see action plan for details).

On another note, foreign missions working across these sites have established short-term conservation programs, some in parallel with archaeological projects. They could easily integrate a student workforce in the planning and implementation of conservation works and help build a trained infrastructure for NCAM to tap into.

10.4 Risk assessment and management

Risk factors with varying degrees of impact have been identified. The table below describes them and provides approaches to averting/mitigating and managing their impact in case they occur.

Risk Factor	Likelihood of occurrence	Impact	Risk management strategy
Natural Factors			
Fire hazard	Medium – Only in Royal City	High	Clean-up Royal City site from organic debris, monitor visitor behaviour and make sure a fire control system is provided (see action plan)
Earthquake			Make sure risk areas of collapse and structural instability are dealt with first in the priority schedule of conservation program. Monitor the situation of repairs after each land movement and yearly in order to determine the need for additional conservation/repair.
River Flooding	High – Only in Royal City;	High	Design flood-diversion and water evacuation system which is low impact, localized and takes into account the sensitivity of above ground and below ground archaeological remains.
Rainstorm flooding and damage	Medium - Naqa	High	Re-evaluate and improve stormwater diversion ditch around the Amun Temple and design and carry out rainwater evacuation system at the Lion Temple and Kiosk site.
Sandstorm	High - Musawwarat	Medium	Continue to reconstruct enclosure walls and other internal walls as barriers against the effect of wind-born sandblasting.
Desertification	Medium - Begraweya	Medium	Conduct a thorough analysis of effects and impacts of desertification on the pyramids of Begrawiyya and provide practical solutions that can be implemented.

Human Factors			
Illicit excavation	All sites	Low	Increase awareness of local populations around serial site of the significance of their collective heritage and the importance of protecting it. Strengthen vigilance in and around the sites.
Vandalism	All sites	Low	Increase awareness of local populations around serial site of the significance of their collective heritage and the importance of protecting it. Strengthen vigilance on site and control visitor behavior through information and monitoring.
Disruption of central and state authority and civil unrest	All sites	Low	Increase awareness of local populations around serial site of the significance of their collective heritage and the importance of protecting it; people will become the first protectors of the site because they relate to it. Strengthen physical measures around site museums. Maintain strong relationships with community leaders in order to rally their support for local protection.
War	All sites	Low	Increase awareness of local populations around serial site of the significance of their collective heritage and the importance of protecting it; people will become the first protectors of the site because they relate to it. Strengthen physical measures around site museums. Maintain strong relationships with community leaders in order to rally their support for local protection.

10.5 Coordination and shared protection and management responsibilities

Conflicts of interest between the national level and the state level and the differing interpretations of constitutional and institutional mandate texts has led sometimes to situations of competition over the use of the cultural resources of the State and their exploitation. Revenues accruing from the visitation of the sites are now shared between the State Tourism Authorities and NCAM. NCAM's revenues go directly to the national treasury and are not normally invested in upgrading the conditions of archaeological sites.

In order to avoid such a situation, NCAM is now sharing responsibilities towards the protection and management of the serial site with the State Authorities and local communities. This coordination will be formalized through the creation of the Advisory Committee for the WHS (see management structure below) who will oversee and facilitate the implementation of this management plan and support the Executive Technical Team operating on the serial-site.

10.6 Protection of the site from unsympathetic development

The legal texts are clear on the question of protecting the integrity and surroundings of archaeological sites (so-called archaeological lands). See section on Protection above). These legal instruments will be further endorsed and confirmed by State level regulations aiming at protecting the serial site and enforcing restrictions on development and change within the designated buffer zones. The coordination and follow-up of this process will be provided by the management structure proposed by this management plan currently in the process of being formalized.

There might be instances whereby the provisions of legal texts are not enforced and the integrity of sites of cultural significance is compromised by overarching business interests. NCAM and the Advisory body forming the core of the management structure of the WHS will be responsible for voicing their concerns in the face of attempts to override national and state legislation for the protection of the serial site. Promotion and lobbying are two important tools that will help maintain the site on the priority of development plans and will certainly help the local communities – direct owners and beneficiaries of the cultural heritage of the serial site – take a non-compromising stand in favor of the protection of the site and its integrity.

10.7 Institutional strengthening

In order to strengthen the capabilities of NCAM in the field of cultural resource management and the implications of this on the management of the World Heritage Sites, it is necessary to focus on two core functions:

- Public relations and media, and,
- Strategic planning and research.

The NCAM committee charged with re-evaluating the structure of NCAM and its portfolio has identified both of these two core competences and proposed the re-

structuring of NCAM in order to introduce these two core functions (see section on Protection above).

In order to respond to the requirements of adequate management for the proposed World Heritage Site, it is important for the Public Relations and Media Unit to focus on the following activities:

- Promote NCAM's role as an agency looking after the cultural heritage of the country, while highlighting the challenges it faces and its achievements;
- Promote the integration of the local community, the private sector and the wider international community into the process of protecting, conserving, interpreting and presenting the cultural heritage of Sudan, including the World Heritage Site;
- Identify and engage potential partners for accomplishing the objectives mentioned above;
- Spread awareness through advocacy and outreach among government representatives, government institutions, state and local bodies, as well as local communities, about the significance of heritage and the World Heritage Site, the responsibilities of protection, conservation and management and the potential of heritage in improving the quality of life of communities;
- Look for and identify sponsors for supporting the activities of NCAM;
- Rally government and public support for its activities;
- Secure financial support from interested donors and from the private sector that wish to improve their image;
- Educate the community at large about the values of heritage, and in our case, the World Heritage Site.

In parallel, it is important for the Department of Planning, Information and Research to establish the overall strategic direction of NCAM and rally all resources in favor of achieving the following objectives:

- Undertake a critical assessment of the performance of NCAM with the aim of identifying deficiencies and incapacities in the ability to fulfill its mandate;
- Establish the short term and long term priorities of the Corporation, particularly in view of the current management plan;
- Make sure that all departments at NCAM are aligned with the overall strategy of the Corporation and that their activities respond to priorities identified by NCAM's strategy;
- Make sure sufficient human and financial resources are granted to NCAM by the government in order to provide support to its operations.

It is worth noting here that irrespective of the timeframe required to accomplish the institutional change mentioned above, NCAM can with its present structure form task teams to take charge of fulfilling the responsibilities of both units until that time when the new-proposed organizational structure of NCAM is approved and enacted.

10.8 Capacity building

It is now evident that NCAM's organizational and salary structure do not help maintain qualified personnel within the organization, nor recruit new staff. This is a

major issue confronting the growing needs of cultural resource management and the need to recruit and train new personnel to take charge of managing the growing repertoire of cultural resources. In fact, on-going excavations and rescue operations resulting from large development projects, such as the construction of the Meroe Dam, have substantially increased the responsibilities of NCAM.

While long-term proposals for addressing professional staff deficiencies were suggested above, short-term solutions should be adopted by NCAM in order to respond to most pressing issues of site protection, conservation and management. Joint cooperation with universities, foreign missions and volunteers from the community should be heavily thought after as a short-term solution. Projects funded by donors should always integrate students and include training components to help build technical expertise. In most cases, external support is largely available and willing to contribute to resolving shortcomings; however, the challenge lies in the capacity to manage this support while making sure that it remains strategic, responding to the critical issues of cultural resource management and fulfilling the objectives of NCAM.

In this respect, it is important for the Advisory Committee sponsoring and overseeing the implementation of this management plan to address the issues of capacity building by finding new sources of financial support for positions badly needed for the protection, management and promotion of the serial-site. The State as well as the Universities of Shendi and the River Nile can sponsor the education, training and employment under contract of technical staff that will work under the direction of NCAM and take charge of implementing some of the provisions of the management plan whether this is in the areas of site documentation, rescue and preventive excavations, enabling works for conservation, guiding, site interpretation and site monitoring, or other relevant areas.

10.9 Management capacities on site

On-Site capacities allocated for the management of the serial-site are at this stage quite meager. They consist of the following staff:

- An Antiquities Inspector resident at the town of Shendi, 40 km from Meroe and *c* 60 km from Musawwarat es-Sufra and Naqa;
- Four Technical Assistants;
- Over twenty permanent and temporary recruited Guards; and
- A significant Police Force on each of the sites.

The Antiquities Inspector is the main member of staff with responsibilities encompassing all aspects of management pertaining to the site. He however needs to divide his time between administrative responsibilities and coordinating the work of the foreign missions to the area, apart from looking after the needs of the serial-site and reporting regularly to the Central Office in Khartoum. The four Technical Assistants support him in his duties but are not necessarily of sufficient technical level to assess and resolve critical issues of management or conservation on site, while the Guards are busy looking after security on the various sites and controlling visitor behavior.

This set-up is insufficient and cannot cater for the needs of providing adequate management for the serial-site. A minimal acceptable structure is as follows:

- One Site Director for the entire property or serial-site;
- One Conservation Coordinator for the entire property or serial-site;
- Three Site Managers, one for each of the sites of the serial-site, i.e, for Meroe-Begraweya site, Naqa and Musawwarat;
- Six Assistant Managers, two per site;
- Six Technical Assistants, two per site
- Ticket Office Operator;
- Ten Guards per each site.

The duties and responsibilities of the proposed serial-site management team are provided in the following table:

Title	Main Responsibilities	Areas of Expertise
Site Director	<ul style="list-style-type: none"> -Oversee the overall management of the serial-site in accordance with the provisions of the management plan and the standards of World Heritage Site management; -Oversee and elaborate the preparation of periodic reports on the state of implementation of the management plan, present and discuss the report with the Advisory Committee; -Plan and approve the allocation of financial and staff resources across the serial-site and coordinate the implementation of the various activities under the management plan; -Manage critical issues affecting the integrity of the site and its outstanding universal value and make sure the interest of the site are presented and taken into consideration in all third party dealings; -Focus and lead promotional efforts and awareness plans in accordance with the directives of the Media/PR office at NCAM; -Represent the interests of the site in significant and critical meetings, forums, planning sessions and other official and non-official gatherings; -Manage staff resources operating underneath him, issue out program directives and monitor performance on the implementation of the program in accordance with well established performance indicators; -Support staff in the fulfillment of their duties; -Oversee and elaborate the quarterly and yearly program of operations; 	Archaeology - Conservation

	<p>-Communicate, relay and coordinate with NCAM all matters pertaining to the site; Reports to: Director General of NCAM.</p>	
Conservation Coordinator	<p>-Oversee the implementation of all conservation activities on site in accordance with the provisions of the conservation plan and management plan and the standards of World Heritage Site management; -Oversee and elaborate the preparation of periodic reports on the state of implementation of the conservation plan, present and discuss the report with the Advisory Committee; -Coordinate all conservation activities within the serial-site, discuss and approve all proposed conservation approaches and methodologies with the Director of Conservation in accordance with the standards of the World Heritage Site Convention and international conservation charters. Prepare a master conservation plan and a master budget of expenses; -Monitor archaeological work at the serial site and give advise and directives regarding how to best preserve and protect exposed archaeological remains in conjunction with pre-approved interventions and with international standards; -Take charge of preparing the relevant sections on conservation in quarterly and yearly progress reports as well as in the WHS Periodic Reporting program; -Coordinate all conservation activities with the 3 Site Managers; -Provide advice and consultation in conservation approaches and preventive methodologies to Site Managers and Archaeological Missions. -Oversee and elaborate the quarterly and yearly program of conservation operations; -Communicate, relay and coordinate with NCAM all matters pertaining to the site; -Prepare the master budget for conservation operations at the Serial-site, discuss and defend this budget in front of Serial-site Director and Director of Conservation at NCAM. Reports to: Director of the Serial-site; Coordinates with: Director of Conservation at NCAM.</p>	Conservation
Site Manager	<p>-Manage the day to day issues of the site and implement the provisions of the management</p>	Archaeology – conservation

	<p>plan in accordance with the Standards of World Heritage Site management;</p> <ul style="list-style-type: none"> -Manage, supervise and follow-up on all activities pertaining to site protection, archaeological work, conservation work and site infrastructure development works on site; -Make sure the concerns of the site and its long-term preservation, and the enhancement and sustainability of the outstanding universal value of the site are the overarching guiding principles in management; -Coordinate the activities of archaeological excavations and conservation projects on site with the Site Director and the Conservation Coordinator; - Facilitate all programs designed to improve the quality of site interpretation and presentation with the relevant experts from NCAM while representing the overall interests of the site; -Manage staff under him facilitate their tasks; -Prepare regular weekly and monthly reports on progress of activities on site; -Prepare site program and budget and discuss with Site Director; -Interface with local community and stakeholders in matters of direct relevance to the management of the site; <p>Reports to: Site Director.</p>	
Assistant Manager Admin	<ul style="list-style-type: none"> -Assist Site Manager in managing day to day administrative issues pertaining to the site; -Relay with NCAM Khartoum for administrative matters; <p>Reports to: Site Manager.</p>	Archaeology – administration
Assistant Manager Technical	<ul style="list-style-type: none"> -Assist Site Manager in managing day to day technical issues pertaining to the site; -Look after and monitor site hygiene, infrastructure, visitor facilities, security, etc. and report to Site manager; -Coordinate with Conservation coordinators for conservation work that needs to occur on site; <p>Reports to: Site Manager.</p>	Archaeology – conservation
Technical Assistant	<ul style="list-style-type: none"> -The technical assistant is mainly a graduates of high secondary technical schools. He is trained in crafts relating to building, carpentry, etc. -Perform the skilled work of repair and maintenance of archaeological structures under the supervision of the Conservation 	<ul style="list-style-type: none"> -Vocational training in the building and construction trades. - Professional training in

	Coordinator; -Look after the movable collections on site or in site museums; Reports to: Assistant Manager Technical.	restoration -Collection management
Ticket Office Operator	-Man the Ticket Office at each site; -Provide the necessary basic information and handouts to visitors; -Indicate to visitors circuit and sources of additional information; -Open and close main visitor entrance to site; Reports to: Site Manager.	Visitor services
Guard	-Patrol the site, monitor visitor behavior, deter improper behavior on site; -Coordinate visitor security with Assitant Manager Admin and Tourism Police; -Man site entrances; -Monitor condition of security infrastructure and report to Assistant Manager Technical; Reports to: Assistant Manager Admin.	Security

10.10 Allocation of financial resources

NCAM's budget is allocated on a yearly basis by the Ministry of Finance. It is transferred to NCAM's account in monthly installments, except for the so-called "Development Projects", which are transferred according to each project's program. Under these "Development Projects" fall many initiatives submitted by NCAM for funding; such as project proposals for protecting, conserving and managing sites and collections (for example the rehabilitation of the conservation laboratories). Funding for such projects was not granted by the Ministry of Finance. There are currently no separate budgets for conservation projects; some small-scale conservation works are paid for from other items within the budget.

