ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY

VOLUME I

NOMINATION DOSSIER FOR INSCRIPTION ON THE UNESCO WORLD HERITAGE LIST

MALAYSIA
Nomination Dossier prepared by:

Department of National Heritage  
Ministry of Information Communications & Culture  
MALAYSIA
Archaeological Heritage of the Lenggong Valley is one of the longest culture sequences in a single locality in the world. This long culture sequence stretches from the Palaeolithic to the Neolithic and Metal periods, chronometrically dated from 1.83 million to 1,000 years ago.

The richness of the Archaeological Heritage of the Lenggong Valley has been proven by discoveries of one of the largest numbers of in-situ open-air Palaeolithic sites in Southeast Asia and numerous cave sites over a 20-year period of multidisciplinary and scientific research.

The crowning moment was the discovery of the in-situ Palaeolithic site of Kota Tampan in 1987 which has provided accurate dating and rare insights into the minds of the tool makers on their choice of raw materials, their understanding of lithic materials and the techniques of tool-making. This has made Kota Tampan an important reference site for Palaeolithic stone tool making in the world.

Archaeological Heritage of the Lenggong Valley also yielded the Perak Man – the oldest most complete skeleton in Southeast Asia, dated about 10,000 years ago. This prehistoric skeleton provided the only known evidence of a congenital deformity known as Brachymesophalangia Type 2A and knowledge on Palaeolithic burial ritual.

Given its importance and significance in terms of world human history, Archaeological Heritage of the Lenggong Valley has therefore been chosen for nomination on the World Heritage List.

The Department of National Heritage, Ministry of Information, Communications and Culture has replaced the old antiquities legislations for the better protection and preservation of heritage in Malaysia with the new National Heritage Act 2005. The Department of National Heritage is therefore committed to the protection and preservation of the Archaeological Heritage of the Lenggong Valley for humanity and posterity.

Dato’ Sri Kamaruddin Siaraf
Secretary General,
Ministry of Information Communications & Culture
MALAYSIA
EXECUTIVE SUMMARY

State Party
Malaysia

State, Province or Region
The State of Perak

Name of the Property
Archaeological Heritage of the Lenggong Valley

Geographical Coordinates
Cluster 1 (centre) - 5° 4' 18.24132"N, 100° 57' 59.09544"E
Cluster 2 (centre) - 5° 8' 1.71996"N, 100° 58' 54.28416"E

Description of the Boundaries
Archaeological Heritage of the Lenggong Valley is a serial nomination consisting of two clusters, Cluster 1 and Cluster 2, separated by Lenggong town. It is located in a valley between two mountain ranges, the Titiwangsa Range and the Bintang Range. Cluster 1 comprises the open-air sites of Bukit Bunuh and Kota Tampan combined into a single core zone with its buffer zone. The other cluster, Cluster 2, comprises three core zones namely Bukit Jawa (bukit = hill), Bukit Kepala Gajah and Bukit Gua Harimau (gua = cave), all within a single buffer. Each of the clusters has its own buffer zone defined by land lots, natural features and contours of the ancient lake shorelines and river terraces where deposits of gravel may lie.

Map
See Annex 2.
Justification

Archaeological Heritage of the Lenggong Valley, which comprises both open-air and cave sites, provides a series of chronologically-ordered and spatially-associated culture sequences from the Palaeolithic through the Neolithic to the Metal period. These sites have been chronometrically dated from 1.83 million to 1,000 years ago. Thus, the Lenggong Valley is one of the longest archaeological culture sequences found in a single locality in the world.

The Archaeological Heritage of the Lenggong Valley also contains a large number of undisturbed in-situ Palaeolithic sites making it, in this respect, unique outside of Africa and of extraordinary importance for the study of the culture of Palaeolithic man. In-situ Palaeolithic sites are extremely rare because these sites can date back a few million years ago and over such a long time period, natural processes and human activities are bound to disturb the original archaeological context.

The extraordinary survival of early Palaeolithic evidence at Bukit Bunuh BBH 2007 in the Archaeological Heritage of the Lenggong Valley is due to the fact that a meteorite strike 1.83 million years ago preserved many Palaeolithic stone tools in the melted suevite formed by the meteorite impact. This is an indirect evidence for hominid presence in the Archaeological Heritage of the Lenggong Valley at 1.83 million years ago. Evidence for continued hominid presence in the Archaeological Heritage of the Lenggong Valley is found in a long chronological series of in-situ open-air stone tool workshop sites extending from Bukit Jawa (200,000 - 100,000 years), to Kota Tampan (70,000 years), and to a later Bukit Bunuh BBH 2001 (40,000 years). Thus, Archaeological Heritage of the Lenggong Valley demonstrates hominid presence from as early as 1.83 million years ago.

Kota Tampan is a rare example in the world of a prehistoric site where the cause and date of site abandonment can be determined. Presence of ash from the last catastrophic Toba volcanic eruption in the in-situ Kota Tampan site suggests that man had to suddenly flee the site because of this major catastrophe around 74,000 to 70,000 years ago, leaving behind his tool-making ‘equipment’ and both finished and unfinished tools in the workshop.
Prior to the excavation of Kota Tampan in 1987, little was known about how prehistoric man made stone tools in Southeast Asia and it had been assumed that the lithic tradition in this part of the world was under-developed. Because Kota Tampan is an undisturbed Palaeolithic stone tool workshop, the association of artefacts (raw materials, finished as well as unfinished tools, and tool-making debris) is clearly visible. This assemblage of artefacts has revealed and made possible the identification and classification of multiple tool types with specialized functions and is evidence of a Palaeolithic lithic technology in Southeast Asia as sophisticated as anywhere else in the world. Furthermore, this in-situ stone tool workshop provides a means to understand the cognitive behaviour of the tool makers. Their choice of raw material, an understanding of lithology, and an efficient method of production reveal a rational and systematic approach to tool-making. This has made Kota Tampan an important global reference site for Palaeolithic stone tool-making.

Perak Man, buried in the cave site of Gua Gunung Runtuh, is the only prehistoric skeleton in the world born with a congenital deformity known as Brachymesophalangia type A2. He is also the oldest, most complete skeleton found in Southeast Asia, chronometrically dated to 10,000 years ago. Extensive studies on Perak Man and his associated mortuary goods provide a very rare insight into Palaeolithic life, disease, belief systems and burial rituals.

Archaeological Heritage of the Lenggong Valley is singularly significant for dating the earliest presence thus far known of prehistoric people in Southeast Asia. The undisturbed archaeological sites in the Archaeological Heritage of the Lenggong Valley are exceptional because they preserve in-situ an outstanding record of the evolution of human cognitive complexity evidenced by the development of lithic tradition and stone tool technology over an extremely long culture sequence from 1.83 million years ago until the recent past.

These archaeological discoveries, all located within a single valley whose geology and environment have remained stable over the past 2 million years, provide important milestones in dating the presence of prehistoric people in Southeast Asia and impact on theories concerning the expansion of hominids throughout Australasia and the evolution of their stone tool cultures. This makes Archaeological Heritage of the Lenggong Valley a unique cultural landscape of outstanding universal value for the study and understanding of world prehistory.
Criteria under which property is nominated

Criterion iii

“Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared”.

Archaeological Heritage of the Lenggong Valley is one of the longest culture sequences in a single locality in the world, covering an extraordinary range of nearly 2 million years and spanning all the periods of hominid history outside of Africa. The artefactual evidence for this is found in the open-air and cave sites situated in close physical proximity to one another and located in a river valley that has remained geologically and environmentally stable for the past 2 million years.

The key markers in this long culture sequence can be seen in the excavated sites of: Bukit Bunuh, Kota Tampan, Bukit Jawa, Gua Gunung Runtuh and Gua Harimau.

The open-air site of Bukit Bunuh BBH 2007 located in Cluster 1 records the earliest hominid presence thus far known in Southeast Asia at 1.83 million years ago with the discovery of some of the oldest hand axes in the world and other tools embedded in suevite – a rock type formed under high heat and pressure that resulted from a meteorite impact dated by the fission-track technique to 1.83 million years ago.

Evidence for continued hominid presence in the Lenggong Valley is found in a long chronological series of in-situ open-air stone tool workshop sites located throughout Clusters 1 and 2 and extending from Bukit Jawa (200,000 - 100,000 years), to Kota Tampan (70,000 years), and to another Bukit Bunuh BBH 2001 site (40,000 years).

Kota Tampan in Cluster 1 is a rare example in the world of a prehistoric site where the cause and date of site abandonment can be determined. Presence of ash from the last catastrophic Toba volcanic eruption in the in-situ Kota Tampan site suggests that man had to suddenly flee the site because of this major catastrophe around 74,000 to 70,000 years ago, leaving behind his tool-making ‘equipment’ and both finished and unfinished tools in the workshop.

In addition to the open-air sites, the Lenggong Valley contains numerous cave and rock shelter sites which were occupied by the inhabitants of the valley during late Palaeolithic when both geological and climatic conditions created habitable floors in the caves. There are a total of five limestone massifs, containing caves and rock shelters within the core and buffer zones of the nominated property.
The cave sites in Cluster 2 – Gua Gunung Runtuh (13,000 - 1,000 years) and Gua Harimau (4,000 - 1,000 years) – which contain human burials among other archaeological finds such as earthenware and bronze artefacts, give further evidence of the prolonged and permanent presence of humans in the Lenggong Valley from the Palaeolithic through the Neolithic into the Metal Period. These sites give an extraordinary and unique insight into the culture of the prehistoric societies in the Lenggong Valley.

Gua Gunung Runtuh contained the remains of Southeast Asia’s oldest most complete Palaeolithic human skeleton, the iconic Perak Man, dated by the radiocarbon technique to the late Palaeolithic 10,120 ± 110 BP (Beta-38394). Analysis of the remains of Perak Man shows that he was born with a congenital deformity known as *Brachymesophalangia* type A2, a rare condition which continues to be present in modern human populations. The fact that the Perak Man skeleton was preserved in its entirety (an extremely rare occurrence in Southeast Asia due to climatic conditions which do not favour the preservation of human remains), enables us to understand the genetic make-up and medical history of early human populations.

Cave drawings by local aborigines bring the Lenggong Valley sequence up to historical times.

**Criterion iv**

*“Be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates a significant stage in human history”.*

Human existence during the Palaeolithic, the longest period in human history, centred around stone resources. Stones provided the raw material for the earliest tools and the archaeological remains of stone tools and stone tool workshop sites are important evidence of early human technology. Thus, the discovery of numerous undisturbed *in-situ* stone tool workshops in the Lenggong Valley dated in a long chronological sequence covering the entire Palaeolithic period provides a key to the understanding of the development of human culture in Southeast Asia at this significant stage of human history.

*In-situ* Palaeolithic sites are rare globally because climatic changes and catastrophic climate events such as floods which occur repeatedly over time, tend to erode many of the oldest sites and displace the artefacts contained therein. This, coupled with repeated human activity, can destroy a site and disturb its original context. This loss of integrity diminishes the validity of archaeological evidence.
Archaeological Heritage of the Lenggong Valley provides an outstanding and extraordinary record of the Palaeolithic technological ensemble of prehistoric people. With its rich and unique evidence of in-situ stone tool workshops spanning a 200,000 - 100,000 year period of time, Archaeological Heritage of the Lenggong Valley reflects the evolution of human cognitive complexity in the form of a rational and systematic mind, an understanding of lithology and an efficient method of stone tool production. An outstanding example of lithic manufacturing of the Palaeolithic period is to be found at the in-situ Kota Tampan site. Kota Tampan has become an important global reference site for Palaeolithic tool technology.

The undisturbed archaeological sites in the Lenggong Valley are unique because they preserve in-situ an outstanding record of the evolution of human cognitive complexity evidenced by the development of lithic tradition and stone tool technology over an extremely long time sequence from 1.83 million years ago to the recent past.

Name and Contact Information of Official Local Institution / Agency

Emeritus Professor Dato’ Zuraina Majid
Commissioner of Heritage
Department of National Heritage
Ministry of Information Communications and Culture Malaysia
Level 10, Chulan Tower,
Jalan Conlay,
50450 Kuala Lumpur
MALAYSIA

Tel : + 603 - 21675100
Fax : + 603 - 21716029

e-mail : zuraina@warisan.gov.my
        : zuraina@heritage.gov.my
Website : www.warisan.gov.my
# CONTENTS

<table>
<thead>
<tr>
<th>EXECUTIVE SUMMARY</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>i</td>
</tr>
</tbody>
</table>

## 1. IDENTIFICATION OF THE PROPERTY

- Introduction                                       | 1    |
- a Country                                           | 2    |
- b Region                                            | 3    |
- c Name of Property                                  | 5    |
- d Geographical Coordinates to the Nearest Second    | 5    |
- e Maps and Plans, Showing the Boundaries of the Nominated Property and Buffer Zone | 6    |
- f Area of Nominated Property and Proposed Buffer Zone | 11   |

## 2. DESCRIPTION

- a Description of Property                           | 13   |
- b History and Development                           | 101  |

## 3. JUSTIFICATION FOR INSCRIPTION

- a Criteria under which Inscription is Proposed (and justification for inscription under these criteria) | 110  |
- b Proposed Statement of Outstanding Universal Value | 113  |
- c Comparative Analysis                              | 115  |
- d Integrity /Authenticity                           | 136  |
4. STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY

4. a Present State of Conservation 140
4. b Factors Affecting the Property 145
   (i) Development Pressures 146
   (ii) Environmental Pressures 149
   (iii) Natural Disasters and Risk Preparedness 149
   (iv) Visitor/Tourism Pressures 150
   (v) Number of Inhabitants 153

5. PROTECTION AND MANAGEMENT OF THE PROPERTY

5. a Ownership 154
5. b Protective Designation 156
5. c Means of Implementing Protective Measures 159
5. d Existing Plans Related to Municipality and Region in which the Proposed Property is Located 161
5. e Property Management Plan or other Management Plan 165
5. f Sources and Levels of Finance 171
5. g Sources of Expertise and Training in Conservation and Management Techniques 172
5. h Visitor Facilities and Statistics 177
5. i Policies and Programmes Related to the Presentation and Promotion of the Property 182
5. j Staffing Levels 184

6. MONITORING

6. a Key Indicators for Measuring State of Conservation 185
6. b Administrative Arrangements for Monitoring Property 190
6. c Results of Previous Reporting Exercises 191
7. DOCUMENTATION

7.a Photographs, Slides, Image Inventory and Authorization
   Table and other Audiovisual Materials

7.b Texts Relating to Protective Designation,
   Copies of Property Management Plans or
   Documented Management Systems and
   Extracts of other Plans Relevant to the Property

7.c Form and Date of Most Recent Records or
   Inventory of Property

7.d Address where Inventory, Records and Archives are held

7.e Bibliography

8. CONTACT INFORMATION OF RESPONSIBLE AUTHORITIES

8.a Preparer

8.b Official Local Institution/Agency

8.c Other Local Institutions

8.d Official Web Address

9. SIGNATURE ON BEHALF OF THE STATE PARTY

LIST OF ABBREVIATIONS

LIST OF CHARTS

LIST OF FIGURES

LIST OF PHOTOS

LIST OF TABLES
LIST OF ANNEXES
The annexes are contained in the box file: Annexes to accompany the Archaeological Heritage of Lenggong Valley Nomination Document for the Inscription on the UNESCO World Heritage List, 2011

Annex 1: The National Heritage Register (booklet)
Annex 2: Physical Map of Lenggong Valley
Annex 3: Reviving Pithecanthropus (printed pdf)
Annex 4: Local Government Act 1976 (booklet)
Annex 5: Town and Country Planning Act 1976 (booklet)
Annex 6: National Heritage Act 2005 (booklet)
Annex 7: Image files for Chapter 7a (CD)
CHAPTER 1
IDENTIFICATION OF PROPERTY

INTRODUCTION

1.A COUNTRY

1.B STATE, PROVINCE OR REGION

1.C NAME OF PROPERTY

1.D GEOGRAPHICAL COORDINATES TO THE NEAREST SECOND

1.E MAPS AND PLANS, SHOWING THE BOUNDARIES OF THE NOMINATED PROPERTY AND BUFFER ZONE
INTRODUCTION

Archaeological Heritage of the Lenggong Valley (AHLV)* is situated in between two mountain ranges, namely the Titiwangsa Range and Bintang Range. This valley offers a wide diversity of flora and fauna providing man with food, such as wild fruits, fish and shellfish, and game like deer, monkey and wild boar. The presence of an ancient lake and the abundance of raw material for stone tool production made it a hospitable area for prehistoric man and his way of life.

AHLV is situated in the Lenggong Sub-district, District of Hulu Perak in the state of Perak, Peninsular Malaysia. It is located about 100 km from the state capital, Ipoh. The nominated property, the Archaeological Heritage of the Lenggong Valley lies within the Lenggong Valley** and has been divided into two clusters. Cluster 1 consists of the Bukit Bunuh-Kota Tampan core zone and its buffer zone, and Cluster 2 consists of three core zones - Bukit Kepala Gajah, Bukit Gua Harimau and Bukit Jawa - all enclosed within one buffer zone (Chart 1.1). The shared lithic tradition in the two clusters serves as the common element to hold the two clusters together as a single nominated property. Moreover, the two clusters are only 5 kilometres apart, separated by Lenggong town. This nominated property is therefore a serial nomination known as “Archaeological Heritage of the Lenggong Valley”.

* The nominated property is referred throughout the text as “Archaeological Heritage of the Lenggong Valley” or “AHLV” or “nominated property”.

**“Lenggong Valley” refers to the geographical entity of the Lenggong sub-district.
Comprehensive archaeological research, conducted since 1987 in the nominated property, has not only significantly shaped the prehistory of Malaysia, but has impacted on the story of early man in the world. Lithic artefacts systematically excavated from both cave and open-air sites link the Clusters through a common expression of lithic tradition.

1.a COUNTRY

Malaysia (Figure 1.1)
1.b STATE, PROVINCE OR REGION

The State of Perak, Malaysia (Figure 1.2 & Figure 1.3)

Figure 1.2: Location of Lenggong Valley in the state of Perak, Malaysia
Figure 1.3: The nine principal local government districts in Perak. Hulu Perak is the largest district and is divided into Lenggong, Pengkalan Hulu and Gerik sub-districts. The Archaeological Heritage of Lenggong Valley (AHLV) is located in the sub-district of Lenggong.
1.c **NAME OF PROPERTY**

Archaeological Heritage of the Lenggong Valley

1.d **GEOGRAPHICAL COORDINATES TO THE NEAREST SECOND**

The nominated property of the Archaeological Heritage of the Lenggong Valley contains two clusters, Cluster 1 and Cluster 2 (Table 1.1). In Cluster 1, there is one core zone, known as Bukit Bunuh-Kota Tampan with its buffer (Table 1.2). Cluster 2 has three core zones, namely, Bukit Jawa, Bukit Kepala Gajah and Bukit Gua Harimau, all within a single buffer (Table 1.2, Figure 1.5).

