



CONSERVATION AND ENVIRONMENT PROTECTION AUTHORITY

Management Plan for the

World Heritage Property

Kuk Early Agricultural Site

Protecting our cultural heritage for future generations

KUK
WORLD HERITAGE SITE



Government of Papua New Guinea, 2024

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Papua New Guinea

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Photos: J. Onga

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The Late Ru Kundil and Emmanuel Yu standing over the excavation site (2010)

Photo: J. Onga

Key Abbreviations

CEPA- Conservation and Environment Protection Authority

DoEE- Department of Environment and Energy

WHPA-Western Highlands Provincial Administration

UNESCO -United Nations Educational Scientific and Cultural Organization

WHS -World Heritage Secretariat

WHC – World Heritage Committee

PEC - Provincial Executive Committee

NEC – National Executive Committee

PIP - Public Investment Programs

KEAS – Kuk Early Agricultural Site

KEASA – Kuk Early Agricultural Site Association

OUV- Outstanding Universal Values

PA – Protected Area

CA – Conservation Area

LLG – Local Level Government

DDA – District Development Authority

NMAG - National Museum and Art Gallery

NCPPA -National Cultural Property (Preservation) Act

TPA – Tourism Promotion Authority

NCC – National Cultural commission

Go PNG – Government of Papua New Guinea GPS- Global Position System

KWHSMC- Kuk World Heritage Site Management Commit

Minister's Foreword



The Kuk Early Agricultural Site is of incredible significance not just to the people of Papua New Guinea, but to world. In 2008, Kuk was determined to be of outstanding universal value to humankind when the UNESCO World Heritage Committee inscribed it on the World Heritage List. Importantly, it was also the first World Heritage Site in Papua New Guinea to be accepted onto the prestigious World Heritage List.

The Kuk Early Agricultural Site is of upmost importance to all people of Papua New Guinea. The archaeological discoveries at Kuk literally re-wrote the history books on agriculture and confirmed Papua New Guineans as one of the great innovators in human history. All sites inscribed on the World Heritage List must have systems of management in place to protect, manage and conserve the Outstanding Universal Value for which it was inscribed. This Management Plan articulates how the custodians of this incredible 10,000-year-old story will work together to ensure its unique place in the history of humanity is preserved and passed on to future generations.

As States Parties to international agreements, we must fulfil the special requirements of the World Heritage Convention. We should therefore strive to attain the highest standard in the protection of cultural and natural sites that have been declared the universal heritage of mankind. Kuk, being the first site inscribed on the World Heritage List, becomes increasingly important to have an instrument for effective management. World Heritage sites undergo dynamic development processes that sometimes present great challenges to the goal of preservation.

This Plan was developed in close consultation with both the local Kawelka people living at Kuk, recognised as the traditional custodians of the site, the Australian academics that discovered the site's international significance, and the various agencies of the Government of Papua New Guinea. I would also like to thank the Government of Australia for their strong support and involvement in the development of this Plan.

It is a great source of pride that my ministry plays a leading role in the protection and management of this significant site. The Conservation and Environment Protection Authority (CEPA), as the lead organisation for World Heritage in Papua New Guinea, has a noble and important responsibility. I am also proud of the way in which CEPA works with another very important organisation, the National Museum and Art Gallery, in the preservation of Kuk. This is a very fine example of how two agencies can work together to manage the heritage of this great nation. Thus, the wider responsibility in heritage management lies with all key national and provincial stakeholders including the district DDA and local community.

I recognise that a Management Plan is only as good as its implementation. This document is a blueprint for success that can only be realised through hard work both on the ground at Kuk and in the various government offices in the Western Highlands and Waigani. We must remain focused on protecting this asset of global importance and make every effort to carry on its important legacy. Governments, industry and the Kuk community must continue to work in close partnership – we are all custodians of this site of global importance.

Finally, I encourage all stakeholders and partners to collaborate and support my organisation to implement this Management Plan which is very challenging but exciting initiative and I look forward to work with you all.

HON. SIMO KILEPA, MP

Minister for Environment and Conservation and Climate Change

Managing Director's Foreword



The development and management planning process of Kuk Early Agricultural Site was initiated by the Papua New Guinea Conservation and Environment Protection Authority (CEPA) and supported by the Australian Department of Environment and Energy (DoEE).

As part of their commitment to assist and build World Heritage Capacity in the Pacific and strengthen the integrity of the World Heritage Convention, the Australian Government through (DoEE) assisted Papua New Guinea (PNG) in the development of this Management Plan.

This Management Plan has been developed through a participatory process and seeks to share the idea in such a manner that all stakeholders, are aware of the desired actions and why these are important for heritage management and how the stakeholders can work together toward management of this site. It is important that the document has been kept simple for all stakeholders to read and understand the management plan and its implementation process.

This Management Plan also seeks to appreciate, support and enhance existing and future approaches toward community heritage management. In consultation with all stakeholders, CEPA ensure the Management Plan is practical, supported and implementable within the constraints of the site and the available resources.

The Management Plan should be considered a living document, which requires and seeks over time review, research and reflection in order to ensure effective heritage management in and around the site. Most importantly, this document seeks to assist those who are currently or potentially involved in supporting community heritage management of the site. Significantly, the management plan also seeks to provide a basis for enhanced understanding of the Kuk site and its significance, by documenting some of the stories that have led to the heritage significance and identifying some of the needed actions to manage this heritage significance.

With the development of this Management Plan, I believe its sets an example for other sites in country as planning instruments for the protection, conservation and Management of World Heritage Sites in Papua New Guinea. This plan does not seek to be a comprehensive Site Management Plan but rather seeks to provide general guidelines for current and future site management through the effective engagement of stakeholders and especially the local community, as Heritage Managers.

Finally, I would like to thank everyone involved, supported and contributed in the development of the Management Plan and I look forward to see its implementation in the future.



MR. JUDE TUKULIYA

Acting Managing Director

Acknowledgement

The Conservation and Environment Protection Authority (CEPA) is the focal point and executing agency representing the State Party in implementing World Heritage Convention in Papua New Guinea.

CEPA would like to thank and acknowledge the lead author, Mr. Hallam Drury in the development of Kuk Management Plan in 2017. It took a while to officially announce the Management Plan due to protection of the area and appointment of the Site Manager. CEPA is now in process of protecting the area under Conservation Areas Act and the appointment of the site Manager that allows for the implementation of Management Plan.

The Plan was officially announced by the CEPA Managing Director, Mr. Jude Tukuliya on the 18th April 2024 on site and is ready to be implemented.



Mr. Hallam Drury (left) and Mr. Jim Onga (right) 2017

Photo Henry Ru

CEPA also would like to thank and acknowledge the following people;

Dr. Andrew Moutu – Consultant and Lead Author
Nick Araho - Author (National Museum and Art Gallery)
Jim Onga - Author (Conservation and Environment Protection Authority)
Mark Nizette, MBE – Author (Australian Government Department of the Environment and Energy)
Dr Tim Denham – Consultant (Australian National University)
Dr Philip Hughes - Consultant (Flinders University)
Henry Ru – Consultant (Kawelka)
Emmanuel Yu – Consultant (Kawelka)
Nicholas Namba - Consultant (Kawelka)
Dr Joe Ketan – Consultant (Kawelka)
Dr John Muke – Consultant (Social Research Institute)

CEPA also not forgetting all key stakeholders including PNG National Commission for UNESCO, National Museum and Art Gallery, National Cultural Commission, Tourism Promotion authority, Western Highlands Provincial Government, Dei Local Level Government and the people of Kuk (Kawelka) for their input and contribution in the development of the plan.

Contract Agreement between CEPA and Site Manager

Signing of the Contract between CEPA Managing Director Mr. Jude Tukuliya and Kuk World Heritage Site Manager Mr. Henry Ru come at a right time for the implementation of the Kuk Management Plan.



The signing marks the significance milestone for Mr. Henry Ru and the community for the implementation of the Management Plan. Mr. Ru has been voluntarily involved in Kuk Project over the years and he was finally recognised by CEPA and confirm him to be the Site Manager. He will now perform the duties and responsibilities on the ground as Site Manager for Kuk World Heritage Site.

Executive Summary

The Outstanding Universal Value of the Kuk Early Agricultural Site must be protected. Kuk is Papua New Guinea's first and only World Heritage Site, and is an incredible testament to an innovative cultural tradition of land management and exploitation. It is one of the oldest known sites in the world where people began to develop the

practice of agriculture. Kuk's inscription on the World Heritage List recognizes that this history is of global significance and helps us understand the history of humanity. World Heritage recognition of the site is not only about acknowledging this important story, but ensuring that this heritage is protected for current and future generations and is never lost. Responsibility lies with the Government of Papua New Guinea to ensure, to the best of its ability, that the site is managed and conserved in accordance with the highest standards and principles – as required of a World Heritage site.

Every site inscribed on the World Heritage List must have a management plan. A management plan is a document that explains how the special values (or Outstanding Universal Value) of a World Heritage Site will be protected, conserved and passed on to future generations. It explains who is responsible for doing this and how they will do it.

World Heritage Management at Kuk

Building on a long history of traditional management by the Kawelka people, this Management Plan seeks to support and enhance the identification, protection, presentation and transmission to future generations of the Kuk Early Agricultural Site. It is a way for the Kawelka at Kuk to be recognized and supported as the primary caretakers of this important heritage

The Kawelka are supported in the local management of Kuk by the Conservation and Environment Protection Authority (CEPA), which is the agency responsible for the implementation of the World Heritage Convention in PNG. CEPA and the Kawelka are other authorities including the National Museum and Art Gallery (NMAG) and the PNG National Commission for UNESCO.

What the Management Plan Does

The Management Plan outlines what the values of the site are, what issues may threaten them and what policies and actions are in place to conserve and protect the site. It also describes a monitoring and evaluation framework so that managers can assess the effectiveness of the Plan and make changes, if necessary. It outlines who is responsible for implementing the Management Plan and how the Kawelka and relevant authorities will work together to conserve and protect Kuk.

The Management Plan does recognize that the community at Kuk has a number of development aspirations and wishes to see an improvement in their standard of living. It is important to recognize that this Plan is concerned with the protection and conservation of Kuk's OUV.

This means the Plan is about how Kuk is managed as a World Heritage Site. While there will be elements of the Management Plan that support sustainable development at the property, it cannot be a plan for broader community development. This is because responsibility for many of these activities lies with other government agencies and the non-government sector. This Management Plan supports community development activities where it relates to the conservation and protection of Kuk's OUV, and encourages all relevant parties to fulfill their responsibilities with regard to broader community development.

Protection of Kuk's Outstanding Universal Value

The OUV within the World Heritage property is largely buried and well-preserved beneath the layer of topsoil at Kuk. As such, Kuk's OUV is generally well-protected from potential harm (threats). The activities occurring within the World Heritage Property are almost completely related to gardening and agriculture. Traditional gardening at Kuk strengthens the uniqueness of the site and assists to preserve its integrity. A number of small restrictions are outlined in this Management Plan to ensure the buried evidence remains well-preserved. These restrictions largely relate to limiting activities and/or plants that may go deeper at 0.5 metres below the surface.

Other policies, such as ensuring the maintenance of key creeks and drains, and supporting vegetative cover help maintain the water table and limit the occurrence of wet/drying events that might harm the OUV of the site.

Assisting the Kawelka to Protect and Conserve Kuk

The Management Plan outlines a number of actions and policies to assist the local community at Kuk on



how to manage the site. This includes the establishment of a ranger program, sourcing of necessary equipment to undertake site maintenance, training for site managers/rangers and community heritage education initiatives etc

Cleaning the drain by the community for free flow of the water

Photo: Henry Ru

Introduction

The main objective of developing this Management Plan is to manage Kuk World Heritage property, the flagship of PNG cultural heritage, for future generations of Kuk community and Papua New Guineans.

This Management Plan will involve protection, conservation, and promotion of universally valued cultural practices and to protect the archaeological evidence beneath the soil by encouraging traditional gardening practices.

Kuk Early Agricultural Site is one of the first and only World Heritage Site in Papua New Guinea. Since its inscription in 2008, there was no Management Plan developed, how the site going to be maintained and preserved for its outstanding universal values.

The World Heritage Committee recommends that the State Party should submit or development a Management Plan, how the site is going to be managed. Like many other sites around the world, once a site is inscribed on the World Heritage list, it becomes increasingly important to have instrument for effective management. The management plan presented in this publication is intended to rectify that situation.

According to Operation Guidelines for Implementation of the World Heritage Convention, every site inscribed on the World Heritage list must have Management Plan explaining how the Outstanding Universal Values of the site can be maintained and preserved.

As State Parties to International Agreements, we must fulfil the special requirements of the World Heritage Convention. We should therefore strive to attain highest standard in the protection of Kuk Early Agricultural Sites that have been declared universal for mankind.

The Conservation and Environment Protection Authority (CEPA) the state agency responsible for world heritage matters in PNG initiate the management plan with assistant from Australian Government through Department of Environment and Energy (DoEE) to develop and provide a completed plan for approval and implementation.

This management plan represents the collective efforts of the Kawelka people at Kuk and has been developed through a participatory process and seeks to share the story in such a manner that all stakeholders, are aware of the desired actions and why these are important for heritage management and how the stakeholders can work together toward management of this site. It is important that the document has been kept simple for the Kawelka Community and all stakeholders to read and understand the management plan and its implementation process.