It appears that NCAM's wish to become financially independent in the future is largely due to the inability to fund priority projects and essential activities for the protection, conservation and management of archaeological sites and collections (among which, the serial-site under discussion). The reluctance of the Ministry of Finance to approve budgetary increases and funding requests for "Development Projects" is seriously affecting NCAM's performance and the ability to fulfill its mandate and plans.

In an attempt to address the financial deadlock which is seriously undermining NCAM's activities, and the ability to respond to urgent needs, a proposal was made to the government in order to transform the Corporation from a fully dependent government institution into a semi-governmental, semi-independent "Authority", after an incubation period of 5 to 10 years. During this period, NCAM would be supported by government subsidy until its independent financial capabilities and its funding model are fully developed. The Ministry of Finance rejected this proposal permitting only an immediate shift to semi-financial independency or maintaining the present status quo. An immediate shift will, needless to say, prove to be very risky for NCAM

if not precluded by an incubation period of initial support by the government. This is particularly true because of the current political situation in the country and the underdeveloped cultural industry.

In response to this situation, NCAM could re-elaborates its 5-10 year incubation model into a coherent and phased business plan made more appealing to the government; and in case the government rejects it, to attract funding from national and international donors, while moving towards institutional and financial independence within a period of 3 to 5 years.

The challenge herein resides in the need to have an extended mandate and organizational structure which enables NCAM to develop its financial capabilities by exploiting and marketing its cultural products so that revenue covers the operational budget and surplus is used to fund development projects, with support from donors. For such a structure to function optimally, its should seek quality rather than quantity by lifting the capacities of its staff, while adjusting salary scales so that incentives for well-trained and qualified personnel help keep staff in their jobs as well as provide opportunities for new specialized recruits.

While this proposal is a viable option, it is advisable to wait until the national elections have taken place in 2009 and the Constitution of Sudan is revised. This could bring about a new structure of government, which gives more flexibility to NCAM in developing its structure and financing its operations.

10.11 Visitor infrastructure

The three sites constituting the serial-site are easily accessible from Khartoum; visitors can visit them and return back to the capital in one day without being obliged to spend the night away from home. Nowadays, the region is much more visited by foreign and national tourists than any other region in the country. However, the statistics still show a low number of visitors in comparison with similar sites in some neighbouring countries, but the numbers are increasing rapidly: the three sites were visited by only 29 tourists in 1997; in 2005 the number had increased to more than 4,000 foreigners and about 2,500 national visitors. Several tourist companies are active in organizing trips to the region normally in the period from mid-October to the end of March. Two small hotels have been built in the neighbourhood of the pyramid fields of Meroe: one of them has been operational for over five years. This is in addition to a bigger (2 star) hotel in the town of Shendi, located less than 60km from the sites. A museum has already been inaugurated at ed-Damer in collaboration with the University of Wadi el-Neel and a site museum is being built near the pyramid fields of Meroe. This museum is built to the same plan as that of a Meroitic priest's house that has been excavated near the Sun Temple at the beginning of last century. This museum will be devoted to the history of the royal pyramids and the explanation of Kushite burial customs. A small museum has been opened, in collaboration with the University of Humboldt (Berlin), inside the northern courtyard of the Great Enclosure at Musawwarat es-Sufra. A project for a museum at Naqa is being considered in collaboration with the Archaeological Mission of the Ägyptisches Museum, Berlin.

Adequate visitor infrastructure consisting of a ticket office, an information centre, adequate and functioning WC's, interpretive panels and brochures, trained guides, established trails, etc. all lack. This minimizes visitor satisfaction and therefore, benefits accruing from the tourism will be minimal thus making NCAM's profit arrangement with the Tourism authorities of the State even more meager.

In order to live up to the expectations and standards of a World Heritage Site, a comprehensive master plan for establishing adequate visitor amenities on the three sites is essential. While NCAM and the State authorities (via the lobbying of the Advisory Committee can take charge of construction activities to create the visitor infrastructure required, the Department of Archaeology along with other departments of the University of Shendi can provide the soft interpretive materials under the supervision of NCAM.

10.12 Site promotion

The proposed serial-site is currently promoted via the federal and state tourism authorities. If the proposed serial-site receives World Heritage Site nomination, there will be need for a full-fledge promotional campaign to promote its outstanding universal value and significance. From developing a brand identity to designing a comprehensive PR campaign and an awareness programs for schools, universities and local communities, there will be need for NCAM to take charge of this activity and implement it in collaboration with the Advisory Committee and with the University of Shendi in particular. The Media section at NCAM has much experience in this kind of promotional work and can take the lead on it. Private sponsorship can be thought after in order to offset the cost of such a campaign.

10.13 Sustainable use of the property

It is already clear to the stakeholders that the cultural significance and outstanding universal value of the site is fragile and vulnerable to radical change and unsympathetic development. There is a commitment from the stakeholders not to jeopardize the integrity of the serial-site and its values by allowing the interests of unsympathetic non-sustainable development to the upper hand. It is the duty of the future Advisory Committee to abide by the guiding principles of World Heritage and make sure that there is sustainability in the use of the cultural resource and that the community is the main beneficiary form the balanced exploitation of the site.

10.14 Tourism development and tourism infrastructure

WH Site management should have the support of the State, but it is obvious that the current priority for the River Nile State is infrastructure and rural development. Site management and cultural resource management might not be considered as a priority, particularly, under the light of the local and regional situation. Tourism on the other hand is more appreciated as its financial benefits are readily recognized. While tourism should be considered an important resource and catalyst for the development of the River Nile State, a small percentage of the benefits accruing from the tourism industry ought to be diverted to funding conservation and infrastructure works at archaeological and cultural sites, among which, the serial-site under nomination.

The Federal Ministry of Investment with its central headquarters in Khartoum and regional offices in the States is encouraging tourism investment particularly in cultural heritage areas. It is important for NCAM to direct some of the revenue of investments in cultural heritage zones to its benefit with the aim of providing for site management and visitor infrastructure improvements. It is important for NCAM to be aware of tourism investment plans within areas close to the WHS and take advantage of the best potential for investment. In parallel, it is important for it to be aware of the potential effect of tourism development on its cultural heritage sites so as to ward off the negative impact of unsympathetic tourism development and be prepared for mitigation.

Given the current financial and institutional difficulties of NCAM, it is important that cultural tourism be promoted as an important element of national development and a generator of revenue. Despite the known side effects of unsympathetic tourism on the authenticity and integrity of archaeological sites, cultural tourism in the River Nile State must be promoted as an important state and national resource in order to attract financial and political support and occupy the right place on the government's agenda for development. Although cultural tourism is already being considered as the drive for economic development, the need to upgrade the quality of visitor experience and amenities, while embarking on a sensitive marketing and promotional program would certainly set the wheel in motion and channel some of the derived benefits of tourism to cultural resource management initiatives. In parallel, it is important for NCAM to develop site management skills and know-how to be able to mitigate any potential impact tourism may have on the cultural heritage sites.

11. Proposed Management Structure

It would be very difficult for NCAM to take charge of preserving, conserving, enhancing and promoting the serial-site without the support of stakeholders. It is important to streamline integrated management of the cultural heritage while identifying and segregating the different levels of responsibility and defining associated tasks in the framework of a comprehensive program for the management of the World Heritage Site.

In this respect, site management should incorporate all concerned stakeholders in a framework which achieves the following:

- Integrates stakeholder concerns and expectations into WHS management;
- Makes stakeholders aware of the challenges of the site and the constraints to WHS management, as outlined in this management plan;
- Provides the framework for discussing and resolving critical issues affecting the site;
- Adopts site management policies that are meant to regularize the management and exploitation of the site for the benefit of the community;
- Oversees the implementation of the management plan with its different project proposals;
- Supports NCAM in fulfilling its mandate and in implementing the management plan for the site.

The proposed framework for guaranteeing effective site management is envisaged at two levels:

- At the level of an Advisory Committee;
- At the level of an Executive WHS Management Team.

The Advisory Committee, consisting of representatives of the main stakeholders with influence on the site will be responsible for ratifying and adopting the management plan as the basis for its transactions and performance. It should agree to the principles intrinsic to the vision of the management plan, its objectives, policies and action plan. The Advisory Committee is to be guided by the principles of the World Heritage Convention and other international charters with respect to protecting and promoting the values of the site, its authenticity and integrity. The Committee is to oversee the implementation of the management plan and provide the support needed for the fulfillment of its provisions and the accomplishment of the tasks of the Technical Management Team. The Committee should oversee proper spending of funds coming from donors. Funds should be used for implementing the projects within the management plan and others that the Committee might propose for the benefit of the site. The Committee should consider and understand the critical issues and challenges affecting the site, discuss and find solutions for them. It is important to stress the top hierarchy of NCAM within this committee since it is the owner of the site and the body with direct responsibility for its management.

The Executive WHS Management Team, consisting of capable professional staff, is responsible for implementing the activities of the Management Plan. The principles of the plan, its policies and the principles and notions of the World Heritage Convention and other International Conventions of significance to the management of cultural heritage should guide the Executive Team in its day-to-day duties and responsibilities. The task of the Team is in the first stage to understand the management plan, develop it into a full operational document, upgrade it regularly, evaluate the site and its needs, identify constraints and propose solutions, policies and action plans, monitor and report progress. Periodic reporting to the Advisory Committee acting as the scientific advisor of the site falls also within the remit of the WHS Management Team.

The Team can draw on the resources of NCAM to fill in expertise and/or management gaps whenever required.

The Advisory Committee and the Technical WHS Management Team should meet periodically, at least once every three months (quarterly) as well as when summoned by either one of the two.

12. Management Plan Policies and Action Plans

Considering the complexity of the management environment at the proposed serial-site, a number of policies were drafted with the aim of aligning management interventions on the WHS with the vision and objectives of the management plan. The policies take into consideration constraints to site management, the issues affecting WHS management and what can realistically be achieved in order to fulfill the vision of the community and the stakeholders.

The action plans pertaining to each of the policies listed below are embedded in the attached table and divided into two main sections:

- Activities that are listed under policy statements, and focus mostly at regularizing the social, administrative, and institutional environments so as to limit, reduce or mitigate external impact on the WHS caused by institutional and social practices and habits;
- Activities that are listed under the policy statements and relate to the management of the WHS and its physical fabric, aim at facilitating effective management, preventing physical harm from occurring, improving the condition of the WHS and its remains and providing an adequate infrastructure for the operation of the site.

The starting date of implementation of the action plans is hypothetically set to the middle of 2009. This date can be updated according to the conditions that influence the performance of NCAM and the size and quality of the resources at its disposal. A yearly revision of the action plan schedule is encouraged.

The purpose of the Action Plans is to provide a comprehensive list of actions that are coherent (since they respond to policies) and that lead to the proper protection, conservation, management and promotion of the WHS. They are tools in the hand of NCAM allowing it to have a broad view over what needs to be accomplished at the WHS and, accordingly, plan its strategies and resources to accomplish these plans. Additionally, the Action Plans can be packaged and presented for funding under coherent sectors; the fact that they constitute parts of a comprehensive plan makes it easier for the donor to provide financial support knowing that the funds are contributing to the fulfillment of a complete solution for the site.

12.1 On the level of site protection

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
PP1	<i>Secure site boundaries and enforce planning restrictions in buffer zones, control access avoiding the segregation of local communities and the isolation of the site from its wider social context</i>		NCAM and Advisory Committee	Advisory Committee	<i>Year 1</i>	
	Main issues: site boundaries, community awareness, site accessibility by community, monitoring and security, vandalism					
	Required Actions					
	<ul style="list-style-type: none"> - Submit authenticated and recognized NCAM maps of the serial-site showing site boundaries and buffer zones to the State Survey Department as well as to the land office at Shendi; - Get the Advisory Committee to issue the necessary 	<ul style="list-style-type: none"> - Serial-site boundaries and buffer zones accredited by all relevant government institutions and legal, institutional and planning 				<ul style="list-style-type: none"> -Maps issued to relevant public bodies; -Statute of Maps officially recognized by all relevant public bodies; -Awareness

	<p>recommendations for the State authority to endorse the statute of these maps;</p> <ul style="list-style-type: none"> - Specify the modalities of land use within the buffer zone areas of the serial-site; - Increase official and community awareness about the values of the WHS and the importance of protecting its significance and physical integrity; - Improve site security through fencing and access control at all sites; - Control the development of the modern villages of Deraqab and Kigiek north and south of the Royal City and work with the State in order to facilitate relocation away from the site; - Erect World Heritage sign posts. 	<p>protection mechanisms established;</p> <ul style="list-style-type: none"> -Statute of the maps issued by NCAM respected by all relevant parties; -Government and communities more aware of values of the site and the importance of protecting and promoting its OUV; -Site integrity consolidated; -WHS recognition by all visitors. 				<p>activities and campaigns conducted at all levels;</p> <ul style="list-style-type: none"> -WHS signs erected at all sites of the serial-site.
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
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PP2	<i>Safeguard the integrity of the site by establishing buffer zones where special planning regulations are enforced in order to protect the significance and setting of the WHS</i>		NCAM	Advisory Committee	<i>Year 1</i>	
	Main issues: buffer zones, planning regulations for buildings and activities within the buffer zones, protecting the visual integrity and setting of the site;					
	Associated activities:					
	<ul style="list-style-type: none"> ▪ Identify and describe damaging and intrusive activities affecting the site, its integrity, authenticity, setting and landscape values and share with stakeholders (use management plan assessments); ▪ Establish planning and development restrictions within the buffer zones around the WH sites making sure that development within these zones is sympathetic to the values of the site; ▪ Establish in coordination with the State's planning authorities 	<ul style="list-style-type: none"> -Stakeholders well informed about damaging activities to the site; -Development in buffer zones respects integrity of serial-site; -Clear planning regulations issued by relevant planning authorities to control change 				<ul style="list-style-type: none"> -Inventory of damaging activities put together, explained and shared with relevant stakeholders; -Planning regulations in buffer zones developed and agreed upon with planning authorities; -Wider regional

	<p>planning regulations to govern all development activities around the serial-site including building codes, socio-economic activities, street furniture and infrastructure, views and entry ways to the WHS, etc;</p> <ul style="list-style-type: none"> Improve the urban and natural setting around the WH site making sure that the relationship of the site with the Nile River and adjacent plantation area to the West as well as the desert to the east are not compromised. 	<p>occurring within buffer zones; -Urban and natural setting in buffer zones and beyond protected and enhanced;</p>				<p>master plan that takes into account site attributes and sensitivities;</p>
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12.2 On the level of site conservation