*Table 1.1: Coordinates of Cluster 1 and Cluster 2 in the nominated property*

<table>
<thead>
<tr>
<th>Cluster/ Limits*</th>
<th>North</th>
<th>South</th>
<th>East</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cluster 1</strong></td>
<td>Latitude</td>
<td>5° 5'34.17&quot;N</td>
<td>5° 2'59.83&quot;N</td>
<td>5° 4'10.08&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude</td>
<td>100°58'0.29&quot;E</td>
<td>100°57'57.42&quot;E</td>
<td>100°58'39.97&quot;E</td>
</tr>
<tr>
<td><strong>Cluster 2</strong></td>
<td>Latitude</td>
<td>5° 9'16.49&quot;N</td>
<td>5° 6'46.93&quot;N</td>
<td>5° 7'49.84&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude</td>
<td>100°59'5.37&quot;E</td>
<td>100°59'39.08&quot;E</td>
<td>100°59'58.23&quot;E</td>
</tr>
</tbody>
</table>

*Limits refer to the extreme cardinal points for each cluster.

*Table 1.2: Central coordinates for the core zones in the nominated property*

<table>
<thead>
<tr>
<th>Core zone</th>
<th>Coordinate of centre point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bukit Bunuh – Kota Tampan</td>
<td>Latitude 5° 4' 4.47&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100° 58' 20.38&quot;E</td>
</tr>
<tr>
<td>Bukit Jawa</td>
<td>Latitude 5° 6'46.44&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100°59'31.84&quot;E</td>
</tr>
<tr>
<td>Bukit Kepala Gajah</td>
<td>Latitude 5° 07' 34.30&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100° 58' 0.09&quot;E</td>
</tr>
<tr>
<td>Bukit Gua Harimau</td>
<td>Latitude 5° 8' 57.84&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100° 58' 50.64&quot;E</td>
</tr>
</tbody>
</table>
1.e MAPS AND PLANS, SHOWING THE BOUNDARIES OF THE NOMINATED PROPERTY AND BUFFER ZONE

*Figure 1.4: Topographic map of the Lenggong Valley (Annex 1) - the nominated property is located in the box*
Figure 1.5: Map of Lenggong Valley showing the four core zones and buffer zones in Cluster 1 and Cluster 2
Figure 1.6: Satellite image of the nominated property - Archaeological Heritage of the Lenggong Valley (Source: Malaysian Remote Sensing Agency [ARSM])
Figure 1.7: Map of significant sites in the core zones of the nominated property
Figure 1.8: Land use map and land lots in the Archaeological Heritage of the Lenggong Valley (AHLV)
1.f AREA OF NOMINATED PROPERTY AND PROPOSED BUFFER ZONE

The Lenggong Valley covers an area of 9,773 hectares. The total area of the nominated property for the World Heritage site is 2,185.41 hectares, as follows (Table 1.3).

Table 1.3: The area of the nominated property

<table>
<thead>
<tr>
<th>Nominated Property</th>
<th>Area in hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1</td>
<td></td>
</tr>
<tr>
<td>Bukit Bunuh – Kota Tampan</td>
<td>281.06</td>
</tr>
<tr>
<td>Buffer</td>
<td>827.34</td>
</tr>
<tr>
<td>Total area for Cluster 1</td>
<td>1,108.40</td>
</tr>
<tr>
<td>Cluster 2</td>
<td></td>
</tr>
<tr>
<td>Bukit Jawa</td>
<td>6.18</td>
</tr>
<tr>
<td>Bukit Kepala Gajah</td>
<td>108.25</td>
</tr>
<tr>
<td>Bukit Gua Harimau</td>
<td>3.15</td>
</tr>
<tr>
<td>Buffer</td>
<td>959.43</td>
</tr>
<tr>
<td>Total area for Cluster 2</td>
<td>1,077.01</td>
</tr>
<tr>
<td>Total Area for the Nominated Property</td>
<td>2,185.41</td>
</tr>
</tbody>
</table>

The exact calculation of the area of the nominated property was carried out with the MapInfo Professional software on 1: 45,000 cadastral map. The boundaries of the buffer zones follow the outward facing boundaries of lots parcels selected as the outer most land area of the zones so as to include only whole lots of land. Boundaries have been selected based on a natural barrier (the Perak River), land lots, and the shorelines of Chenderoh palaeolake and the ancient Perak River (Figure 1.9).
Figure 1.9: Principles governing the demarcation of the buffer perimeters of Cluster 1 and Cluster 2
CHAPTER 2

DESCRIPTION

2.A DESCRIPTION OF PROPERTY

2.B HISTORY AND DEVELOPMENT
2.a DESCRIPTION OF PROPERTY

I. The Landscape of Lenggong Valley

II. Description of Clusters

III. Impact on World Archaeology

IV. The Lenggong Valley Culture Sequence

I. The Landscape of Lenggong Valley

Introduction
River Gravels
Bukit Bunuh Meteorite Impact Crater
Open-air Sites
Limestone Massifs and their Caves

Introduction: The Lenggong Valley, with an average elevation of around 100 metres above sea level, is located in Peninsular Malaysia (Figure 2.1). It is bordered to the east by the main Titiwangsa Range, made up of porphyritic biotite granitic rock and to the west, the valley is delineated by the lower Bintang Range, also composed of porphyritic biotite granite rock. Lenggong Valley contains slate, phyllite and metamorphic limestone from the Kroh Formation of Ordovician-Devonian vintage. The Perak River with its little islands and tributaries flow through the valley. This landscape in many ways resembles the palaeoenvironment of the area and indeed, scientists have determined the area to be one of the oldest existing stable environments in the world, dating back at least 2 million years (Hutchison, 1989).

The Lenggong Valley today is centred around the expanding town of Lenggong. There are a number of small kampung or hamlets scattered throughout the valley and within the nominated property. Twenty-one percent of the economic activities in the Lenggong district are devoted to agriculture and animal husbandry. Without human intervention and occupation, the Lenggong valley would probably be a southward extension of the Belum-Temengor tropical rainforest about 60 kilometres away (Figure 2.2). This tropical forest acts as habitat for over 3,000 species of flowering plants, 64 species of ferns, and 62 species of mosses. Large mammals such as tigers, elephants and the Asian rhinoceros are known to live and breed in that vast area. There are a recorded 23 species of fish and 5 of turtles in the artificial Lake Temengor there.
Figure 2.1: Lenggong Valley in relation to the topography of Peninsular Malaysia
Figure 2.2: Map showing proximity of Belum-Temengor Rainforest to Lenggong

Pockets of tropical rainforest still exist within the Lenggong Valley, particularly in the surroundings of the limestone massifs. Large mammals such as the elephant and tiger are on very rare occasions spotted in these forest tracts.

The natural environment of any region is made up of all things and conditions that exist there. The physical character derives from such geophysical features as the mountains, valleys, lakes and rivers. Weather is determined by patterns such as that of sunlight and rainfall. Living things make up the biosphere. Gradual or sudden changes may be forced upon a region by slow or catastrophic events.
During the past 2 million years or so, there could have been up to 20 episodes of freezing conditions globally. Under freezing conditions when water is trapped as glaciers and ice, sea levels will fall. On the other hand, during warmer periods when glaciers melt (the interglacial interim), sea level rises and shores are inundated. For instance, the Lenggong Valley, now 80 kilometres from the sea, was 750 km inland 40,000 years ago (Table 2.1) during a time when the larger islands of Southeast Asia were linked to the Asian mainland by the exposure of Sundaland (Figure 2.3). Thus, over long spans of time, the environment of any site, in particular the weather and the vegetation may have been very different from what they are today. When new conditions appear, living things must either change the shape and functions of their bodies (evolution) or change their behaviour (adaptation) to survive. Slowly changing conditions allow adaptation and survival. This may be seen in the beginning of the use of cave shelters at the Lenggong Valley as the caves emerged and their floors filled with soil.

Fast changes like catastrophic natural events such as impacts from space bodies or violent volcanic eruptions cause immediate evacuation or extinction. Fast violent changes can lead to abandonment of a habitation site and when this happens, human activities can be preserved in-situ. If left alone over a long span of time, such in-situ sites remain undisturbed and provide the clearest picture of the palaeoenvironment and the human activities that went on there. This most likely occurred at the Kota Tampan property in Cluster 1 with the Toba volcanic eruption of at least 70,000 years ago.

Table 2.1: Sea levels during the Pleistocene (after Bard et al., [1990]; Voris [2000]; Lambeck and Chappell, [2001]; Bird et al., [2005])

<table>
<thead>
<tr>
<th>Sites in Lenggong Valley</th>
<th>Distance from sea now (km)</th>
<th>Age (kiloyears ago, ka)</th>
<th>Sea level</th>
<th>Estimated distance (km) from sea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bukit Jawa</td>
<td>80</td>
<td>200</td>
<td>-80 m</td>
<td>750</td>
</tr>
<tr>
<td></td>
<td></td>
<td>140</td>
<td>-120 m</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td>-40 m</td>
<td>300</td>
</tr>
<tr>
<td>Kota Tampan</td>
<td>80</td>
<td>70</td>
<td>-80 m</td>
<td>750</td>
</tr>
<tr>
<td>Bukit Bunuh BBH 2001</td>
<td>80</td>
<td>40</td>
<td>-80 m</td>
<td>750</td>
</tr>
</tbody>
</table>
Figure 2.3: Sundaland-Landmass during the Pleistocene period
Although there are doubts that changes in sea level can directly affect the levels of inland rivers and lakes, other conditions such as temperature and rainfall patterns so far inland must have been quite different. It is possible, as Heany (1991) and Bird et al., (2005) have suggested from geomorphological, biogeographical and palynological evidence, that a more open environment akin to a tropical savannah corridor existed in Sundaland which included the Lenggong Valley of that time. If this was so, then following Gamble (1994), such a tropical savannah would have been convenient for early man to adapt to. Such an analysis supports the idea that the Lenggong Valley was habitable from very early dates.

In turn, rivers change their course over time or become engorged to form lakes. The landscape is accordingly sculptured to be read by scientists in their efforts to unravel past landscapes and environment over geological times. The Lenggong Valley has revealed its past through such close geological studies. For instance, geological evidence exists to show that landslides had dammed the ancient Perak River and created lakes at Lenggong, and nearby Lawin and Gerik at various times in the prehistoric past. A meteorite impact about 1.83 million years ago (vide infra) once blocked the ancient river and diverted it eastward.

The course of the Perak River and the extent of the ancient Chenderoh Lake over the course of time can be re-constructed based on these geological studies (Figure 2.4 to Figure 2.7). The river alignments at various times which were based on the locations of beds of river gravels are supported by subsoil gravity and magnetic geophysical surveys. Its course matches the regions of low gravity and magnetic readings which depended on sediment distributions and composition. In essence, the Perak River was a shifting dynamic system that has influenced, and still does, human habitation in the Lenggong Valley.

If the tropical rainforests or savannahs of the past provided them with food (from the diverse flora and fauna), fresh water, what else would the prehistoric hunter and gatherer need to build a niche in Lenggong Valley for themselves? The answer lies with resources for tool-making and shelter. The Lenggong Valley supplied both – gravels brought down by the Perak River and caves of the limestone massifs.
Figure 2.4 – 2.7: A reconstruction of the course of Perak River and the ancient Chenderoh Lake over the course of time, from 200,000 – 40,000 years ago.
**River Gravels:** Geological surveys in the nominated property have mapped 13 areas with Quaternary river gravel deposits. Figure 2.8 shows the gravel sites excavated in the AHLV. The thickness of the deposits ranges between 30 and 150 cm (Photo 2.1), and covers terraces between 72 and 183 metres above sea level depending on the location of the sites. Many if not most are quartzite and quartz rocks. The studies also showed that all the river gravel deposits are located north of the present Chenderoh Lake. A likely interpretation for the location and varying thickness of these river gravel beds could be that as the rivers (the Perak River and its tributaries) entered a palaeolake and their currents slowed down or when they changed their course they deposited the gravel along their shores or at their new channels. Thus the Upper Perak area especially the Lenggong Valley was provided with a wealth of natural material (river gravel) for any ancient stone-tool industry. The significant open-air sites in this nominated property are located on these gravel terraces (Photo 2.2 and Photo 2.3).

*Without such a conducive environment provided by the tropical savannah or forest regime and an abundance of stone resources, prehistoric man would have probably simply passed through the Lenggong Valley and moved southwards to Indonesia and Australia.*
Figure 2.8: Open-air sites in the nominated property
Photo 2.1: An example of a gravel layer bearing archaeological artefacts

Photo 2.2: An exposed gravel layer in Bukit Jawa, typical of AHLV
Photo 2.3: Gravel layer located at a shallow depth at the Bukit Bunuh BBH 2001 excavation trench. Much of the overburden had been removed by plantation activities.

**Bukit Bunuh BBH 2007 Meteorite Impact Crater:** The Bukit Bunuh meteorite impact site has been mapped as a crater approximately 3.45 km in diameter. Dating of the breccia by fission-track analysis at the laboratory in Geochronology Japan Inc. in Tokyo, Japan gave two dates of $1.74 \pm 1.28$ million years ago (D0204006) and $1.83 \pm 0.61$ million years ago (D0806004). Given the higher deviation error in the $1.74 \pm 1.28$ million years date, it was more appropriate to place the site at $1.83 \pm 0.61$ million years ago. A paper describing this impact crater is being prepared for publication.

The meteorite impact caused changes to the natural features (rocks, soils, forest, hills and river) because of the high temperatures and pressures generated. Suevite is formed from natural stones at these high temperature and pressure. At the Bukit Bunuh site, more than 10,000 surface suevite rocks associated with the hypervelocity impact have been counted within the impact, having been unearthed as a result of plantation activities. Bukit Bunuh lies in an oil palm estate (Photo 2.4 and Photo 2.5).
Photo 2.4: The Bukit Bunuh crater in 2000 showing the centre of the meteorite impact. Suevite and other impactites (left, foreground) were exposed through plantation activities. This view is no longer visible in 2010 because the oil palm trees have grown.

Photo 2.5: Exposed suevite boulders at the Bukit Bunuh meteorite impact site seen in an aerial photograph taken in August 2010.
The Planetary and Space Science Centre (PASSC) at the University of New Brunswick, Fredericton, New Brunswick, Canada keeps an earth impact database. As of July 2010, the database contains 176 confirmed meteorite impact sites from around the world but none recorded from Malaysia. However, there are about 15 Malaysian sites that may qualify as deduced from satellite and radar images, aerial photographs, geological and topographical maps, field work and laboratory studies. This is largely due to the absence of detailed studies to meet the chief criteria for an impact structure formed by hypervelocity impact of a meteorite or comet which is required for enlistment into the PASSC catalogue. The criteria have been divided into megascopic (needing to be seen from afar), macroscopic (observable with the naked eye) and microscopic (requires a microscope to see) features.

Physical evidence for a meteorite impact at Bukit Bunuh (Table 2.2) contains the key characteristics required above namely megascopic, macroscopic and microscopic features which include shatter cones, crossed-lamellar planar deformation features, suevite with nickel, and aerial photography. The meteorite impact at Bukit Bunuh is in the process of being submitted to PASSC.
Table 2.2: A summary of the main criteria required to confirm the impact crater at the Bukit Bunuh site at Lenggong Valley

<table>
<thead>
<tr>
<th><strong>PASSC criteria (the first three are considered crucial for confirmation)</strong></th>
<th><strong>The evidence and compliance from the Bukit Bunuh impact site</strong></th>
<th><strong>Reference to Bukit Bunuh study</strong></th>
<th><strong>Figure or Photograph in text</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of shatter cones that are in situ (macroscopic evidence)</td>
<td>Shatter cones collected in situ</td>
<td>In process</td>
<td>Photo 2.6</td>
</tr>
<tr>
<td>Presence of multiple planar deformation features (PDFs) in minerals within in situ lithologies (microscopic evidence).</td>
<td>Crossed-lamellar PDFs on quartz (decorated PDFs)</td>
<td>Mokhtar (2006)</td>
<td>Photo 2.7</td>
</tr>
<tr>
<td>Presence of high pressure mineral polymorphs within in-situ lithologies (microscopic evidence and requiring proof via X-ray diffraction, etc.).</td>
<td>Nickel in suevite</td>
<td>In process</td>
<td>Photo 2.8</td>
</tr>
<tr>
<td>Morphometry, the megascopic quality (i.e., too big to be seen unaided by the human eye) which requires remote sensing, aerial photography, detailed mapping of multiple outcrops to assemble and view the typically km- or multiple km-size structure.</td>
<td>The presence of a spiral crater lip can be detected from the megasopic view of the valley and geophysical study</td>
<td>Ariffin et al., 2010</td>
<td>Figure 2.9</td>
</tr>
<tr>
<td>Presence of an impact melt sheet and/or dikes, and impact melt breccias that were generated due to hypervelocity impact (macroscopic).</td>
<td>Suevite rocks and stony meteorite remnants</td>
<td>Mokhtar (2006)</td>
<td>Photo 2.9 &amp; 2.10</td>
</tr>
<tr>
<td>Presence of pseudotachylyte and breccias as contributory factors.</td>
<td>Breccia suevite</td>
<td>In process</td>
<td>Photo 2.11</td>
</tr>
</tbody>
</table>
Photo 2.6: Shatter cones, evidence of a meteorite impact seen in Bukit Bunuh

Photo 2.7: Microscopic evidence from crossed-lamellar PDFs on quartz is indicative of a meteorite impact in Bukit Bunuh
Photo 2.8: Unpolarised photomicrograph showing nickel (Ni) in suevite, evidence of a meteorite impact in Bukit Bunuh
Figure 2.9: Geophysical anomalies illustrate a meteorite impact crater in Bukit Bunuh
Photo 2.9: Impact melt breccia in the form of a suevite rock from the Bukit Bunuh meteorite impact site (Right: thin-sliced section)

Photo 2.10: Stony meteorite remnant from Bukit Bunuh is evidence of a meteorite impact (Right: thin-sliced section)
Open-air Sites: A total of 13 open-air sites at Lenggong have been mapped in detail so far. Excavations have been carried out at the open-air sites of Bukit Jawa, Kota Tampan and Bukit Bunuh. At Bukit Bunuh itself, finds have been dated to two separate dates, BBH 2007 at 1.83 million years ago and the other BBH 2001 at 40,000 years ago (vide infra). These showed that Pleistocene populations during the Palaeolithic period chose river gravels as the raw material for stone-tool making (Zuraina, 1989, 1997; Mokhtar, 1997, 1998). At Kota Tampan, this workshop site is presently on a hill slope but it was on a shore of the ancient Chenderoh Lake during the Pleistocene (Photo 2.12 and Photo 2.13). The Chenderoh palaeolake interpretation is based on a study of topographic maps, geomorphology and field mapping. Among the evidence today indicating a palaeolake are high terraces, overfit valleys, landslide scars and a palaeolake outlet (Zuraina and Tjia, 1988) (Figure 2.10)
The discoveries of Palaeolithic and in-situ workshops with their stone assemblages at Bukit Jawa (200,000 to 100,000 years ago), Kota Tampan (at least 70,000 years ago) and Bukit Bunuh BBH 2001 (40,000 years ago) contribute to the outstanding universal value of these sites. The stone assemblages have been classified into various types based on attributes. Additionally, the Bukit Bunuh site provided examples of tools made from suevite and metamorphic rocks which were materials created during the meteorite impact. Fifteen of these suevite boulders had an embedded stone hand axe in each (Photo 2.14). The suevite have been chronometrically dated to 1.83 million years by the fission-track method. These hand axes are the oldest or among the oldest so far discovered outside of Africa.