CEPA is the national government authority that presides over environmental and all other matters pertaining to world heritage and shall be acting—at all times—as the representative of the Government of PNG to UNESCO in order to report on matters concerning world heritage in Papua New Guinea.

In the spirit of things, CEPA shall work closely with the NMAG, the WHPA and the community of Kawelka people in Kuk to ensure that the universal scientific values associated with the prehistoric site are protected at all times and that some of the interests and aspirations of community well-being of the people of Kuk are promoted and secured within the parameters of this management plan.

Key government establishments are the Conservation & Environment Protection Authority (CEPA), the National Museum & Art Gallery (NMAG), the Western Highlands Provincial Administration (WHPA) and the people of the Kawelka tribe, the traditional landowners who live in and around the vicinity of the prehistoric site in Kuk.

This plan will require the support of all stakeholders in the management of Kuk World Heritage project for it to work. It will need funding from the district, provincial government as well as the national government for the development and management of the Kuk World Heritage property. The management plan also developed for the protection, conservation and preservation of the site Kuk and its Outstanding Universal Values of the cultural landscapes and offers the reader some understanding in conservation and management of the site and how the site is going to be managed in future.

CEPA acknowledged with gratitude to individuals and organizations involved and contributed meaningfully in the development and completion of the Management plan for it to be implement soon.

Chapter One

1. About

Why do we need a management plan?

1.1 History

Located in the Upper Wahgi Valley of the Western Highlands Province of Papua New Guinea, Kuk is the home of an incredible story of human innovation and ingenuity that is 10,000 years old. The findings from archaeological expeditions at Kuk in the 1970s and 1990s literally re-wrote the history books on the independent development of agriculture. It is one of the oldest and most intensively studied agricultural sites in the world and is of immense global significance for understanding the evolution of human societies. Kuk also challenged previous theories about social ‘trajectories and ‘civilization’, with agriculture supporting, rather than transforming, the Papua New Guinean and Highlands concepts of egalitarian and local-scale societies. The agricultural developments at Kuk also contributed to the spread, settlement and growth of present-day cultures and societies across Oceania. Kuk, therefore, has immense educational, historical, scientific and social values for past, present, and future generations of Papua New Guinea.

In 2008, following at least a decade of hard work, the Kuk Early Agricultural Site was inscribed on UNESCO’s prestigious World Heritage List. The List recognizes and protects heritage sites regarded as so exceptional that they are considered to be of outstanding universal value to all humanity. This global recognition is a source of tremendous pride for Papua New Guinea, the Western Highlands, the Kawelka people and the archaeologists who researched at Kuk.

Kuk was PNG’s first site inscribed on the List, a significant achievement in a land rich with cultural and natural heritage. At the time of writing, it remains PNG’s sole World Heritage site. It is reflective of the broader challenges in the Pacific. Despite the abundant heritage found within an area one third of the total surface area of the globe, the Pacific continues to be the most under-represented region on the World Heritage List.

The Kuk Early Agricultural Site was inscribed on the World Heritage List on 8 July 2008 at the 32nd session of the World Heritage Committee in Quebec, Canada. At the time of inscription, the World Heritage Committee in decision 32COM 8B.26 requested the government of Papua New Guinea submit a completed management plan in accordance with Paragraph 108 of the *Operational Guidelines for the Implementation of the World Heritage Convention*. Paragraph 108 states that

each nominated property should have an appropriate management plan or other documented management system which should specify how the Outstanding Universal Value of a property should be preserved, preferable through participatory means.

This Management Plan responds to the request of the World Heritage Committee and details how the national and provincial governments, and the local community at Kuk, will preserve the evidence of ancient agriculture.

1.2 About the Plan and Structure

This Plan is structured in accordance with the expectations on content for World Heritage management plans as outlined in the *Operational Guidelines*, other World Heritage Centre policy documents, existing site management plans, and local knowledge.

The key elements of the plan are designed to answer a number of critical, but simple questions:

Why we need Management Plan (Chapter 1)

What is Kuk and why is it significant? (Chapter 2)

How do we protect Kuk's significance and who is responsible? (Chapter 3)

What could threaten Kuk's significance? (Chapter 4)

What will do to protect and preserve Kuk? (Chapter 5)

How do we know Kuk is protected and that our Plan is working? (Chapter 6)

Where do we get the resources from to implement this Plan? (Chapter 7)

1.3 Process

This Plan has been developed by the Conservation and Environment Protection Authority (CEPA), in close collaboration with the National Museum and Art Gallery (NMAG). It draws from existing scientific information and expertise on Kuk, traditional knowledge, site visits, World Heritage management policies and expert advice from a range of sources. The Plan was written with considerable input from the Kawelka community, through consultation workshops, site visits and regular communication throughout various stages of its development.



This Plan was developed and informed by:

Dr. Andrew Moutu – Consultant and Lead Author
 Hallam Drury – Lead Author and Project Manager (Australian Government Department of the Environment and Energy)
 Nick Araho - Author (National Museum and Art Gallery)
 Jim Onga - Author (Conservation and Environment Protection Authority)
 Mark Nizette, MBE – Author (Australian Government Department of the Environment and Energy)
 Dr Tim Denham – Consultant (Australian National University)
 Dr Philip Hughes - Consultant (Flinders University)
 Henry Ru – Consultant (Kawelka)
 Emmanuel Yu – Consultant (Kawelka)
 Nicholas Namba - Consultant (Kawelka)
 Dr John Muke – Consultant (Social Research Institute)
 Dr Joe Ketan – Consultant (Kawelka)



Photo J. Onga

1.4 Information Centre



Information Centre (Inside and Outside)

Photos: J. Onga

Chapter Two

2. The Property

What is Kuk and why is it significant?

2.1 – Description of the Property



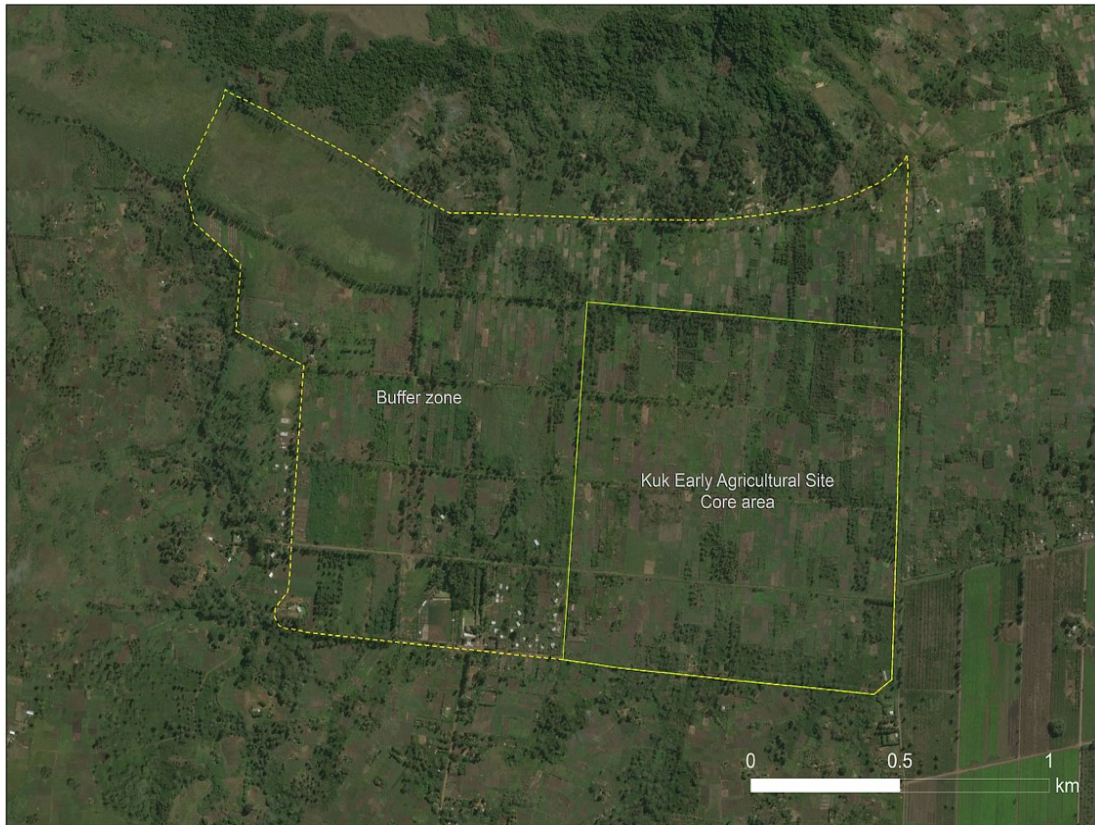
2.1.1 What is Kuk?

The Kuk Early Agricultural Site (hereafter Kuk) is a World Heritage-listed Cultural Landscape that records a significant stage of technological development of humanity worldwide, namely the early and independent development of agriculture. Kuk was declared to be of Outstanding Universal Value due to evidence of plant cultivation dating to 10,000 years before present (BP), agriculture dating to 7000-6400 years BP and intermittent and successive developments in agricultural practices and technology from 7000 years BP to the present.



2.1.2 Where is Kuk?

Kuk is located at an altitude of 1560 metres above mean sea level and forms part of the wetlands of the Upper Wahgi, one of the largest inter-montane valleys in the highlands of Papua New Guinea. Kuk is approximately 6 km north of Kagamuga Airport and 12 km northeast of the township of Mount Hagen, the third largest urban centre and Provincial Headquarters of the Western Highlands Province.



2.1.3 The Site

Also known as the Core Area, the Kuk World Heritage Site is 116 hectares and encompasses the south-eastern area of the former Kuk Agricultural Research Station.

The Core Area has yielded the archaeological, geomorphological and palaeoecological evidence of early plant exploitation and agricultural practices. It is of the greatest heritage significance and requires the most active management to ensure the preservation of the buried archaeological artefacts, features and associated deposits.

2.1.4 The Buffer Zone

A Buffer Zone of 196 hectares is located on two sides of the Core Area. The Buffer Zone includes the remainder of the former Kuk Agricultural Research Station and contains evidence of later agricultural practices. While of heritage significance, it requires only limited active management to ensure continuing conservation.

2.2 Why is Kuk significant?



Papua New Guineans were among the world's earliest agriculturists; Kuk is of immense global significance for understanding the evolution of human societies. It has immense educational, historical, scientific and social values for past, present, and future generations of Papua New Guineans and Pacific islanders. It bears an exceptional testimony to the origins and development of both Pacific and Papua New Guinean agriculture. It is also worth noting that the first evidence of human presence at Kuk dates to approximately 35,000 years ago.

The Core Area of Kuk includes the most significant and well-preserved agricultural remains dating from 7000-6400 years ago to the present, as well as evidence of plant exploitation dating to 10,000 years ago. The Buffer Zone includes more extensive areas of later agricultural systems and settlements dating from approximately 2000 years ago.

The agricultural developments at Kuk contributed to the spread, settlement and growth of present-day cultures and societies across the region. In addition, the evidence at Kuk displays the diversity of historical trajectories after the inception of agriculture and challenges uniplanar, often evolutionary, teleological and Eurocentric interpretations of human history. Papua New Guineans are proud of this significant contribution to the world's heritage and are committed to protect it for future generations.

2.3 Statement of Significance

The Kuk Early Agricultural Site was inscribed on the World Heritage List because it satisfies two criteria specified in the *Convention Concerning the Protection of the World Cultural and Natural Heritage* (World Heritage Convention). The two criteria for which Kuk is recognised as having Outstanding Universal Value are

Criterion iii: to bear a unique or at least exceptional testimony to a cultural tradition or to a civilisation this is living or which has disappeared;

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

In 2008, the World Heritage Committee approved Kuk's statement of Outstanding Universal Value as follows: "The Kuk Early Agricultural Site, a well-preserved buried archaeological testimony, demonstrates an independent technological leap which transformed plant exploitation to agriculture around 7,000-6,400 years ago, based on vegetative propagation of bananas, taro and yam. It is an excellent example of transformation of agricultural practices over time from mounds on wetland margins around 7,000-6,400 years ago to drainage of the wetlands through digging of ditches with wooden tools from 4,000 BP to the present. The archaeological evidence reveals remarkably persistent but episodic traditional land-use and practices where the genesis of that land-use can be established and changes in practice over time demonstrated from possibly as early as 10,000 BP to the present day.

Criterion (iii): The extent of the evidence of early agriculture on the Kuk site can be seen as an exceptional testimony to a type of exploitation of the land which reflects the culture of early man in the region.

Criterion (iv): Kuk is one of the few places in the world where archaeological evidence suggests independent agricultural development and changes in agricultural practice over a 7,000 and possibly a 10,000-year time span."

The glossary is in *appendix (1)* and the full Statement of Outstanding Universal Value for Kuk is located at *Appendix (2)*.

2.4 Statement of Authenticity and Integrity

Kuk's authenticity is proven by scientific research, multi-disciplinary research, the continuation of land-use practices, and is one of the oldest and most intensively studied agricultural sites in the world. Kuk's integrity is well protected. Archaeological excavations were intensive but limited to a small part of the site. Modern farming/gardening is undertaken manually. The vast majority of agricultural evidence remains well preserved and intact. A full and detailed appendix on Kuk's Authenticity and Integrity is located at *Appendix 3 & 4*.