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
CP1	<i>Develop the necessary conservation tools to enable the prioritization and quantification of conservation work on site and the establishment of a site-wide conservation master plan with prioritized interventions</i>					
	Main issues: rapid assessment of					

	site conditions and conservation interventions, adhere to international standards in conservation work, development of conservation infrastructure.					
	Associated activities:					
	<ul style="list-style-type: none"> - Undertake the rapid assessment of the condition of the sites and identify areas of priority and rapid intervention; - Review and design methodologies for the consolidation of structural problems at pyramid sites; - Identify major conservation risk areas and develop detailed design schemes for repairing damage; - Develop design specifications for conservation work across the three sites and use as a basis for training conservation staff and for quantifying conservation work; - Invite conservation specialists to design solutions for the various conservation problems 	<ul style="list-style-type: none"> - Areas of priority intervention identified; -Methodologies for addressing structural problems at pyramid sites developed; -Risk preparedness achieved; -Specifications for conservation developed and used for quantification of resources required; -Special methodologies developed in accordance with international standards; -Ulterior conservation/restoration work re-evaluated and repaired; 	NCAM, University of Shendi, Foreign Missions active on site.	WHC and other international organizations.	Year 2	<ul style="list-style-type: none"> -Priority areas identified; -Methodologies developed; -Specifications developed; -Monitoring and regular maintenance program established; -MOU with Foreign Missions signed; -Conservation Master Plan completed;

	<p>of the site and conduct on-site training for the emerging conservation capacity;</p> <ul style="list-style-type: none"> - Monitor and re-evaluate ulterior conservation/restoration works with regards to their suitability and effectiveness and agree on a methodology to maintain/repair old restoration works; - Establish a system for regular monitoring and maintenance of site remains in order to limit the deterioration of the fabric; - Enforce provisions for implementing preventive conservation and the protection of exposed remains in accordance with the terms of the contract with archaeological missions; - Elaborate all of these issues in the framework of a conservation master plan with identified specialist and financial resources. 	<ul style="list-style-type: none"> -Regular monitoring and maintenance system established, site problems identified before they become accentuated; -Archaeological missions form part of the conservation plan delivery; -Comprehensive master conservation program guides interventions on site 				
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
CP2	<i>Develop the conservation infrastructure on site by building new capacities and attracting funds for conservation initiatives</i>		NCAM	University of Shendi Foreign Missions	Year 3	
	Main issues: conservation aid and subsidy, training conservators and developing new expertise, establishing a suitable conservation infrastructure to respond to needs.					
	Associated activities:					
	<ul style="list-style-type: none"> - Seek government as well as private sector subsidy; - Adhere to international standards in conservation; - Train and develop qualified conservators and craftsmen; - Work closely with the University of Shendi and other universities to form conservation capacities and integrate those in NCAM activities on site; 	<ul style="list-style-type: none"> -Alternative funds allocated to support conservation activities on site; -All training and implementation of conservation works benchmark with international standards; -Conservation 	-	-	-	<ul style="list-style-type: none"> -Packaged conservation projects with detailed budget presented for external funding; -Benchmarking of conservation methodologies and standards set; -New jobs in conservation

	<ul style="list-style-type: none"> - Create jobs in the field of conservation, with adequate incentives, to cover the needs; - Exploit available international training opportunities adequately; - Work towards the establishment of a formal curriculum in conservation studies in the country; 	<p>workforce boosted;</p> <p>-Established partnerships that help address capacity shortages;</p> <p>-Long-term conservation capabilities being formed;</p>				<p>created;</p> <p>-Curriculum designed.</p>
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
CP3	<i>Implement priority conservation activities in order to halt the degradation of the sites</i>		NCAM	University of Shendi, Foreign Missions	Year 3	
	Main issues: address flooding and site drainage issues					
	Associated activities:					
	<ul style="list-style-type: none"> - Re-assess the effectiveness of the drainage ditch around the Temple of Amun at Naqa and repair where necessary; - Design and build drainage 	<p>-Temple of Amun protected from torrential</p>				<p>-Drainage ditch around Temple of Amun rehabilitated;</p> <p>-Drainage system</p>

	<p>systems for the ruins in the Royal City as well as the monuments at Naqaa (Lion Temple and Kiosk) and the Great Enclosure at Musawwarat;</p> <ul style="list-style-type: none"> - Clean-up bird faeces and wasp nests causing the decay of the plaster used on the Lion Temple (Musawwarat); - Take immediate actions to document and consolidate/conservate ancient plaster traces surviving on various monuments across the serial-site; - Re-erect and shelter specific chapels at the pyramid sites at Meroe with the aim of protection ancient reliefs from further degradation; - Consolidate and provide a sacrificial coat to the fragile mud structures within the Temple of Amun at Naqa; - Consolidate pylon foundations of the Lion Temple (Musawwara) and halt water ingress from the roof; 	<p>flows;</p> <ul style="list-style-type: none"> -Long-term resolution of drainage issues; -Short-term conservation issues dealt with; -Most fragile and important elements on site protected and conserved; -Localized conservation problems on main monuments addressed; -Visual and physical impact of spil heaps resolved; -Vegetation 				<p>designed site-wide;</p> <ul style="list-style-type: none"> -Drainage system built; -Localized conservation problems resolved (see activities for breakdown);
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	<ul style="list-style-type: none"> - Remove and relocate to safe location the spoil heaps resulting from informal excavations of the Great Hafir at Musawwarat; - Check the expansion of the vegetation cover at the Royal City in Meroe by securing the fence and preventing goats from spreading tree-seed across the site; - Identify and extract vegetation growing within ancient structures and on archaeological walls in accordance with a well established methodology (Meroe-Royal City and Naqa – Lion Temple); - Respond locally to water damage created by gathering water and formation of pools and address the problem holistically via the implementation of well designed water drainage systems/solutions. 	<p>damage checked;</p> <p>-Localized water damaged prevented from becoming a major structural and conservation problem;</p>				
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12.3 On the level of site management

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
MPI	<i>Create and train the adequate management structure for looking after and managing the site.</i>		NCAM, Advisory Committee	<i>University of Shendi</i>	<i>Year 3</i>	
	Main issues: NCAM organizational structure, management staff and infrastructure at the WHS, training opportunities and specialization.					
	Associated activities:					
	<ul style="list-style-type: none"> - Re-assess the current organizational structure of NCAM with the aim of proposing new units concerned with site management, communication and the promotion of cultural heritage; - Develop a 5-year business plan for NCAM in order to use as a baseline for upgrading the level of service provided; - Identify new recruits from qualified graduates in the fields 	<ul style="list-style-type: none"> -Re-design of org. structure of NCAM to enable it to develop its cultural resource management capabilities; -Establish a benchmark from which to measure improvements; -Develop a motivated, young 				<ul style="list-style-type: none"> -New proposed structure analyzed; -Business plan completed; -New recruits identified; -Training programs designed and launched; -New workforce trained and

	of archaeology, and museology; - Make the most of training opportunities abroad in fields and specialties unavailable nationally, according to a plan guided by the priorities of the site.	and trained site management infrastructure; -Short-term solution to lack of dedicated programs in Sudan universities.					mobilized.
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
MP2	<i>Manage interventions on the WH Site preventing negative impact from affecting its integrity and significance, while establishing the legal framework for managing the site and coordinating management with other stakeholders.</i>		NCAM, State Authorities	River Nile State	<i>Year 1</i>	
	Main issues: site protection, budget and attracting additional financial resources, legislative and management framework, coordination with other bodies and stakeholders affecting the management of the site, site infrastructure and visitor appreciation.					

	Associated activities:					
	<ul style="list-style-type: none"> - Establish the management structure proposed by this management plan consisting of an Advisory Committee with leverage across the civic and civil landscape in order to further the objectives of the management plan; as well as a Technical Management Team to take charge of implementing the provisions of the management plan looking after the site in accordance with World Heritage standards; - Inform authorities of the importance of the cultural resource and its inherent scientific, historic and economic value; - Clarify and set NCAM's jurisdiction over all issues relating to the internal management and exploitation of the site so as to prevent conflict resulting from its use; 	<ul style="list-style-type: none"> -Advisory Committee and Technical Management Team formed and activated; -Authorities aware of site values and potential; -NCAM's role, responsibilities and jurisdiction well understood by all; 				<ul style="list-style-type: none"> -Management structure established; -Management structure takes charge of the management plan; -Awareness activities designed and delivered; -NCAM's role, responsibilities and jurisdiction accepted by all relevant stakeholders.

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
MP3	<i>Implement short and long-term site improvements with the aims of reducing the impact of negative activities on site</i>		NCAM, Advisory Committee, Foreign Missions	State and Tourism Police; Sudan Civilization Institute; Visitors to the sites	<i>Year 2</i>	
	Main issues: site protection, budget and attracting additional financial resources, legislative and management framework, coordination with other bodies and stakeholders affecting the management of the site, site infrastructure and visitor appreciation.					
	Associated activities:					
	<ul style="list-style-type: none"> - Improve the visual character of the dig house in the Royal City at Meroe and halt additional expansion attempts; - Work for the removal of the redundant telegraph poles within the site of Meroe; - Pursue previous plans to 	<ul style="list-style-type: none"> -Visual quality of Royal City site improved; -Setting and panoramas uncompromised; -Site integrity secured; 				<ul style="list-style-type: none"> -Village expansions within the boundaries of the site are checked; -Telegraph poles removed; -High tension

	<p>relocate the High Tension pylons to the east of the site of Meroe;</p> <ul style="list-style-type: none"> - Secure the fence at the Royal City and make sure goats and other herds are not allowed into the site; - Make sure that the unsympathetic impact of the construction of the Sudan Civilization Institute compound is formally contained and halted; - Make sure the visual impact of the Sudan Civilization Institute Compound is mitigated by using a more suitable paint color for the constructions and by removing the unsightly water tank; - Make sure the highway crossing the site of Meroe is diverted in the long-term to the east of the site; - Make sure the high tension pylons that traverse the site of Meroe are also diverted to the east of the site; - Remove the redundant and 	<ul style="list-style-type: none"> -Integrity of Musawwarat site protected; Visual quality and setting of Mussawarat improved; -Integrity of Meroe protected; -Setting of Northern and Southern Cemeteries improved; -Visitor impact on site reduced; -Vehicular impact on the landscape reduced; -Site facilities improved; -Risk preparedness achieved. 				<ul style="list-style-type: none"> pylons redirected; -Highway redirected; -Fence at Royal City repaired; -Sudan Civilization Institute compound reformed; -Resthouse west of Northern and Southern Cemeteries demolished and removed; -Visitor control measures implemented; -Vehicular control measures implemented; -Infrastructure at sites improved; -Risk preparedness activities (listed in management plan) accomplished.
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	<p>visually imposing unfinished resthouse to the west of the northern and southern cemeteries at Naqa;</p> <ul style="list-style-type: none"> - Control visitor behavior at all sites and deter misconduct; - Control vehicular access in the vicinity of Musawwarat and prevent from inflicting damage to shallow and unexcavated, barely visible, archaeological remains; - Re-evaluate the location and architectural quality of modern buildings erected on site for its operation or security; - Identify risk areas and develop program for managing risk in accordance with the findings highlighted in the section Risk Management in this report; 					
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12.4 On the level of archaeological work and enhancing archaeological research

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
AP1	<i>Increase awareness about the importance of the World Heritage Site and the results of past and on-going excavations among decision makers and the community at large.</i>		NCAM, Advisory Committee, University of Shendi.	local and state schools	<i>Year 2</i>	
	Main issues: WHS and the media, WHS and the school curriculum;					
	Associated activities:					
	<ul style="list-style-type: none"> - Spread awareness about the cultural significance of the site in the media and among the community at large; - Introduce subjects relating to archaeological discoveries and the importance of the WHS in the schools extra-curricular programs; - Enter into agreements with the University of Shendi as well as other universities in order to design and implement a program of public archaeology based on 	<ul style="list-style-type: none"> -Community conscious about the values of the proposed WHS; -Community supportive of WHS management; -University active in delivering the awareness campaign to students and community at 				<ul style="list-style-type: none"> -PR campaign designed; -PR campaign implemented; -WHS site significance addressed in school curricula; -Public archaeology programs developed.

	the WHS.	large.				
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
AP2	<i>Adopt a pre-emptive archaeological policy particularly in areas that could be designated for development in the future.</i>		NCAM, Advisory Committee	Local Communities; University of Shendi; Foreign Missions	<i>Year 5</i>	
	Main issues: emergency archaeology;					
	Associated activities:					
	- Undertake survey and pre-emptive archaeological works in the advent of development projects and in order to check residential and agricultural developments adjacent to the site;	-Archaeological evidence safeguarded.				-Pre-emptive archaeology program established.

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
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AP3	<i>Regulate archaeological work in such a way that it serves the management strategy of the WHS.</i>		NCAM	Foreign Missions; University of Shendi	<i>Year 3</i>	
	Main issues: the work of archaeological missions, storage and conservation of archaeological finds and monitoring visitor behaviour within the site;					
	Associated activities:					
	<ul style="list-style-type: none"> - Produce a comprehensive and accurate archaeological map of all sites within the serial-site assemblage; - Realign archaeological expeditions and missions' agendas with the pressing priorities of the WHS; - Integrate the University of Shendi in the process of studying and publishing archaeological materials from the excavations sitting in storage for a number of years now; - Encourage the publication of decent archaeological studies on the site and its material culture; 	<ul style="list-style-type: none"> -All known archaeological remains are located and risk map produced to protect them; -Foreign Missions agendas gear-up to addressing the site's most urgent needs; -University of Shendi partnering in managing archaeological work; -Cultural 				<ul style="list-style-type: none"> -Archaeological Map with risk areas produced; -MOU with Foreign Missions; -University of Shendi presents its program for the WHS; -Publications issued.

		significance of site widely disseminated.				
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12.5 On the level of managing cultural tourism development

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
MT1	<i>Establish a clear framework for organizing tourism investment and activity in relation with the WHS while protecting the resource</i>		NCAM, Advisory Committee	Federal and State Tourism authorities	<i>Year 3</i>	
	Main issues: address conflicting institutional mandates and agendas, establish tourism development guidelines and plans, protecting the way of life of local communities					
	Associated activities:					
	- Clearly define mandates governing the exploitation of the site within the framework of the law and address the confusion created by overlapping federal and local	-Conflicting mandates over the exploitation of the sites resolved; -Tourism				-Document clarifying mandates presented and agreed upon; -Tourism plan

	<p>laws;</p> <ul style="list-style-type: none"> - Establish tourism development guidelines in areas adjacent to the site or affecting the site taking into consideration the importance of providing increased accessibility and amenities while making sure development does not affect site values; - Layout a detailed investment plan for the locality with economic and physical development briefs that take into consideration the sustainability of the site; - Tourism development should be constrained by the wish to protect the local way of life of the inhabitants, respecting customs, traditions, beliefs, values and the environment, while making sure that benefits from tourism are shared with the local communities. 	<p>development more sympathetic to the significance and integrity of the site;</p> <ul style="list-style-type: none"> -Returns from Tourism and Development plans partially channeled back to site sustainability; -Intangible heritage, traditions and customs of inhabitants protected and sustained. 				<p>produced and discussed;</p> <ul style="list-style-type: none"> -Revenue sharing arrangements made.
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Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
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MT2	<i>Promote the WH Site using different media channels.</i>		NCAM, Advisory Committee	<i>University of Shendi, Federal and State Authorities, Private Sector</i>	<i>Year 4</i>	
	Main issues: WHS promotional campaign, focused media programs.					
	Associated activities:					
	<ul style="list-style-type: none"> - Launch a promotional campaign for the WHS making use of all available promotional channels locally and nationally; - Create informative and entertaining media programs that focus on promoting the WH site and on increasing awareness about its values. 	<ul style="list-style-type: none"> -WHS significance, OUV and concerns widely disseminated and promoted; -Awareness in WHS increased. 				<ul style="list-style-type: none"> -Promotional campaign designed; -Promotional campaign delivered; -Media programs designed and produced.