Photo 2.12: Kota Tampan was located on the shores of a palaeolake which has since receded and remnants of the lake can still be seen in the background
Photo 2.13: The Kota Tampan KT 1987 excavation site in 1988
Figure 2.10: High terraces, overfit valleys, landslide scars and water outlet are indicator the Chenderoh palaeolake
**Limestone Massifs and their Caves:** Limestone structures are formed by chemical deposition and biological accumulation of marine invertebrates such as bivalves, brachiopods, crinoids and corals. The Lenggong limestone massifs themselves are composed of Lower Palaeozoic rocks under the Baling Formation. Many of the limestone massifs in this valley are found as alluvial-covered subsurface bedrock. The exposed limestone massifs, which form five spectacular towers (Figure 2.11) within Cluster 2, include Bukit Kepala Gajah (Photo 2.15) and Bukit Gua Harimau (Photo 2.16). The topography of these hills consists of steep-to-vertical walls with rounded tops.

These limestone massifs house caves and rock shelters, which are of both phreatic (formed underwater) and vadose (formed by running water) origins. Underground streams which were formed by rainwater percolating through the cracks and fissures gradually by erosion created small cavities. In many cases these small cavities became enlarged as a result of the subsequent collapse of their walls from the action of sub-aerial and surface erosion caused by rivers, groundwater and acidic peat swamps.
Figure 2.11: Location of significant caves sites in the nominated property
Photo 2.15: South-western face of Bukit Kepala Gajah in Cluster 2

Photo 2.16: Southern face of Bukit Gua Harimau in Cluster 2
Based on electron spin resonance (ESR) dating of some of their stalagmites, the oldest cave is considered to be the vadose cave, Gua Gunung Runtuh, which was created between 145,000 and 54,000 years ago. Generally, all caves located at the foot of these limestone hills (unlike Gua Gunung Runtuh which is 124 metres above sea level) emerged from under the palaeolake between 31,000 and 62,000 years ago (Mokhtar, 2005). Very likely there was little or no soil on these cave floors prior to 14,000 years ago and this could be the reason why the earliest occupation in caves only appeared after this date. Thus, there were no suitable caves or rock shelters in the Lenggong Valley for occupation until the end of the Pleistocene, about 14,000 years ago. This is substantiated by the radiocarbon dates derived from the cave sites in the AHLV (Table 2.3).

Table 2.3: Dating of archaeologically significant cave sites in Cluster 2

<table>
<thead>
<tr>
<th>Cave Site</th>
<th>Limestone Massifs</th>
<th>Radiocarbon date (uncalibrated BP)</th>
<th>Sample</th>
<th>Lab No.</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gua Gunung Runtuh</td>
<td>Bukit Kepala Gajah</td>
<td>13,600 ± 120 12,930 ± 100</td>
<td>Shells</td>
<td>Beta-38338</td>
<td>Zuraina, 1994</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10,170 ± 90 10,120 ± 110 10,100 ± 80</td>
<td>Shells</td>
<td>Beta-49850</td>
<td>Zuraina, 1998</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10,010 ± 70 9,930 ± 140 9,460 ± 90</td>
<td>Shells</td>
<td>Beta-38294</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9,290 ± 70 9,210 ± 80 8,480 ± 70</td>
<td>Shells</td>
<td>Beta-38394</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8,070 ± 80 7,920 ± 110 7,880 ± 80</td>
<td>Shells</td>
<td>Beta-49849</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,620 ± 80</td>
<td>Shells</td>
<td>Beta-49851</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-46813</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-37818</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-46814</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-49853</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-49854</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-49852</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-49855</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells</td>
<td>Beta-50831</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Charcoal</td>
<td>Beta-37817</td>
<td></td>
</tr>
<tr>
<td>Cave Site</td>
<td>Limestone Massifs</td>
<td>Radiocarbon date (uncalibrated BP)</td>
<td>Sample</td>
<td>Lab No.</td>
<td>Reference</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------</td>
<td>-----------------------------------</td>
<td>--------------</td>
<td>-----------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Shells Charcoal Shells Charcoal</td>
<td>Beta-28157</td>
<td></td>
</tr>
<tr>
<td>Gua Teluk Kelawar</td>
<td>Bukit Kepala Gajah</td>
<td>10,245 ± 80 10,240 ± 70 9,450 ± 70 9,390 ± 80 8,640 ± 80 8,400 ± 40 7,780 ± 90 7,160 ± 60 7,020 ± 140 6,890 ± 80 6,550 ± 70 6,100 ± 100</td>
<td>Charcoal Shells Shells Shells Shells Shells Shells Shells Shells Shells Shells Shells Shells Shells Shells Shells</td>
<td>Beta-41365 Beta-87286 Beta-87287 Beta-87285 Beta-38295 Beta-193000 Beta-87285 Beta-49845 Beta-38298 Beta-49844 Beta-38296 Beta-49846</td>
<td>Zuraina, 1998 Zolkurnian, 1998</td>
</tr>
</tbody>
</table>

The presence of surface finds suggests potential site for archaeological investigations. The largest cave, Gua Harimau, covers an area of approximately 350 square metres, while many small caves had entrances that measure less than a metre wide.
II. Description of the Clusters

Introduction

Cluster 1
Bukit Bunuh-Kota Tampan Core Zone

Cluster 2
Bukit Jawa Core Zone
Bukit Kepala Gajah Core Zone
Bukit Gua Harimau Core Zone

Introduction: The nominated property consists of two clusters, namely Cluster 1 and Cluster 2. Each of these clusters comprises one or more core zones with their respective buffer zones. Cluster 1 consists of the Bukit Bunuh-Kota Tampan core zone and its own buffer zone, while Cluster 2 consists of three core zones, namely Bukit Kepala Gajah, Bukit Gua Harimau and Bukit Jawa, all enclosed within a single buffer zone.

The buffer zones of Cluster 1 and Cluster 2 are delineated, as described in Chapter 1 (Figure 1.9), by several factors – by the contours for the levels of the palaeolake and old river terraces at various ages, by the modern Perak River and by man-made boundaries such as imposed by land lots.

The shared lithic tradition in the two clusters serves as the common element to hold the two clusters together as a single nominated property. Historically, culturally and archaeologically, the clusters are of one tradition.

Cluster 1: Within Cluster 1 (Figure 2.12), there are two open-air sites namely Bukit Bunuh and Kota Tampan which are approximately 1 kilometre apart. The sites in Cluster 1 cover a significant part of a palaeolake shore and old river terraces. Finds of immense impact to world archaeology made from excavations, past and ongoing, at Kota Tampan and Bukit Bunuh sites have shown that they are unique and rare in-situ Palaeolithic workshop sites separately dated to about 70,000 and 40,000 years ago respectively.

Bukit Bunuh-Kota Tampan Core Zone: The proximity of Bukit Bunuh and Kota Tampan and the continuity of gravel beds, similar sources of the raw materials and lithic tradition allow them to be treated as a single Bukit Bunuh–Kota Tampan core zone. Bukit Bunuh and Kota Tampan represent two different culture sequences but with a similar lithic tradition, palaeoenvironment and adaptive mechanism so close together in distance (about 1 km apart) and in lithic tradition that they have been treated as a single property within Cluster 1 in this nomination.
Figure 2.12: Map of significant sites in the core zones of the nominated property
Bukit Bunuh Site: Bukit Bunuh is located at the longitude of 100° 58.5’ East and latitude 5° 4.5’ North. The highest point is over 180 metres above sea level. When the site covering more than 4 km² was first surveyed in the 80s, the surface was bare but a return survey in 2001 saw thousands of rocks of many types such as suevite, quartzite, quartz, and metamorphic rocks brought to the surface by agricultural activities. Apart from the natural rock material, stone tools were also found among the scattered rocks on the surface.

Bukit Bunuh is an open-air site that has provided enormously significant archaeological and geological data contributing directly to our understanding of the palaeo-environment and early human cognitive behaviour and culture through their use of stone tools.

The Bukit Bunuh BBH 2007 site, in addition, bears the geological scars of a meteorite impact which has been dated to 1.83 million years ago by fission-track technique. The site is strewn with impact breccias such as suevite and other impactites.

A greater significance of Bukit Bunuh emerged in 2007. In that year, within the study area, a hand axe embedded in a suevite boulder was found among the surface artefacts. Further studies by CT-scanning substantiated the observation that it was indeed an embedded metaquartzite hand axe (Photo 2.17). A sample of the encrusting suevite was sent to the Japan Geochronology Laboratory for dating by the fission-track method (Japan D0806004). A date of 1.83 million years ago was obtained which gave rise to the astonishing revelation that the area was occupied by early man at such an early date. Given that the hand axe had to be present prior to the meteorite impact, human occupation of the site must have predated this impact. Therefore, this site would have been occupied by man earlier than 1.83 million years ago.
This hand axe is a bifacial symmetrically flaked pebble tool made from metaquartzite with a convex bottom having its sides converging to the top to end in a sharp point 20.3 cm away. Approximately the top fifth of the tool had broken off but it remained attached in the suevite. The sharp end is probably the result of damage that happened either during manufacture or from use. At its broadest, the hand axe is 10.8 cm and this occurs approximately 9 cm from the convex end thus it followed the classical tear-shaped template often referred to as the Acheulean or Mode II. (Figure 2.13).
Figure 2.13: A drawing of 1.83 million years metaquartzite hand axe based on the CT scan

This is also one of the oldest dates for an early man presence outside of Africa albeit indirect, and it bears considerable consequences for current theories on evolution and the timing of human dispersal from Africa to Asia and beyond. The protection and preservation of the site for further research by archaeologists are paramount obligations for the site custodians.

Prior to the BBH 2007 discovery, excavations into the cultural layer between the top alluvial deposits and the granite bedrock and geological studies in BBH 2001 led to the discovery of an in-situ stone tool making workshop (Photo 2.18). The age of BBH 2001 was chronometrically determined by an OSL (optically stimulated luminescence) dating of soil (Trench D2) from the cultural layer at 39,000 ± 2,600 years ago (Roberts et al., 2004).
Surface finds were exposed as a result of terracing work in preparation for oil palm planting. Based on their similarities with the excavated material from BBH 2001, these surface finds of stone tools made from quartz, quartzite, suevite, and metamorphic rocks were attributed to this cultural layer. The excavated stone artefacts (Photo 2.19 – Photo 2.23) have been classified (Mokhtar, 2006). The Bukit Bunuh BBH 2001 hand axes are bifacially and unifacially flaked pebble tools.
ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY

DESCRIPTION

Photo 2.19: Chopper excavated from Bukit Bunuh (40,000 years ago)

Photo 2.20: The only suevite handaxe excavated from Bukit Bunuh (40,000 years ago)
Photo 2.21: Palaeoadze excavated from Bukit Bunuh (40,000 years ago)

Photo 2.22: Perimeter Flaked Pebble Tool excavated from Bukit Bunuh (40,000 years ago)
The stone tools from Bukit Bunuh have provided evidence of human presence prior to 1.83 million years (BBH 2007) and 40,000 years ago (BBH 2001). BBH 2007 is one of the oldest dates for the presence of early man outside of Africa and it has revealed one of the oldest, if not the oldest, hand axes in the world. Also among the tools found in the excavation in BBH 2001 was a hand axe made of suevite – the only known suevite hand axe in the world thus far. The tool maker used the suevite formed by the meteorite impact as an alternative raw material.

Kota Tampan Site: The Kota Tampan site is situated an oil palm estate at latitude $5^\circ 03’ 18”$ N and longitude $100^\circ 58’25”$ E.

The Kota Tampan site is made up of excavation trenches grouped as KT 1987, begun in 1987 and KT 2005, begun in 2005. KT 1987 is located at the elevation 72-76 metres above sea level while KT 2005 is located higher at the elevation 76-101 metres above sea level. The two sites are 60 metres apart in a roughly north-south alignment, with KT 2005 occupying the northern end. KT 1987 exposed a thick cultural layer of stone anvils, cores, hammerstones, stone tools and debitage of predominantly quartzite material.
A catastrophic event, the Toba mega-colossal volcanic eruption dated by optically stimulated luminescence (OSL) to at least 70,000 years ago, had mingled its volcanic ash with the lithic artefacts recovered at Kota Tampan and this mixture has suggested the 70,000-year date for the lithic workshop sites there.

**Dating of the site KT 1987 was made possible by commingled volcanic ash in the cultural layer which can be attributed to the Toba mega-colossal volcanic eruption of 74,000 years ago** (Rose and Chesner, 1987). **KT 1987 proved to be a rare and thus significant in-situ stone tool workshop from the Palaeolithic period whose cause and date of abandonment are known.**

KT 2005 also exposed another similar assemblage, but with quartz as the predominant material. **KT 2005 has an accurate chronometric date of 70,000 years ago from an OSL dating on a soil sample (Hamid, 2007)** taken from above the cultural layer exposed. The KT 2005 OSL dating would suggest, therefore, that both sites are at least 70,000 years old. The stone assemblages uncovered from trenches KT 1987 and KT 2005 show that the Palaeolithic inhabitants of Kota Tampan had a good understanding of the raw materials (quartzite and quartz) and knew how to produce the type of tools needed that would be the most economic and efficient in terms of their manufacture and use, that is, they were forming a mental template for stone tools.

The presence of anvils, hammerstones, cores, pebble tools, flake tools and debitage, and their association with one another at both KT 1987 and KT 2005 suggest a function-related site. The small boulders had very distinct battered marks on the top surface indicating that they were used as anvils.

**Around these anvils were found flakes and chips (debitage), further confirming the function of the small boulders as anvils. The quartzite chunks were cores whose detached flakes were found within appropriately a 0.25 metres radius. Some of these flakes could be refitted to their respective cores, further indicating that it was in-situ** (Zuraina, 1989) (Photo 2.24).
Furthermore, the cores and anvils showed attributes that were repeatedly found in many pieces and this suggests that they were deliberately and consistently worked on. The flakes and cores also showed straight flaking surfaces, which can only be produced on quartzite by a skilled hand with keen knowledge of the lithology of the selected material. In summary, based on the evidence provided by the assemblages found in-situ, it has been deduced that the following techniques were used in the manufacture of the lithic tools at Kota Tampan site (Zuraina, 1989):

1. Direct method of flake production – a core is struck directly against a fixed anvil or a large round pebble (hammerstone) is used to flake a core
2. Indirect method of flake production – a small round pebble (hammerstone) is used to strike at a core held against an anvil or perhaps a limb
3. Trimming method – a small hammerstone is used to flake or retouch pebble or flakes on an anvil

A similar morphological study of the stone assemblages from KT 2005 has led to the same conclusion. Both sites display in a clear and unmistaken manner the complete sequence in the reduction process from core to finished tool.
Sources of gravel were also found all around KT 2005 and KT 1987. These findings suggest that there is a gravel bed at 72-101 metres above sea level (Hamid, 2007). From the positioning of KT 2005 and KT 1987 on the contour above 72 metres, it could be surmised that both KT 2005 and KT 1987 sat on the banks of an island in the ancient Chenderoh palaeolake. When the water level rose to 76 metre, the island was partially submerged and split into 2 smaller islands. KT 1987 was on the smaller of the 2 new islands and KT 2005 remained on the larger piece.

**Cluster 2:** This Cluster, to the north of Cluster 1, (Figure 2.14) comprises the Bukit Jawa middle Palaeolithic open-air core zone, and two other limestone massif core zones, namely Bukit Kepala Gajah and Bukit Gua Harimau. Important archaeological remains recovered from this Cluster together testify to a long culture sequence of prehistoric presence from the Palaeolithic through the Neolithic to the Metal Period. The buffer zone in Cluster 2 (Figure 2.14) also contains three limestone massifs, Bukit Gua Badak (BGB), Bukit Batu Tukang (BBT) and Bukit Gua Dayak (BGD), which have caves known to have cultural remains.
Figure 2.14: Location of limestone massifs and significant sites in AHLV
**Bukit Jawa Core Zone:** Bukit Jawa, *in-situ* lithic workshop is the only site in this core zone and has a relative dating of 200,000 – 100,000 years ago.

**Bukit Jawa Site:** This was one of the gravel sites mapped earlier in 1990 and set aside for later excavation. However, by 1996, developmental pressure on the district saw a highway construction cutting into this site. The rescue excavation involved twenty-three 2 x 2 metre trenches at two locations, BJ1 and BJ2, excavated down to bedrock and concentrated on questions relating to site function, dating and duration of occupation, rock types and tool-making techniques, artefact types and similarities to other sites in the area and the palaeoenvironment. A very large amount of debitage and tools were collected for analysis.

The Bukit Jawa site has been interpreted as a Palaeolithic tool workshop site on the shores of an island in a palaeolake now long desiccated. The site is generally undisturbed with the cultural layer protected by a thick overburden. BJ1 and BJ2 were some 400 metres apart and located at the southern and northern shores of the palaeo-island respectively. The richness and extent of the finds from both BJ1 and BJ2 suggest that the Palaeolithic population was relatively high, practised a similar lithic technology through time and probably settled on this site because it was a source of the raw material. After the rescue excavation, continued road construction destroyed both BJ1 and BJ2. However, a new site about 100 metres away from the road has been excavated and similar materials were recovered from it. This site is now protected as an exposed representative of the Bukit Jawa cultural layer (Photo 2.25 and Photo 2.26).
Photo 2.25: In-situ location of artefacts in Bukit Jawa site

Photo 2.26: Bukit Jawa site
The technique of tool making using anvils and hammerstones was similar to but not as technologically developed as that uncovered at Kota Tampan. The completed tools appear to be prototypes of Kota Tampan. Generally, they were mostly from quartz, large and crudely produced with large flakes, and reminiscent of middle Palaeolithic tools. Some are so massive as to require holding with both hands (Photo 2.27).

Quartz does not allow control of flaking and therefore is not the ideal raw material for tools. It was probably used because it was the most abundant at the site. The difficulty of working with quartz is reflected in the large number of artefacts discarded after trial and error. Some recovered sandstone tools suggest that the sandstone was quarried from elsewhere. The nearest source for this sandstone is at a neighbouring hill, Bukit Suring where some choppers were found in a preliminary survey. Actual work at Bukit Suring has not started but it is included within the buffer zone for Cluster 2.
Since the tools were cruder and there was less understanding of stone lithology, these sites had to be older than Kota Tampan. From a consideration of the stratigraphy and the morphology of the finished products, it was concluded that Bukit Jawa could be relatively dated to 200,000-100,000 years ago. A preliminary OSL analysis has given an unconfirmed date of 750,000 years ago. Further dating analysis is being conducted.

Bukit Kepala Gajah Core Zone: Bukit Kepala Gajah is a cockpit karst outcrop occupying an area of six square kilometres at its foot. It is located at latitude 5° 07’ 36” N and longitude 100° 58’ 26” E. The summit of the complex is 258 metres above sea level. Bukit Kepala Gajah has more than 20 caves. So far, only 4 caves have been extensively excavated. Of these, 3 caves revealed prehistoric burials, namely Gua Gunung Runtuh, Gua Kajang and Gua Teluk Kelawar.