2.5 The Kawelka

Kuk is the home of the Kawelka, a Melpa-speaking group from the Wahgi Valley. The Kawelka have occupied land at Kuk off-and-on for generations. Like many tribes in the Western Highlands, the Kawelka have for generations been involved in warfare, migration, expansion and contraction. The Kawelka abandoned Kuk in 1920 due to a defeat in war, but returned from Mbukl, north of Kuk, gradually during the 1950s and 1960s to reclaim their land. The Kuk landscape is thus tied to traditional and historical ideas of identity. These ideas are presented in narratives and public speeches where names and memories are bound to places and landscapes.

Kuk is also the home of the Kawelka people, a prominent Melpa-speaking group who are well-known throughout the Mount Hagen and Wahgi Valley region of the Western Highlands. The Kawelka were the subject of much academic research in the 20th century, led by renowned anthropologists such as Marilyn

Strathern, Paul Gorecki, Pamela Stewart and Andrew Strathern. Many of the Kawelka are subsistent farmers who draw their livelihood from their land. Land is traditionally communally-owned by the Kawelka and its many sub-clans.

Chapter Three

3. Management

How do we protect Kuk's significance and who is responsible?

This section of the Management Plan shows how the Government of PNG, through its statutory establishments and the local community shall operate in a mutually coordinated way to protect the Outstanding Universal Value of Kuk as a World Heritage Site. Key government authorities are the Conservation & Environment Protection Authority (CEPA), National Museum & Art Gallery (NMAG), the Western Highlands Provincial Administration (WHPA) and the people of the Kawelka tribe—the traditional landowners who live in and around the vicinity of the World Heritage site at Kuk. Other PNG agencies will support the implementation of this management plan, including the National Commission for UNESCO (PNG Department of Education) and the Tourism Promotion Authority (TPA).

CEPA is the national government authority that presides over environmental and all other matters pertaining to World Heritage and shall be acting—at all times—as the representative of the Government of PNG to UNESCO in order to report on all matters concerning World Heritage in Papua New Guinea. In the general spirit of things, CEPA shall work closely with the NMAG, the WHPA and the community of Kawelka people in Kuk to ensure that the Outstanding Universal Value of the site is protected at all times and that some of the interests and aspirations of community well-being of the people of Kuk are promoted and addressed—in some measure—within the parameters of this management plan.

3.1 Going back and forth in time in managing Kuk

Since the prehistoric site is located in the nexus of an organically saturated agricultural landscape that contains relict archaeological remains and continuing practices of land cultivation, the ultimate aim of the management plan is to secure and protect the archaeological records in selected areas of the Kuk site. Since discoveries became known, archaeologists have demarcated the site into core, buffer and fringe areas each of which have their own associated risks. Considering the prehistoric past, the present and future use of the land makes brings into view a cultural sense of time and place and of how this happens with plant cultivation. The protection of the site goes on concomitantly with the continued use of the land for traditional cultivation based on occupation and use while bearing in mind connections with the previous, the current and forthcoming generations of the Kawelka people.

What we find is a sense of time that swings back and forth intermittently like the oscillations of the traditional *moka* exchange of the Kawelka tribe, known prominently in the ethnographic work of anthropologists. Such a temporal dynamic comes about because people today are making gardens on sites where people of previous generations have also cut, dug and planted their gardens using similar techniques of cultivation.

Without assuming a direct linear connection between different generations of people who have worked and toiled the soils of Kuk with the present day Kawelka, the vegetative propagation of the landscape indicates that the past and present generations of gardeners are dealing with the same kind of plant materials: taro, yam, sugar cane and banana. In light of this, it is envisaged that the traditional cultivation of food crops shall continue to be planted and replanted on the site thus imbuing the landscape with fecundity and re-generative capacity.

Scientific research—undertaken by archaeologists and ethno-botanists—has established some of their genetic sequences, which are traced back to several thousands of years. By the logic of analogy between people and plants, it follows that if these various types of plant cultivars are still rooted in the soils of Kuk so too must be the people of the Kawelka tribe who hold the knowledge, and who are socially composed of and segmented along different clan lines but imagined themselves to be rooted in the land.

3.2 Management Vision: *mae pukl wua* ‘ground/root man’

This management plan derives its inspirations from cultural ideas enunciated both at the level of practice and from a pro-generative philosophy of life based around the horticultural metaphors of plant cultivation. The idea of being rooted in the land or *mae pukl wua* in the Melpa language of the Kawelka comes from plant cultivation. Plants take root in the ground and when they mature for harvesting at the appropriate time, they are also cut off as transplants for new gardens. Varieties of plant cultivars that have roots, stems, corms, tubers are ‘cut off’ as transplants and are then taken to new or different gardens elsewhere by the same or different people at the time. Known in Melpa language as *mbo*, these transplants travel to and locate themselves in different places in the course of cultivation.

By analogy, this appears to be similar to the way in which people move about the land in pursuit of whatever they gather, cultivate and circulate amongst themselves. People and plants travel to and from places time and time again. When plant roots go down into the ground, shoots also sprout from the subsoil and eventually, at the right time, they are divided as cuttings (*mbo*) such as in the pieces of corms and tubers which are taken away as transplants that are grown in gardens elsewhere.

The cultivation of the plants is affected through cuttings which bear connections both to their original garden sites and to the new places that they are now planted. Each cutting moves in between people and places and provides a self-generative condition in which the life of the next generation of plants can continue to live on. Just as a plant is cut to provide new transplants, women of the Kawelka tribe are cut time and time again from their clans of origin to bring new life to the soils of another clan.

Inherent in this analogic relationship between people and plants is a temporal dynamic that rests on: (a) origins (the ground where a person or plant is rooted in or comes from); and (b) destinations (where a plant or a person might be going to) in the next transitory life as a transplant (*mbo*).

It is unsurprising to find that all the major clans of the Kawelka tribe that have a role in the management of Kuk World Heritage Site have names that end with suffix *mbo*: Kurupmbo, Membo, Kundumbo, Keyambo and Lgambo. Each of these clan groups know details of having been cut off from their various ancestral origins, moved to and from places and are now settled in Kuk. Clans are transplanted as plants do when they are cut and replanted as *mbos*.

The analogic flow of relations between people and plants illustrates a temporal pendulum that oscillates back and forth between their different places of origins and destinations. The transitory movement of people, places and plants appear as a recurrent feature of this cultural landscape even if they appear to be in one place at a given time because their respective sense of place has also and will still move with them.

In the Highlands and much of Papua New Guinea, transplants are considered as ‘cuttings’ that momentarily divide a plant from its original source just as one might imagine how a baby’s umbilical connection with its mother is severed. The act of cutting inaugurates a process that enables a transplant to have its own identity in a new place where it takes root and to retain its sense of origins as well. A sugar cane can be cut at several times to provide new transplants just as a clan or a lineage can supply several of its female members as wives that would pave way for its female progenies to maintain ties with their clan of origin, even perhaps returning in an appropriate time in the course of life. Each transplant contains within itself the potential for new and further growth if it is planted and takes its root in the ground a new.

In the kinship understandings of the Kawelka tribe, a clan's progeny may be followed through a father's line that is imagined as the 'ground/root man' while a man's sister's child is like a transplant which take root in a different ground elsewhere. A person's origins are never forgotten or severed but valued and this is shown through various kinds of transactions that flow back and forth in between one sense of origin and destination.

If the distinct origins of a person's pedigree are conserved through the idea of 'ground/root' metaphor in much the same way as plants have origins and destinations, then we also find that the vegetable gardens that Kawelka people make in Kuk today also help conserve the archaeological evidence underneath the surfaces through the cultivation of the same plant materials that have been around for thousands of years.

The desire to preserve the universal scientific value of the Kuk prehistoric record in parallel with the ongoing and continuing cultural landscape lead us to a compelling set of interrelated questions: what kind of plants shall be cultivated on the prehistoric site without affecting the water-table that helps preserve the archaeological records beneath the surface of the soil? How can trees with deep roots stand or plants with shallow roots stand for or against the way in which the Kawelka people can help protect and secure the future of the archaeological record from demise and destruction?

Given that prehistoric drains are both the containers and contents of the prehistoric record, what scope of contemporary drainage is needed as a method to retain a sufficient level of water that can continue to help conserve the ancient archaeological remains? Bear in mind that contemporary drains are lying on top of old ones just as plant materials similar to ones cultivated thousands of years ago are now being cultivated and a few more introduced trees and plants are introduced.

How much water has to be drained and how much should be retained in the new and old drains? We find ourselves struggling to maintain the differences of the water table in the two contrasting time and depth of the drains. The difficulty to ascertain an appropriate balance of the water table resonates with another psychological conflict. The desire to conserve both archaeological records and the recognition of the ongoing use of the site as a cultural landscape: how can we find a modicum of balance that keeps a scale and a measure of both?

The foregoing discussions reveal three important aspects of a dynamic tension between the prehistoric record and the desire for conservation *vis-a-vis* the continued use and occupation by local landowners. The three aspects of the dynamic are: (a) people in pursuit of their economic livelihoods while simultaneously creating and maintaining their local form of social relations; (b) places or sites of cultivation; and (c) varieties of plant cultivars both endemic and exogenous to the region.

The mutual interaction of these three dimensions reveals an intriguing relationship between people, places and plants. People need places to cultivate their plants while places need plants to grow people in and over time. This dialectical interaction between people, places and plants generates a tension that requires a balance or a harmony of sorts in the context of a management plan. The interaction between people, places and plants rests on a temporal pendulum that swings back and forth in time punctuating their sense of becoming one or other (root or a cutting) with intermittent pronouncements of their respective origins and destinations. All in all, the vision statement of *mae pukl wua* is effectively a pro-generative philosophy of life.

3.3 Vision Statement

The iconic Kuk Early Agricultural Site continues to maintain its Outstanding Universal Value in concert with the local heritage values of people, places and plants, and sets a compelling benchmark for the management of similar sites of historical and scientific significance in Papua New Guinea and the rest of the world.

3.4 Management Objectives

- To support the traditional people of the area, the Kawelka people, to protect, preserve, present and transmit to future generations the Outstanding Universal Value of the Kuk World Heritage Site;
- To promote co-participation and egalitarian ethos;
- To ensure that the Kuk Early Agricultural Site is understood and managed as a cultural landscape;
- To support a greater awareness of traditional practices of cultivation in order to retain and refine indigenous systems of thinking and acting upon the world.
- To encourage a greater understanding and appreciation in PNG and the world of Kuk and its value to all humanity.
- To promote an increased knowledge of Kuk through education.
- To support tourism as a potential means of presenting the site and creating opportunities for income for the local community;
- To encourage and support, where possible, broader efforts by local and provincial government authorities in addressing the livelihood needs of the community through activities that provide benefits in return for heritage management.
- To foster good governance, transparency, cooperation, and skills in heritage preservation in the management of Kuk
- To acknowledge and respect the local heritage knowledge of the Kawelka, as well as the local, provincial and national experts and officers working together to conserve Kuk.
- To promote equality and equity amongst all stakeholders
- To support and encourage the involvement and contribution of women in the management of Kuk
- To promote and support an increased knowledge of Kuk through education and awareness programs throughout Papua New Guinea.

3.5 Legislative Framework for Managing and Preserving Kuk

The Kuk Early Agricultural Site will be managed by a complimentary legislative framework that will provide the necessary legal protection for the site, as well as mandate the responsible national and provincial agencies, and the local community to conserve the site.

Kuk will be protected by three pieces of legislation, each with different strengths and characteristics that will ensure adequate protection of the site.

3.5.1 Conservation Areas Act (1978)

The *Conservation Areas Act* (the Act) provides for the protection of natural and cultural sites of national importance. The Act allows for the identification of sites and areas (as designated by boundaries) with special values, and for their management.

Gazetting Kuk under the Conservation Areas Act will identify the values or matters of significance within the area that require conservation. In the case of Kuk, these are the values outlined in Chapter 2. In order to ensure these values are protected and conserved, the Act enables the creation of a management plan and a management committee. The management plan sets the rules for activities within the designated area, and is approved by the Minister under the Act. The Act also prohibits development within the protected area that is inconsistent with the plan of management. Should development be proposed that is not in accordance with the management plan, then an application must be made to the Minister for consideration.

3.5.2 National Cultural Property (Preservation) Act (1965)

The *National Cultural Property (Preservation) Act* (NCPA) provides for the protection and preservation of objects of cultural or historical importance to Papua New Guinea.

The archaeological evidence at Kuk will be proclaimed as ‘national cultural property’ under the NCPA. Under the NCPA, the archaeological values (including the preserved scientific matter buried at Kuk) as well as traditional cultural objects discovered at the site (such as artefacts) will be declared as ‘national cultural property’. This will prohibit the acquisition, transfer and destruction of the cultural property.

3.5.3 National Museum and Art Gallery Act (1992)

Allows NMAG to administer the NCPA and document the prehistory of Papua New Guinea, monitor archaeological research and issue permits, maintain a register of archaeological sites, manage prehistoric sites in accordance with the *Conservation Areas Act*. This Act designates NMAG as expert national agency on archaeology and prehistory and charges it to assist in the management of sites designated under NCPA and the *Conservation Areas Act*.