Code	<i>Policies and related action plans</i>	<i>Expected Results</i>	<i>Responsible Party</i>	<i>Partners in Implementation</i>	<i>Timeframe</i>	<i>Key Performance Indicator</i>
MT3	<i>Upgrade the level of accessibility and the quality of visitor amenities within the WH Site and its surroundings for better</i>					

	<i>appreciation by visitors</i>					
	Main issues: site infrastructure and amenities, sensitive design within the site and its fringes, interpretive materials, site museum;					
	Associated activities:					
	<ul style="list-style-type: none"> - Establish a ticket office at Naqa and make sure all other sites have operating and manned ticket offices; - Establish suitable WC's interpretive materials and a shelter for visitors to Naqaa and make sure all other sites are equally well equipped; - Indicate informal but easy to follow visitor tracks on all sites but in particular Musawwarat es-Sufra and produce the necessary printed material support; - Rehabilitate visitor entrance at Meroe- Royal City site; - Develop sensitive design for tourism projects in and adjacent to the WH site in such a way 	<ul style="list-style-type: none"> -Basic site infrastructure established and operational; -Visitor interpretation and access facilitated on site; -Quality of basis site infrastructure improved; -Interpretive offer extended. 				<ul style="list-style-type: none"> -Ticket office at Naqa operational; -Basic infrastructure on site established an operational; -Basic infrastructure design improved and approved by Advisory Committee and WHC; -Interpretive materials developed and produced.

	<p>that they respect the setting and aesthetic values of the site and its buffer zone;</p> <ul style="list-style-type: none">- Develop the necessary interpretive materials and combine site visits with the upgraded museum experience.					
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APPENDIX 3

Management Plan

Annex

Photographic Record of Rapid Condition Assessment

(photos: Sami el-Masri)



DSCN3694.JPG, Visual Impact, Northern Cemetery



DSCN3695.JPG, Visual Impact, Northern Cemetery



DSCN3698.JPG, Redundant/Inappropriate Visitor Infrastructure, Northern Cemetery



DSCN3697.JPG, Visual Impact, Northern Cemetery



DSCN3698.JPG, Visual Impact, Northern Cemetery



DSCN3700.JPG, Visual Impact, Northern Cemetery



DSCN3701.JPG, Visual Impact, Northern Cemetery



DSCN3703.JPG, Redundant/Inappropriate Visitor Infrastructure, Northern Cemetery



DSCN3704.JPG, Signage, Northern Cemetery



DSCN3705.JPG, Ineffective Physical Protection Measures, Northern Cemetery



DSCN3706.JPG, Redundant/Inappropriate Visitor Infrastructure, Northern Cemetery



DSCN3707.JPG, Northern Cemetery



DSCN3708.JPG, Northern Cemetery



DSCN3709.JPG, Northern Cemetery



DSCN3710.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3711.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3712.JPG, Degradation of Stone/Masonry Elements, Northern Cemetery



DSCN3713.JPG, Visual Impact, Northern Cemetery



DSCN3714.JPG, Noise Pollution, Northern Cemetery



DSCN3715.JPG, Graffiti, Northern Cemetery



DSCN3716.JPG, Graffiti, Northern Cemetery



DSCN3717.JPG, Unsympathetic Repair Work/Interventions, Northern Cemetery



DSCN3718.JPG, Failure of Past Repair Work, Northern Cemetery



DSCN3719.JPG, Graffiti, Northern Cemetery



DSCN3720.JPG, Graffiti, Northern Cemetery



DSCN3721.JPG, Henkel Restoration, Northern Cemetery



DSCN3722.JPG, Northern Cemetery



DSCN3723.JPG, Northern Cemetery



DSCN3724.JPG, Northern Cemetery



DSCN3725.JPG, Henkel Restoration, Northern Cemetery



DSCN3726.JPG, Degradation of Stone/Masonry Elements, Northern Cemetery



DSCN3727.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3728.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3729.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3730.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3731.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3732.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3733.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3734.JPG, Site Wide View, Northern Cemetery



DSCN3735.JPG, Site Wide View, Northern Cemetery



DSCN3736.JPG, Visual Impact, Northern Cemetery



DSCN3737.JPG, Exposure and Deterioration of Ancient Plasters, Northern Cemetery



DSCN3738.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3739.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3740.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3741.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3742.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3743.JPG, Graffiti, Northern Cemetery



DSCN3744.JPG, Site Wide View, Northern Cemetery



DSCN3745.JPG, Site Wide View, Northern Cemetery



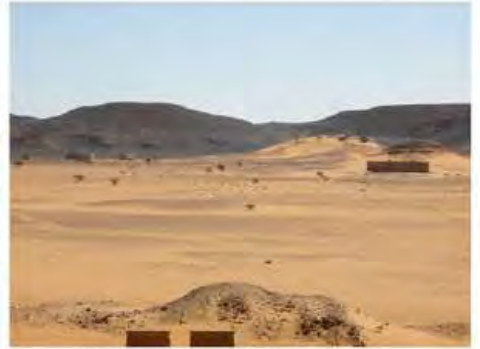
DSCN3746.JPG, Public Safety Hazard, Northern Cemetery



DSCN3747.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3748.JPG, Site Wide View, Southern Cemetery



DSCN3749.JPG, Redundant/inappropriate Visitor Infrastructure



DSCN3750.JPG, Degradation of Stone/Masonry Elements, Northern Cemetery



DSCN3751.JPG, Site Wide View, Northern Cemetery



DSCN3752.JPG, Failure of Past Repair Work, Northern Cemetery



DSCN3753.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3754.JPG, Northern Cemetery



DSCN3755.JPG, Public Safety Hazard, Northern Cemetery



DSCN3756.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3757.JPG, Public Safety Hazard, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3758.JPG, Public Safety Hazard, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3759.JPG, Graffiti, Northern Cemetery



DSCN3760.JPG, Site Wide View, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3761.JPG, Henkel Restoration, Northern Cemetery



DSCN3762.JPG, Site Wide View, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3763.JPG, Incoherent Repair Methods and Poor Craftsmanship, Northern Cemetery



DSCN3764.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3765.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3766.JPG, Visual Impact, Northern Cemetery



DSCN3767.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3768.JPG, Site Wide View, Henkel Restoration, Northern Cemetery



DSCN3769.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3770.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3771.JPG, Public Safety Hazard, Northern Cemetery



DSCN3772.JPG, Northern Cemetery



DSCN3773.JPG, Exposure and Deterioration of Ancient Reliefs, Northern Cemetery



DSCN3774.JPG, Structural Deterioration of Pyramids, Public Safety Hazard, Northern Cemetery



DSCN3775.JPG, Signage, Northern Cemetery



DSCN3776.JPG, Visual Impact, Northern Cemetery



DSCN3777.JPG, Site Wide View, Northern Cemetery



DSCN3778.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3779.JPG, Failure of Past Repair Work, Henkel Restoration, Salt Crystallization, Northern Cemetery



DSCN3780.JPG, Structural Deterioration of Pyramids, Northern Cemetery



DSCN3781.JPG, Site Wide View, Northern Cemetery



DSCN3782.JPG, Site Wide View, Salt Crystallization, Northern Cemetery



DSCN3783.JPG, Site Wide View, Northern Cemetery



DSCN3784.JPG, Site Wide View, Salt Crystallization, Northern Cemetery



DSCN3785.JPG, Site Wide View, Southern Cemetery



DSCN3786.JPG, Site Wide View, Northern Cemetery



DSCN3787.JPG, Site Wide View, Northern Cemetery



DSCN3788.JPG, Site Wide View, Northern Cemetery



DSCN3789.JPG, Site Wide View, Northern Cemetery



DSCN3790.JPG, Site Wide View, Northern Cemetery



DSCN3791.JPG, Site Wide View, Southern Cemetery, Northern Cemetery



DSCN3792.JPG, Site Wide View, Northern Cemetery



DSCN3793.JPG, Site Wide View, Northern Cemetery



DSCN3794.JPG, Site Wide View, Southern Cemetery



DSCN3795.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3796.JPG, Henkel Restoration, Southern Cemetery



DSCN3797.JPG, Henkel Restoration, Southern Cemetery



DSCN3798.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3799.JPG, Southern Cemetery



DSCN3800.JPG, Henkel Restoration, Southern Cemetery



DSCN3801.JPG, Henkel Restoration, Southern Cemetery



DSCN3802.JPG, Structural Deterioration of Pyramids, Southern Cemetery



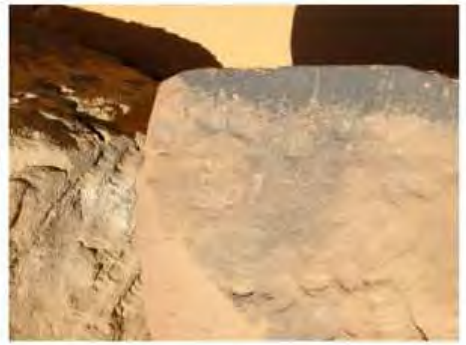
DSCN3803.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3804.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3805.JPG, Henkel Restoration, Southern Cemetery



DSCN3806.JPG, Henkel Restoration, Southern Cemetery



DSCN3807.JPG, Henkel Restoration, Southern Cemetery



DSCN3808.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3809.JPG, Site Wide View, Southern Cemetery



DSCN3810.JPG, Visitor Pathways, Southern Cemetery



DSCN3811.JPG, Site Wide View, Southern Cemetery



DSCN3812.JPG, Redundant/Inappropriate Visitor Infrastructure, Southern Cemetery



DSCN3813.JPG, Site Wide View, Southern Cemetery



DSCN3814.JPG, Site Wide View, Northern Cemetery



DSCN3815.JPG, Redundant/Inappropriate Visitor Infrastructure



DSCN3816.JPG, Redundant/Inappropriate Visitor Infrastructure



DSCN3817.JPG, Redundant/Inappropriate Visitor Infrastructure



DSCN3818.JPG, Redundant/Inappropriate Visitor Infrastructure



DSCN3819.JPG, Redundant/Inappropriate Visitor Infrastructure



DSCN3820.JPG, Redundant/Inappropriate Visitor Infrastructure



DSCN3821.JPG, Site Wide View, Southern Cemetery



DSCN3824.JPG, Ineffective Physical Protection Measures, Southern Cemetery



DSCN3825.JPG, Site Wide View, Southern Cemetery



DSCN3826.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3827.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3828.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3829.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3830.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3831.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3832.JPG, Unsympathetic Repair Work/Interventions, Southern Cemetery



DSCN3833.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3834.JPG, Water Damage, Southern Cemetery



DSCN3835.JPG, Water Damage, Southern Cemetery



DSCN3836.JPG, Structural Deterioration of Pyramids, Failure of Past Repair Work, Southern Cemetery



DSCN3837.JPG, Failure of Past Repair Work, Southern Cemetery



DSCN3838.JPG, Structural Deterioration of Pyramids, Water Damage, Southern Cemetery



DSCN3839.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3840.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3841.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3842.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3843.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3844.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3845.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3846.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3847.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3848.JPG, Site Wide View, Southern Cemetery



DSCN3849.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3850.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3851.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3852.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3853.JPG, Structural Deterioration of Pyramid, Southern Cemetery



DSCN3854.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3855.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3856.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3857.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3858.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3859.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3860.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3862.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3863.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3864.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3865.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3886.JPG, Structural Deterioration of Pyramids, Southern Cemetery



DSCN3929.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3930.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Vegetation Damage, Royal City



DSCN3931.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Vegetation Damage, Royal City



DSCN3932.JPG, Graffiti, Royal City



DSCN3933.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3934.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Vegetation Damage, Royal City



DSCN3935.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Vegetation Damage, Royal City



DSCN3936.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3937.JPG, Vegetation Damage, Royal City



DSCN3938.JPG, Vegetation Damage, Royal City



DSCN3939.JPG, Vegetation Damage, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3940.JPG, Vegetation Damage, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3941.JPG, Vegetation Damage, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3942.JPG, Inappropriate/Inexistent Site Drainage, Vegetation Damage, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3943.JPG, Degradation of Stone/Masonry Elements, Royal City



DSCN3944.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Vegetation Damage, Royal City



DSCN3945.JPG, Vegetation Damage, Royal City



DSCN3946.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3947.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Royal City



DSCN3948.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Royal City



DSCN3949.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3950.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Vegetation Damage, Royal City



DSCN3951.JPG, Vegetation Damage, Inappropriate/Inexistent Site Drainage, Inappropriate Dumping of Excavation Spoils, Royal City



DSCN3952.JPG, Inappropriate/Inexistent Site Drainage, Inappropriate Dumping of Excavation Spoils, Vegetation Damage, Royal City



DSCN3953.JPG, Inappropriate/Inexistent Site Drainage, Inappropriate Dumping of Excavation Spoils, Royal City



DSCN3954.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3955.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3956.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3957.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3958.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3959.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3960.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3961.JPG, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3962.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3963.JPG, Inappropriate Dumping of Excavation Spoils, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3964.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Inappropriate Dumping of Excavation Spoils, Royal City



DSCN3965.JPG, Inappropriate Dumping of Excavation Spoils, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3966.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Structural Instability of Walls/ Collapse of Archaeological Features, Royal City



DSCN3967.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3968.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3969.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Royal City



DSCN3970.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Royal City



DSCN3971.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Royal City



DSCN3972.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3973.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3974.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Degradation of Stone/Masonry Elements, Royal City



DSCN3975.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Structural Instability of Walls/ Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Royal City



DSCN3976.JPG, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3977.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Inappropriate Dumping of Excavation Spoils, Royal City



DSCN3978.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3979.JPG, Inappropriate Dumping of Excavation Spoils, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3980.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3981.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3982.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3983.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3984.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3985.JPG, Inappropriate Dumping of Excavation Spoils, Royal City