Gua Gunung Runtuh Site: Gua Gunung Runtuh is located at latitude 5° 7’ 3” N and longitude 100° 58’ 3” E, approximately 124 metre above the sea level and 75 metres above surrounding secondary rainforest (Photo 2.28). There are three entrances to the cave, of which the most convenient approach is through the south entrance. This cave has 3 chambers. The main chamber opens to the north-east. Two smaller openings to the west and south-east have been blocked by rock falls (Photo 2.29). Gua Gunung Runtuh is dry and the cave is lit by sunlight coming through the north entrance. Boulders of various sizes and fragments of stalactites and stalagmites lie scattered on the cave floor (Zuraina, 1996, 2005).
Gua Gunung Runtuh (GGR) was first excavated in 1990 by a team from USM Malaysia headed by Zuraina Majid. The excavation at Gua Gunung Runtuh suggests that man occupied this cave for habitation and burial purposes, beginning about 13,000 years ago until 2,600 years ago (Zuraina, 1994, 1996, 2005) (Photo 2.30). This 1990 excavation significantly placed the prehistory of Malaysia on the world archaeological map with the discovery of Southeast Asia’s oldest most complete human skeleton – the Perak Man, radiocarbon dated to 10,120 ± 110 BP (Beta-38394).
Photo 2.30: Excavation at Gua Gunung Runtuh in 1990. Perak Man was later discovered about 20cm below X

During the 1990 excavation, the first hint of a skeleton was a faint view of its long bone and part of the skull at the 60-70 cm spit in Trench A2 (Figure 2.15) but it was only at the 90-100 cm spit that the rest of the skeleton revealed itself (Photo 2.31). The almost complete skeleton, missing only some bones such as metatarsals, costa and parts of the face, was found laid down in an east-west orientation, with its head slightly inclined to the right. The right arm was folded up to the shoulder while the left arm was flexed with the hand placed on the stomach and both legs were folded over the chest (Zuraina, 1994, 2005). The skeleton was named Perak Man to honour the state that it was discovered in.
**Figure 2.15: The excavation trenches in Gua Gunung Runtuh**

**Photo 2.31: The skeleton of Perak Man found in - situ with knees drawn up to the chest and a reenactment of how he was buried**
Physical examination of the skeleton (Photo 2.32) was first conducted on-site and later after removal, in the laboratory for analyses. Gender was determined by an examination of the pelvis, sacrum and the skull. The pelvis including the pubic bones is not well preserved and so the sub-pubic angle is not clear. However, the narrow and shallow pre-auricular sulcus and the non-spacious and funnel-shaped pubic basin are all strong male characteristics (Photo 2.33, A). Furthermore, by examining the skull, male characteristics can be supported by the large occipital bone, mastoid processes and teeth. The chin of the mandible is square whereas it should be more rounded with a point at the midline if it had belonged to a female. Further support for a male gender comes from the examination of the sacrum. It is curved and in its dimensions, it is longer than it is wide (Photo 2.33, A).
Photo 2.33: (A) The Perak Man and (B) Computerised tomography of the sagittal section through the mandible suggesting an aggressive tumour that could have caused his death

Age at death was estimated from the cranial suture closure, the lipping of the vertebral, the scapula thinning and the degree of teeth wear. They suggested an age of about 40-45 years old. Periodontal involvement and excessive wearing of the incisal and occlusal surfaces observed with the teeth suggested a tough, fibrous diet (Photo 2.34).
Photo 2.34: Mandible showing excessive wearing of the incisal and occlusal surfaces of his teeth, suggestive of a fibrous diet

Based on laboratory measurement of bone lengths and using a formula developed for Indonesian skeletons, the stature of Perak Man was estimated at about 154 cm.

Perak Man has a long head and a narrow face (Photo 2.35). These and other traits observed not only in the skull but also in other bones such as the humeri, femora and tibiae suggest that the affinity is *Australomelanesoid*, a race occupying the western part of the Indonesia archipelago and continental Southeast Asia at the end of the Pleistocene and early Holocene but now largely confined to east Indonesia, Melanesia and Australia.
Attention was drawn to the short and abnormal shapes of the 2nd and 3rd middle phalanges of the third digit of the left hand (Photo 2.36 – abnormal proximal phalanges). Their association with the observed volarly and radially curved phalanges, shorter lower arm bones and compensatory scoliosis of the spine (Photo 2.33 shows the curvature of the spine) suggest a genetic malformation known as *Brachymesophalangia* type A2, an extremely rare condition even in present human population (Figure 2.16).
The presence of such a deformity in a prehistoric population has not been recorded before. Thus, the Perak Man is the first ever recorded instance of Brachymesophalangia type A2, making the Perak Man important for the understanding of human medical history.

Photo 2.36: Abnormal proximal phalanges
Current knowledge about prehistoric lifespan suggests that Perak Man lived longer than the average duration of life for his community. He lived in a community where the human lifespan averaged 20-30 years. The Perak Man died at a relatively ripe old age of 40-45 years. Thus, it is interesting to speculate on the possible cause of his death with relevance to his age. At such an old age, he would not have been required to hunt for food or perform heavy-duty jobs for day-to-day living. He would certainly have been an old respected figure in his community probably cared for by all around him because of his status as an elder (or even a shaman), and his knowledge on survival, hunting, gathering, healing, and other aspects of a Palaeolithic way of life.
This care-giving might have insulated him from death due to accidents or injuries in a hunting-gathering lifestyle. A very careful dental examination showed that the lower right first permanent molar tooth had undergone severe attrition leading to the creation of an aggressive pathology that must have commenced at the mesial root. This slow-growing and aggressive tumour resorbed the whole of the mesial root, as well as the body of the right mandible, extending from the distal aspect of the lower right second premolar to the distal aspect of the lower right second molar. The aggressive nature of the tumour is clearly shown in the CT scan film (Photo 2.33, B). A large empty cavity is shown in the relatively strong jaw. The slow growth of tumour took many years to develop. Towards the end of his life when his immune system was compromised, an infection of the expanding jaw tumour could have tipped the balance of his health. The infection must have caused considerable pain, an inability to chew and swallow food, malnutrition and then systemic sepsis, which he finally succumbed to. Therefore, the most probable cause of death for the Perak Man is “septicemia secondary to an aggressive tumour in the lower jaw” (Samsuddin and Nizam, 2005).

Perak Man was thus assessed as an adult Australomelanesoid, aged 40-45 years old when he died of septicaemia, with a stature around 154 cm and suffering from a congenital disorder, Brachymesophalangia type A2.

Faunal remains, shells and stone tools were found together with the skeleton in the grave. A total of 1,261 kg of animal bones and teeth were collected. Their fragmentary nature made it mostly impossible to identify to species level. The few identifiable ones came from the wild pig (Sus scrofa), the monitor lizard (Varanus sp.), the deer, Cervus unicolor, monkeys (Macaca sp.), the tortoise and possibly the leopard, gibbon and the kijang species of deer also. Most (76.8%) were found at what would have been the bottom of the grave and distributed around the left arm, right shoulder, and feet. Some animal bones were found among the right finger bones. A small portion of the remains (7.7%) bore traces of charring.

There were altogether 2,878 shells collected from grave at different depths. Most (82%) were collected from the basal level and immediately above the body. The shells could be separated into small, medium and large animals. Medium shells were the most prevalent (42.7%). The large ones made up 18.5% and were found mostly between and just below the skeleton.
The shells belong mainly to the species *Brotia costula* with some *Brotia spinosa*. These shellfish are still eaten today and the method of preparing them then could be similar to the present practice as judged from the character of the remains. The apex of each shell has to be lopped off so that the flesh inside can be sucked out through the cavity made. On average, shells have about 6 segments but the act of chopping remove usually half of them. Most of the shells collected (56.4%) had three segments while another 23.5% retained 4 segments. Whole shells were very small in numbers (0.6%) (Photo 2.37). *Brotia* shells were also recovered in quantities from other parts of the cave that were probably used for habitation as no human remains were found in association.

*Photo 2.37: Riverine shells – Brotia with apices chopped and whole (right).*

Samples from the 80 cm and from the 110 cm depth gave radiocarbon dates of 10,120 ±110 BP (Beta-38394) and 10,010 ± 70 BP (Beta-49851) respectively. The 10,120 BP age is generally used by the excavation team for the time of burial and hence for the age of the human remains.
The lithic assemblage found with the body is very interesting. There were altogether 10 stone artefacts — 3 hammerstones, 2 slabs, 1 oval unifacial pebble tool and 4 other pieces (Figure 2.17). In their spatial distribution, the tools were either away from the skeleton or on the floor of the grave or else at the level of the body and closer to it. The tools showed use-wear marks and are similar to others recovered from this and other caves.

Interestingly each of the slabs was located in one of the distribution planes. Each slab was accompanied by a quartz hammerstone with flake scars at one end. This pairing, noticed also in habitation areas of the cave, is suggestive of a primary functional association between slabs and hammerstones (Photo 2.38: hammerstone and anvil). A well-flaked oval unifacial quartzite pebble tool on the shallower plane was found just beyond the position of the skull.
Figure 2.17: Drawing of oval unifacial pebble tools buried with the Perak Man
Photo 2.38: Marks of haematite suggest that this slab and hammerstone were used to grind haematite which was probably sprinkled on the burial as is a tradition in many prehistoric societies.

The flexed burial position is commonly found in Southeast Asian late Palaeolithic burials. For example in 2003, a Thai team recovered an incomplete 12,000 year old skeleton in a similar flexed position at Tham Lod, Northern Thailand (Shoocongdej, 2006). Another example is the 9,780 year old flexed burial found in Braholo Cave in the western part of Gunung Sewu, Java (Simanjuntak, 2002). However, none of these skeletons and others are as complete as Perak Man.
Palaeolithic burial rituals in Southeast Asia were virtually unknown before the discovery of Perak Man. The discovery of this in-situ Palaeolithic burial complete with its mortuary goods allowed a reasonable reconstruction of the method of burial and an insight into their beliefs. Perak Man was given a burial following certain rituals and not just abandoned at death. The body of Perak Man was probably prepared for burial before rigor mortis set in and meat, shellfish and tools were placed around the body and above it. Close to 3,000 shells had to be gathered for the burial (Figure 2.18). Animals had to be hunted since Perak Man was buried with at least five species of animals. The burial plot was dug in an unused part of the cave floor as the levels below it were devoid of material remains. The prepared body was then placed in an east-west orientation perpendicular to the cave entrance and face up with head slight inclined to the right. On the grave floor were placed stone tools and shells. Meat was also scattered on this floor mostly in 3 clusters on either side of the shoulders and at the feet, and some placed in his right hand. The body was then covered with a dense layer of shells with the largest closest to the body, then earth, followed by more meat, shells and stone tools, with a significant piece, the oval pebble tool, placed just a short distance away from the head. Haematite powder was also sprinkled on the burial. All this pointed to a great effort having been taken.

Figure 2.18: The burial area of Perak Man and the associated mortuary objects
The rest of Gua Gunung Runtuh also provided significant data. Firstly, radiocarbon dates of freshwater gastropod shells at a level close to 2 metres below floor level from two of the trenches dug at the cave gave a date of 13,600 ± 120 BP (Beta-38338) as the possible date of earliest occupation. Shells from a 20 cm layer gave the youngest date of 2,620 ± 20 BP. Intermediate dates collected from shell samples at deeper levels were variously 7880 ± 189 BP, 7920 ± 110 BP, 9460 ± 90 BP, 9930 ± 140 BP and 10,120 ± 110 BP (Perak Man level). *This sequence of dates suggests that this particular cave was repeatedly occupied over a 10,000 year long span of time.*

A total of 222 stone artefacts were collected from both disturbed (148 pieces) and undisturbed (74 pieces) areas of the cave. The distribution of artefact types followed the classification developed from the Kota Tampan assemblage (Table 2.4).

Table 2.4: Distribution of lithic artefacts by type from the disturbed and undisturbed areas of Gua Gunung Runtuh

<table>
<thead>
<tr>
<th>Type</th>
<th>Total pieces</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cores</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Anvils</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Hammerstones</td>
<td>86</td>
<td>39</td>
</tr>
<tr>
<td>Pebble Tools</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oval Unifacial</td>
<td>52</td>
<td>23</td>
</tr>
<tr>
<td>Oval Bifacial</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Palaeoadze</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Chopper</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Perimeter flaked</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>Flake tools</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>222</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
There were generally no morphological differences between the artefacts from undisturbed areas and those from disturbed areas of the cave.

Excavations at certain areas of the cave revealed clusters of hammerstones, flaked pebble tools, cores, anvils, debitage, which could be refitted, suggesting that these clusters were undisturbed tool-making areas in the cave.

The similarities in lithic technology and tools produced at Kota Tampan and those found in Gua Gunung Runtuh suggest that there was little cultural change between the two sites which are separated by some 60,000 years. These similarities underline the belief advanced earlier that the Kota Tampan population at least 70,000 years ago was already anatomically modern man making tools that earlier hominids could not.

A large number of *Brotia* shells were also recovered and all followed the same pattern of preparation as observed in the Perak Man grave site. More than half had the apex lopped off until 3-4 segments remained. Fresh shells have up to 8 segments.

Over a kilogram of bones were also recovered from the undisturbed sites selected for study. Charred bones, a definite proof of human activity, made up 47% of this collection, a large portion of which were broken shafts of limb bones (Photo 2.39). Skull bones were virtually absent and this implied that the animal carcasses were dismembered elsewhere and selected portions brought back to the cave. Although in poor state of preservation and fragmentary, nonetheless the bones could be identified to have come from monkeys, pigs, a local species of deer and monitor lizard which were also the sources of the bones in the Perak Man grave site. The similarity in faunal remains throughout the cave deposits (including the Perak Man burial) suggests subsistence activities involving food-gathering and small game hunting continued from the late Pleistocene into the Holocene without any distinct cultural breaks, and that there was no change in the environment.
Gua Kajang Site: Lying approximately 8km from the town of Lenggong Valley, Gua Kajang is a natural limestone tunnel through the Bukit Kepala Gajah limestone massif (Photo 2.40). It is situated at latitude 5° 07’.571”N and longitude 100° 58’.883”E, and is approximately 72 metres above sea level. Gua Kajang is about 2 km by trail from Gua Gunung Runtuh. It is also easily accessible by vehicles from the surrounding smallholdings. The cave is orientated north-south. It is divided into 3 portions: the front cave, back cave and a small chamber adjacent to the back cave. The front cave is a shelter facing north and the cave mouth is about 25 metres in length. The tunnel is interspersed with deep man-made holes over which crude wooden platforms had been laid to provide passage between the two mouths of the tunnel (Photo 2.41). Local knowledge tells of Gua Kajang being used as a thoroughfare for horse- or buffalo-drawn carriages in the recent past but this has not been substantiated. The 2007 discoveries were made on the relatively undisturbed portion of the tunnel at the north mouth.
Photo 2.40: The front view of Gua Kajang
Photo 2.41: The tunnel in Gua Kajang is interspersed with deep man-made holes over which crude wooden platforms had been laid to provide passage between the two mouths of the tunnel.

Earlier it had been mentioned that caves in the limestone massifs at Lenggong Valley probably emerged from beneath water and accumulated soil on their floors only at the end of the Pleistocene or some 10,000 - 12,000 years ago. It would be about this time that man in the Lenggong Valley began to seek shelter in these caves as hunting camp, habitation or burial site.
Archaeological research in Lenggong Valley first emerged in 1917 when Evans (1918) unearthed fragments of human bones in Gua Kajang. Further analyses done by Duckworth (1934) on these human bone fragments suggested that prehistoric man of Gua Kajang may have had an ancestral link to the Australian aborigines. In 2007, Goh (2008) uncovered two further burials, GK 1 and GK 2, which were dated to between 10,000 and 7,800 years ago.

Evans in 1917 discovered fragments of pottery, stone tools, food remains and human skeletal remains (Evans, 1918). Later in the 1950’s, Williams-Hunt (1951, 1952) catalogued a series of surface finds from Gua Kajang. In 1990, Chia (1997) in a research on prehistoric pottery within the valley came to the cave for pottery samples and recovered a small number of shards. All research prior to 2007 pointed to Gua Kajang as a Late Palaeolithic to Neolithic site, although no chronometric evidence was ever provided until Goh (2008).

A joint Department of National Heritage of Malaysia and USM excavation took place in 2007. This excavation indicated that this cave was used continuously from 8,000 – 4,000 years ago during both Palaeolithic and Neolithic periods (Goh, 2008) (Photo 2.42).

Photo 2.42: The 2007 excavation at Gua Kajang
Two in-situ human burials (GK 1 and GK 2) from two different cultural layers were also uncovered. These burials were partially disturbed but the skeletons in them remained intact as indicated by the bone articulation and burial goods. GK 1, a 50% complete female skeleton, was laid face down and in a flexed position (prone-flexed) with both legs folded up to the chest while both arms were folded up to the shoulder. Radiocarbon dates derived from the associated shell samples suggested a Late Palaeolithic age of 10,820 ± 60 BP (Beta-227446) for GK 1. GK 1 had a stature between 155 cm – 163 cm (Photo 2.43).

Approximately 1 metre away and southeast of GK 1, the leg bones of another human skeleton associated with food remains and stone tools were also uncovered at a depth of 70-80cm and with a radiocarbon date of 7,890 ± 80 (Beta-227445). The original position of GK 2 was unfortunately indeterminate because it had been badly disturbed by guano collectors. The gender and the stature of GK 2 could not be determined due to the absence of indicators. The skeletal remains of GK 1 and GK 2 were identified as adults but their ages at death could not be determined. Palaeoanthropological studies show that GK 1 bears Australomelanesoid features, which is quite consistent among the late Palaeolithic skeletons uncovered so far in the Lenggong Valley.
Gua Teluk Kelawar Site: This is a rock shelter site in the Bukit Kepala Gajah limestone massif. It is located approximately one kilometre from the town of Lenggong. This cave is situated at latitude 5° 07.44’ N and longitude 100° 58.6’ E and is 76 metres above sea level (Photo 2.44). Excavations in 1990 revealed evidence of human occupation around 11,000 to 6,000 years ago (Zuraina, 1996; Zuraina et al., 2005). A majority of the evidence consists of stone tools such as bifacial and unifacial oval pebble tools and animal remains. The animal remains found (Zuraina et al., 2005) suggest that the natural environment surrounding Gua Teluk Kelawar during the Holocene period was that of a tropical rainforest.

Detailed excavation was continued during the 2004 season in the cave and a partially disturbed human burial was uncovered. The skeleton known as GTK 1, was found buried in a tight foetal position, its bones extremely fragile, poorly preserved and in part crushed beyond recognition (Zuraina et al., 2005). Two limestone blocks, each weighing about 20kg, were found overlying the head-neck and the pelvic areas and the bones there were badly crushed. It is surmised that these were stalactites which had fallen from the cave ceiling post-burial to crush and disarticulate GTK 1 (Zuraina et al., 2005) (Photo 2.45).
Associated with the GTK 1 burial were stone tools, animal bones and *Brotia* shells that are similar to the mortuary goods of Perak Man and GK 1. An associated shell sample from the burial provided a radiocarbon date of 8,400 ± 40 BP (Beta-193000). GTK 1 was considered female based on measurement of the femoral and humerus heads, the upper edge of the eye orbit and on the lack of prominence of the supraorbital ridge. From a fibula measurement, she was between 143 and 151 cm tall. She probably died at an age of 45 to 50 years. A palaeoanthropological study showed that GTK 1 was of *Australomelanesoid* stock, just like the Perak Man (Bulbeck and Zuraina, 2007).
Cord marked and plain pottery shards from other cultural layers were also recovered which gave an uncalibrated radiocarbon date (on shells) of 6,890 ± 80 BP.