Table: summary of how Kuk is protected legally and the function of each legislative instrument

| Legislative Framework | | |
|---|--|--|
| Conservation Areas Act | NCPA | Museum Act |
| Allows national government to enter into agreements for management of sites of cultural importance with the local community, Allows for the establishment of a management committee, Allows for the creation of a management plan and rules for the site, Prohibits activities and development that are inconsistent with the management plan | Allows national government to protect the archaeological, scientific and cultural artefacts at Kuk | Requires NMAG to manage sites registered under NCPA and Conservation Areas Act Nominates NMAG as responsible for recording PNG prehistory and archaeology |

By the operations of law, Kuk is also registered under the National Museum & Art Gallery Act, Section 4 (1) (vi) & (ix) with site numbers recorded in the Traditional Sites Register maintained by the National Museum & Art Gallery. Based on archaeological excavations, the following are site numbers for Kuk prehistoric sites. In the table below, the hyphenated numbers to the right are geographical coordinates with the first three bearing the latitude and the longitude appearing in the second three digits.

| <i>Prehistoric garden sites</i> | <i>Prehistoric round house sites</i> | <i>Prehistoric burial niches</i> | <i>Prehistoric finds</i> |
|---------------------------------|--------------------------------------|----------------------------------|--------------------------|
| MQC—051 588 | MRC—051 587 | MRI —052611 | MNR—045 598 |
| MQO—051 588 | | | MNS—050595 |
| MQP—050 588 | | | |
| MQQ—050 587 | | | |
| MQR—031 595 | | | |
| MQS—031 592 | | | |
| MQT —051 587 | | | |

Table 1: Traditional site registration numbers for Kuk

Finally, Kuk is also protected locally by a Consent Agreement drawn up and signed by Kawelka leaders and landholders of blocks within the prehistoric site. This Consent Agreement was included in the original documentation submitted for the nomination of Kuk as a World Heritage Site. This Consent Agreement remains alive and provides the moral basis of how the Kuk Early Agricultural Site Association (KEASA) will relate to government, non-government or others that may have interests or dealings with the prehistoric site in Kuk.

3.6 Institutional Framework

3.6.1 National Agencies

A number of national government agencies work together to support the management of Kuk. Their roles are outlined briefly below.

The Conservation and Environment Protection Authority (CEPA) is the agency responsible for World Heritage in PNG. In 1994, the National Executive Council mandated CEPA (then the Department of Environment and Conservation – DEC) to implement the *World Heritage Convention* in Papua New Guinea. CEPA is therefore responsible for ensuring PNG meets its obligations under the *Convention*. Because World Heritage is of international significance, national governments have the primary responsibility for its conservation and protection.

The National Museum and Art Gallery (NMAG) acts to protect and conserve the cultural and natural heritage of PNG and is the national agency responsible for prehistoric archaeology. It is also responsible for managing and preserving prehistoric sites, including those listed under the *Conservation Areas Act*. NMAG is therefore a critical partner of CEPA, at the national level, in managing the Kuk site.

Because the *World Heritage Convention* is an international treaty under the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the PNG National Commission for UNESCO supports the implementation of the *Convention* in PNG. It does this through advice and support to CEPA and NMAG on UNESCO programs and services to further UNESCO's objectives in PNG.

Other national agencies, such as the Tourism Promotion Authority and the Department of Education will also be essential to supporting objectives and actions within this management plan.

3.6.2 Regional Level

The Western Highlands Provincial Government, the Local Level Government (Dei Council) and the District Development Authority will support the implementation of this management plan and assist with the delivery of a number of objectives and actions.

3.6.3 Local Level – the Kuk Early Agricultural Site Association

For many years, Kuk has been managed by the local people of the area, the Kawelka. This included significant support during the various archaeological excavations at the site and heritage protection of the discovered values since.

The Kawelka at Kuk have established the Kuk Early Agricultural Site Association (KEASA) to manage the cultural landscape at site level. KEASA consists of nominated persons representing the five Kawelka clan living at or in proximity to the site: Kurupmbo, Kundumbo, Membo, Keyambo and Lgambo. These five clans nominate leaders from their respective associations to represent the clans on KEASA.

KEASA is developing a constitution which will outline its functions and responsibilities, election of members, voting procedures and so on. The constitution will be provided to the Kuk World Heritage Site Management Committee by the end of 2027.

KEASA will employ a number of Kawelka persons to act as rangers for the site. KEASA is responsible for day-to-day management of the site, including monitoring and reporting, delivering the ranger program, and support the protection and conservation of the site in accordance with this Management Plan. KEASA is required to ensure the four clans at Kuk have representation in the Association's executive at all time, and to consult with the community on any issues relating heritage matters at the site. KEASA is also required to engage and mediate on social issues that may affect the conservation of the site, and ensure community views are respectfully heard, and where appropriate, incorporated into management activities and/or decisions. KEASA is encouraged to have women members in the association and will be required to nominate a woman to act as KEASA's Women's Representative on the Kuk World Heritage Site Committee.

3.6.4 Governance Structure

In the interest of managing the site over time, the governance structure is based on what archaeologists have defined as the core and buffer zones. Therefore, the local management structure involves the clan groups whose members have occupied and are using portions of land within the core area and the buffer zones. The governance of Kuk is built upon traditional management of the site by the Kawelka, as well as modern heritage management systems as required by the *World Heritage Convention*.

Kuk will be managed by a committee, supported at the local level by KEASA. Both the Management Committee and KEASA are responsible for the implementation of this management plan. Under the *Conservation Areas Act*, a Conservation Area Management Committee is responsible for management of the site. The Kuk World Heritage Site Management Committee (KWHSMC) will be established by the

Minister for Environment, Conservation and Climate Change in 2025 and will be responsible for managing the site in accordance with legislation and this Management Plan.

The KWHSMC membership will include representatives from CEPA and NMAG as the recognised national authorities, the Western Highlands Provincial Government (WHPG), Local Level Government (LLG), District Development Authority (DDA) and two representatives from KEASA which must include a women's representative. The KWHSCM is responsible for implementing this Management Plan, coordinating the necessary investment and resources and advising and supporting KEASA.

The KWHSCM will meet at least every four months.

| KWHSMC | KEASA |
|--|---|
| <i>Membership includes CEPA, NMAG, WHPG, LLG, DDA and KEASA</i> | <i>Membership includes Kundumbo, Kurupmbo, Kukri, Keyambo, Lgambo clans</i> |
| <i>Responsibilities:</i> <ul style="list-style-type: none"> • Reports to the Minister and CEPA • Manage Kuk as a protected area in accordance with legislation, the World Heritage Convention and the Management Plan • Coordinate the implementation of the Management Plan • Coordinate the necessary agencies and resources to protect and conserve Kuk • Recommend appointment of rangers to the Minister | <i>Responsibilities:</i> <ul style="list-style-type: none"> • Works jointly with KWHSMC • On site management of Kuk • Site monitoring and reporting (to KWHSMC) • Deliver and manage the ranger program • Make recommendations to the KWHSMC for the appointment of rangers • Conservation and maintenance activities (supported by other agencies, if required) • Biannual reports to KWHSCMC |



Photo by: J. Onga

The Kuk Cultural Heritage Festival is one of the activities organised by Kuk WHS Management Committees in 2023. The occasion was witnessed by all key stakeholders and recognised to be an annual event. The MP was developed before this event and not much has been emphasis on event in this plan.



Photo taken after community work on site, Front standing, the late Ru Kundil

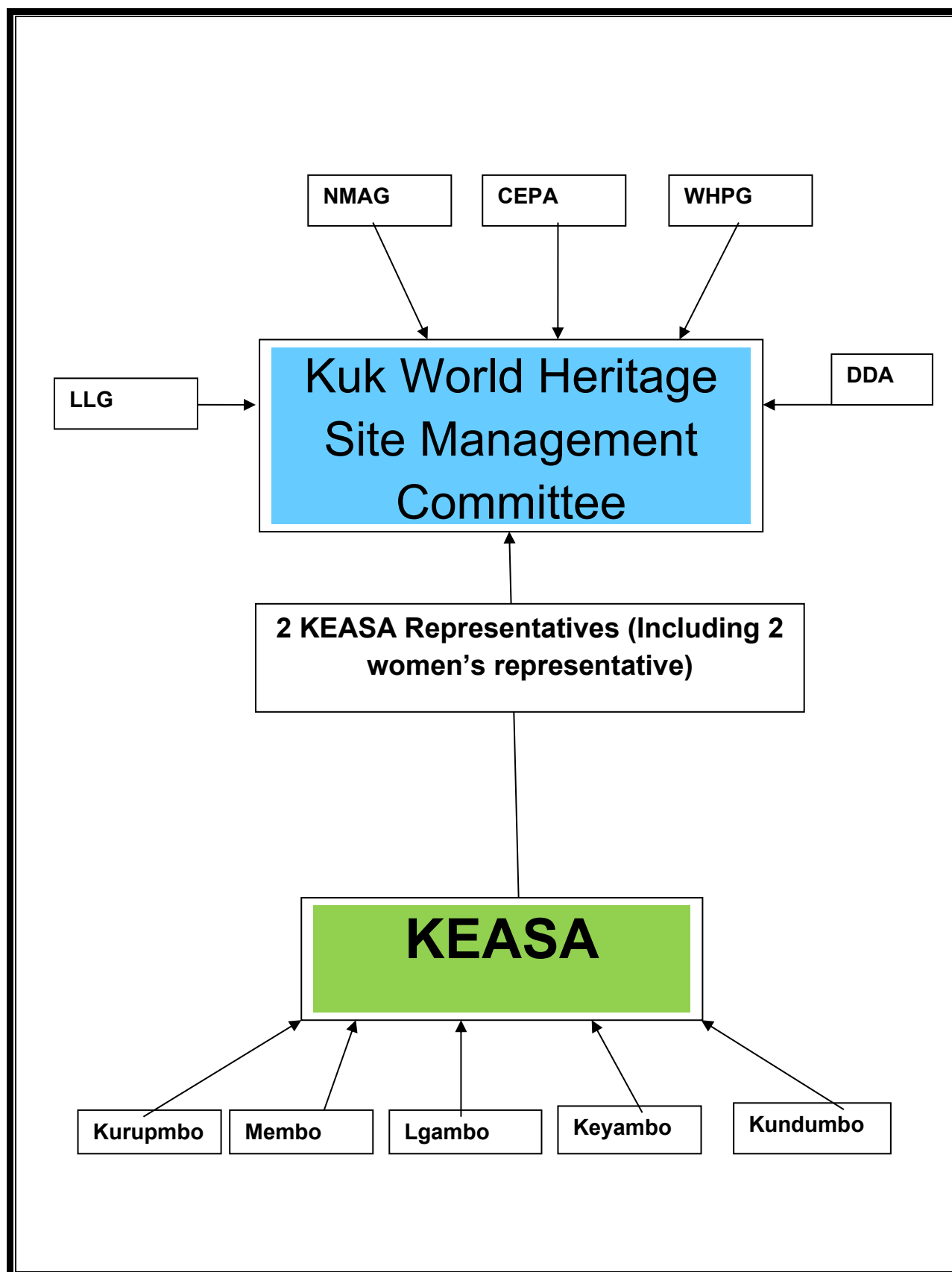
Photo: Nick Araho



The Late Ru Kundil's burial Site near the information centre (2023).

Photo: Manu Kunz

3.7 Management Structure



4. Chapter Four

4. Threats and Key Issues

What could threaten Kuk's significance?

4.1 – Threats

A critical aspect of site management is to identify issues that may threaten the Outstanding Universal Value of a World Heritage property so that management responses can be implemented. This section outlines a list of threats that have been identified and their potential impact on the site. Management policies and actions to mitigate, and where possible prevent, these threats are outlined in Chapter 5.

4.2 Environmental Factors

4.2.1 Flooding

The Waghi Valley receives an annual rainfall of about 2700mm and this contributes significantly to the fertile soil at Kuk Swamp. In high rainfall events, parts of the site are prone to flooding, particularly along Tibi Creek in the south-eastern corner. Periodic flooding is not a significant concern; however, this depends on the height of the water table at the time of flooding and the pre-existing saturation of the buried remains. If the remains are not saturated then periodic flooding (and subsequent drying) may lead to damage of the remains.

Flooding can also lead to erosion of the bed and banks of a creek. Channel migration may also occur. These effects have the potential to negatively impact on buried remains. Regular maintenance of creek channels in or near the core area will mitigate these risks.

Flooding creates significant surface water and also raises the water table which saturates garden beds and impacts on the ability to produce crops. If flood waters are not adequately drained using existing drains and ditches, then cultivators may seek to construct new drains, which if deeper than 0.5m could seriously damage the site.

4.2.2 Drought

While the region is known for its high rainfall, drought events do occur. The El Nino weather pattern has led to droughts in the Mount Hagen region, as recently as 2015. Kuk's resilience to drought events is dependent upon the water table at the Kuk site. If the water table is high enough, then drought impacts would be unlikely to be significant. However, if the water table is not adequate, then drought may lead to the drying of buried remains which may have negative impacts. As above, damage to buried remains from flooding could occur following a drought event.

4.2.3 Climate Change

PNG broadly is expected to face a change in rainfall patterns as a result of global climate change. Current projections suggest that average annual and seasonal rainfall is projected to increase. This is consistent with the expected intensification of the West Pacific Monsoon and the Intertropical Convergence Zone. Extreme rainfall days are also likely to occur more often. While greater rainfall may assist to maintain a higher water table at Kuk, it is likely to increase the chance the flooding, which is discussed above.