DSCN3986.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3987.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3988.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3989.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Royal City



DSCN3991.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City



DSCN3993.JPG, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Inappropriate Dumping of Excavation Spoils, Royal City



DSC06243.JPG, Visual Impact, Littering, Royal City



DSC06245.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06246.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06247.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06248.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06249.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06252.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06253.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Royal City



DSC06254.JPG, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Royal City



DSC06255.JPG, Degradation of Stone/Masonry Elements, Royal City



DSC06256.JPG, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Royal City



DSC06257.JPG, Inappropriate/Inexistent Site Drainage, Royal City



DSC06258.JPG, Inappropriate/Inexistent Site Drainage, Royal City



DSC06259.JPG, Inappropriate/Inexistent Site Drainage, Royal City



DSC06261.JPG, Redundant/Inappropriate Visitor Infrastructure, Royal City



DSC06262.JPG, Redundant/Inappropriate Visitor Infrastructure, Royal City



DSC06263.JPG, Redundant/Inappropriate Visitor Infrastructure, Royal City



DSC06264.JPG, Redundant/Inappropriate Visitor Infrastructure, Royal City



DSC06265.JPG, Redundant/Inappropriate Visitor Infrastructure, Royal City



DSC06266.JPG, Redundant/Inappropriate Visitor Infrastructure, Royal City



DSC06267.JPG, Degradation of Stone/Masonry Elements, Exposure and Deterioration of Ancient Plasters, Royal City



DSC06268.JPG, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Royal City



DSC06269.JPG, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Exposure and Deterioration of Ancient Plasters, Royal City



DSC06274.JPG, Inappropriate Dumping of Excavation Spoils, Structural Instability of Walls/Collapse of Archaeological Feature Royal City



DSC06275.JPG, Inappropriate Dumping of Excavation Spoils, Inappropriate/Inexistent Site Drainage, Royal City

MUSAWWARAT ES-SUFRA



DSC06166.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features



DSC06170.JPG, Musawwarat - Great Enclosure, Site Wide View



DSC06173.JPG, Musawwarat - Great Enclosure



DSC06174.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06175.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06176.JPG, Musawwarat - Great Enclosure



DSC06179.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06180.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06181.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06182.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06183.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06188.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06189.JPG, Musawwarat - Great Enclosure



DSC06190.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06191.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06192.JPG, Musawwarat - Great Enclosure



DSC06193.JPG, Musawwarat - Great Enclosure



DSC06194.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06195.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06196.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06197.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06198.JPG, Musawwarat - Great Enclosure, Restoration Works, Structural Instability of Walls/Collapse of Archaeological Features



DSC06199.JPG, Musawwarat - Great Enclosure, Restoration Works



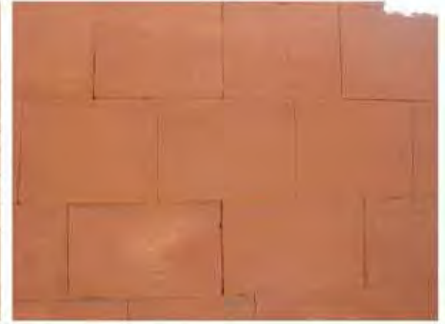
DSC06200.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06201.JPG, Musawwarat - Great Enclosure



DSC06202.JPG, Musawwarat - Great Enclosure, Degradation of Stone/Masonry Elements, Salt Crystallization



DSC06203.JPG, Musawwarat - Great Enclosure, Historic Graffiti



DSC06204.JPG, Musawwarat - Great Enclosure, Historic Graffiti



DSC06205.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06206.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06207.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSC06208.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06209.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06210.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06211.JPG, Musawwarat - Great Enclosure



DSC06212.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Restoration Works



DSC06213.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features



DSC06214.JPG, Musawwarat - Great Enclosure, Site Wide View



DSCN4163.JPG, Musawwarat - Great Enclosure, Redundant/Inappropriate Visitor Infrastructure, Visual Impact



DSCN4164.JPG, Musawwarat - Great Enclosure, Redundant/Inappropriate Visitor Infrastructure, Visual Impact



DSCN4165.JPG, Musawwarat - Great Enclosure, Redundant/Inappropriate Visitor Infrastructure, Visual Impact



DSCN4166.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4167.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4168.JPG, Musawwarat - Great Enclosure, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Salt Crystallization



DSCN4169.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Salt Crystallization



DSCN4170.JPG, Musawwarat - Great Enclosure, Degradation of Stone/Masonry Elements, Salt Crystallization



DSCN4171.JPG, Musawwarat - Great Enclosure, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features, Salt Crystallization



DSCN4172.JPG, Musawwarat - Great Enclosure, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features, Salt Crystallization



DSCN4173.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4174.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4175.JPG, Musawwarat - Great Enclosure, Restoration Works, Degradation of Stone/Masonry Elements, Salt Crystallization



DSCN4176.JPG, Musawwarat - Great Enclosure, Degradation of Stone/Masonry Elements, Salt Crystallization



DSCN4177.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4178.JPG, Musawwarat - Great Enclosure, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features, Restoration Works



DSCN4179.JPG, Musawwarat - Great Enclosure



DSCN4180.JPG, Musawwarat - Great Enclosure, Restoration Works



DSC06215.JPG, Musawwarat - Re-erected Lion Temple, Restoration Works



DSC06216.JPG, Musawwarat - Re-erected Lion Temple, Restoration Works



DSC06218.JPG, Musawwarat - Re-erected Lion Temple



DSC06219.JPG, Musawwarat - Re-erected Lion Temple, Degradation of Stone/Masonry Elements, Salt Crystallization



DSC06220.JPG, Musawwarat - Re-erected Lion Temple, Restoration Works



DSC06222.JPG, Musawwarat - Re-erected Lion Temple



DSC06223.JPG, Musawwarat - Re-erected Lion Temple



DSC06224.JPG, Musawwarat - Re-erected Lion Temple



DSC06226.JPG, Musawwarat - Re-erected Lion Temple



DSC06227.JPG, Musawwarat - Re-erected Lion Temple



DSC06228.JPG, Musawwarat - Re-erected Lion Temple



DSC06229.JPG, Musawwarat - Re-erected Lion Temple



DSC06231.JPG, Musawwarat - Re-erected Lion Temple



DSC06232.JPG, Musawwarat - Re-erected Lion Temple



DSC06233.JPG, Musawwarat - Re-erected Lion Temple



DSC06234.JPG, Musawwarat - Re-erected Lion Temple



DSC06235.JPG, Musawwarat - Re-erected Lion Temple



DSC06236.JPG, Musawwarat - Re-erected Lion Temple



DSC06237.JPG, Musawwarat - Re-erected Lion Temple



09112008252, Musawwarat, Site Wide View



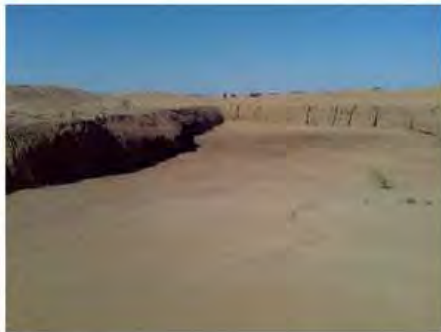
09112008253, Musawwarat, Site Wide View



DSC06240.JPG, Redundant/Inappropriate Visitor Infrastructure



09112008256, Musawwarat - Hafir, Site Wide View, Damaging On Site Activities



09112008257, Musawwarat - Hafir, Site Wide View, Damaging On Site Activities

NAQA



DSCN4021.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4022.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4032.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4033.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4034.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4035.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4037.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4038.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4039.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4040.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4041.JPG, Lion Temple B300 - Naqaa, Naqaa



DSCN4058.JPG, Naqaa, Amun Temple



DSCN4080.JPG, Naqaa, Amun Temple



DSCN4067.JPG, Naqaa, Amun Temple



DSCN4089.JPG, Naqaa, Amun Temple



DSCN4070.JPG, Naqaa, Amun Temple



DSCN4072.JPG, Naqaa, Amun Temple



DSCN4074.JPG, Naqaa, Amun Temple



DSCN4077.JPG, Naqaa, Amun Temple



DSCN4104.JPG, Naqaa, Amun Temple



DSCN4105.JPG, Naqaa, Amun Temple



DSCN4108.JPG, Naqaa, Amun Temple



DSCN4012.JPG, Naqaa, Inappropriate/Inexistent Site Drainage



DSCN4053.JPG, Naqaa, Mission Photos - Various



DSCN4056.JPG, Naqaa, Site Wide View



DSCN4058.JPG, Naqaa, Site Wide View



09112008252, Naqaa, Site Wide View



09112008263, Naqaa, Site Wide View



DSCN4068.JPG, Naqaa, Temple B200



DSCN4050.JPG, Naqaa, Water Basins



DSCN4051.JPG, Naqaa, Water Basins



DSCN4052.JPG, Naqaa, Water Basins



DSCN4054.JPG, Naqaa, Water Basins



DSCN4055.JPG, Naqaa, Water Basins



DSCN4019.JPG, Lion Temple B300 - Naqaa, Naqaa, Inappropriate/
Inexistent Site Drainage



DSCN4020.JPG, Lion Temple B300 - Naqaa, Naqaa, Inaproprate/ Inexistent Site Drainage



DSCN4047.JPG, Lion Temple B300 - Naqaa, Naqaa, Inaproprate/ Inexistent Site Drainage



DSCN4048.JPG, Lion Temple B300 - Naqaa, Naqaa, Site Wide View



DSCN4031.JPG, Lion Temple B300 - Naqaa, Naqaa, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4036.JPG, Lion Temple B300 - Naqaa, Naqaa, Unsympathetic Repair Work/Interventions



DSCN4087.JPG, Naqaa, Amun Temple, Degradation of Stone/ Masonry Elements



DSCN4125.JPG, Naqaa, Amun Temple, Degradation of Stone/ Masonry Elements



DSCN4132.JPG, Naqaa, Amun Temple, Degradation of Stone/ Masonry Elements



09112008247, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4102.JPG, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4103.JPG, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4107.JPG, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4109.JPG, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4110.JPG, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4111.JPG, Naqaa, Amun Temple, Deterioration of Ancient Mud Structures



DSCN4071.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4073.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4075.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4076.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4078.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4079.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4081.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4082.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4085.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4088.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4113.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4114.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4115.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4133.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters



DSCN4116.JPG, Naqaa, Amun Temple, Inappropriate/Inexistent Site Drainage



DSCN4130.JPG, Naqaa, Amun Temple, Informal Lapidarium



DSCN4134.JPG, Naqaa, Amun Temple, Site Wide View



DSCN4135.JPG, Naqaa, Amun Temple, Site Wide View



DSCN4136.JPG, Naqaa, Amun Temple, Site Wide View



DSCN4160.JPG, Naqaa, Amun Temple, Site Wide View



DSCN4161.JPG, Naqaa, Amun Temple, Site Wide View



DSCN4162.JPG, Naqaa, Amun Temple, Site Wide View



09112008249, Naqaa, Amun Temple, Structural Instability of Walls/ Collapse of Archaeological Features



DSCN4118.JPG, Naqaa, Amun Temple, Structural Instability of Walls/Collapse of Archaeological Features



DSCN3994.JPG, Naqaa, Lion Temple B300 - Naqaa, Site Wide View



DSCN4057.JPG, Naqaa, Site Wide View, Redundant/Inappropriate Visitor Infrastructure



DSCN4065.JPG, Naqaa, Temple B200, Degradation of Stone/ Masonry Elements



DSCN4066.JPG, Naqaa, Temple B200, Degradation of Stone/ Masonry Elements



DSCN4144.JPG, Naqaa, Temple F, Graffiti



DSCN4141.JPG, Naqaa, Temple F, Signage



DSCN4146.JPG, Naqaa, Temple F, Site Wide View



DSCN4138.JPG, Naqaa, Temple F, Structural Instability of Walls/ Collapse of Archaeological Features



DSCN4140.JPG, Naqaa, Temple F, Visual Impact



DSCN4148.JPG, Naqaa, Temple F, Visual Impact



DSCN4011.JPG, The Kiosk - Naqaa, Naqaa, Graffiti



DSCN3996.JPG, The Kiosk - Naqaa, Naqaa, Inappropriate/Inexistent Site Drainage



DSCN4013.JPG, The Kiosk - Naqaa, Naqaa, Inappropriate/Inexistent Site Drainage



DSCN4006.JPG, The Kiosk - Naqaa, Naqaa, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4016.JPG, The Kiosk - Naqaa, Naqaa, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4017.JPG, The Kiosk - Naqaa, Naqaa, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4029.JPG, Lion Temple B300 - Naqaa, Naqaa, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4030.JPG, Lion Temple B300 - Naqaa, Naqaa, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4028.JPG, Lion Temple B300 - Naqaa, Naqaa, Inappropriate/Inexistent Site Drainage, Vegetation Damage



DSCN4094.JPG, Naqaa, Amun Temple, Degradation of Stone/Masonry Elements, Exposure and Deterioration of Ancient Plasters



DSCN4099.JPG, Naqaa, Amun Temple, Degradation of Stone/Masonry Elements, Exposure and Deterioration of Ancient Plasters



DSCN4090.JPG, Naqaa, Amun Temple, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4096.JPG, Naqaa, Amun Temple, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4131.JPG, Naqaa, Amun Temple, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4084.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4087.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4092.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4093.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4098.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4121.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4117.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Deterioration of Ancient Mud Structures



DSCN4112.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Inappropriate/Inexistent Site Drainage



DSCN4119.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Inappropriate/Inexistent Site Drainage



DSCN4120.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Inappropriate/Inexistent Site Drainage



DSCN4123.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Inappropriate/Inexistent Site Drainage



DSCN4129.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Inappropriate/Inexistent Site Drainage



DSCN4080.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Structural Instability of Walls/ Collapse of Archaeological Features



DSCN4086.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4108.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Structural Instability of Walls/ Collapse of Archaeological Features



DSCN4100.JPG, Naqaa, Amun Temple, Inappropriate/Inexistent Site Drainage, Vegetation Damage



DSCN4091.JPG, Naqaa, Amun Temple, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/ Masonry Elements



DSCN4101.JPG, Naqaa, Amun Temple, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/ Masonry Elements



DSCN4089.JPG, Naqaa, Amun Temple, Structural Instability of Walls/Collapse of Archaeological Features, Exposure and Deterioration of Ancient Plasters



DSCN4128.JPG, Naqaa, Amun Temple, Unsympathetic Repair Work/Interventions, Degradation of Stone/Masonry Elements



DSCN4126.JPG, Naqaa, Amun Temple, Water Damage, Inappropriate/Inexistent Site Drainage