**Bukit Gua Harimau Core Zone:** Only one site, Gua Harimau has been identified in this core zone.

**Gua Harimau Site:** Gua Harimau is a prehistoric cemetery located in the Bukit Gua Harimau limestone massif, approximately 10 km from the town of Lenggong. This cave is located at latitude 5° 08. 895’N and longitude 100° 58. 856’E, and is about 133 metres above the sea level. Gua Harimau is a large cave with a well-lit entrance located in the south, measuring about 28 metres in length and 20 metres high (Photo 2.46) (Chia and Zolkurnian, 2005). The cave floor is hard and covered with chunks of stalactites and the interior portion of the cave had been badly disturbed by guano diggers.

*Photo 2.46: Gua Harimau site*
Gua Harimau was briefly investigated by Williams-Hunt in 1951 who found skeletal remains of a juvenile associated with a stone adze and pottery that was radiocarbon dated to $3,450 \pm 150$ BP (Williams-Hunt, 1952). Further excavations conducted by the USM during the 1987-88 seasons uncovered seven more human burials (Burial 1 – Burial 7), dated to between 4,900 and 1,700 years ago (Zuraina, 1988; Zolkurnian, 1989) (Photo 2.47). A total of 13 skeletons including one discovered by Williams-Hunt in 1952 and another recently, have been excavated from Gua Harimau while there is no evidence of this cave having been used as a habitation site.

In 1995, four more human burials (Burial 8 – Burial 11), dated to between 3,000 and 3,200 years ago were also found (Zolkurnian 1998). These burials, uncovered over the years 1987 - 1995 and labelled from 1 to 11, were found incomplete and in very fragile conditions. A variety of burial items such as earthenware vessels, stone tools, stone adze, bark-cloth beater, shells and stone ornaments, food remains, bronze celts and bronze moulds were associated with these burials (Zuraina, 1988; Zolkurnian, 1998; Chia and Zolkurnian, 2005).
Figure 2.19: Burials 1-3 and their associated artefacts found during excavations at Gua Harimau in 1988
The following is a brief discussion of the 11 of the 13 human burials and their associated artefacts found during the archaeological excavations in Gua Harimau between 1988 and 1995.

**Burial 1:** The remains here is the most complete skeleton so far found in Gua Harimau (Figure 2.19, Photo 2.48). The skeleton, with a stature around 160cm, was placed in a north-west orientation. The body was buried in an extended position and associated with a cluster of pottery, a sickle-shaped stone tool placed near the left shoulder and a D-shaped stone bark-cloth beater placed in between the thighs.

**Burial 2:** The remains were bone fragments mainly of the lower limb bones. This burial had associated clusters of shards scattered near the left hand and around the knees of the skeleton. A *Conus* shell bangle was uncovered on the left wrist and a stone bark-cloth beater was placed just below where a right rib cage would be (Figure 2.19).

**Burial 3:** Only fragments from the upper half of a skeleton were recovered (Figure 2.19). The grave goods associated with this burial included a translucent glass bead in the mouth, a small bone pendant near the neck, a pair of *Conus* shell earrings and a shell scraper placed near the right arm (Photo 2.49 and Photo 2.52).
Photo 2.49: Shell earings found in a burial in Gua Harimau, Lenggong, were made by cutting off the base of Conus sp shells

Burial 4: Only fragmentary and powdery chunks of lime-covered bones were uncovered together with clusters of pottery and haematite. The pottery comprised stacked shallow bowls (Photo 2.50) (Figure 2.20) containing Brotia costula and Brotia spinosa shells and animal bones.
Photo 2.50: Stacked shallow bowls containing food remains (upper right) found in a burial in Gua Harimau
Burial 5: The remains comprised chunks of powdery bones encrusted with lime. A bronze celt discovered in the burial probably was placed near the wrist. A piece of clay bivalve mould (Photo 2.51) was probably positioned near the left shoulder. A limestone bangle (Photo 2.52), food shells, animal bones, shards and a shell necklace (Photo 2.52) were placed in a bowl in the burial. The radiocarbon date retrieved from shell samples associated with the burial yielded a date of 4,920 ± 270 BP (GX-13508).
Archaeological Heritage of the Lenggong Valley

Photo 2.51: Part of the broken bronze celt found together with both halves of its clay bivalve moulds

Photo 2.52: Ornaments found associated with the burials at Gua Harimau – from left bangles, earrings, bone pendant, translucent bead and shell necklace
**Burial 6:** Only traces of powdery bones and a few lime-encrusted fragments were found. A small cluster of pottery was found associated with this burial.

**Burial 7:** This burial contained only traces of human remains associated with a cluster of potsherds. Fragile fragments of a bronze celt were found together with its mould (Photo 2.53).

*Photo 2.53: Bronze celt found in Gua Harimau*
Burial 8: Human bones and a total of 40 human teeth were recovered from this trench and this suggests a multiple burial if this was a single grave. Associated burial goods were pottery vessels (cord marked and plain), haematite and faunal remains (Figure 2.21).

Burial 9: Only a few teeth, skull bones and broken pieces of bones remained. Associated mortuary goods were stone tools, pottery vessels, haematite, and faunal remains. Radiocarbon dating of charcoal samples collected at the same level of 40 cm of this burial provided a date of 3,170 ± 60 BP (Beta-81771) (Figure 2.22).
Burial 10: This burial consisted of only a few long bones of the legs and some scattered foot bones. The associated grave goods are almost similar to those of burial 9 and included pottery vessels, stone tools and some food remains that were placed inside the vessels. This burial has been radiocarbon dated to 3,080 ± 60 BP (Beta-81772).

Burial 11: Only a few pieces of human teeth with associated animal bone fragments were found in burial 11.
The Gua Harimau human remains were fragmentary and incomplete; therefore, it was difficult to determine gender and stature of the skeletons. The skeletal remains excavated between 1988 and 1995 have been analysed by Dr. Hirofumi Matsumura from the Department of Anatomy, Sapporo Medical University, Japan and Dr. David Bulbeck from the Department of Archaeology and Anthropology, Australian National University, Canberra, Australia (Bulbeck, 2005; Matsumura, 2005). The main findings from the analyses of the human teeth suggest that prehistoric human of Gua Harimau shared similarities with the Neolithic human remains found in Ban Kao, Thailand (Matsumura and Zuraina, 1995). In addition, further analyses on human teeth from Gua Harimau suggested a Mongoloid race, which is widely found during the Neolithic period in Asia (Chia and Zolkurnian, 2005) in contrast to the Australomelanosoid skeletons from the Bukit Kepala Gajah caves. This may have implications for current ideas on the movement of human groups within the region.

As altogether at least 11 and possibly 12 (Burial 8) burials were found in this cave excluding the excavation by Williams-Hunt in 1952 and the recent find it seems likely that this cave was used mainly as a cemetery from the late Neolithic to the early Metal periods.

This cave is also the only archaeological site that contains evidence of a Metal period occupation in the AHLV. Two bronze celts and their moulds, associated with chronometrically dated shells at 4,000 to 3,000 years ago were recovered. These represent the earliest bronze finds in the Malay Peninsula (Zuraina, 1988). Gua Harimau can be considered to hold the most representative set of pottery found among the cave sites. Most were cord marked bowls and footed vessels shaped from local clay (Figure 2.20). These types were common throughout prehistoric mainland Southeast Asia. Originally, the cultural layer bearing these cord marked shards were radiocarbon dated using riverine shells to 4,920 ± 270 BP. Such uncalibrated date from riverine shells is known to often incorporate older carbon from dissolved limestone and other sources in the river.

The Gua Harimau pottery assemblage comprising footed vessels, carinated bowls and a single globular vessel (Williams-Hunt, 1952, Zolkurnian, 1989, Chia & Zolkurnian, 2005) defines the pottery culture for the Lenggong Valley (Figure 2.20). These are mostly well-developed types (Figure 2.20). All appear to be of late Neolithic design radiocarbon date about 3,000 years ago and have been formed from local clay. The pottery was sand-tempered, hand moulded using the slow wheel, and fired at 600°-800°C. Similar pottery assemblage has been found in the southern Thailand from Sakai Cave, Lang Rongrien, Khao Thao and Pak-Om and Ban Kao (Pookarjorn et al., 1995, Anderson, 1988, Srisuchat, 2003).
Given that AHLV has provided evidence of the earliest presence of man in Southeast Asia and the longest culture sequence in any single locality in the world, there is a possibility that future research could reveal an early date perhaps earlier than the present date for the beginnings of pottery in AHLV.

**III. Impact on World Archaeology**

A mainstream hypothesis in archaeology at the present moment is that a homininid form came out of Africa about 2 million years ago to populate Europe, Asia and Southeast Asia. The homininid form in Asia is generally accepted to be *Homo erectus*. This dispersal could have been driven by the evolution of the striding gait, simple stone tools and a generalised diet based on scavenging. Exactly when this dispersal out of Africa happened is not clear and depends upon the dating of recovered homininid remains or associated artefacts outside of Africa. It cannot be after the dates for these remains or artefacts. The principal hominin finds are listed in Table 2.5. Since timing of the dispersal is dictated by the dates of fossil or artefact finds, then if the dates are correct (although many have issues), the first migration of a homininid form out of Africa must have taken place some time before 2 million years ago.

The 1.83 million years chronometric age (by fission-track method) for the hand axe recovered from Bukit Bunuh makes it one of the oldest outside of Africa and helps place a more accurate perspective on this hominin migration out of Africa. These hominids were in Riwat and Pabbi Hill in Pakistan by 1.9 million years ago if the palaeo-magnetic determination on simple stone tools found in a cultural layer is accepted. These hominids or their kin were also in the Malay Peninsula by 1.83 million years ago from the evidence in Bukit Bunuh and then moved into Sangiran and Mojokerto, Java shortly afterwards.
### Table 2.5: Earliest reported dates for sites outside Africa

<table>
<thead>
<tr>
<th>Locality</th>
<th>Approx. date (in Ma)*</th>
<th>Materials found</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riwat/Pabbi Hills, Pakistan</td>
<td>2.0</td>
<td>Stone artefacts</td>
<td>No chronometric dating.</td>
</tr>
<tr>
<td>Bukit Bunuh, Malaysia</td>
<td>1.83 and 1.74</td>
<td>Stone artefacts</td>
<td>2 dates using the same fission-track technique</td>
</tr>
<tr>
<td>Java <em>Homo erectus</em></td>
<td>1.81 - 1.66</td>
<td>Hominids</td>
<td>Dating issues, should be younger than 1.5 million years ago</td>
</tr>
<tr>
<td>Yuanmou, China</td>
<td>1.7</td>
<td>Stone artefacts, Hominid</td>
<td>Dating issues (Palaeomagnetic)</td>
</tr>
<tr>
<td>Dmanisi, Georgia</td>
<td>1.6 - 1.2</td>
<td>Hominids</td>
<td>Dating issues</td>
</tr>
<tr>
<td>’Ubeidiya, Israel</td>
<td>1.4</td>
<td>Stone artefacts</td>
<td>Dating issues</td>
</tr>
<tr>
<td>Nihewan basin, China</td>
<td>1.2</td>
<td>Stone artefacts</td>
<td>Dating issues</td>
</tr>
<tr>
<td>Kuldara, Tajikistan</td>
<td>0.85</td>
<td>Stone artefacts</td>
<td>Dating issues and not in-situ</td>
</tr>
<tr>
<td>Mae Tha, Thailand</td>
<td>0.8 - 0.6</td>
<td>Stone artefacts</td>
<td>Dating issues and not in-situ</td>
</tr>
<tr>
<td>Bose, China</td>
<td>0.732</td>
<td>Stone artefacts</td>
<td>Dating issues and not in-situ</td>
</tr>
<tr>
<td>Tham Khuyen, Vietnam</td>
<td>0.475</td>
<td>Hominids</td>
<td>Dating has no association with the artefacts</td>
</tr>
<tr>
<td>Lang Trang, Vietnam</td>
<td>0.48 - 0.146</td>
<td>Hominids</td>
<td>Dating has no association with the artefacts</td>
</tr>
<tr>
<td>Panxian Dadong, China</td>
<td>0.35 - 0.12</td>
<td>Hominids, Stone artefacts</td>
<td>Not in-situ</td>
</tr>
</tbody>
</table>
The context of the hand axe itself is extremely unique. It was trapped by a meteorite impact whose date has been ascertained to 1.83 million years ago. This means the hand axe should predate this event. The suevite was the direct result of the impact. The association of the hand axe with the meteorite impact, a distinct physical event, is therefore fortuitous and an unequivocal dating of the hand axe. Besides hand axes embedded in suevite, several other stone tool types have been found. The presence of more than 1,000 stone tools found embedded in suevite strongly suggest a thriving hominid presence in the impact area prior to the impact date of 1.83 million years ago.

If all reported dates in the literature (references in Table 2.5 from Klein and Hublin, 1999; Wolpoff, 1999; Schepartz et al., 2000) for hominid presence are accepted, then Bukit Bunuh represents one of the oldest hominid presence outside of Africa.

Although hand axes have a very wide temporal and spatial distribution, it was almost exclusive to western Eurasia and Africa and this prompted the creation by Movius of a geographic boundary line between east and west (Movius, 1943). West of this line, hand axes were common while east of this line, crude choppers were common and no handaxes were present (Figure 2.23).

![Figure 2.23: The Movius Line separates regions with hand axe industries from those without](image-url)
Several reasons have been advanced for this disparity. One suggests that the regions east of the line were in a technological backwater (meaning, cultural stagnation). Others proposed that the available raw material were unsuitable or that other natural material (like the bamboo) provided the tools.

The discovery of hand axes at Bukit Bunuh, east of the Movius Line contradicts this conjecture and joins mounting evidence (for example, the Chinese 803,000 years old Bose Basin tools (see Chapter 3) in refuting the Movius Line.

Archaeological evidence in the nominated property has also contributed towards expanding our knowledge on early human migration. It has generally been accepted that several waves of migration at different times and from *Homo erectus* to *Homo sapiens* exited from Africa and spread northwards and eastwards. If the stone tools dated to 1.83 million years ago represent *Homo erectus* in AHLV, this probably suggests a wave of migration from Africa. The later presence at 200,000 and 70,000 years ago in AHLV could also have been another wave from Africa or was part of a regional development supporting the Multi Regional Theory. However, more evidence is needed to understand the origins, dispersal and development of man.

Thus, the evidence from Bukit Bunuh shows that the area may have been occupied since 1.83 million years ago, first by hominids, probably *Homo erectus* and then by anatomically modern man at 40,000 years ago. The evidence from Kota Tampan shows human occupation at 70,000 years ago. It will be a fertile area for further research to close the gaps in the dates and to find evidence for who the occupants were during those dates and where they came from.

**Chronometric dates from AHLV provide a time frame for human presence, beginning at Bukit Bunuh BBH 2007 in particular, of possibly the oldest hominin presence in the world outside of Africa as revealed by the hand axes left behind. Any consideration of hominin dispersal must take into account the evidence from the Archaeological Heritage of the Lenggong Valley because:**

**There was already a hominin presence by 1.83 million years ago and with such a deep prehistory, Lenggong Valley could have been a corridor for the dispersal of man from mainland Southeast Asia southwards to Australia;**

**There was already anatomically modern man at Kota Tampan by at least 70,000 years ago and thus there is a logical link between this presence here at Kota Tampan and Lake Mungo in Australia at 50,000 years ago.**
The in-situ stone tool workshops in AHLV have significantly impacted on our understanding of Palaeolithic tool making and the tool maker’s mind. From the types present in the assemblages in the Bukit Bunuh - Kota Tampan core zone, we are now able to:

(i) recognise the ‘equipment’ based on the attributes that were repeated and consistently found in cores, anvils and hammerstones - important tools in lithic manufacturing;

(ii) replicate lithic technology and deduce function through experiments in order to understand the creativity and mental template of early man;

(iii) follow the toolmaker’s mind from his selection of raw material to the finished product.

All of these suggest an intelligent approach to tool making as a functional and efficient method of production, which can be taken to be a process in the cognitive development and complexity of the human mind. The finds at Kota Tampan and Bukit Bunuh reflect a technology that is of outstanding universal value as a reference set.

The caves in the Bukit Kepala Gajah Core Zone – Gua Gunung Runtuh and its principal occupant, Perak Man, Gua Teluk Kelawar and Gua Kajang - have provided a rare insight into Palaeolithic burials, disease, beliefs and various aspects of life during the period from the late Pleistocene into the Holocene.

The discovery of Perak Man in its context bears several outstanding and important significance for archaeology. Firstly, the excavation revealed the oldest most complete human skeleton in Southeast Asia chronometrically dated to some 10,120 ± 110 BP (Beta-38394) years ago. Secondly and forensically, Perak Man is the only prehistoric skeleton in the world bearing a congenital deformity known as Brachymesophalangia type A2. Thirdly, the mortuary goods, his age and condition at death provide further information on prehistoric life in the Lenggong Valley.

The stone tools recovered from these caves, being of comparable technology to the Kota Tampan assemblage, have suggested strongly that anatomically modern man had occupied the valley intermittently if not continuously since at least 70,000 years ago. Theories on human dispersal and migration from Africa into Indonesia and beyond must take this date into account.
Gua Harimau is a Neolithic site with abundant finds of pottery shards in the burials. Many of them have been shown to be locally made yet they share designs and typological characteristics similar to pottery from southern Thailand (Chia, 2005). It lays open the question as to whether this supports the theory of diffusion or independent indigenous innovation. Given that AHLV has provided evidence of the earliest presence of man in Southeast Asia and the longest culture sequence in any single locality in the world, there is a possibility that future research could reveal an early date perhaps earlier than the present date for the beginnings of pottery in AHLV.

### IV. The Lenggong Valley Culture Sequence

The concept of culture in prehistory provides a means of explaining the behaviour and lifeways of early human societies at a particular place and time in the past. Traditionally, the concept of culture in prehistory is closely linked to the periodisation, which is divided by archaeologists into three main prehistoric periods, namely Palaeolithic, Neolithic and Metal periods.

These three prehistoric periods are basically defined, following the European model, by forms of technology and cultural materials such as stones, pottery and metal artefacts respectively. The timing of the periods should be considered with caution for different regions as cultures in different parts of the world do not transit each of the technological phases in parallel. Isolation and a lack of resources can be considered contributory factors for any delays in reaching a technological phase.