4.3 Human Factors

4.3.1 Deep Root Plants

The planting of deep-rooting plants, such as trees, has the potential to cause a substantial alteration of the stratigraphy and the buried archaeological materials contained therein. The planting of deep-root penetration (such as *Eucalyptus* sp and *Casuarina* spp.) has previously disturbed the prehistoric records beneath gardens to a limited extent. Deep-rooting trees also have the potential to lower the water table at the site, which will impact on buried material.

Coffee plants (*Coffea* sp), if located within significant areas of the property, may damage the stratigraphy, although the impacts from coffee roots would be less serious.

4.3.2 Deep Drainage

Drainage is necessary at Kuk for the maintenance of gardens. However, drains deeper than 0.5m have the



potential to seriously impact the preservation of archaeological evidence. The construction of new drains or the re-digging of old drains may lead to the direct damage of buried material. Deep drains may also lead to a significant lowering of the water table, leading to decomposition and oxidation of buried organic materials, and soil formation that would destroy archaeological features and inter-mix deposits of different ages.

A local man pointed at a ditch where an artefact has been found. Photo J. Onga

4.2.3 Mechanised Cultivation

Mechanised cultivation, such as the use of agricultural machinery, could cause irreversible damage to the fragile landscape, erosion of the soil, and eventual exposure and disturbance of the buried archaeological remains.

4.2.4 Chemicals

Gardeners at the site often use chemicals such as glyphosate to manage excess grass and weeds at the site. While the chemical use is unlikely to impact the archaeological remains at Kuk, further research should be done to confirm the impact, if any, of the use of such chemicals.

4.2.5 Population Growth

The Mount Hagen region has a high population density which is expected to grow. An increased population in the region is expected to lead for a demand to an extension or intensification of existing cultivation practices. This may increase the desire for greater food production at Kuk in order to participate in the market economy. An intensification of agricultural practices beyond the traditional methods currently employed at the site has the potential to seriously damage the values of the site, particularly if deep-root crops are planted and deep drainage is undertaken.

As the region's population grows, demand for access to land for housing and gardening will increase. Landowners may face pressure from settlers wanting to occupy and cultivate land at Kuk. New settlements, including infrastructure and non-traditional agricultural practice have the potential to impact

upon Kuk's significance. Currently there are limited means for landowners to resolve instances where settlers have begun to occupy lands in the Wahgi Valley.

4.2.6 Adjacent Pressures

As mentioned, population growth may lead to a demand for an intensification of agriculture in the region. Drainage of sites adjacent to Kuk for agriculture activities (such as the Tibi Tea Plantation site) could lower the water table in the Kuk swamp leading to a potentially serious impact on buried evidence. Activities outside the property that may negatively impact on the water table at Kuk must be avoided by landowners and relevant authorities.

4.2.7 Infrastructure Development

The construction of new buildings within the property should be limited, particularly if construction activities require digging of 0.5m or more. Traditional and contemporary single-story dwellings are unlikely to lead to significant damage if digging is not required. However, supporting infrastructure such as pit toilets, earth ovens, wells etc. could seriously impact buried remains due to the digging required for construction.

4.2.8 Tourism

Tourism activities may increase at Kuk in coming years, although possible impacts from tourism are expected to be very minor. Any supporting facilities (such as the construction of new buildings and toilets) should be located outside the core area to avoid potentially damaging digging and construction activities upon buried material.

4.4 – Other Issues

This section discusses issues that have been identified that should be considered in the context of site management. These issues may impact the way in which the site is managed and need to be addressed by management policies and actions.

4.4.1 Legal Protection

While Kuk qualifies as a 'national cultural property' under the terms of the National Cultural Property (Preservation) Act, the provisions of the Act are insufficient to serve as the sole legal basis to manage a World Heritage Site.

The site is yet to be declared as a protected area under national legislation, in particular the Conservation Areas Act. CEPA is working to complete this designation and its gazettal under the Conservation Areas Act should be completed as a matter of priority.

4.4.2 Training

The site is currently being managed by persons living at the site without formal training in heritage management and conservation. The community have been relying on the recollection of advice provided to them following archaeological expeditions as well as ad-hoc expertise provided by officials and experts. However, it must be acknowledged that despite the lack of formal training the site has been protected and well-preserved since its inscription on the World Heritage List. Further training and education will enhance current management practices and strengthen preservation of the site.

4.4.3 Guidelines

There are currently no readily-available guidelines for land-use (e.g. crop types, methods), site management and maintenance activities. As described above, the site has been managed based on the ad-hoc provision of expert advice and recollection of guidance provided by experts such as Tim Denham and Jack Golson in the 1970 and 1990s. Members of the community have requested documented guidelines to be made available to assist them comply with site management principles.

4.4.4 Heritage Education

An important part of protecting World Heritage is to provide education to the community on the significance of a site. There is currently no formal education program at Kuk or in the region that promotes a greater understanding of the cultural and scientific significance of Kuk. Understanding of and appreciation for the values of a heritage site in the community is essential for ensuring the ongoing preservation of Kuk.

4.4.5 Tourism

In recent years, a visitor centre has been constructed on behalf of the community by Trans Niugini Tours, close to the boundary of the core area. The site, however, has little else in tourism infrastructure. Small investments could assist to harness possible benefits from tourism. Priorities for tourism activities should focus on interpretation and facilitation training for guides/rangers, visitor facilities (toilets etc), artefact and model display, signage, promotional materials and access road maintenance.

The Tourism Promotion Authority, with the Western Highlands Provincial Government are developing a Tourism Master Plan for the Mount Hagen region, which will address the priorities and funding for the activities described above.

4.4.6 Infrastructure and Community Development

The Kuk community does not have access to a number of infrastructure needs, including fresh water, electricity and adequate roads. Creating access to these facilities is beyond the scope of the Kuk Management Plan, as this Plan can only be about conserving and protecting the site's Outstanding Universal Value. Responsibility for the provision of services such as water, electricity and so forth lies with respective government authorities such as the Provincial Government, the Local Level Government and the District Development Authority.



It can be noted, however, that some infrastructure will be essential for public access and appreciation of the site and ought to be considered as part of the Mount Hagen Tourism Master Plan and/or other initiatives by regional authorities.

It should also be recognised that the site is managed by the community, and appropriate recognition for the preservation of heritage and undertaking of heritage activities should be considered by relevant authorities.

This Management Plan is a way for the Kawelka at Kuk to be recognized and supported as the primary caretakers of this important heritage. As outlined in Chapter 5, the community will be able to access a number of benefits in return for heritage management at the site. But it will not be possible for this Plan, or for national agencies such as CEPA and NMAG to address all the needs of the community. Regional government authorities, churches, the private sector and other entities will need to do their part to help look after these needs.



Chapter Five

5. Management Actions & Policies

This chapter discusses the policies and actions that will be taken to protect and preserve Kuk.

This plan has considered these actions and policies within a contemporary and historical setting and seeks to guide change where necessary and support existing, sound traditional management practices. It also recognizes that successful management of a cultural landscape is inseparable from a sustainable society.

This chapter is divided into two sections. The first deals with Actions that will be undertaken to enhance or improve the protection, conservation, presentation, and transmission to future generations of Kuk. The second is a list of policies designed to protect and conserve the Outstanding Universal Value of the site.

5.1 Actions

The Outstanding Universal Value for which Kuk has been inscribed on the World Heritage List, and which is important to all of humanity, will be protected, preserved and transmitted to future generations.

Protection

5.1.1 Conservation Areas Act Gazettal

In 2008, the Government of PNG committed to listing Kuk as a national protected area. CEPA is currently coordinating gazettal of the Core Area under the *Conservation Areas Act*. Once listed, it will be incorporated into PNG's proposed Protected Areas legislation, which implements the PNG Protected Areas Policy. CEPA, in coordination with other necessary local and provincial authorities will complete the gazettal under the *Conservation Areas Act* by the end of 2024.

5.1.2 National Cultural Property (Preservation) Act Gazettal

NMAG will list the Core Area of Kuk under the National Cultural Property (Preservation) Act by the end of 2026. Consideration should also be given to applying this legislation to the Buffer Zone,

5.1.3 NCPP Review

NMAG will facilitate a review of the *National Cultural Property (Preservation) Act* and associated *Regulations (1965)* in order to consider its effectiveness in protecting Kuk's Outstanding Universal Value, and make recommendations to the relevant Minister, if necessary.

5.2 Provincial Protection

The Western Highlands Provincial Government will investigate and implement regional protected area mechanisms to compliment the national protection of the site.

Conservation

5.3 Ranger Program

CEPA and NMAG (working closely with the KEASA) will establish a ranger program at Kuk. The rangers will be responsible for monitoring and reporting, conservation activities, site maintenance, assisting with tourism activities, assisting with the preservation of discovered artifacts and so on.

5.4 Capacity Building

Capacity building of local staff will be critical for management success. Training opportunities for members of the KEASA and Rangers will be funded and facilitated by CEPA, NMAG and the PNG National Commission for UNESCO. Appropriate training opportunities will also be sought for officers implementing the Kuk Management Plan at the National level, so that they may be able to fulfill their duties. The capacity of officials at all levels should be regularly monitored and where training needs are identified, will be prioritized and sourced. The priority for training will be for people in the local community, to improve their knowledge of heritage management, conservation, monitoring and record keeping.

5.5 Maintenance of Knowledge

It will be critical to retain knowledge of site management issues, so that future managers and heritage officers can contribute to the ongoing protection and management of Kuk. NMAG, with the assistance of the KEASA, will record and maintain information on Kuk site management so that management lessons can be recorded and incorporated into future management activities. The recording of knowledge will consider both digital and hard copy mechanisms and adequate redundancy policies (such as digital backups and hard copy files) designed to prevent the loss of the information.

5.6 Land-Use Guidelines

Block-holders/users at Kuk will cultivate their land with respect to the land-use guidelines outlined below. These guidelines are essential to ensure that Kuk's Outstanding Universal Value is protected and the integrity of the site maintained. The guidelines help ensure the site's protection from identified threats.

5.7 Education Activities

The PNG Department of Education, in collaboration with the PNG National Commission for UNESCO, will investigate and implement activities to improve the understanding of World Heritage and the significance of the Kuk Early Agricultural Site, beginning in the Mount Hagen region and extending the program nationally. This will include education initiatives for both adults and children and should consider educational kits to integrate the site into community school, high school and university curricula.

Education on Kuk's Outstanding Universal Value can help alleviate human threats to the site through understanding of the site's importance. Communities passionate about World Heritage can also mobilize greater political support, as the protection of a site may become a key issue for voters.

5.7.1 Kuk Book

NMAG, in collaboration with other relevant agencies, will source copies of the book *Ten Thousand Years of Cultivation at Kuk Swamp in the Highlands of Papua New Guinea* and coordinate distribution to educational institutions in PNG.

5.7.2 Summarized Kuk Book

The PNG National Commission for UNESCO will fund a summarized version of the Kuk Book, with diagrams and in color, to be developed by the authors. The booklet will be available in English and Tok Pisin and will be aimed at students and children.

5.7.3 Tourism Master Plan

The WHPG will draft a *Tourism Master Plan* for the Mount Hagen region, which will incorporate a number of tourism facilitation and promotion activities to assist the site in harnessing potential benefits from tourism. The PNG Tourism Promotion Authority will also develop strategies to market Kuk at a national and international level.

The construction of any tourism facilities and facilitation of tourism activities must consider the socio-political characteristics of the Kawelka in order to limit, where possible, potential grievances.

5.7.4 Tourism Training for Kuk Rangers

Training will be provided to the Kuk Rangers on managing tourism activities, interpretation and so forth so that rangers are able to assist tour operators provide information on Kuk's significance. Training will be organized by the WHPG, as part of their *Tourism Master Plan*. The PNG National Commission for UNESCO and the TPA can also provide assistance for training.

A number of conditions designed to protect and promote the site well as to protect the rights and interests of both the tourists, local Kawelka members, and other members of the public shall be promoted and made known to both tourists and local Kawelka members alike so that understanding, and mutual respect for each other must underpin any interaction between tourists and the local Kawelka. Some form of training, and hands on experience for local Kawelka will be undertaken with the help of relevant line agencies such as TPA for the facilitation of relevant and correct practices, norms, safety and health standards and behavior when interacting with tourists.

5.7.5 Signage

While there is some signage erected at Kuk, there are currently a lack of markers at a number of major roads and intersections leading to both the core and buffer zones.

The WHPG will install and maintain signage at the major roads leading to Kuk to provide guidance for tourists, tour operators and other visitors. Other signage at key points in Mount Hagen, such as at Kagamuga International Airport, should also be considered. Signage at Kuk and other areas must confirm with the World Heritage *Operational Guidelines*, in particular, the use of UNESCO logos and the World Heritage Emblem. CEPA's World Heritage Secretariat will provide necessary validation and authorization in line with PNG's obligations under the *World Heritage Convention*.

5.7.6 Access and Roads

The current state of road access to the both the core and buffer area of the site is poor. This is limiting the potential growth of tourism and makes it challenging for the public and community to visit the site. It is important to note that access is not only important for effective site management, but to fulfill obligations under the *World Heritage Convention* which stipulate that the site's values be presented to the local, national and international community. The WHP will upgrade and maintain roads necessary to access the World Heritage Site.