DSCN4061.JPG, Naqaa, Temple B200, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements



DSCN4064.JPG, Naqaa, Temple B200, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements



DSCN4153.JPG, Naqaa, Temple F, Exposure and Deterioration of Ancient Plasters, Water Damage



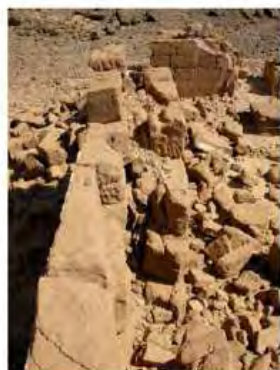
DSCN4145.JPG, Naqaa, Temple F, Inappropriate/Inexistent Site Drainage, Water Damage



DSCN4137.JPG, Naqaa, Temple F, Site Wide View, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4147.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4155.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4139.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4154.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4156.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4157.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4158.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4159.JPG, Naqaa, Temple F, Structural Instability of Walls/
Collapse of Archaeological Features, Structural Instability of Walls/
Collapse of Archaeological Features



DSCN3997.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN3998.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN3999.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4000.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4001.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4002.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4003.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4004.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4005.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4007.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4008.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/
Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4009.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/ Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4010.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/ Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4014.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/ Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4015.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/ Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4018.JPG, The Kiosk - Naqaa, Naqaa, Degradation of Stone/ Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4043.JPG, The Kiosk - Naqaa, Naqaa, Inappropriate/ Inexistent Site Drainage, Degradation of Stone/Masonry Elements



DSCN4024.JPG, Lion Temple B300 - Naqaa, Naqaa, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Vegetation Damage



DSCN4025.JPG, Lion Temple B300 - Naqaa, Naqaa, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Vegetation Damage



DSCN4023.JPG, Lion Temple B300 - Naqaa, Naqaa, Inappropriate/ Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Vegetation Damage



DSCN4026.JPG, Lion Temple B300 - Naqaa, Naqaa, Vegetation Damage, Degradation of Stone/Masonry Elements, Inappropriate/ Inexistent Site Drainage



DSCN4027.JPG, Lion Temple B300 - Naqaa, Naqaa, Vegetation Damage, Degradation of Stone/Masonry Elements, Inappropriate/ Inexistent Site Drainage



DSCN4124.JPG, Naqaa, Amun Temple, Exposure and Deterioration of Ancient Plasters, Inappropriate/Inexistent Site Drainage, Deterioration of Ancient Mud Structures



DSCN4127.JPG, Naqaa, Amun Temple, Inappropriate/Inexistent Site Drainage, Water Damage, Degradation of Stone/Masonry Elements



DSCN4083.JPG, Naqaa, Amun Temple, Structural Instability of Walls/Collapse of Archaeological Features, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements



DSCN4095.JPG, Naqaa, Amun Temple, Structural Instability of Walls/Collapse of Archaeological Features, Exposure and Deterioration of Ancient Plasters, Degradation of Stone/Masonry Elements



DSCN4062.JPG, Naqaa, Temple B200, Degradation of Stone/Masonry Elements, Structural Instability of Walls/Collapse of Archaeological Features, Vegetation Damage



DSCN4083.JPG, Naqaa, Temple B200, Structural Instability of Walls/Collapse of Archaeological Features, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage



DSCN4143.JPG, Naqaa, Temple F, Exposure and Deterioration of Ancient Plasters, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4151.JPG, Naqaa, Temple F, Exposure and Deterioration of Ancient Plasters, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4152.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Exposure and Deterioration of Ancient Plasters, Structural Instability of Walls/Collapse of Archaeological Features



DSCN4142.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features, Exposure and Deterioration of Ancient Plasters



DSCN4150.JPG, Naqaa, Temple F, Structural Instability of Walls/Collapse of Archaeological Features, Structural Instability of Walls/Collapse of Archaeological Features, Exposure and Deterioration of Ancient Plasters



DSCN3995.JPG, The Kicek - Naqaa, Naqaa, Degradation of Stone/Masonry Elements, Inappropriate/Inexistent Site Drainage, Site Wide View



DSCN4122.JPG, Naqaa, Amun Temple, Vegetation Damage, Inappropriate/Inexistent Site Drainage, Degradation of Stone/Masonry Elements, Deterioration of Ancient Mud Structures

ICOMOS

INTERNATIONAL COUNCIL ON MONUMENTS AND SITES
CONSEIL INTERNATIONAL DES MONUMENTS ET DES SITES
CONSEJO INTERNACIONAL DE MONUMENTOS Y SITIOS
МЕЖДУНАРОДНЫЙ СОВЕТ ПО ВОПРОСАМ ПАМЯТНИКОВ И ДОСТОПРИМЕЧАТЕЛЬНЫХ МЕСТ

H. E. Mr Sulieman Mohamed Mustafa
Ambassador
Permanent Delegation of Sudan to
UNESCO
Maison de l'UNESCO
Bureaux M3.47 to M3.49
1 rue Miollis
75732 Paris Cedex 15

Our Ref. GB/MA 1336

Paris, 23 September 2010

World Heritage List: The Archaeological Sites of the Island of Meroe (Sudan) – Additional information

Dear Sir,

ICOMOS is currently assessing the nomination of "The Archaeological Sites of the Island of Meroe" as a World Heritage Site and we thank you for your assistance with the recent mission to the property.

We would like to ask for clarifications with regard to a number of aspects relevant to the nomination.

Therefore we would be pleased if the State Party could consider the following points and additional information:

1. Provide maps that show the various features at each site actually labelled. For instance at Meroe it would be helpful to label the royal city, the western pyramid cemetery, the temples and Hafir (reservoir) in the plain and the north and south royal cemeteries to the east. Similarly at Naqa. At Musawwarat el-Sufra a map based on figure 11, p. 20 with the various features labelled would be helpful.

2. Clarify funding arrangements for the proposed management framework for the overall property in relation to co-ordination of conservation and maintenance works at the three sites.

We will look forward to your responses to these points which will be of great help in our evaluation process.

ICOMOS has no obligation to contact States Parties during the evaluation process. However, with a view to being as transparent as possible, ICOMOS has agreed to approach States Parties in specific cases. This does not prejudice the ICOMOS recommendation on the nomination and should be considered as preliminary information. It also does not prejudice the World Heritage Committee's decision.

We would be grateful if you could provide ICOMOS and the World Heritage Centre with the above information by **Monday 8 November 2010**.

We thank you in advance for your kind cooperation.



Regina Durighello
Director
World Heritage Programme

Copy to National Corporation for Antiquities and Museums - NCAM
UNESCO World Heritage Centre, Paris

Ministry of Antiquities,
Tourism & Wildlife
National Corporation for
Antiquities and Museums

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



وزارة الآثار والسياحة والسياحة
للإحياء والتراث
والسياحة

The Archaeological Sites of the Island of Meroe **Funding arrangements for the management framework**

Three funding sources will be coordinated for the execution of the management plan proposed for the property:

(1) Direct funding from the central government. This will include the salaries of the staff engaged in the implementation of the management plan and the funding of the conservation project of the pyramids of Meroe.

(2) Participation of the archaeological missions engaged in research programs on the three sites. These are:

-The combined mission of the University of Khartoum & the Royal Ontario Museum of Canada at the Royal City of Meroe and the Mission of the German Archaeological Institute at the Royal Baths of Meroe.

-The Mission of the University of Humboldt (Germany) at Musawwarat es-Sufra.

-The Mission of the Egyptian Museum of Berlin (Germany) at Naga.

(3) The Corporation for the Development of the Region of Shendi. This is a popular association engaged in the coordination of efforts for the development of the region. The efforts are mainly focused on education, health and community development. The preservation

Ministry of Antiquities,
Tourism & Wildlife
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وزارة الأثار والتراث والسياحة والسياحة
التي تتألف من الأثار
والتراث

and promotion of the archaeological sites of the Island of Meroe has become one of the occupations of the association. The president of the association is actually the head of the management committee of the sites.

We hope that we can manage and coordinate all these efforts for the best execution of the management arrangements.

SM Ahmed



Dr Salah Mohamed Ahmed
Director of Fieldwork Section

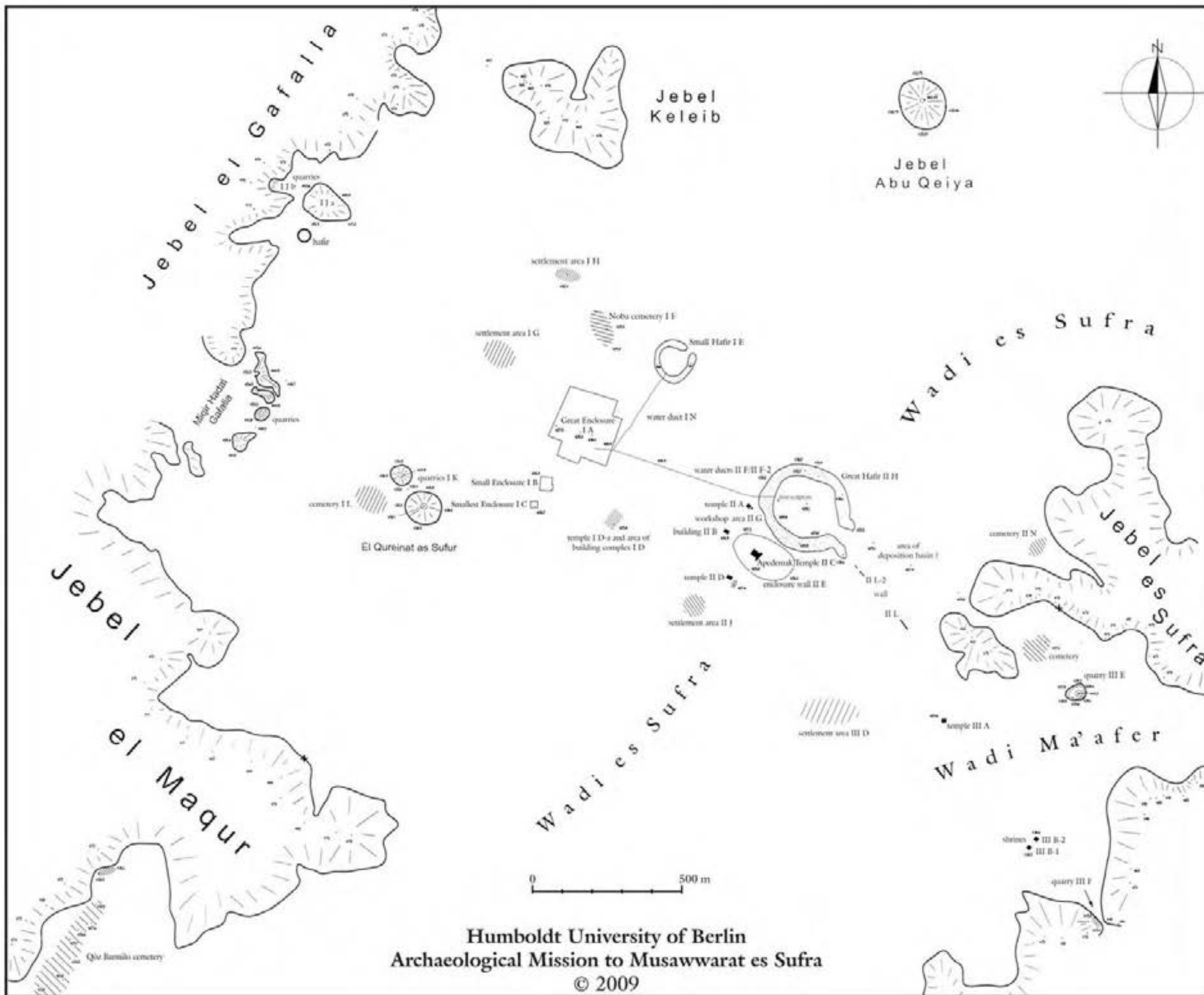
For/ Director General/ NCAM

NCAM. Box:178.Khartoum, Sudan
Tel-fax+249 183 78678
E-mail: teharga2008@ yahoo.com

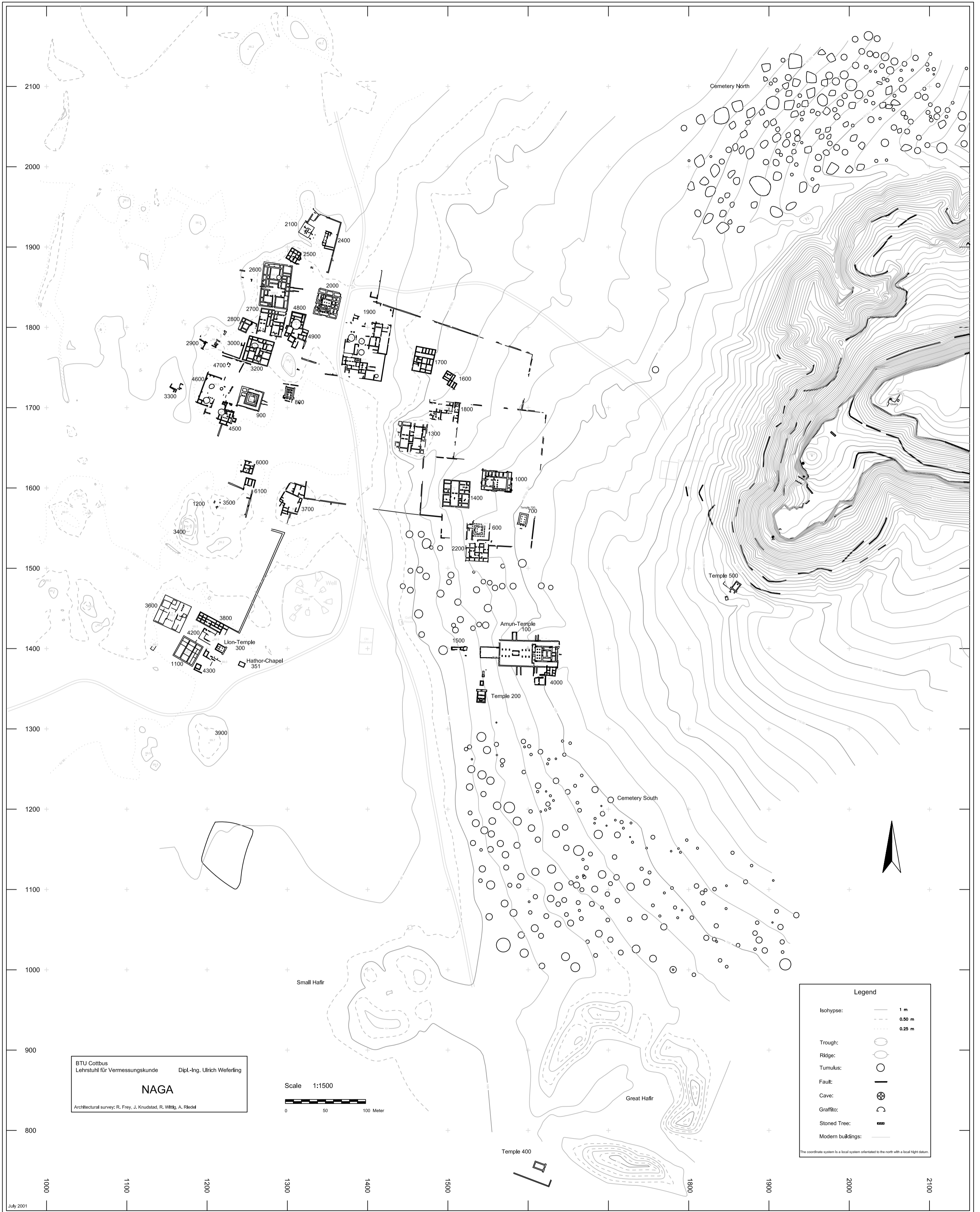
الهيئة العامة للآثار والتراث ص 871 - الخرطوم - السودان
تلفاكس +9;2 81:71771;



Stand: 11.01.99
 F. W. Hinkel, 1999
 0 100 200 300 400 500 m



Humboldt University of Berlin
 Archaeological Mission to Musawwarat es Sufra
 © 2009



BTU Cottbus
 Lehrstuhl für Vermessungskunde Dipl.-Ing. Ulrich Weyerling
NAGA
 Architectural survey: R. Frey, J. Knudstad, R. Wittig, A. Riedel

Scale 1:1500
 0 50 100 Meter

Legend

- Isohypse: — 1 m
- - - 0.50 m
- · · 0.25 m
- Trough: ○
- Ridge: ◯
- Tumulus: ⊙
- Fault: —|—
- Cave: ⊗
- Graffiti: ⊕
- Stoned Tree: ⊠
- Modern buildings: —

The coordinate system is a local system orientated to the north with a local height datum.