At first suitable stones were flaked or knapped by hunting and gathering hominids to form tools for cutting, chopping, pounding or scraping beginning from about 2.5 million years ago in the world. After this long stretch of the Palaeolithic period, by around 14,000 years ago, man still hunting and gathering learned to manipulate another natural material, clay, into containers by shaping and baking. This is generally accepted to be the beginning of the Neolithic period in world history. Pottery-making technology improved with better means of shaping, introduction of aesthetics through decorative motifs and designs, better quality through firing at higher temperatures and improvement in the clay paste with temper to make stronger vessels. The pottery and the beginning of agriculture and a settled way of life are considered as hallmarks for the Neolithic period. By about 7,000 years ago, man began to manipulate metal ores to produce tools and weapons, marking the beginnings of the Metal period. Copper artefacts have been discovered dating back to around 7,000 years ago in the prehistoric sites at Mehrgarh in Baluschistan, Pakistan and in Pločnik, Serbia.
In the single locality of the Archaeological Heritage of the Lenggong Valley, evidence of the three main prehistoric periods, namely Palaeolithic, Neolithic and Metal, were found (Figure 2.24).

*Figure 2.24: Culture sequence of sites in the nominated property*
The Palaeolithic Period: This period in the AHLV is characterised by the use of stone technology, lake shore adaptation, hunting and gathering economy, and flexed burials. The Palaeolithic period in its entire range is represented in the AHLV by several open-air workshop sites and cave burial sites. The earliest remains of the Palaeolithic period are the tools encrusted in suevite from the open-air site of Bukit Bunuh (BBH 2007), with a date of 1.83 million years ago. Excavation at the site of Bukit Jawa has provided stone artefacts from 200,000 – 100,000 years ago whereas Kota Tampan revealed evidence of an in-situ stone tool workshop dated chronometrically to at least 70,000 years ago. Another site at the Bukit Bunuh (BBH 2001) revealed stone artefacts chronometrically dated to 40,000 years ago. The Palaeolithic period also revealed flexed burials in several caves in Bukit Kepala Gajah – Gua Gunung Runtuh, Gua Teluk Kelawar and Gua Kajang. Human remains, especially Perak Man which is one of the oldest practically complete human skeletons from Southeast Asia, found in intentional burials in these caves and their mortuary artefacts provide evidence for their Australomelanesoid affinity, their stone tool culture and their burial rituals.

Neolithic Period: The Neolithic period in the AHLV saw the appearance of pottery and a development of lithic technology seen in new form such as polished adze, stone bark-cloth beater, stone and shell ornaments, and extended burials. Neolithic cultural remains have been found in some cave sites in the AHLV. The earliest reliable radiocarbon date for the commencement of the Neolithic period in the AHLV is about 4,000 years ago. A technical study on the Neolithic pottery of the AHLV has shown that pottery was made using local “low kaolinite” clays and baked in open fire at low temperatures of between 600°C and 800°C. The clays were mixed with pounded sand and sometimes with grog (crushed shards). The clay dough was shaped using the slow wheel and hand moulding techniques. The low quantity and wide variation of pottery types suggest absence of large scale production, and that pottery was made mostly for daily use and burial ritual.

Metal Period: The Metal period in the AHLV is represented by the archaeological finds at Gua Harimau in Bukit Gua Harimau. In fact, Gua Harimau is the only archaeological site that contains evidence of a Metal period occupation in the AHLV with the recovery of two bronze celts and their moulds from burials. These burials have been radiocarbon dated from about 4,000 to 3,000 years ago. The skeletal remains buried with these bronze celts and their moulds attest to their acquaintance with metal and metal working. The two bronze celts and their moulds, associated with chronometrically dated shells represent the earliest bronze finds in the Malaysia.

The Archaeological Heritage of the Lenggong Valley thus provides a culture sequence from the Palaeolithic through the Neolithic to the Metal period or a span of time from 1.83 million to 1,000 years ago. This is one of the longest stretches of culture sequences in a single locality known in the world today.
2.b HISTORY AND DEVELOPMENT

History of Excavations in the Lenggong Valley
Lenggong Valley as a Corridor and Gateway

History of Excavations in the Lenggong Valley

The Archaeological Heritage of the Lenggong Valley is one of the best-known archaeological sites in the Peninsular Malaysia. To date, archaeological research and explorations have revealed evidence of human occupation extending from the early Palaeolithic to the recent past.

The development of archaeological research in Lenggong Valley can be divided into 4 historical phases:

Phase I – Early 20th century (1917 – 1938)*
Phase II – Late British Colonisation Period (1950 -1954)
Phase III – Post-independence (1958 – 1987)
Phase IV – 1987 to present
*No records of archaeological research during the war years 1939-1949

Phase I – Early 20th century (1917 – 1938): The first phase of research involved a series of archaeological explorations undertaken by British colonial officers in the period between 1917 and 1938. During this period, a total of 3 archaeological sites, beginning with Gua Kajang (Evans, 1918) and then Gua Badak (Callenfels and Evans, 1928) and the open-air site of Kota Tampan (Collings, 1938) were explored.

The excavations at Gua Kajang involved 2 seasons which exposed an area of about 90 square metres. From the excavations, high densities of cultural deposits comprising human bones, stone tools, shards and food remains were documented. Evans (1918) suggested a “Mesolithic-Neolithic” age for this site and the analyses on the human bones recovered from the excavation claimed that the individual from Gua Kajang may have had an ancestral link with the Australian aboriginalies (Duckworth, 1934).

After the initial discoveries in Gua Kajang, Gua Badak was explored next between 1926 and 1927. These explorations found relatively recent rock art, possibly of Negrito origin (Callenfels and Evans, 1928). Collings (1938) reported on his discovery of Palaeolithic stone tools in Kota Tampan.
Most of these researches were conducted by British administrators who were not professionally trained in archaeology. Nevertheless they contributed to the data on the prehistoric research in the AHLV.

**Phase II – Late British Colonial Period (1950 -1957):** The development of the archaeological research in Lenggong Valley during this period was rather sporadic, where only 2 seasons of explorations were documented. Between 1950 and 1951, Williams-Hunt (1951, 1952) surveyed Gua Kajang, Gua Dayak and excavated Gua Harimau. As the result, he produced a catalogue of the collection of the surface finds from these cave sites, all relatively dated to Mesolithic-Neolithic age. These artefacts were then transferred and stored at the Raffles Museum in Singapore. In 1954, Sieveking (1954) excavated an open-air site in Kota Tampan. He suggested that there were some undisturbed stone tools from the Middle Pleistocene period. This interpretation was subjected to dispute as others have claimed that what he identified as stone tools were actually natural stones (Harrisson, T., 1975; Shutler, 1984; Hutterer, 1985).

**Phase III – Post-independence (1958 – 1987):** This period saw only 2 archaeological investigations by Matthews in the buffer zone at Gua Bukit Batu Berdinding in 1960 but he did not publish his findings.

**Phase IV –1987 to present:** 1987 marked the beginning of Malaysian archaeologists leading archaeological research in the Lenggong Valley, beginning with Zuraina Majid’s excavations in the nominated property.

A new open-air site at Kota Tampan was discovered and excavated in 1987 to resolve issues and problems on the Paleolithic in the Lenggong Valley. Her excavation in Kota Tampan exposed an in-situ stone tool workshop, relatively dated to at least 70,000 years ago. This stone tool workshop contained a collection that reflects a degree of sophistication clearly shown in the selection of raw material and technique of manufacture that was rational, systematic and efficient in Palaeolithic stone tool making. This refutes claims that Southeast Asia was in the “backwaters” of civilisation. Kota Tampan is now a global reference site for the Palaeolithic in Southeast Asia.

While excavating in Kota Tampan, Zuraina explored potential sites in the Lenggong Valley in order to place Kota Tampan in the larger context of the Lenggong Valley. One of the sites discovered was Gua Harimau and this cave site was excavated in 1988 (Zuraina, 1989). For the first time, evidence of a Bronze-age presence in the form of bronze celts and their associated moulds were discovered. This fact indicated that the bronze celts were no longer restricted to the northern part in Peninsular Thailand as had been claimed.
Excavations at Gua Gunung Runtuh in 1990 also provided one of the rarest insights into the late Palaeolithic in Southeast Asia when the oldest most complete human skeleton, Perak Man, was found buried in this isolated cave situated in Bukit Kepala Gajah limestone complex. The discovery of Perak Man, dated to 10,120 ± 110 BP has provided much information about late Palaeolithic burial tradition and culture. In addition, this skeleton carries the only prehistoric evidence in the world of a congenital deformity known as *Brachymesophalangia* type A2.


In 2007, Gua Kajang was re-excavated and evidence of prehistoric human habitation from *epi*-Paleolithic to Neolithic period was found in the forms of stone tools, *Brotia* shells, animal remains and potshards. A late Pleistocene and Holocene human burials associated with various types of mortuary goods were among the assemblage.

In 2008, the study at Bukit Bunuh in Lenggong Valley uncovered a hand axe embedded in suevite. This hand axe was dated in Japan using fission track dating to 1.83 million years old. The discovery at Bukit Bunuh provides new evidence that human life existed in the Malay Peninsula 1.83 million years ago and challenges previous theories that the earliest humans in the region inhabited Java, Indonesia from 1.2 to 1.7 million years ago ("Challenging the ‘Out of Africa’ Theory", 2009).

In conclusion, it may be said that Phase I – Phase III saw British amateurs conduct archaeological research. Most of them recorded their findings and the first radiocarbon date for Malaysia was from Williams-Hunt work in Gua Harimau. Phase IV saw Malaysian archaeologists lead archaeological research with a scientific and interdisciplinary approach involving a multidisciplinary team mostly from USM. This is expected to continue with the development of CGAR (USM) into the nation’s only centre for archaeological research.
In recognition of the outstanding research done and to house, exhibit and preserve the artefacts, the Lenggong Archaeological Museum was completed in 2001 and opened to the general public by July 2003. The outstanding research is continuing through a permanent research and training field station, USM Archaeological Field Station opened in 2005. The Archaeological Field Station at Lenggong that is operated and managed by CGAR, with strong funding support from the Department of National Heritage (archaeological research, protection and conservation is covered under the National Heritage Act 2005), will continue to be in the forefront for the training and education of future generations of archaeologists who will continue the work in the Lenggong Valley sites.

Lenggong Valley as a Corridor and Gateway

The name “Lenggong” for the region appears to have come from the Malay word terlanggung (Photo 2.54). By historic times, legend has it that a Semang orang asli (aborigine) wanted to cut down a very large tree. After much hard work he succeeded in cutting it down but it fell onto another smaller tree which broke the larger trunk’s fall and bounced it back upright or terlanggung. Thus, this extraordinary event terlanggung gave Lenggong its name.

Photo 2.54: The symbol of Lenggong near Tasik Raban. A smaller tree on which a larger felled tree trunk (centre) had landed on, bounced it back upright (terlanggung)
The earliest inhabitants in the Lenggong Valley in historic times were probably the ancestors of the Semangs who are ethnically Negrito. The origin of the Negrito group of the human population is still much debated. Through the analysis of mitochondrial DNA control-region and coding-region markers in mtDNA from representatives of the population, Richards (2006) postulated that the Negritos have a deep ancestry within the Malay Peninsula dating to an initial settlement from Africa more than 50,000 years ago. The Negrito groups used to inhabit caves and rock shelters or settled along the Perak River. Later they dwelt at the fringes of Malay villages. The historical records have them using caves such as Gua Badak, Gua Harimau, Gua Kajang and Gua Dayak as temporary camps while hunting and gathering. Evans (1924) wrote of meeting a group, probably the Lanoh branch, who lived in Gua Badak. Williams-Hunt (1952) mentioned a group staying in Gua Harimau where he witnessed a funeral for a member of the group. Their use of the caves is evident from the charcoal cave drawings they left behind in several of these caves. Their descendants can now be found in permanent settlement at Kampong Air Bah and Lubok Chupak in Lenggong.

Southeast Asia became settled with movement of people and trade by the first millennium CE. Rival empires competed for hegemony and trade or control of trade between India and China. This competition eventually saw to the rise of Melaka (Figure 2.25). However, Melaka fell in 1511 to the Portuguese. The former Sultan of Melaka, Mahmud Shah, took refuge in Kampar, Sumatra which was then a province of Melaka while another group under Tun Saban escaped to Hulu Perak, also a province of Melaka. Tun Saban was responsible for installing a son of Sultan Mahmud Shah as Sultan Muzaffar Shah (1528-1549) of Perak, its first ruler.
Figure 2.25: The Malacca Sultanate at the point of its collapse in the 16th century
Trade rivalry between Dutch and British interests and later, the discovery of rich tin sources in Perak brought the British to Penang and their influence to the Malay states in the Peninsula. Around then, the Malay Reman Sultanate successfully broke away from Patani (in what is now Southern Thailand) of which it was historically a part. Patani and Reman then were provinces of Siam. At some point, the Remans attempted to annex Hulu Perak by conquering the Lenggong Valley but were apparently stopped at Kota Tampan by a Perak defence. To recover the lost parts of Hulu Perak, Sultan Abdullah Muazzam Shah (1826-1830) sought assistance from the English East India Company. The Burnley Treat between Britain and Siam, signed in 1826, gave freedom to Perak while acknowledging Siamese claims over the northern Malay states of Kedah, Kelantan, Perlis and Terengganu. These claims were relinquished in 1909 under the terms of an Anglo-Siamese treaty when the four states became the Unfederated Malay States with a British Advisor in each state.

The discovery of huge resources of tin brought many migrants, principally the Chinese, to work in the mines and to make Perak a major tin producer. Rival groups formed gangs and engaged in interneicne fights while the local Malay elites also clashed over a succession. Petitions from both groups to intervene were presented to the British who saw these conflicts as an opportunity to gain a monopoly on tin production. A treaty was signed on the island of Pangkor. The treaty effectively placed Perak in the control of the British through a British Resident whose advice had to be sought and adhered to in all matters except those pertaining to the religion and customary rights of the Malays.

The Perak model was soon extended to three other Malay states - Selangor, Negeri Sembilan and Pahang. These four states were later federated into a single entity called the Federated Malay States (FMS) in 1895. The FMS even paid for the construction a battleship launched in 1915. HMS Malaya saw action at the Battle of Jutland where 63 members of her crew were killed.

On the evening of 7th December 1941, Japanese forces landed at Kota Bharu in Kelantan and at Singora and Patani in Southern Thailand. By 19th December Allied forces had retreated south with one front at Lengong. On the following day, Japanese troops had moved south on rafts on the Perak River, engaged the defenders and drove them back to Kota Tampan. By 23rd December all Allied action west of the Perak River had halted. By 31st January 1942 all Allied forces in Malaya had withdrawn to Singapore which fell to Japanese forces on 15th February (Figure 2.26).
Figure 2.26: The Japanese Malaya Campaign, 8th December, 1941 – 15th February, 1942. The Japanese Patani column struck through Grik into the Lenggong Valley corridor and then on to Kuala Kangsar and Ipoh (from http://schools_wikipedia.org/images/233/23345.jpg.htm)
The limestone caves must have been used by either the soldiers or the locals as places of shelter. It is rumoured locally that war loot is still hidden somewhere in some of these caves. Recently dug holes on cave floors may have been made by treasure hunters in search of such loot and this rumour will be a bane for conservation and protection measures.

The Malayan Communist Party (MCP) had been part of the Malayan People Anti-Japanese Army (MPAJA) which was the principal guerilla force fighting the occupying Japanese army. The MPAJA had been trained and armed by the British and although disbanded after the war, nevertheless retained a great deal of the weapons it received or took from surrendering Japanese soldiers. After the war, the MCP took advantage of economic unrest to launch a ‘war ‘of anti-British National Liberation.

This conflict is referred to as the Malayan Emergency and would last with brief spells of intensity from 1948 until 1989 although the Emergency was declared over by 1960.

The MCP was dominated by ethnic Chinese and could depend upon a large portion of the rural Chinese population for supplies, support and intelligence. The Briggs strategy resettled many of these rural Chinese from ‘black’ areas into new villages where they could be watched over. More than 500,000 rural dwellers were compelled to move into about 600 new villages throughout the range of the MCP. This included the Lenggong Valley where the Kota Tampan New Village forms one example.

Several engagements between the British and later Malaysian forces and the guerillas took place in the vicinity of the nominated cave properties. Surface artefacts had been found trampled upon and caves disturbed.

Independence from Britain granted in 1957 saw rapid national development mainly in the urban centres and on the western corridor. Only in the recent rounds of development plans have attention been given to the Lenggong Valley. The Northern Corridor Economic Region (NCER) specifically targets Hulu Perak to receive attention in agriculture and tourism which will be reinforced by the Perak State’s own economic development plans for its Northeast Corridor (see Chapter 4 (b) (i)). It is imperative therefore that due protection is given to the Lenggong valley sites in the midst of all these plans for the region in order that its unique contribution as a landscape and corridor or gateway for human interaction during both prehistoric and historic times can be preserved for future generations to contemplate and understand.
CHAPTER 3

JUSTIFICATION FOR INSCRIPTION

3.A CRITERIA UNDER WHICH INSCRIPTION IS PROPOSED

3.B PROPOSED STATEMENT OF OUTSTANDING UNIVERSAL VALUE

3.C COMPARATIVE ANALYSIS

3.D INTEGRITY AND AUTHENTICITY
Archaeological Heritage of the Lenggong Valley is uniquely significant for dating the earliest presence thus far identified of prehistoric people in Southeast Asia. It also provides an understanding of their developing cognitive complexity in dealing with tool-making during the Palaeolithic, Neolithic and Metal periods. The dating of the in-situ finds, confirmed by several techniques of scientific chronology thus make the Archaeological Heritage of the Lenggong Valley a unique cultural landscape nominated for inclusion in the World Heritage List, under Criteria (iii) and (iv) of the Operational Guidelines for the Implementation of the 1972 Convention for the Protection of the World Cultural and Natural Heritage (Operational Guidelines WHC 08/01 January 2008).

3.a CRITERIA UNDER WHICH INSCRIPTION IS PROPOSED (AND JUSTIFICATION FOR INSCRIPTION UNDER THESE CRITERIA)

Criterion (iii)

“Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared”.

Archaeological Heritage of the Lenggong Valley is one of the longest culture sequences in a single locality in the world, covering an extraordinary range of nearly 2 million years and spanning all the periods of hominid history outside of Africa. The artefactual evidence for this is found in the open-air and cave sites situated in close physical proximity to one another and located in a river valley that has remained geologically and environmentally stable for the past 2 million years.

The key markers in this long culture sequence can be seen in the excavated sites of Bukit Bunuh, Kota Tampan, Bukit Jawa, Gua Gunung Runtuh and Gua Harimau.

The open-air site of Bukit Bunuh BBH 2007 located in Cluster 1 records the earliest hominid presence thus far known in Southeast Asia at 1.83 million years ago with the discovery of some of the oldest hand axes in the world and other tools embedded in suevite – a rock type formed under high heat and pressure that resulted from a meteorite impact dated by the fission-track technique to 1.83 million years ago.
Evidence for continued hominid presence in the Lenggong Valley is found in a long chronological series of in-situ open-air stone tool workshop sites located throughout Clusters 1 and 2 and extending from Bukit Jawa (200,000 - 100,000 years), to Kota Tampan (70,000 years), and to another Bukit Bunuh BBH 2001 site (40,000 years).