5.8 Research

NMAG, working in consultation with universities and other tertiary institutions, will coordinate the promotion of research at Kuk, prioritizing gaps in knowledge and information needs. NMAG should consider establishing and chairing a Kuk Research Committee, which could review applications and encourage research projects on/at Kuk. The Committee should comprise NMAG and members of educational institutions, and other key stakeholders.

5.8.1 Research on Climate Change at Kuk

NMAG and the KEASA will encourage research on climate change impacts and predictions at Kuk, with a view to incorporating this information into future management actions and policies.

5.8.2 3D Interpretive Model

NMAG will procure and facilitate an installation of a 3D model of the key stratigraphic features and excavation ditches at Kuk. This will assist the general public's understanding of the significance of the Kuk site and what is located beneath the ground. Models should be displayed both at Kuk and at the National Museum in Port Moresby.

5.8.3 Public Exhibition in Port Moresby, Mt Hagen and Region

NMAG will maintain a permanent public exhibition on Kuk at the National Museum and Art Gallery in Port Moresby. WHPG and NMAG will investigate and promote the establishment of a museum in the Mount Hagen region where a permanent public exhibition on Kuk could be displayed. Permanent and touring exhibitions will also be encouraged in the region, such as in Goroka and in educational institutions.

5.8.4 Interpretive Products

NMAG will work with relevant agencies to create a number of informational resources, such as brochures, paneling/signage and other material for use at the site and in the wider community.

5.8.5 Geospatial Data

Spatial information on Kuk, such as geographic information system (GIS) data will be provided to NMAG and NCC. This information should be made available to the public and to educational institutions to create a greater understanding of Kuk's significance.

5.8.6 Kuk Heritage Park

A Kuk Heritage Park will be considered using the area marked out by Ru Kundil in 2016. The Heritage Park is designed to assist presenting the values of the site to visitors and tourists, allowing them to have a better understanding of Kuk's significance. Designs and planning for the Heritage Park must be in accordance with this Management Plan and must incorporate the maintenance of vegetation cover, the prohibition of any excavation or construction of ditches/drains, planting of deep-root crops etc. Plant cultivation at the site should be examples of key historical and contemporary species for which Kuk is recognized, such as banana whose phytolith evidence dates back to 10,000 years, and/or plants which may be used in local cultural activities, ceremonies, rituals, and education.

5.8.7 Kuk on the Internet

Information on Kuk, including links to academic resources and site contact information for tourists and visitors etc, will be published on a web page / internet site. This site should be funded and supported by the TPA, in consultation with the KWHSMC.

5.9 Policies

This section outlines the policies for the protection, conservation and presentation of Kuk's Outstanding Universal Value. It includes both high-level principles – such as for the management approach at Kuk - as well as site-level policies and guidelines.

5.9.1 Supporting Traditional Management

Policies, actions and management activities will consider and acknowledge the Kawelka people and their ongoing relationship to, management of, and interaction with the World Heritage Site.

5.9.2 Giving Heritage a Life in the Community

The Kawelka have been managing Kuk for many years. This Plan supports this ongoing management and recognizes that protection of Kuk's Outstanding Universal Value depends on the involvement of the Kawelka in site management at Kuk. A collaborative approach between the National Government, Provincial Government and the Kawelka is essential and will be maintained, noting the different areas of expertise and capacity which contribute to the conservation of Kuk.

5.9.3 Water Table

The water table at Kuk must be maintained in order to prevent damage to buried archaeological features and materials within the Core Area. Managers will need to balance the need to protect the buried material while also ensuring that plots remain functional in order to support the ongoing practice of gardening and the livelihoods of community.

5.9.4 Drains

Existing drains and channels within the Core Area can be maintained but must not exceed 0.5 meters in depth. New drains may be created but must not exceed 0.5 meters in depth. Any drains exceeding 0.5 meters will lower the water table and potentially expose and damage the stratigraphy. Mechanized maintenance or construction of drains, such as the use of an excavator, is strictly prohibited.

In the event that there is an overflow of the banks of creeks (such as Tibi Creek) and flooding of the Core Area and drain network, new temporary drains may be created as long as they do not exceed 0.5 meters in depth. However, it would be best if excess water was allowed to dry out naturally to limit the risk of potential damage to the stratigraphy.

Large drains such as the Tibi Creek channel and other smaller channels will be regularly inspected to keep the waterways free and to prevent clogging which may lead to flooding, erosion and further widening of the current channel orientation and dimensions (width and depth).

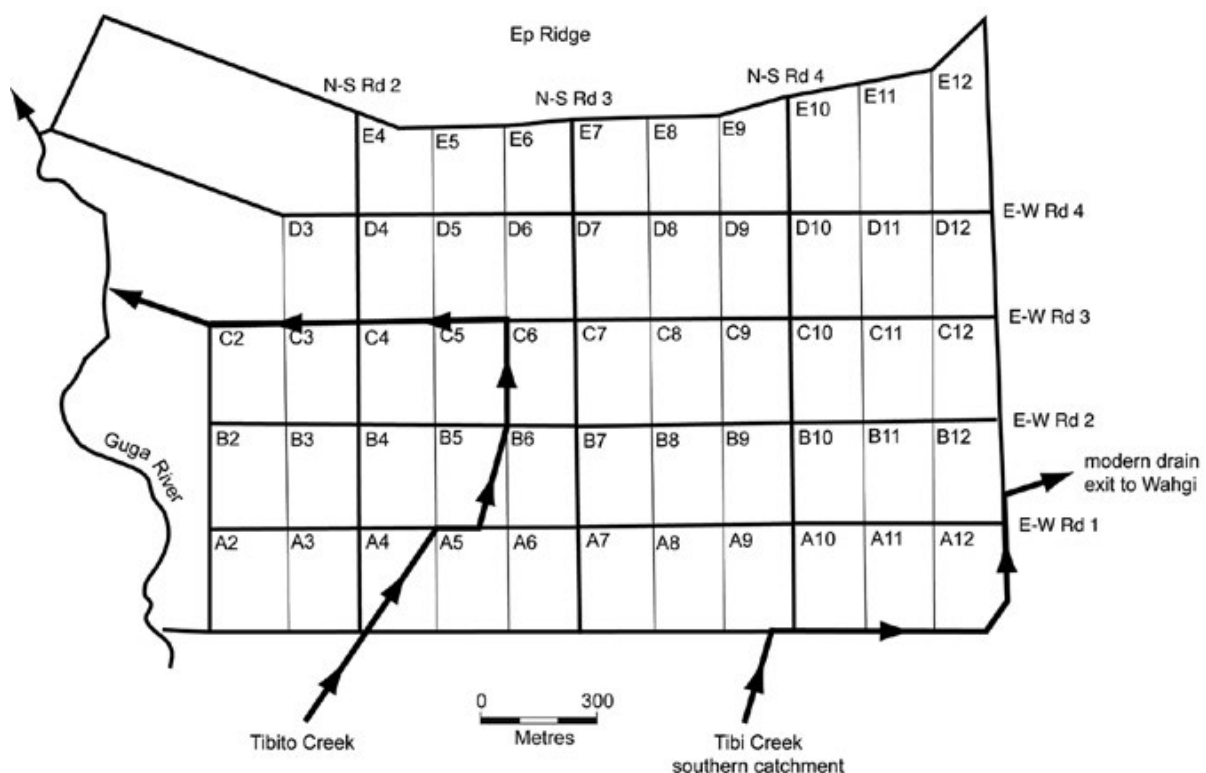


Figure 6.14 Schematic maps depicting the road and block grid at Kuk Research Station. The main outlet drains diverting flow to the east from Tibi Creek and to the west from Tibito Creek are also shown.

5.9.5 Deep Drainage

The maintenance or construction of deep drains (in addition to already established creeks) is prohibited in the World Heritage Site. The construction or maintenance of any drain within the property must not exceed 0.5 meters in depth, regardless of its purpose. Deep drainage will not only lower the water table which protects the buried material, but damages and exposes the stratigraphy. Mechanized maintenance of existing deep drains, such as the use of an excavator, is strictly prohibited.

5.9.6 Creeks

Creeks and major waterways such as the Tibi Creek channel and other smaller channels will be regularly inspected and maintained to keep the waterways free. This is necessary to prevent clogging which may lead to flooding, erosion and further widening of the current channel orientation and dimensions (width and depth). Trees and natural vegetation along the banks must not be removed in order to maintain channel form and orientation.



5.9.7 Deep Root Plants

The cultivation of plants (including trees) with root structures that extend more than 0.5 meters below the surface are prohibited within the World Heritage property. New coffee plants are also prohibited within the Core Area. Crops with shallow roots such as kaukau, corn, beans, tapioc, cabbages are instead encouraged.

Trees with root structures greater than 0.5 meters may be planted at the edge of major creeks (such as Tibi) to assist maintain and protect the channel banks. Any trees planted at creek banks must not be located more than 2 meters from the edge of the bank.

5.9.8 Mechanized Cultivation

Mechanized cultivation is prohibited within the property. Mechanical cultivation would cause substantial alteration of the stratigraphy and buried remains archaeological material through erosion of the soil, exposure and disturbance.



5.9.9 Vegetation Cover

Good vegetation cover at the site prevents erosion and also assists in maintaining the water table by limiting evaporation. Vegetation cover (such as grass/bush, crops etc) should be maintained throughout the site and clearing activities outside of garden maintenance and cultivation limited.

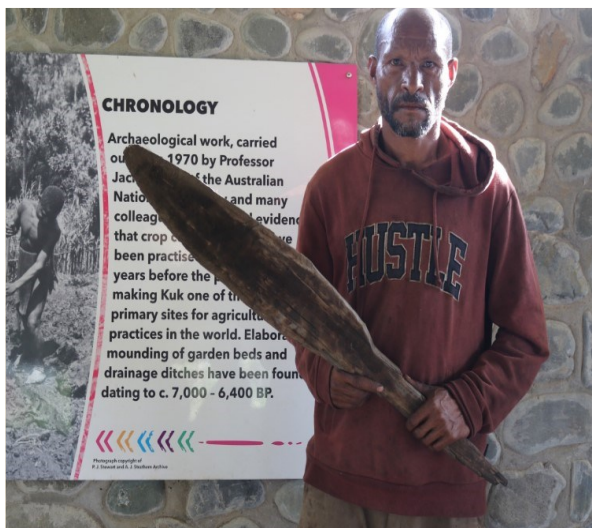
6.0 Maintaining Site Surface Stability

Artefact distribution and exposure can occur for any number of reasons. The buried archaeological layers are generally found 0.5 meters below surface, but the unevenness of the existing ground surface means that relative depth of the buried archaeological horizon will vary across the entire Core Area surface.

Practices such as gardening techniques that maintain surface stability without impacting the underlying surface, prevention of surface run off and erosion of surface topsoil will be encouraged.

6.1 Roads (within the site)

Only existing road networks will be used and subject to light, non-destructive maintenance work, as needed. Heavy road maintenance equipment or machinery is prohibited within the site as this may cause damage. NMAG must be consulted prior to any major road maintenance activities taking place so that advice on techniques and material can be provided.



6.2 Discovery of Artefacts

Artefacts are defined here as the buried archaeological horizons at a depth of 0.5 meters below surface, and can be any human made items of wood, stone, and other material with evidence of human manufacture and use in the past, that currently occur or may occur at the surface or at any depth of the strata in the Core Area and in the general vicinity of Kuk landscape. Any artefact or suspected artefact discovered on the site should be left in place, covered with soil and the location marked. Such discoveries are to be immediately reported to the ranger in charge who will notify NMAG to arrange assessment and recovery.

6.3 Adjacent Activities

The KEASA and the Western Highlands Provincial Government will work to ensure any intensification of agriculture outside but close to the boundary of the property will not impact upon the water table at the World Heritage Site. Drainage or the planting of deep crops that will lower the water table at Kuk should be discouraged - even if these activities occur outside the boundary of the site. The WHP and KEASA should ensure that landowners and other stakeholders are aware of Kuk's significance and the need to carefully manage external threats.

6.4 Traditional Cultivation

Kuk is a cultural landscape and its inhabitants will continue to cultivate the land according to the skills and technologies of agriculture handed down from generation to generation, while also incorporating sustainable development practices. Traditional gardening methods do not alter the cultural and environmental landscape in the same way as modern farming techniques do. Guidelines for land-use and cultivation are located within this plan, and a set of tok pisin guidelines for use in the community will be developed as part of the Implementation Plan.

6.5 Cultivation

The Kawelka can continue to occupy the land in accordance with traditional subsistence techniques (as found in the archaeological record). At the same time, just as the people of Kuk innovated in the past, new crops and techniques are permitted at Kuk provided they do not threaten the authenticity and integrity of the cultural resources buried at the site. Gardeners are also encouraged (where it is in their interest to do so) to cultivate some of the key and historical species that have occurred at Kuk, such as banana, pitpit, yam, taro, winged bean species etc.

6.6 Buildings and Structures

There are a number of existing structures/houses in the Core Area at Kuk. These structures have typically been traditionally-built. New structures, especially dwellings, should not be constructed in the Core Area unless considered essential by KEASA. Any new construction must also comply with guidance in this Management Plan, including the prohibition of digging greater than 0.5 meters.