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منظمة الأمم المتحدة
للتربية والعلم والثقافة

联合国教育、
科学及文化组织

The Culture Sector

H.E. Mr Sulieman Mohamed
Mustafa
Ambassador Extraordinary and
Plenipotentiary of Sudan to France,
Permanent Delegate of Sudan to
UNESCO
UNESCO House

CLT/WHC/74/312/11/161

29 July 2011

Subject: **Inscription of the *Archaeological Sites of the Island of Meroe* (C 1336) Sudan, on the World Heritage List**

Sir,

I have the pleasure to inform you that the World Heritage Committee, at its 35th session (UNESCO, 19-29 June 2011), examined the nomination of the ***Archaeological Sites of the Island of Meroe*** and decided to **inscribe** the property on the World Heritage List. The decision of the Committee concerning the inscription is attached below (Annex I).

I am confident that your government will take the necessary measures for the proper conservation of this new World Heritage property. The World Heritage Committee and its Secretariat, the World Heritage Centre, will do everything possible to collaborate with you in these efforts.

The *Operational Guidelines for the Implementation of the World Heritage Convention* (paragraph 168), request the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map and inform us of any discrepancies in the information by **1 December 2011**.

The inscription of the property on the World Heritage List is an excellent opportunity to draw the attention of visitors to, and remind local residents of, the *World Heritage Convention* and the Outstanding Universal Value of the property. To this effect, you may wish to place a plaque displaying the World Heritage and the UNESCO emblems at the property. You will find suggestions on this subject in the *Operational Guidelines*.

In many cases States Parties decide to hold a ceremony to commemorate the inscription of a property on the World Heritage List. Upon request to the World Heritage Centre by the State Party, a World Heritage Certificate can be prepared for such an occasion.

.../2

I would be grateful if you could provide me with the name, address, telephone and fax numbers and e-mail address of the person or institution responsible for the management of the property so that we may send them World Heritage publications.

Please find attached the brief descriptions of your site, prepared by ICOMOS and the World Heritage Centre, in both English and French. As these brief descriptions will be used in later publications, as well as on the World Heritage website, we would like to have your full concurrence with their wording. Please examine these descriptions and inform us, by **1 December 2011** at the latest, if there are changes that should be made. If we do not hear from you by this date, we will assume that you are in agreement with the text as prepared.


Furthermore, as you may know, the World Heritage Centre maintains a website at <http://whc.unesco.org/>, where standard information about each property on the World Heritage List can be found. Since we can only provide a limited amount of information about each property, we try to link our pages to those maintained by your World Heritage property or office, so as to provide the public with the most reliable and up-to-date information. If there is a website for the newly inscribed property, please send us its web address.

The full list of the Decisions adopted by the World Heritage Committee at its 35th session is available electronically at <http://whc.unesco.org/en/sessions/35COM/>.

As you know, according to paragraph 172 of the *Operational Guidelines*, the World Heritage Committee invites the States Parties to the Convention to inform the Committee, through the World Heritage Centre, of their intention to undertake or to authorize in the area protected under the *Convention* major restorations or new constructions which may affect the Outstanding Universal Value of the property.

May I take this opportunity to thank you for your co-operation and for your support in the implementation of the *World Heritage Convention*.

Please accept, Sir, the assurances of my highest consideration.



Kishore Rao
Director
World Heritage Centre

cc: Sudanese National Commission for Education, Science and Culture
Mr Hussein Idris, Director General, NCAM, Khartoum
ICOMOS
UNESCO Office in Khartoum
Mr Ahmed Salah, Focal point for Sudan

Extract of the Decisions adopted by the 35th session of the World Heritage Committee (UNESCO, 2011)

Decision: 35 COM 8B.22

The World Heritage Committee,

1. Having examined Documents WHC-11/35.COM/8B and WHC-11/35.COM/INF.8B1,
2. Inscribes the **Archaeological Sites of the Island of Meroe, Sudan**, on the World Heritage List on the basis of **criteria (ii), (iii), (iv) and (v)**;
3. Takes note of the following provisional Statement of Outstanding of Universal Value:

Brief synthesis

The Island of Meroe is the heartland of the Kingdom of Kush, a major power in the ancient world from the 8th century BCE into the 4th century CE. Meroe became the principal residence of the ruler, and from the 3rd century BCE onwards it was the site of most subsequent royal burials. It also has evidence for industrial activities, particularly iron-working. Naqa has important implications for understanding the palaeoclimate and hydrological regime in the area in the later centuries BCE and the first few centuries CE. Musawwarat es-Sufra is a religious complex that, along with Naqa, raises the question of how it functioned in what is today a very arid environment: in this context, the massive water reservoirs (hafirs) are particularly significant.

These three sites comprise the best preserved relics of the Kingdom of Kush, encompassing a wide range of architectural forms and occupying a range of environments. They testify to the wealth and power of the Kushite state and to its wide-ranging contacts with the Mediterranean and Middle Eastern worlds: this is the meeting place of the Pharaonic and Classical worlds and Sahelian Africa.

Some of the sites are located in a semi-desert (Meroe pyramids, Musawwarat es-Sufra, and Naqa), whilst the Meroe town site is in a riverine landscape. The temples of Musawwarat es-Sufra and Naqa and the pyramid of Meroe, set against reddish-brown hills and contrasting with the green bushes that cover them, are striking when viewed from an almost empty distance of more than 30 km from the bank of the Nile. The neighbourhood of these sites is inhabited by traditional communities that have changed little over many centuries.

The three sites of the serial property (Meroe, Musawwarat es-Sufra and Naqa) exhibit an architectural tradition of pyramids, temples, palaces, industrial areas that shaped the political, religious, social, artistic and technological scene of the Middle and Northern Nile Valley for more than 1000 years (8th Century BC-4th Century AD).

Criterion (ii): The archaeological sites of the Island of Meroe provide a detailed insight into the interchange of ideas between central Africa and the Mediterranean world along what was the major corridor to and from Africa over a very long period during the ancient world. The interaction of local and foreign influences are demonstrated by the architecture, art, iconography, religion, and language.

Criterion (iii): All aspects of Kushite civilization were largely expunged by the arrival of Christianity on the Middle Nile in the 6th century CE. The nominated properties with their wide range of monument types, well preserved buildings, and potential for future excavation and other avenues of research are unique testimony to this, perhaps the greatest civilization of sub-Saharan Africa.

Criterion (iv): The pyramids at Meroe are outstanding examples of this highly distinctive Kushite funerary monument, and their intimate association with the well preserved remains of the urban centre is noteworthy. The evidence for iron-working is of considerable importance for studying the role of Meroe in the diffusion of metal-working technology in sub-Saharan Africa.

At Naqa the „Roman kiosk,□ with its juxtaposition of architectural and decorative elements from Pharaonic Egypt, Greece, and Rome as well as from Kush itself, and the Lion Temple, which preserves superb reliefs of the Kushite gods and royalty, are of especial importance.

Musawwarat is a unique architectural ensemble with temples, courtyards, and domestic buildings, as well as major installations connected with water management, quarries, and industrial areas.

Criterion (v): The major centres of human activity far from the Nile at Musawwarat and Naqa raise questions as to their viability in what is today an arid zone devoid of permanent human settlement. They offer the possibility, through a detailed study of the palaeoclimate, flora, and fauna, of understanding the interaction of the Kushites with their desert hinterland.

Integrity and authenticity

The integrity and authenticity of the three sites (the Meroe town site, the North and South cemeteries, Musawwarat es-Sufra, and Naqa) conform with the requirements of the World Heritage Committee. They have been subject to no inappropriate interventions of any significance since their abandonment and their places in the natural landscape have not been compromised or degraded. The treasure hunting of Ferlini in the 1830s was very deleterious to some of the pyramids in the Meroe cemeteries, but the overall appearance of the ensembles has survived.

A certain amount of restoration has been carried out since the mid 20th century, most notably on a number of pyramids and a few buildings (eg the “Royal Baths□ and the Kiosk at Naqa). Whilst the materials and techniques employed do not in certain instances conform with current conservation principles and practice, which have made considerable advances since these works were carried out, the precepts of the Venice Charter (1954), the Nara Document (1995), and the concept of anastylosis have not been violated. Two or three small pyramids have been completely rebuilt, with a didactic purpose, to demonstrate how they would have appeared in antiquity.

Protection and management requirements

The property is protected by the Antiquities Protection Ordinance of 1905, amended in 1952 and recently in 1999.

- The sites are guarded by a military force from the Police of Tourism and Antiquities.

- A resident site manager has been appointed. He is assisted by a group of technicians.

- Establishment of a Management Committee for the property.

- A consultant company is preparing the design and cost for the fencing and basic infrastructure on the sites.

- Attempts to attract foreign and local partners to contribute to the ongoing efforts for the preservation of the archaeological heritage of the sites.

4. Recommends the State Party to:
 - a) Consider, in the future, the addition of other important sites in the region to the property to give a complete vision of the "Island of Meroe" during Meroitic times,
 - b) Include the archaeological remains of the northern part of the Royal City within the boundaries of the property,
 - c) Include the southern flanks of the northern hills within the buffer zone of Meroe,
 - d) Reinforce the Management Committee, obtain dedicated funding to include a maintenance programme for the sites, linked to the monitoring system; and establish mandatory guides for visitors,
 - e) Develop an overall inventory and database for the sites as a basis for the conservation program and monitoring,
 - f) Develop a co-ordinated Conservation Plan with an agreed conservation policy for the three nominated sites,
 - g) Strengthen protection of the setting of Meroe to ensure that mining in the setting is not allowed where it would impact adversely on the property,
 - h) Provide a timetable for rerouting the highway, power transmission lines around the outside of the Meroe site;
5. Encourages the State Party to seek international assistance for the protection and conservation of the property, through the development of the co-ordinated Conservation Plan, in accordance with Paragraph 235 (c) and Paragraph 241 (Conservation and Management Assistance) of the *Operational Guidelines*;
6. Invites the international community to consider support for these extraordinary sites and cooperate to help with the development of the co-ordinated data-base and the Conservation Plan.

Surface and coordinates of the property inscribed on the World Heritage List by the 35th session of the World Heritage Committee (UNESCO, 2011) in accordance with the Operational Guidelines.

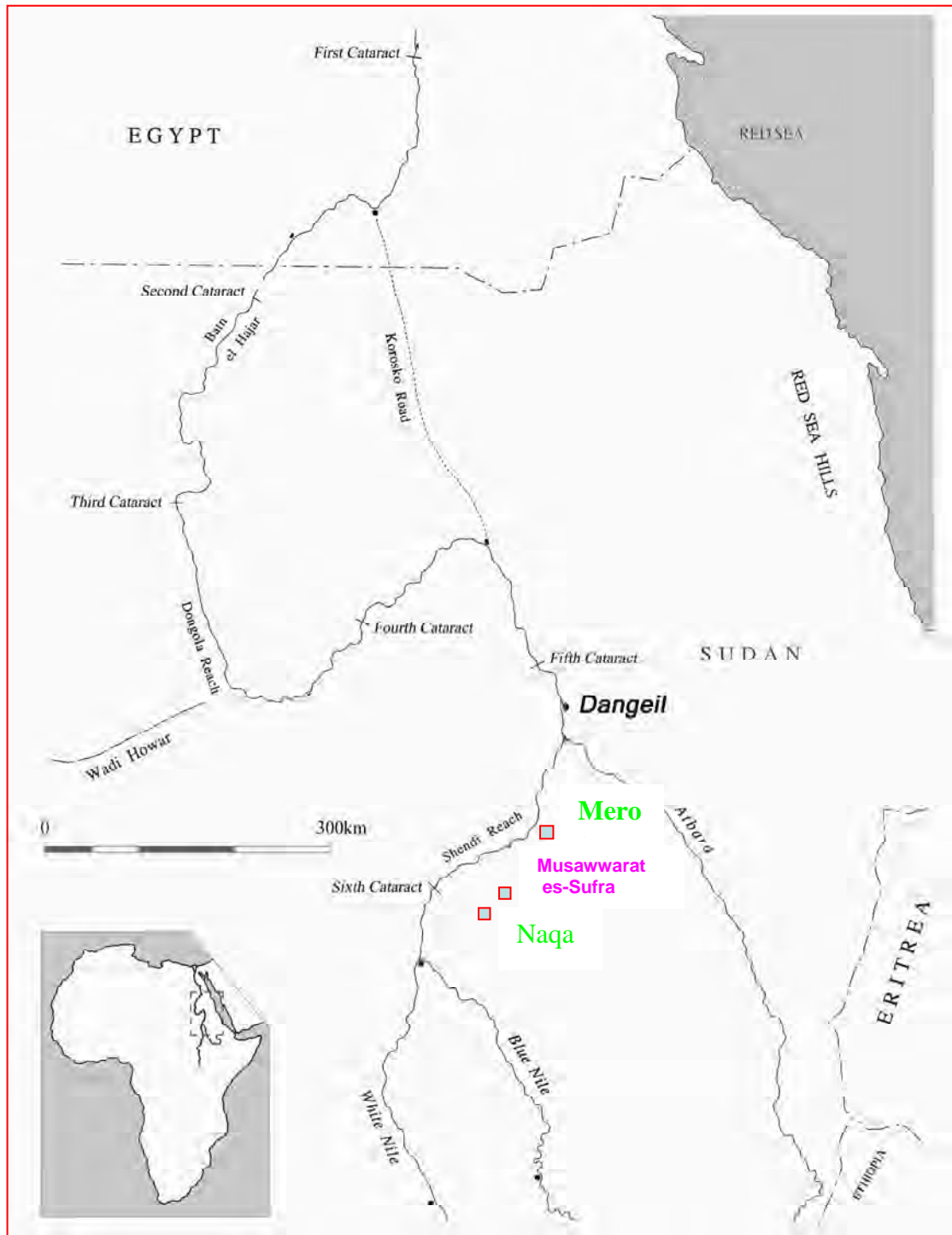
Sudan				
C 1336 The Archaeological Sites of the Island of Meroe				
Serial ID No.	Name	Property	Buffer zone	Centre point coordinates
1336-001	Meroe 1	612.551	1 718.031	N16 56 E33 43
1336-002	Meroe 2	674.904		N16 56 E33 45
1336-003	Musawwarat es-Sufra	836.570	2 653.64	N16 25 E33 20
1336-004	Naqa	231.852	9 509.92	N16 16 15 E33 16 45
TOTAL		2 357.36	13 881.7	