Kota Tampan in Cluster 1 is a rare example in the world of a prehistoric site where the cause and date of site abandonment can be determined. Presence of ash from the last catastrophic Toba volcanic eruption in the in-situ Kota Tampan site suggests that man had to suddenly flee the site because of this major catastrophe around 74,000 to 70,000 years ago, leaving behind his tool-making ‘equipment’ and both finished and unfinished tools in the workshop.

In addition to the open-air sites, the Lenggong Valley contains numerous cave and rock shelter sites which were occupied by the inhabitants of the valley during late Palaeolithic when both geological and climatic conditions created habitable floors in the caves. There are a total of five limestone massifs, containing caves and rock shelters within the core and buffer zones of the nominated property.

The cave sites in Cluster 2 – Gua Gunung Runtuh (13,000 - 1,000 years) and Gua Harimau (4,000 - 1,000 years) – which contain human burials among other archaeological finds such as earthenware and bronze artefacts, give further evidence of the prolonged and permanent presence of humans in the Lenggong Valley from the Palaeolithic through the Neolithic into the Metal Period. These sites give an extraordinary and unique insight into the culture of the prehistoric societies in the Lenggong Valley.

Gua Gunung Runtuh contained the remains of Southeast Asia’s oldest most complete Palaeolithic human skeleton, the iconic Perak Man, dated by the radiocarbon technique to the late Palaeolithic 10,120 ± 110 BP (Beta-38394). Analysis of the remains of Perak Man shows that he was born with a congenital deformity known as Brachymesophalangia type A2, a rare condition which continues to be present in modern human populations. The fact that the Perak Man skeleton was preserved in its entirety (an extremely rare occurrence in Southeast Asia due to climatic conditions which do not favour the preservation of human remains), enables us to understand the genetic make-up and medical history of early human populations.

Cave drawings by local aborigines bring the Lenggong Valley sequence up to historical times.
Criterion (iv)

“Be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates a significant stage in human history”.

Human existence during the Palaeolithic, the longest period in human history, centred around stone resources. Stones provided the raw material for the earliest tools and the archaeological remains of stone tools and stone tool workshop sites are important evidence of early human technology. Thus, the discovery of numerous undisturbed in-situ stone tool workshops in the Lenggong Valley dated in a long chronological sequence covering the entire Palaeolithic period provides a key to the understanding of the development of human culture in Southeast Asia at this significant stage of human history.

In-situ Palaeolithic sites are rare globally because climatic changes and catastrophic climate events such as floods which occur repeatedly over time, tend to erode many of the oldest sites and displace the artefacts contained therein. This, coupled with repeated human activity, can destroy a site and disturb its original context. This loss of integrity diminishes the validity of archaeological evidence.

Archaeological Heritage of the Lenggong Valley provides an outstanding and extraordinary record of the Palaeolithic technological ensemble of prehistoric people. With its rich and unique evidence of in-situ stone tool workshops spanning a 200,000 – 100,000 years period of time, AHLV reflects the evolution of human cognitive complexity in the form of a rational and systematic mind, an understanding of lithology and an efficient method of stone tool production. An outstanding example of lithic manufacturing of the Palaeolithic period is to be found at the in-situ Kota Tampan site. Kota Tampan has become an important global reference site for Palaeolithic tool technology.

The undisturbed archaeological sites in the AHLV are unique because they preserve in-situ an outstanding record of the evolution of human cognitive complexity evidenced by the development of lithic tradition and stone tool technology over an extremely long time sequence from 1.83 million years ago to the recent past.
3.b PROPOSED STATEMENT OF OUTSTANDING UNIVERSAL VALUE

Archaeological Heritage of the Lenggong Valley, which comprises both open-air and cave sites, provides a series of chronologically-ordered and spatially-associated culture sequences from the Palaeolithic through the Neolithic to the Metal period. These sites have been chronometrically dated from 1.83 million to 1,000 years ago. Thus, the Lenggong Valley is one of the longest archaeological culture sequences found in a single locality in the world.

The AHLV also contains a large number of undisturbed *in-situ* Palaeolithic sites making it, in this respect, unique outside of Africa and of extraordinary importance for the study of the culture of Palaeolithic man. *In-situ* Palaeolithic sites are extremely rare because these sites can date back a few million years ago and over such a long time period, natural processes and human activities are bound to disturb the original archaeological context.

The extraordinary survival of early Palaeolithic evidence at Bukit Bunuh BBH 2007 in the AHLV is due to the fact that a meteorite strike 1.83 million years ago preserved many Palaeolithic stone tools in the melted suevite formed by the meteorite impact. This is an indirect evidence for hominid presence in the AHLV at 1.83 million years ago. Evidence for continued hominid presence in the AHLV is found in a long chronological series of *in-situ* open-air stone tool workshop sites extending from Bukit Jawa (200,000 - 100,000 years), to Kota Tampan (70,000 years), and to a later Bukit Bunuh BBH 2001 (40,000 years). Thus, AHLV demonstrates hominid presence from as early as 1.83 million years ago.

Kota Tampan is a rare example in the world of a prehistoric site where the cause and date of site abandonment can be determined. Presence of ash from the last catastrophic Toba volcanic eruption in the *in-situ* Kota Tampan site suggests that man had to suddenly flee the site because of this major catastrophe around 74,000 to 70,000 years ago, leaving behind his tool-making ‘equipment’ and both finished and unfinished tools in the workshop.
Prior to the excavation of Kota Tampan in 1987, little was known about how prehistoric man made stone tools in Southeast Asia and it had been assumed that the lithic tradition in this part of the world was under-developed. Because Kota Tampan is an undisturbed Palaeolithic stone tool workshop, the association of artefacts (raw materials, finished as well as unfinished tools, and tool-makingdebitage) is clearly visible. This assemblage of artefacts has revealed and made possible the identification and classification of multiple tool types with specialised functions and is evidence of a Palaeolithic lithic technology in Southeast Asia as sophisticated as anywhere else in the world. Furthermore, this in-situ stone tool workshop provides a means to understand the cognitive behaviour of the tool makers. Their choice of raw material, an understanding of lithology, and an efficient method of production reveal a rational and systematic approach to tool-making. This has made Kota Tampan an important global reference site for Palaeolithic stone tool-making.

Perak Man, buried in the cave site of Gua Gunung Runtuh, is the only prehistoric skeleton in the world born with a congenital deformity known as Brachymesophalangia type A2. He is also the oldest, most complete skeleton found in Southeast Asia, chronometrically dated to 10,000 years ago. Extensive studies on Perak Man and his associated mortuary goods provide a very rare insight into Palaeolithic life, disease, belief systems and burial rituals.

Archaeological Heritage of the Lenggong Valley is singularly significant for dating the earliest presence thus far known of prehistoric people in Southeast Asia. The undisturbed archaeological sites in the AHLV are exceptional because they preserve in-situ an outstanding record of the evolution of human cognitive complexity evidenced by the development of lithic tradition and stone tool technology over an extremely long culture sequence from 1.83 million years ago until the recent past.

These archaeological discoveries, all located within a single valley whose geology and environment have remained stable over the past 2 million years, provide important milestones in dating the presence of prehistoric people in Southeast Asia and impact on theories concerning the expansion of hominids throughout Australasia and the evolution of their stone tool cultures. This makes AHLV a unique cultural landscape of outstanding universal value for the study and understanding of world prehistory.
3.c COMPARATIVE ANALYSIS

Based on the archaeological and scientific evidence from open-air and caves sites in the nominated property, the Archaeological Heritage of the Lenggong Valley has provided evidence of one of the longest prehistoric culture sequences located in one single locality to be found anywhere in the world. The beginning of this long culture sequence at 1.83 million years ago is marked by the discovery of hand axes embedded in suevite. The undisturbed, in-situ habitation, workshop and burial sites within the nominated property covers most of human history, beginning in the early Palaeolithic and continuing through to all phases of the Palaeolithic, Neolithic and Metal Period. These sites revealed that over time man developed cognitive abilities to fashion tools of increasing sophistication using advancing techniques.

The prehistoric culture sequence in the AHLV also contains a most extraordinary late Palaeolithic cave burial (Perak Man), unique in Southeast Asia, if not the world. Among the evidence for its uniqueness is that he suffered a congenital deformity (Brachymesophalangia, type A2), the earliest evidence in archaeological records and obviously of importance to the medical history of early man.

These archaeological discoveries were all located within a single valley whose geology and environment have remained stable over the past 2 million years. They provide important milestones in the dating of the presence of prehistoric people in Southeast Asia, impacting on theories concerning the expansion of hominids throughout Australasia and the evolution of their stone tool cultures. Thus, the Archaeological Heritage of the Lenggong Valley is a unique cultural landscape of outstanding universal value for the study and understanding of world prehistory.

Given these outstanding universal values, a comparative analysis of the Archaeological Heritage of the Lenggong Valley can therefore be focused on the following four themes:

1. One of the Longest Prehistoric Culture Sequences in a Single Locality
2. In-situ Palaeolithic Workshops
3. Palaeolithic Skeleton with Brachymesophalangia type A2
4. Evidence for the Oldest Hominid Presence Outside Africa
There are few reported sites in the world of the same level of significance in any of the four themes above. After a thorough search, 16 sites have been found comparable, which includes sites inscribed on the World Heritage List as well as sites on the Tentative List.

1. One of the Longest Prehistoric Culture Sequences in a Single Locality

The sites in the AHLV provide one of the longest culture sequences for prehistoric societies from the Palaeolithic through the Neolithic to the Metal period over a span of time from 1.83 million to about 1,000 years ago. This evidence can be seen in Bukit Bunuh BBH 2007 (1.83 million years), Bukit Jawa (200,000 years ago), Kota Tampan (70,000 years ago), Bukit Bunuh BBH 2001 (40,000 years ago), Gua Gunung Runtuh (13,000 - 1,000 years ago) and Gua Harimau (4,000 - 1,000 years ago). Cave drawings by the local aborigines bring the sequence up to historic times.

Few sites in the world approach this long chronological sequence. Amongst the sites examined for comparison are Bhimbetka in India, Wonderwerk Cave in South Africa, Theopetra in Greece, and Zhoukoudian in China (Table 3.1).

Table 3.1: Comparable Prehistoric Culture Sequences in a Single Locality

<table>
<thead>
<tr>
<th>Site</th>
<th>World Heritage Status</th>
<th>Type of site</th>
<th>Archaeological period</th>
<th>Dating Range (years ago)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhimbetka, India</td>
<td>World Heritage Site 2003, Ref: 925</td>
<td>Rock shelter</td>
<td>Palaeolithic, Mesolithic, Chalcolithic, Early Historical to the Historical period</td>
<td>700,000 - 200,000 until historic time</td>
<td>(<a href="http://whc.unesco.org/en/list/925/">http://whc.unesco.org/en/list/925/</a>) Wakankar (1975)</td>
</tr>
</tbody>
</table>
### Site Information

<table>
<thead>
<tr>
<th>Site</th>
<th>World Heritage Status</th>
<th>Type of site</th>
<th>Archaeological Period</th>
<th>Dating Range (years ago)</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zhoukoudian, China</td>
<td>World Heritage List, 1987, Ref: 449 (Peking Man site – L1)</td>
<td>Cave</td>
<td>Palaeolithic</td>
<td>780,000 - 680,000 (locality 1)</td>
<td><a href="http://whc.unesco.org/en/list/449">http://whc.unesco.org/en/list/449</a> Huang et al. (1991); Shang et al. (2007); Shen et al. (2009); Wu (1961); Weidenreich (1943)</td>
</tr>
</tbody>
</table>

### Bhimbetka (India)

The Rock Shelters of Bhimbetka situated at the foothills of the Vindhyan Mountains in Madhya Pradesh, India were inscribed on the World Heritage list in 2003 (Reference 925). This site consists of five clusters of natural rock shelters and caves containing lithic artefacts, paintings and other cultural materials that date from the Palaeolithic through to the historic period. One of the caves, Auditorium Cave, is said to show evidence of a well-stratified and continuous sequence beginning from 700,000 - 200,000 years ago until historic times (Wakankar, 1975).

**Unlike the chronological sequence in the Archaeological Heritage of the Lenggong Valley, the chronological sequence of Bhimbetka is currently speculative and the time range is at the most 700,000 years compared to 1.83 million years in the Archaeological Heritage of the Lenggong Valley.**
Wonderwerk Cave (South Africa): Wonderwerk Cave is a South African National Heritage site. It is also on the World Heritage Tentative List (1998): *Pleistocene occupation sites of Klasies River, Border Cave, Wonderwerk Cave and comparable sites relating to the emergence of modern humans* (Reference 1074).

The Wonderwerk property comprises one cave and two rock shelters. The bedrock in the front portion of this cave has an overburden of 4 metres of wind-blown dust deposits. Initial radiocarbon, uranium-series and palaeomagnetic datings indicate that the uppermost 45 metres span the past 300,000 years, and by extrapolation it was suggested that the lower levels may be as old as 1.95 to 1.77 million years (Beaumont and Vogel, 2006). Small irregular stone cores and flakes found in these lowest levels could therefore be Oldowan. Since there is archaeological evidence of cultural material in all layers and rock paintings at the cave entrance, Wonderwerk has been claimed to be one of the longest inhabited caves in the world with a speculative chronological sequence exceeding 1.7 million years (Chazan & Horwitz, 2009).

The earliest date for this site i.e. 1.95 to 1.77 million years, is problematic because it is a relative date based on extrapolation whereas the 1.83 million date for AHLV is a chronometric date based on a fission-track dating technique.

Theopetra (Greece): Theopetra Cave in Thessaly was first excavated in 1987 and the 6-metre deep cultural layers provided evidence of intermittent hominid occupation from the early Upper Pleistocene, 50,000 years ago, through to the abandonment of the cave as a place of settlement in the Chalcolithic, at about 5,000 years ago (Kiparissi-Apostolika, 2000). The cave is a large 500 square metre rectangular chamber at the foot of a limestone hill. Artefacts and ecofacts such as coal and human bones proved that the cave was occupied from about 52,000 to 6,000 years ago, and that temporary use continued during the Bronze Age and up to the present, when the cave was used occasionally by shepherds to shelter their herds. Artefacts discovered in the cave include stone tools of the Palaeolithic, Mesolithic and Neolithic periods, as well as Neolithic pottery, bone and shell objects, burials and traces of plants and seeds that revealed evidence of diet.

Although this site contains a relatively long sequence of archaeological cultures within a single locality, Theopetra covers a time period of only 52,000 years beginning in the Middle Palaeolithic, whereas AHLV covers 1.83 million years and spans the Palaeolithic, Neolithic and Metal Periods up until historic times.
Zhoukoudian (China): The Chinese State Council in 1961 made the Peking Man site at Zhoukoudian one of the first State Key Cultural Heritage Units under Protection. In 1983, the Beijing Municipal Government itself declared the site as a Protected Area for Preservation. The Peking Man Site at Zhoukoudian was inscribed on the World Heritage List in 1987 (Reference 449).

Earlier attempts at chronometric dating of the fossil-rich layers, for example, by ESR had given a range of 400,000 - 250,000 years ago (Huang et al., 1991) but a recent re-evaluation by a newer cosmogenic $^{26}$Al/$^{10}$Be dating of quartz sediments and artefacts from the lower strata of Locality 1 has given a revised older date of 780,000 - 680,000 years ago (Shen, 2009).

Zhoukoudian Locality 4 yielded a small quantity of stone tools, ash layer, burnt stone, charred bones, hackberry seeds, and more than 40 species of mammalian fossils together with a human tooth during excavations in 1973. The site is dated to late Middle Pleistocene.

In 2003, fossils belonging to an early modern human (Tianyuan 1) were found in Tianyuan Cave, Zhoukoudian. These fossils were dated to 42,000 - 39,000 BP and are among the oldest in eastern Eurasia (Shang et al., 2007).

Three skulls and other parts from at least 8 anatomically modern individuals, ornaments, tools made of bone and stone, and faunal food remains were found in the Upper Cave in 1930s (Wu, 1961). These were dated to 18,000 - 11,000 years ago (Kamminga and Wright, 1988). The cave also contained evidence of the earliest intentional burials in China.

The chronological sequence of the sites in Zhoukoudian has been scientifically dated from 780,000 to 11,000 years ago, covering the middle and late Palaeolithic periods only (Wu, 1961). The chronological sequence in the AHLV begins much earlier at 1.83 million years and extends to 1,000 years ago covering the entire Palaeolithic as well as the Neolithic and Metal Periods.

Thus, the culture sequence in the AHLV is by far the longest in a single locality among known and scientifically dated sites. This long occupation occurred in the context of a fairly stable palaeoenvironment consisting of tropical grasslands and later forests, with fresh water and plentiful food sources punctuated by two natural events in the archaeological records – a meteorite impact and the Toba volcanic eruption, both of which have been securely dated and provide incontrovertible evidence of the early dates and long cultural sequence of the Archaeological Heritage of the Lenggong Valley.
2. *In-situ* Palaeolithic Workshops

Archaeological Heritage of the Lenggong Valley stands out as containing the **only in-situ and undisturbed** open-air Palaeolithic workshop sites in Southeast Asia. Other sites such as the Irrawaddy Valley of Burma (Movius, 1943), the Kanchanaburi Valley, Thailand (Sorenson 1988) and the Cagayan Valley, Philippines (Dizon & Pawlik, 2009) are disturbed Palaeolithic sites and therefore cannot be compared to the AHLV sites. All AHLV open-air sites are considered *in-situ* undisturbed lithic workshops based on: (1) lithic tool-making ‘equipment’ and tools found in association and (2) conjoined artefacts. There are no lithic workshops in the cave sites of the AHLV.

The lithic assemblage in AHLV comprises artefacts representing “tool making equipment” such as anvils, cores and hammerstones; finished and unfinished tools as well as debitage. All these represent the entire manufacturing process, very unlikely to have been gathered together by natural processes. They were found in association, therefore allowing for identification of tool type, function and technology. It was also possible to refit the debitage flakes to the partly worked cores or even finished tools within the same scatter. Larger fragments too could be refitted or conjoined and the attributes in the assemblages strongly suggest that they were *in-situ* and had not been disturbed since the tool maker left them.