6.7 State of Conservation

Kuk's state of conservation will be regularly monitored in order for responsible parties to adequately identify and respond to emerging issues and threats. Should a state of conservation report be requested by the World Heritage Committee, then CEPA will work with responsible agencies to facilitate this report within the timeframe requested by the Committee. (See also *Chapter 6: Monitoring and Reporting*).

6.8 Access and Roads

The WHPG will ensure that roads to the World Heritage Site are functional, open and safe so that visitors can access the World Heritage Site. It is important to note that access is not only critical for effective site management, but to fulfil obligations under the World Heritage Convention which stipulate that the site's values be presented to the local, national and international community. This does not include roads within the World Heritage property.

6.9 Implementation of this Management Plan

This management plan will be implemented in a phased approach. A phased approach allows for identified priority activities to be implemented, while allowing for adequate community consultation and consideration to be given to larger, long-term projects.

Phase I

Under Phase I, the KWHSMC will be established as an interim committee, until such time that Kuk's gazettal under the Conservation Areas Act can be completed. Following gazettal, the Committee will then seek formal endorsement from the Minister to manage Kuk under the Conservation Areas Act.

In Phase I, KWHSMC will

- immediately develop a term of reference for the Committee
- identify priority actions for the implementation of this management plan.
- develop a budget for Phase I activities
- commence the implementation of priorities
- review the constitution of KEASA and make recommendations, if required, to align KEASA's constitution with the management objectives of this management plan.

Phase I is expected to be completed by December 2018.

Phase II: Implementation Plan

Phase II will see the full application of this Management Plan, guided by an Implementation Plan and budget to be drafted by KWHSMC in consultation with key stakeholders. The Implementation Plan will cover the period 2025 to 2030 and will identify priorities and sequencing, establish timelines and determine funding. Following the scheduled review of this Management Plan, the Implementation Plan will be revised, if required, and will cover the next five years in accordance with the management review cycle outlined in Chapter 6.

Chapter 6

6. Monitoring and Reporting

How do we know Kuk is protected and that our Plan is working?

6.1 Why We Monitor and Report

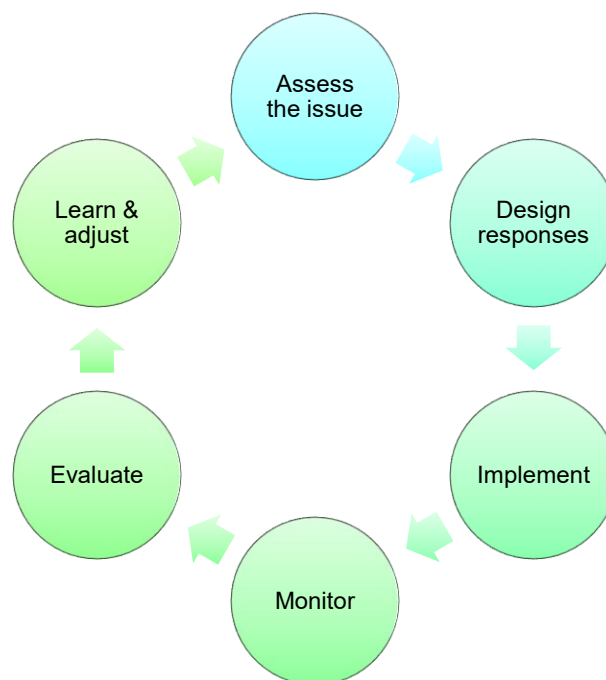
Monitoring and reporting is fundamental to the success of this Management Plan, and the protection and preservation of Kuk. Understanding what is happening on ground, as well as at the National level, is essential to making informed decisions that can effectively conserve Kuk's Outstanding Universal Value.

Regular monitoring allows us to quickly identify and respond to emerging issues, as well as observe long-term trends that may impact on the site or its management.

It is also necessary to evaluate management strategies and policies to ensure they are working and effective.

Kuk will be managed under the principle of adaptive management. Monitoring and reporting inform management actions and policy and creates a 'feedback loop' where management effectiveness is regularly tested, and if necessary, enhanced. Over time, this reporting information will inform future versions of this Management Plan.

Figure 6.1 – The Adaptive Management Framework



6.2 Site Monitoring & Reporting

Regular monitoring of the property will be conducted to assess the conservation and preservation of Kuk's Outstanding Universal Value. This will allow the site's managers to be aware of any changes that might impact the site, and to quickly identify any issues that need to be addressed.

6.3 Land-use

Rangers will regularly monitor land-use activities at Kuk to ensure compliance with the policies outlined in this Management Plan. Rangers will monitor land-use activities on a monthly basis and report to KEASA. Monthly monitoring will consist of a walk-through the Core Area an assessment of land-use at each block. Rangers should also seek input from communities gardening in the Buffer Zone to identify any issues that may be of management concern in the Core Area.

KEASA will report on land-use to KWHSMC biannually.

6.4 Water table

Rangers will monitor the water table at designated sites at the Core Area on a monthly basis and report to KEASA. This information will help management monitor for potential degradation of buried material.

KEASA will report water table levels to CEPA and NMAG biannually.

6.5 Biannual Assessment and Reporting

Twice a year, KEASA will provide an update on any identified issues, changes in risk/threats, progress against the Implementation Plan, land-use and water table monitoring reports, and any management recommendations to KWHSMC.

Officers from CEPA and NMAG will also conduct biannual site visits in order to assess the site from an expert perspective, meet with KEASA and discuss any issues with the Kuk community.

6.6 Scientific Assessment

An expert, scientific assessment will be undertaken every 10 years at Kuk, beginning in 2025, to thoroughly assess the current state of conservation of the property. In particular, a focus of the scientific assessment will be to assess the preservation and condition of the archaeological matter. CEPA and NMAG will coordinate and facilitate the assessment with the assistance of the Local Heritage Committee. The assessment will be led by qualified experts in archaeology.

The scientific and technical assessments will focus on

- The water table, to assess the degree of aeration/inundation at the site;
- A detailed topographic survey of the Core Area, to assess land degradation, shrinkage and erosion of the wetland due to cultivation;
- Current soil/sediment geochemistry, to assess weathering;
- Current soil/sediment macro-, meso- and micro-characteristics exhibited in the field, X-rays and thin sections, respectively, to assess soil forming processes that could destroy buried archaeological remains; and
- The preservation of macrobotanical and microbotanical materials, to assess deterioration of organic materials within buried deposits.

The above assessments do not require archaeological excavations but will focus on monitoring the burial environment in areas adjacent to known archaeological remains.

Monitoring activities will take place at five control areas across the wetland - two in the Core Area and three in the Buffer Zone. They will be conducted in adjacent locations every 10 years to facilitate direct comparison of results.

Meteorological data will be incorporated into the technical assessment so that interactions between climate, water tables, land-uses and burial environments can be monitored over time.

KWHS MC should utilize local Kawelka villagers in these exercises, where appropriate, so that capacity is built and villagers can play a greater technical role in future activities at the site.

Table 6.1 – Summary of regular monitoring activities at Kuk

| Report Type | By | To | Indicators and data |
|--|--|---------|---|
| Monthly | Rangers | KEASA | Land-use Water table |
| Biannually (June & December) | KEASA | KWHS MC | Management Issues Update on risks/threats Land-use Water table Progress against the Implementation Plan |
| 10-year Scientific Assessment and Report | CEPA NMAG Experts (as required) KEASA | KWHS MC | Water table Land-use Topographic data Geochemistry Soil/sediment Botanical material |

6.7 Emergency Monitoring & Reporting

An unforeseen situation, such as a natural disaster, may occur at Kuk and require emergency monitoring to assess its impact and address. Should emergency monitoring be required, this will be coordinated by KWHS MC in close coordination with KEASA.

Any scenario that has the potential to impact on Kuk's Outstanding Universal Value must be reported immediately to CEPA and NMAG, as well as the broader KWHS MC.

6.8 Other Reporting

Other reporting, such as ad-hoc or Periodic Reporting requests from the World Heritage Committee and the World Heritage Centre, will be coordinated by CEPA with assistance from NMAG and KEASA. The PNG National Commission for UNESCO must also be informed of any requests from the World Heritage Centre or Committee, so that it can provide assistance, if required.

6.9 Management Plan Evaluation

World Heritage site management is ongoing. As Kuk is a living cultural landscape, so too is this management plan a living document. It is essential that the Plan is adaptive and responsive to change over time. It must protect the site's Outstanding Universal Value, but also be flexible as the need for change arises. Regular evaluation is critical to ensure decision-making and the implementation of the Management's Plan's policies and actions is effective and appropriate.

The Kuk Management Plan will be evaluated and updated in 2021, with further reviews and updates to be conducted every five years beginning in 2026. The reviews will be conducted by KWHSMC with support and input from KEASA. Each review will consider

- The state of conservation of the site
- The relevance and effectiveness of Management Plan policies and actions
- The effectiveness of the management framework
- The effectiveness of legal protection
- Progress against the implementation plan
- The identification and mitigation of threats
- Alignment with PNG protected area/cultural heritage and UNESCO World Heritage management policies and/or principles.
- The views of the community, especially those at Kuk, and other identified stakeholders.

Each review must be made publicly available by KWHSMC upon its completion.

Table 6.2 – Summary of Kuk Management Plan Reviews

| Date | Review |
|---|---|
| 2030 | Review of the Kuk Early Agricultural Site Management Plan |
| Every five years beginning in 2029 | Review of the Kuk Early Agricultural Site Management Plan |

Chapter 7

7. Resourcing

Where do we get the resources from to implement this plan?

Adequate investment is essential for effective and successful implementation of this Management Plan. Under the World Heritage Convention, the PNG Government has the responsibility to ensure that, as far as possible, appropriate financial measures are taken to protect World Heritage Areas. As such, the PNG Government will ensure that that sufficient financial and other resource are made available to achieve the actions and policies within this Plan. Supporting funds will be sourced by the Western Highlands

Provincial Government and the Local Level Government. This is essential for the protection and conservation of Kuk, and to support the Kawelka in their management of the World Heritage Site.

7.1 Funding Mechanism

7.1.1 Long Term: Biodiversity and Cultural Heritage Trust Fund

Long-term, sustainable financing for Kuk will be available through the Biodiversity and Cultural Heritage Trust Fund, which supports PNG's Protected Areas Policy. The implementation of the Policy and the management of the Trust Fund are being led by CEPA through the proposed Protected Areas legislation.

The Trust Fund will be established to provide an accountable and transparent mechanism to support the PNG Protected Area Network. It will be funded by a diversified mix of conventional funding sources (e.g. budgetary allocations, overseas development assistance) and innovative funding sources (e.g. payments for ecosystem services, trust funds, green taxes).

Funding for Kuk made available by CEPA, NMAG and WHP will be placed into the Trust Fund which will be used to finance activities under the Implementation Plan.

The Trust Fund also means that funding for Kuk could be sourced from international actors, such as multilateral banks, bilateral development cooperation agencies, foundations, international NGOs, philanthropic contributions and so on.

The Trust Fund will also include a mechanism wherein customary landowners may be able to apply for Conservation and Benefit Sharing Agreements where in return for achieving Protected Areas outcomes, funding relating to health, education, conservation and community services will be available.

The mix of public and alternative funding sources will allow for the necessary financing of the Kuk Management Plan.

The KEASA can submit funding proposals for conservation and presentation activities not outlined in the implementation plans, where a need or priority is identified.

Access to the Trust Fund will be dependent on Kuk's gazettal under the *Conservation Areas Act* (a process which CEPA has begun), which will then be incorporated into the Protected Areas legislation once passed by Parliament.

7.1.2 Short-Term

In the short-term, until the Trust Fund is established, funding for Kuk will be sought by KWHSMC, who will identify priorities, actions and timeframes and seek funding from relevant agencies and authorities who comprise KWHSMC. Agencies will be required to make recurrent funding available to KWHSMC for the implementation of this Management Plan.

A trust fund for KWHSMC will be established by CEPA for use by the KWHSMC, with the various agencies/authorities on KWHSMC providing funding for the implementation of this Plan.

KEASA may submit funding proposals to KWHSMC for conservation and preservation activities that are not already outlined in this Plan, or where a need is identified.

7.2 Staffing

Funding will be made available by CEPA and NMAG, as the identified national agencies, to support the functioning of the KWHSMC.

In particular, funding will be made available to establish and maintain the ranger program on the ground at Kuk by KWHSMC. Funding for staff at National and Provincial government level will be drawn from existing resources.

Funding may also be provided for duties undertaken by members of the KEASA in the implementation of this Plan. These considerations will be explored by KWHSMC as part of the Implementation Plan, in consultation with KEASA.

7.3 Equipment

Funding for other needs, such as equipment for maintenance, monitoring and reporting, will be identified and prioritized in the Implementation Plan by KWHSMC.

7.4 Other Sources of Funding

KWHSMC should also investigate and seek other sources of funding for Kuk. These sources could include philanthropic, sponsorship, and other private or non-government organization opportunities. There may also be scope for funding under the World Heritage Fund; however, these must be for specific management or conservation projects and deemed to be a priority by the PNG government.



Mixed Crop Plot- Taro, sweet Potato, Yam and Corn (2021) Photo: J. Onga

Some funds have been committed by National institutions on Kuk over the years and I believe KWHSMC should request or seek funding for Kuk includes CEPA through normal CIP budget submission for PAs considering Kuk to be in the submission, National Museum and Art Gallery (NMAG), Tourism Promotion Authority (TPA), Western Highlands Provincial Government and District Development Authority/ Local Level Government.