Brief Description in English

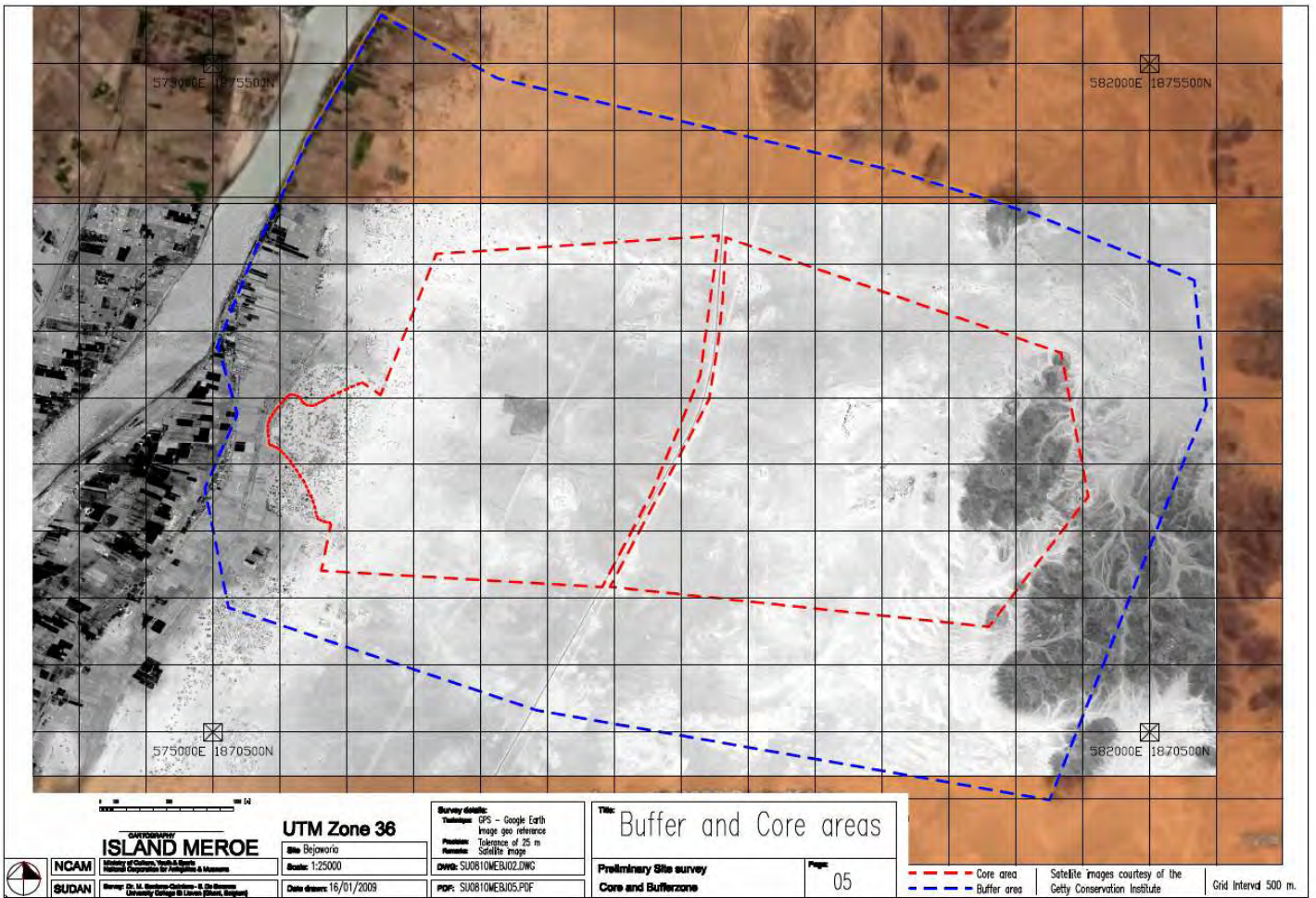
The Archaeological Sites of the Island of Meroe property, a semi-desert landscape between the Nile and Atbara rivers, was the heartland of the Kingdom of Kush, a major power from the 8th century BC to the 4th century AD. The property consists of the royal city of the Kushite kings at Meroe, near the River Nile, the nearby religious site of Naqa and Musawwarat es Sufra. It was the seat of the rulers who occupied Egypt for close to a century and features, among other vestiges, pyramids, temples and domestic buildings as well as major installations connected with water management. Their vast empire extended from the Mediterranean to the heart of Africa, and these sites testify to the exchange between the arts, architectures, religions and languages of both regions.

Brief Description in French

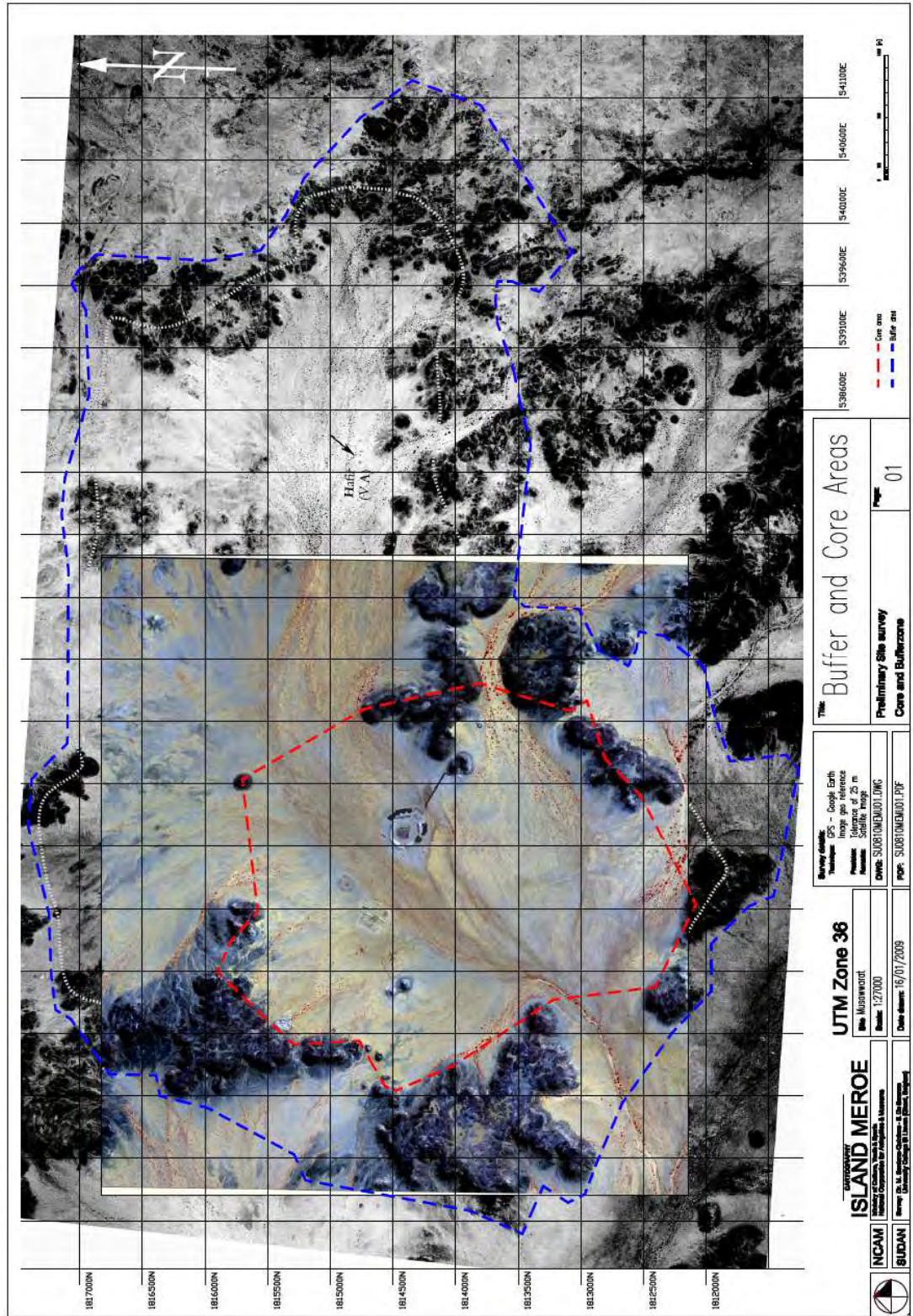
Les Sites archéologiques de l'île de Méroé, paysage semi-désertique entre le Nil et l'Atbara, étaient le cœur du royaume de Koush, une puissance majeure du VIII^e siècle av. J.-C. au IV^e siècle av. J.-C. Le site comprend un site urbain et funéraire, siège des souverains qui occupèrent l'Égypte pendant près d'un siècle. Le bien comprend la cité royale des rois koushites à Méroé, au bord du Nil, et les sites religieux tout proches de Naqa et de Musawwarat es-Sufra. On y trouve, entre autres vestiges, des pyramides, des temples, et des bâtiments résidentiels ainsi que des installations majeures de gestion de l'eau. Leur vaste empire s'étendait de la Méditerranée au cœur de l'Afrique, et le bien témoigne des échanges dans les domaines de l'art, l'architecture, les religions et les langues entre les deux régions.



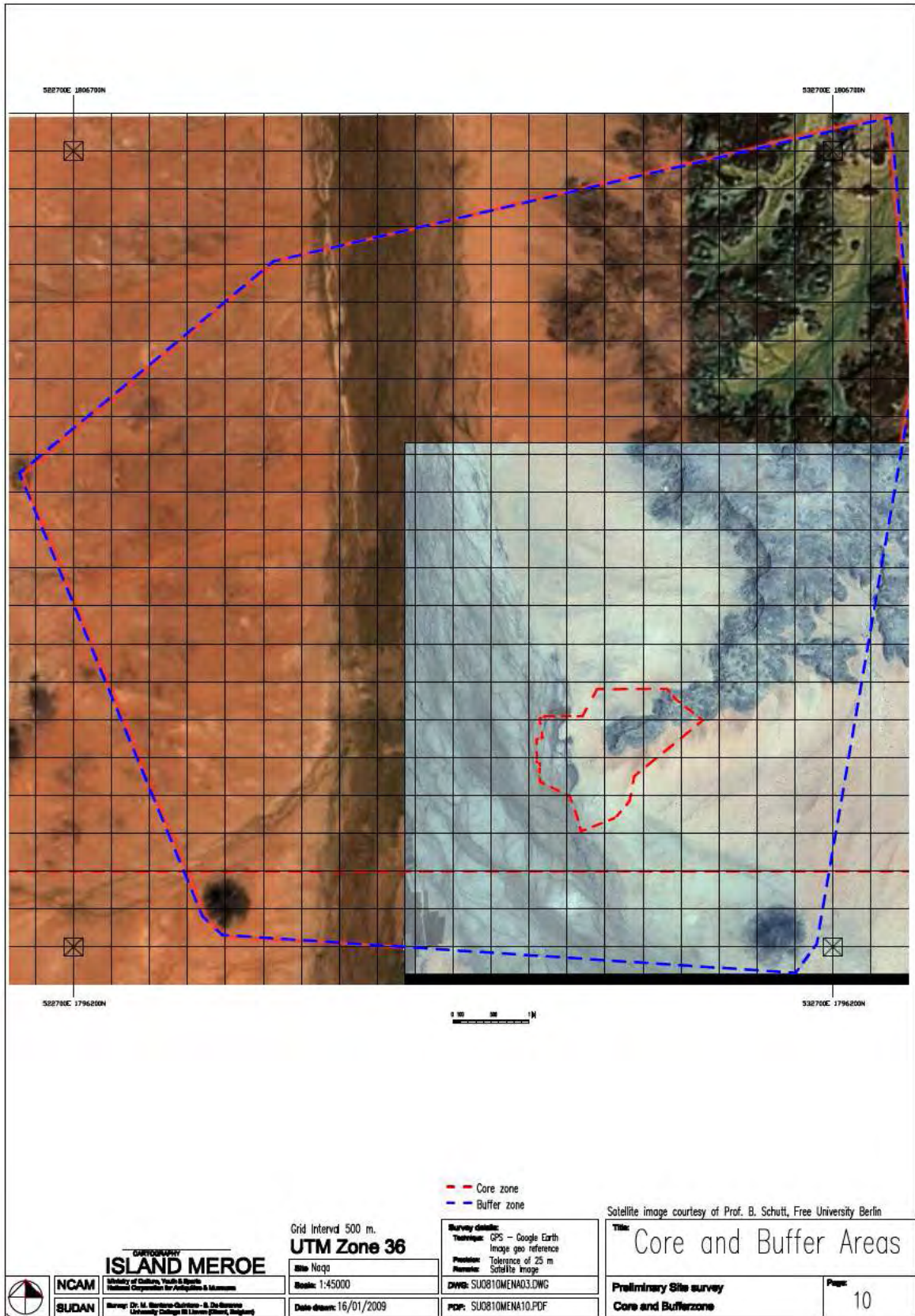
1. Map of northern and central Sudan showing the location of the three sites of nominated property



3. Meroe: Buffer and Core areas



10. Musawwarat es-Sufra Buffer and Core areas



15. Naqa Core and Buffer Areas