Glossary

Below is a glossary of frequently used words, terms and acronyms

Authenticity: for a World Heritage property to be authentic, it must have cultural values that are truthfully and credibly expressed through a variety of attributes such as material, workmanship, setting, traditions, techniques, language and so on. The ability to understand the values depends on the degrees to which information sources about these values may be credible or truthful.

Buffer Zone: Under the *World Heritage Convention*, a buffer zone is an area surrounding a World Heritage Site which has complementary legal and/or customary restrictions in place. This provides an extra layer of protection to a World Heritage property. Buffer Zones are not recognised as of Outstanding Universal Value; however, they support the effective protection of inscribed World Heritage-listed sites.

Buffer Zone (Kuk): is the 195ha area surrounding two sides of the Kuk Early Agricultural Site.

Conservation: preventing decay and prolonging the life of the existing heritage resource.

Conservation and Environment Protection Authority (CEPA): Government authority designated as the implementing agency for the World Heritage Convention in PNG.

Core Area: is the 116ha area inscribed on the World Heritage List as the Kuk Early Agricultural Site.

Integrity: in the context of World Heritage properties, integrity relates to the ‘wholeness and intactness’ of the property and how it conveys the values it holds.

Kuk Early Agricultural Site (Kuk): in this document, Kuk and/or the Kuk Early Agricultural Site is taken to mean the World Heritage-listed property, ID 887.

National Museum and Art Gallery (NMAG): PNG Government

Outstanding Universal Value: cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.

Protection: the physical safeguarding; legal protection.

Preservation: taking measures to keep the site in its existing state.

Tourism Promotion Authority (TPA): a statutory body responsible for marketing PNG as a tourism destination and supporting sustainable development through tourism activities.

World Heritage Convention: a global instrument for the protection of cultural and natural heritage that aims to promote cooperation among nations to protect heritage around the world that is of such Outstanding Universal Value that its conservation is important for current and future generations.

Statement of Outstanding Universal Value

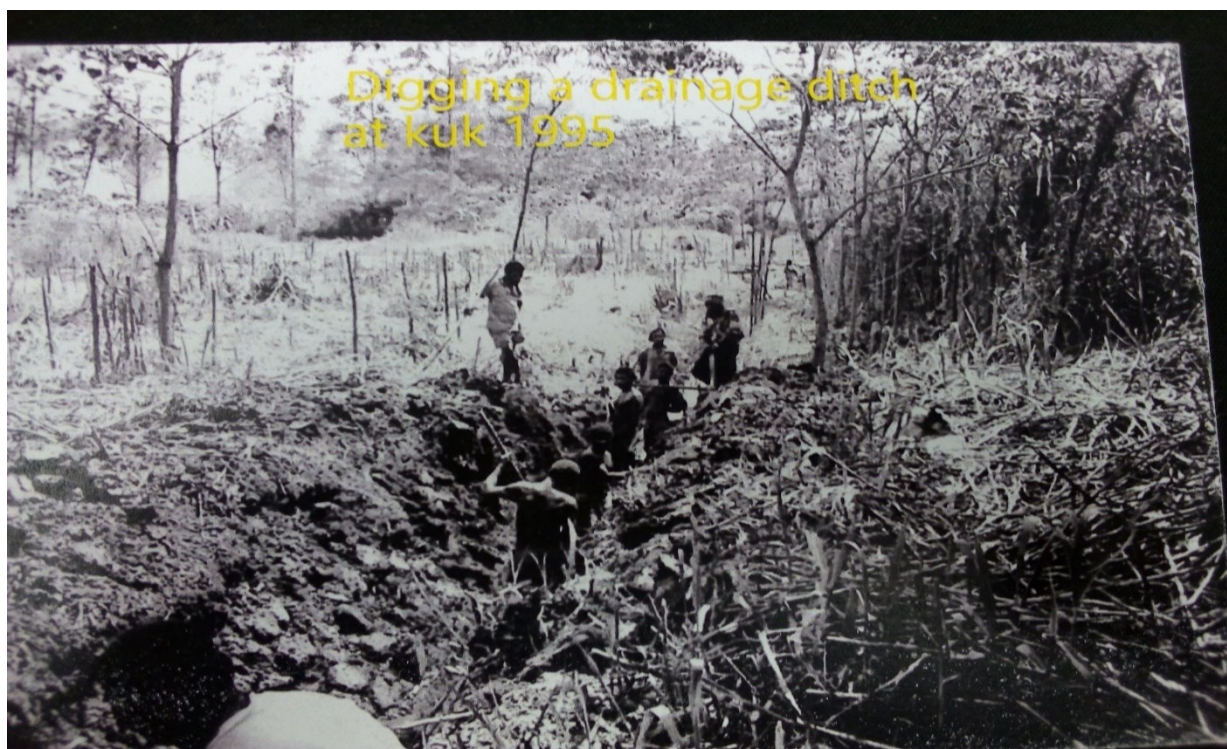
The Kuk Early Agricultural Site, a well-preserved buried archaeological testimony, demonstrates an independent technological leap which transformed plant exploitation to agriculture around 7,000-6,400 years ago, based on vegetative propagation of bananas, taro and yam. It is an excellent example of transformation of agricultural practices over time from mounds on wetland margins around 7,000-6,400 years ago to drainage of the wetlands through digging of ditches with wooden tools from 4,000 BP to the present. The archaeological evidence reveals remarkably persistent but episodic traditional land-use and practices where the genesis of that land-use can be established and changes in practice over time demonstrated from possibly as early as 10,000 BP to the present day.

Criterion (iii): The extent of the evidence of early agriculture on the Kuk site can be seen as an exceptional testimony to a type of exploitation of the land which reflects the culture of early man in the region.

Criterion (iv): Kuk is one of the few places in the world where archaeological evidence suggests independent agricultural development and changes in agricultural practice over a 7,000 and possibly a 10,000-year time span.

Archaeological investigations have been intensive rather than extensive and excavations have affected only a minor proportion of the core area of the site. Modern farming activities at Kuk remain relatively low-key and do not intrude upon the archaeological features of the site. The integrity of the site is thus maintained. The excavations and scientific work that have been done at the site are of the highest international professional standard and thus the excavated remains retain their authenticity. Contemporary land-use has been restricted to modern versions of traditional activities and is supportive to the authenticity of the core evidence on the site.

The legal protection in place is adequate, but customary protection needs confirmation as soon as possible through the designation of the property as a Conservation Area and through the associated formal land management agreement with the local community for aspects of site management. The Management Plan should be completed as soon as possible and formally resourced and implemented, and formal memoranda of understanding established among relevant national, provincial and local government authorities and other stakeholders concerning management responsibilities on the ground and reporting lines.



Statements of Authenticity & Integrity

(From the 2007 World Heritage Nomination Document)

Authenticity

The authenticity of the Kuk site is proven by scientific research and multi-disciplinary research. The Kuk site is one of the oldest and most intensively studied agricultural sites in the world. The multi-disciplinary evidence from Kuk – including archaeology, archaeobotany, geomorphology, palaeoecology and sedimentology – has confirmed the island of New Guinea to be an early and independent centre of agricultural origins (Denham et al. 2003;

Hope and Golson 1995). The global significance of the Kuk site comprises archaeological evidence of former plant exploitation and cultivation. The Kuk site contains successive periods of wetland manipulation for food production that extend from the present to 10,000 years ago (Bayliss-Smith and Golson 1992a, 1992b, 1999; Bayliss-Smith et al. 2005; Denham 2003a, 2003b, 2004b, 2005b, 2005c, 2005d; Denham et al. 2003, 2004a, 2004b; Golson 1977a, 1982, 1991; Golson and Hughes 1980; Gorecki 1982, 1986; Hope and Golson 1995; Muke 1998; see Annexes A, B, C and F).

The oldest unequivocal agricultural activities at the site, consisting of mounded cultivation on the wetland edge, date to at least 7000-6400 years ago (Denham et al. 2003). The oldest evidence of human manipulation of the wetland edge, which dates to 10,000 years ago, is equivocal in terms of whether it represents agriculture (following Prof. Jack Golson and colleagues) or another form of plant exploitation (following Dr. Tim Denham and colleagues) (as debated in Denham et al. 2004a).

By 1970, a provisional antiquity of prehistoric, and pre-*Ipomoea* (sweet potato) cultivation in the Wahgi Valley was established following archaeological investigations at Warrawau Plantation in 1966 (also known as the Manton site; Golson et al. 1967; Lampert 1967; Powell 1970: 142-6), Minjigina in 1967 (Lampert 1970; Powell 1970: 172-4), Kindeng in 1968 (unpublished) and Kuk in 1969 (Allen 1970). From the record of vegetation clearance at Warrawau and Draepi-Minjigina (Powell 1970), agriculture was of greater antiquity than the provisional time depth of 2300 ± 120 BP (ANU 43, Golson et al. 1967) obtained for a wooden digging stick at Warrawau.

Following Allen's reconnaissance of the site, multi-disciplinary investigations commenced at the Kuk site in 1970. Six major field seasons were undertaken between 1972 and 1977 under the direction of Prof. Jack Golson, and based on these investigations claims for 10,000-year-old agriculture at Kuk were made (Golson 1977b; Golson and Hughes 1980; Hope and Golson 1995). Subsequent multi-disciplinary investigations were undertaken during 1998 and 1999 under the direction of Dr. Tim Denham, and based on these investigations the antiquity of agriculture at Kuk was dated to at least 7000-6400 years ago (Denham et al. 2003, 2004a).

The archaeological remains at Kuk comprise the following (see Section 2a for detailed descriptions):
 10,000 years ago: equivocal evidence of plant exploitation or cultivation
 7000-6400: evidence of mounded cultivation
 4000-present: successive periods of wetland drainage using ditches for cultivation

The Kuk site is protected in Papua New Guinea under the National Cultural Property (Preservation) Act (1965).

Additionally, protection and management of the site have been overseen at various levels within the country, including:

- a case officer for the site since 1999 in the Archaeology Section, PNG National Museum and Art Gallery;
- a Kuk Heritage Management Committee established in 1999, sponsored by the Western Highlands Provincial government, comprised of Kawelka leaders, provincial representatives (including in the past the Provincial Governor and Administrator), and representatives of national institutions (variously National Commission for UNESCO, PNG National Museum and Art Gallery, Department of Environment and Conservation, University of Papua New Guinea, National Research Institute); and
- local Kawelka leaders and landholders have formed a Kuk Local Heritage Committee and since 1998 have consistently expressed a desire to ensure the protection of the site under customary landholder and land-use arrangements.

A number of initiatives regarding the management of the Kuk site have recently occurred, or are planned, at the national (Section 0), provincial (Section 5d) and local (Section 5e and Annex E) levels.

The remains of former agricultural practices are mostly buried and preserved underneath deposits that have accumulated in the wetland through the in-washing of sediments from the catchment, through in situ peat accumulation, and through airfall tephra (associated with volcanic eruptions off the north coast of New Guinea). The remains of some recent (within the last 1000 years) ditches and house sites do form surface earthworks in parts of the swamp, whereas all the older archaeological remains associated with former cultivation and plant exploitation are buried underground.

Archaeological artifacts and features, as well as plant macrofossil and microfossil evidence and palaeosols, associated with plant exploitation and early agriculture dating from the early Holocene to the present are well-preserved at Kuk.

Although there is evidence for alteration of deposits, primary attributes associated with former cultivation practices remain well-preserved at the site; indeed, they are better preserved at Kuk than at any other wetland archaeological site in Papua New Guinea.

Traditional gardening, or agricultural activities, which are being undertaken and which have been undertaken for thousands of years at Kuk, does not seriously compromise the archaeological remains at the site. Cultivation practices and rooting of most grown crops are too shallow to seriously compromise the buried materials. Only following deep-drainage in the late 1960s and 1970s, where ditches lowered the water table below most of the buried archaeological remains, has there been alteration of the upper stratigraphy at the site, although recent research shows that these older and deeper remains have largely remained unaltered (Denham 2003a). As the ditches associated with construction of the Kuk Station in the 1960s and 1970s have filled in, the water table has risen and returned to pre-drainage levels. Waterlog and shallow rooting has aided the preservation of any buried remains thereby ensuring the continued integrity of the site.

Providing the water table is not deeply drained and the swamp dried out, either by removing the vegetation cover and exposing the area to evaporation, or by draining the swamp at a lower point, or both, the integrity of the site will be preserved.

Similarly, the planting of deep-rooting trees, digging below 0.5m and mechanical cultivation would cause substantial alteration of the stratigraphy and the buried archaeological materials contained therein. As long as these activities do not occur on the property, and they have not since the Research Station was abandoned, the site will maintain its integrity.

Continued monitoring of the site will check on, and ensure the maintenance of traditional cultivation practices in the core area and buffer zone, particularly through the maintenance of the existing water table and the planting of only shallow-rooting plants. Such monitoring, which is undertaken in close consultation with the local community, will ensure the continued preservation of the site.



Mr. Emmanuel Yu pointing at the drain where the artefact has been found

Photo: J. Onga

References

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1999; Bayliss-Smith et al. 2005; Denham 2003a, 2003b, 2004b, 2005b, 2005c, 2005d; Denham et al. 2003, 2004a, 2004b; Golson 1977a, 1982, 1991; Golson and Hughes 1980; Gorecki

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