Other Palaeolithic stone tool workshop sites in the world that may be comparable to those found in the AHLV include: the English site at Boxgrove, the French Solvieux site, brickyard quarry sites at the Dutch-Belgian border near Maastricht, the Turkish site of Kaletepe Deresi 3 in Central Anatolia, Isampur and Hunsgi valleys in Karnataka, India, the Bose Basin in China and the very old sites at Gona, Ethiopia and Lokalalei, Kenya. These sites share with the sites of the AHLV characteristics of being *in-situ* Palaeolithic workshop sites found with large stone assemblages and bearing artefacts capable of being refitted (Table 3.2).
Table 3.2 Comparable *in-situ* Palaeolithic workshops

<table>
<thead>
<tr>
<th>Site</th>
<th>World Heritage Status</th>
<th>Cultural Period</th>
<th>Dating (years ago)</th>
<th>Findings</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boxgrove, United Kingdom</td>
<td>Not Listed</td>
<td>Upper Palaeolithic</td>
<td>350,000 - 175,000 (Amino Acid Geochronology, Deposit Remnant Magnetism, Uranium Series, Infra-red Stimulated Luminescence, Optically Stimulated Luminescence, Electron Spin Resonance)</td>
<td>Flake tools and debitage made from flint, hominin tibia</td>
<td>Roberts and Parfitt (1999)</td>
</tr>
<tr>
<td>Solvieux, France</td>
<td>Not listed</td>
<td>Upper Palaeolithic</td>
<td>44,000 - 10,000 (Radiocarbon dating)</td>
<td>Stone tools and debitage made from chert, chalcedony, and jasper</td>
<td>Sackett et al. (1999)</td>
</tr>
<tr>
<td>Dutch-Belgian sites</td>
<td>Not listed</td>
<td>Lower to Middle Palaeolithic</td>
<td>300,000 - 50,000 (Geostratigraphy)</td>
<td>Stone tools and debitage made from flint</td>
<td>De Warrimont, (2007)</td>
</tr>
<tr>
<td>Kaletepe Deresi 3, Turkey</td>
<td>Not listed</td>
<td>Lower Palaeolithic</td>
<td>1.48 - 1.1 million (Fission-track and K/Ar dating)</td>
<td>Chopping tools, bifacial hand axes, cleavers, scrapers, points and debitage of andesite, basalt and obsidian</td>
<td>Slimak <em>et al.</em> (2004)</td>
</tr>
</tbody>
</table>
### Table: Archaeological Heritage of the Lenggong Valley

<table>
<thead>
<tr>
<th>Site</th>
<th>World Heritage Status</th>
<th>Cultural period</th>
<th>Dating (years ago)</th>
<th>Findings</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bose, China</td>
<td>Not listed</td>
<td>Lower Palaeolithic</td>
<td>803,000 (40Ar / 39Ar dating of tektites)</td>
<td>Chipped cobbles of quartz, quartzite, sandstone, chert and associated flakes</td>
<td>Yamei et al. (2000)</td>
</tr>
<tr>
<td>Gona, Ethiopia</td>
<td>Not listed</td>
<td>Lower Palaeolithic</td>
<td>2.6 - 2.5 million (40Ar/39Ar and Magnetostratigraphy dating)</td>
<td>Oldowan stone tools comprising cores, flakes and retouched tools made of rhyolite, lava, chalcedony, breccia, chert and trachyte ignimbrite</td>
<td>Semaw (2000)</td>
</tr>
<tr>
<td>Lokalalei, Kenya</td>
<td>Not listed</td>
<td>Lower Palaeolithic</td>
<td>2.33 - 2.23 million (Relative date using geostratigraphy)</td>
<td>Oldowan stone tools consisting of cores and debitage made of lava cobbles</td>
<td>Delagnes and Roche (2005)</td>
</tr>
</tbody>
</table>

**Boxgrove (UK):** Excavations were started in 1984 at the Middle Pleistocene site of Boxgrove in West Sussex, England (Roberts and Parfitt, 1999). The site was dated to between 524,000 and 478,000 years ago through relative dating while chronometric dating provided an age ranging from 350,000 to 175,000 years ago. This site produced almost exclusively oval bifacial hand axes. These bifaces were typically smallish, up to 8 - 15 cm in length and biaxially-flaked (Figure 3.1). Knapping both faces created cutting edges and reduced thickness. This progressive thinning was carried out with a soft hammer tool made of bone or antler. The Boxgrove bifaces are characterised by the removal of special sharpening flakes called 'tranchets' from their tips. Hundreds were excavated together with a large number of unfinished roughouts.
The evidence for an in-situ workshop at Boxgrove, either at the kill or nearer to the stone source, comes from the preservation of many scatters of flake debitage which were found in small clusters suggesting that a hominid group manufactured the tools together. In one case, a part of one of the tool maker's limbs was clearly outlined by the falling debitage (Photo 3.1).
In one scatter, 51% of the individual flakes were found to refit. Earlier flake removals were found to lie underneath later removals suggesting that they lay as they fell. Another refitting exercise restored a single nodule with 70% of its surface covered by cortex, leaving a void in the middle conforming to the shape of an ovate hand axe rough-out. Tools were re-worked with softer hammers such as bones or antlers. The Boxgrove site is therefore undisturbed and in-situ. The artefacts left at the scene give a detailed picture of the behaviour of the early hominids that inhabited the site and used the resources around for tool-making.

AHLV has undisturbed lithic workshops such as Bukit Jawa in the same time range as Boxgrove. The difference lies in the type of raw materials used for making the tools – flint in Boxgrove and quartzite/quartz in the Lenggong Valley. This is due to the difference in geological formations of the two locations which provided different raw materials. Because of the different types of raw materials available, the techniques of stone tool making were also different. This difference in the types of raw materials used resulted in the development of different techniques of making tools, for example the use of hammerstone for flaking in the AHLV, and the use of antler and bone in Boxgrove.
Solvieux (France): Solvieux in the Isle Valley (Dordogne, France) is an extensive complex of Middle and Upper Palaeolithic open-air stone tool workshop sites excavated during the 1960s and 1970s (Sackett *et al.*, 1999). Here, Palaeolithic Man exploited locally extensive chert resources of predominantly black and brown Senonian cherts, together with other materials such as chalcedony and jaspers. The site has been chronometrically dated from 44,000 to 10,000 years ago (Sackett *et al.*, 1999).

The Solvieux site is radiocarbon dated to 44,000 - 1,000 years ago, and covers a much shorter time range than the sites in the AHLV. The morphology of tools found in these two sites is also different. This is due to differences in the raw material available in the two areas. In Solvieux, a variety of fine grained raw materials were used in the production of finely worked stone tools. On the other hand, the tools in the AHLV were manufactured from locally available coarse grained quartzite and quartz materials. Although these materials did not allow for the production of finely worked tools, they had sharp edges and were effective for the tasks at hand in tropical Southeast Asia.

Dutch-Belgian sites: Excavations at brickyard quarries in Maastricht-Belvédère (The Netherlands), Kesselt-Op de Schans (Belgian Limburg), and Veldwezelt-Hezerwater in the Dutch-Belgian border area near Maastricht uncovered flint open-air sites (De Warrimont, 2007). Again a refit technique identified the sites as *in-situ* (Photo 3.2).

*Photo 3.2: A refitted flint nodule from Maastricht. Refitting is considered an appropriate characteristic of an in-situ site. There are many examples of refitting that can be seen in the AHLV.*
A combination of extensive geostratigraphic studies on the exposed loess deposits at these sites together with a variety of physical dating methods indicate that the sites were occupied in the Middle Palaeolithic between 300,000 and 50,000 years ago. It was concluded that “the palaeoenvironment of the Maastricht-Belvédère and Veldwezelt-Herzwater quarries was clearly very appealing with its close proximity to a river or brook and a varied landscape providing firewood and other raw materials, freshwater, game to hunt and, occasionally, local flint” (De Warrimont, 2007).

Although the AHLV and Dutch-Belgian sites are both in-situ Palaeolithic workshop sites, the types of stone material used to make the tools are different – quartzite and quartz in the AHLV, while flint was used in the Dutch-Belgian sites. This resulted in different lithic techniques to make tools that were suited to the different tasks at hand.

**Kaletepe Deresi 3 (Turkey):** Kaletepe Deresi 3 is situated in the volcanic area of Central Anatolia and was discovered in 2000. Excavations since then have revealed this site as the first known Palaeolithic open-air site in Turkey (Slimak *et al.*, 2004). Obsidian intrusions from volcanic activity provided a source of raw material for the tool-makers at this site. The culture sequence has been chronometrically dated to a maximum age of 1.3 - 1.1 million years for the underlying bedrock, and a date of 160,000 years for a volcanic tephra near the top of the stratigraphic column. Only the five upper culture layers provided evidence of lithic workshops. Over 1,100 lithic artefacts had been recovered from the excavations. The oldest two occupation layers, Levels IV and V, appeared to have been used principally local andesite and basalt to make heavy chopping tools and bifacial hand axes. Cleavers from these older levels are the first in-situ tools to be found in Turkey. The more recent levels, Level I – III, are characterised by obsidian Levallois debitage, scrapers and points with each horizon illustrating different human behaviour in obsidian flaking. Kaletepe Deresi 3 contains the oldest and most complete Palaeolithic culture sequence in Turkey thus far known, and is one of the oldest stone tool workshops known outside of Africa.

This in-situ lithic workshop site falls within a similar time range as those in the Archaeological Heritage of the Lenggong Valley. However, there is a difference in raw material, lithic technology and tool types.
Isampur and Hunsgi (India): The Hunsgi and Baichbal Valleys in Karnataka, India are within a basin measuring 500 sq km - considerably larger than Lenggong Valley. Over 200 sites of archaeological significance have been identified in the two valleys (Paddayya et al., 2002). The most significant among these sites appears to be Isampur which is the first known occurrence of artefacts in a quarry context in India (Paddayya & Petraglia 1997; Petraglia et al., 1999; Petraglia et al., 2000). A total of over 15,000 artefacts have been collected from the site. The raw material for the Isampur tools consisted of primary and buried limestone outcrops. Large slabs and cores were flaked and reduced into hand axes, cleavers, picks, knives, scrapers, and unifaces. Debitage in varying sizes and in abundance display the process of reduction from procurement to retouch. Consideration of the palaeoenvironment suggests that the inhabitants dispersed from the site during the wet season and returned during the dry. Chronometric dating has suggested that the age of the site ranged from 350,000 to 200,000 years (Shipton, 2009).

At the nearby Hunsgi site, a so-called Acheulean cultural layer was discovered as a 10-35 cm thick layer in a compact gravel context. This is quite similar to the geological context for the Lenggong Valley open-air sites. The Hunsgi artefacts were similar to those found in Isampur and are considered to have been produced primarily from limestone pebbles or cobbles from the stream bed or from blocks of the plateau (Paddayya, 1982).

Like the AHLV sites, these sites in India are in-situ lithic workshops that produced some similar tool types such as hand axe and uniface probably because they share a similar type of palaeoenvironment with AHLV. In Isampur and Hunsgi, the prehistoric tool-makers quarried limestone and also utilised limestone pebbles, while in the AHLV they used quartzite and quartz pebbles. Both these sites reflect man’s ability to produce stone tools of different materials to suit the needs of survival in different environments.

Bose (China): The Bose Basin in the Guangxi Zhuang Autonomous Region of south China covers 800 sq km and is dissected by the Youjiang River from northwest to southeast. There are seven late Pliocene and Pleistocene river terraces of differing elevation associated with episodic uplift of the Qinghai-Tibetan Plateau. The fourth terrace consists of several platforms ranging in height from 25 to 100 metres above the current river surface. This terrace has an upper zone of sedimentary material, mainly laterite, overlying a layer of well-sorted cobble conglomerate. Within the upper layer is a zone some 20 to 100 cm thick of tektites and stone artefacts. The Bose lithic assemblage comprised core, hammerstone and flake tools made of quartz, quartzite, sandstone, and chert (Photo 3.3). 40Ar/39Ar dating of tektites associated with the artefacts and very likely part of the Australasian strewn field suggested an average age of 803,000 ± 3,000 years ago.
Bose is an interesting site that shares many similarities with the sites in the AHLV. Both are lithic workshop sites located in similar environments, that used the same raw materials to produce similar tools. However, the date for Bose is controversial because of the unclear association of the tektite used for dating and the archaeological artefacts. In the case of the AHLV lithic workshops, the chronometric dating is secure.
**Gona (Ethiopia):** In Gona, more than 3,000 surface finds and excavated artefacts have been recovered at 15 localities documented at the east and west of the Kada Gona River. These artefacts have been dated to between 2.6 and 2.5 million years ago through radio-isotopic dating ($^{40}\text{Ar}/^{39}\text{Ar}$) and magnetostratigraphy. The artefacts recovered from Gona are mainly typical Oldowan stone tools comprising cores, whole and broken flakes, angular and core fragments, and a small number of retouched pieces were made of rhyolite, lava, chalcedony, breccia, chert and trachytic ignimbrite. These Gona stone tool assemblages provide an opportunity for characterising the oldest assemblages and for understanding the stone working capability of the earliest tool makers (Semaw, 2000).

The *in-situ* African lithic workshop sites in Gona are considerably older than those in the AHLV. The volcanic raw materials used were fine grained materials that allowed for a larger number of flaking facets, and better control of flaking which produced finer products. In contrast, quartzite and quartz in the lithic workshops of the AHLV did not allow for the production of fine products although the tool types were similar – chopper, hand axe and flake tools.

**Lokalalei (Kenya):** Excavations at the Lokalalei site in Kenya yielded more than 2,500 stone tools in *in-situ* stratigraphic context and suggested a date from 2.33 - 2.23 million years ago based on relative dating of the geostratigraphy (Kibunjia, 1994; Brown and Gathogo, 2002). The assemblage is made up of typically Oldowan stone tools, consisting of cores and debitage made of lava cobbles. Some 11% of the stone artefacts found from both the surface and the excavations have been conjoined to offer evidence for the steps taken and the skill required by hominids in tool-making (Delagnes and Roche, 2005).

This *in-situ* lithic workshop site is older than those in the AHLV. Like Bose, Lokalalei also produced tool types similar to those in the AHLV but made from different raw materials.

In conclusion for this theme, and based on the comparative analysis, we are able to understand that the method of stone tool production and its morphology is dependent on the type of raw material available. Also, the palaeoenvironment determines the raw material and the morphology-function of tools. This reflects that human cognitive behaviour is rational in adapting to the environment. AHLV is unique in that it is the only locality with *in-situ* lithic workshops that provide information on the technology for making tools of quartzite and quartz – the dominant type of raw material used for tools in prehistoric Southeast Asia.
There is no other known Palaeolithic workshop in the world that can explain the technological development in tool production of quartzite and quartz. Thus, the AHLV is unique and important for a correct scientific understanding of the production of quartzite and quartz tools in the world. Significantly, the discovery of Kota Tampan as an *in-situ* workshop site provided evidence for identifying the whole range of the stone tool making assemblage: core, anvil, hammerstone, and debitage as well as quartzite and quartz lithic tool manufacturing techniques.

3. Palaeolithic Skeleton with *Brachymesophalangia* type A2

An extraordinary find from the Lenggong Valley is the almost complete Palaeolithic skeleton, called *Perak Man*. This skeleton shows a congenital deformity known as *Brachymesophalangia* type A2, an extremely rare condition even in the present human population. Thus far, Perak Man is the only known prehistoric skeleton with this congenital deformity in the world. From the study of this skeleton, we are able to derive evidence of the medical history of early Man. The presence of this congenital deformity in Perak Man also suggests there may be some form of genetic continuity from Palaeolithic hominids to modern human populations.

The Perak Man skeleton also plays an exceptionally significant role in understanding Southeast Asian prehistory. Before the discovery of Perak Man, Palaeolithic burial rituals in Southeast Asia were virtually unknown. This is due, in part, to the fact that the tropical conditions in Southeast Asia make the preservation of skeletal remains problematic. The discovery of this *in-situ* Palaeolithic burial complete with its mortuary goods has allowed a reasonable reconstruction of the method of burial and an insight into the beliefs of the Palaeolithic inhabitants of the region.

In comparison to other known Palaeolithic skeletons found in Southeast Asia, the Perak Man remains the most complete Palaeolithic skeleton uncovered from a prehistoric cave burial. The condition of the skeleton and the mortuary goods associated with him have yielded extraordinary evidence for his physical and medical condition as well as for prehistoric lifeways and burial ritual practices not yet shown by any other Southeast Asian Palaeolithic cave burial.

Perak Man is a unique as well as the most significant Palaeolithic skeleton found in Southeast Asia. It is the only prehistoric skeleton known in the world with *Brachymesophalangia* type A2, a rare congenital deformity, which continues to be found in human populations in the present day, making Perak Man important for the understanding of human medical history.
4. Evidence for the Oldest Hominid Presence Outside Africa

The presence of hominids can be deduced either directly from skeletal remains or indirectly from their stone tools. Sites from Israel, Georgia, Spain, Pakistan, Indonesia, China and Malaysia are dated between 2.0 and 1.2 million years old. Among them are the sites of Riwat, Sangiran, Zhoukoudian, Dmanisi, ‘Ubeidya and Atapuerca, all of which have been inscribed on the World Heritage List, as evidence of the dispersal of hominids across the globe (Table 3.3).

Table 3.3: Comparable evidence for the Oldest Hominid Presence Outside Africa

<table>
<thead>
<tr>
<th>Site</th>
<th>World Heritage Status</th>
<th>Cultural period</th>
<th>Dating (years ago)</th>
<th>Findings</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riwat, Pakistan</td>
<td>Not Listed</td>
<td>Palaeolithic</td>
<td>2.0 million</td>
<td>Stone artefacts including core tools.</td>
<td>Rendell &amp; Hailwood (1988)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Palaeomagnetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>dating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuanmou Basin, China</td>
<td>Not listed</td>
<td>Palaeolithic</td>
<td>1.7 million</td>
<td>Human incisors, stone artefacts, animal bones</td>
<td>Zhu et al. (2008)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Palaeomagnetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>dating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.15 million</td>
<td>Cranial fragments, stone artefacts.</td>
<td>An et al. (1990)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Palaeomagnetic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>dating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>750,000 – the</td>
<td></td>
<td>Shen et al. (2009)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>youngest</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>interpretation</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>780,000 - 680,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(²⁶Al/¹⁰Be dating)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1996, Ref: 593</td>
<td></td>
<td>(⁴⁰Ar / ³⁹Ar dating)</td>
<td>bone tools, axes.</td>
<td>list/593)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1.81 million</td>
<td>Homo Erectus at Mojokerto</td>
<td>Swisher et al. (1994)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(⁴⁰Ar / ³⁹Ar dating)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Table: Archaeological Heritage of the Lenggong Valley

<table>
<thead>
<tr>
<th>Site</th>
<th>World Heritage Status</th>
<th>Cultural period</th>
<th>Dating (years ago)</th>
<th>Findings</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘Ubeidiya, Israel</td>
<td>Not listed</td>
<td>Palaeolithic</td>
<td>2.6 - 1.7 million years (Relative dating based on fauna remains) 640,000 ± 120,000 680,000 ± 50,000 ((^{40}\text{Ar} / {^{39}}\text{Ar} dating)</td>
<td>Tools such as pebble core and flake, fragments of human bones</td>
<td>Horowitz \textit{et al.}, 1993 Repenning &amp; Fejfar (1982)</td>
</tr>
</tbody>
</table>

As older and older dates are claimed for archaeological finds of fossils and artefacts, the timing of hominid dispersal out of Africa has been pushed back. More than thirty years ago this was timed to 1.5 million years ago with hominids not reaching Asia until about a million years later. This idea was then supported by the tentative date for \textit{Homo erectus} finds in Sangiran in Java, Indonesia of 700,000 years ago.

In Pakistan, the site of \textit{Riwart} has yielded core tools in a horizon dated as 2.0 million years old, and at Pabbi Hill in the same locality a long sequence of river and floodplain deposits have been dated to between 2.5 and 0.5 million years old. Over 350 stone artefacts were found at Pabbi Hill, many of which are believed to be derived from fossil-bearing deposits and may thus be up to two million years old (Rendell & Hailwood, 1988; Rendell, 1989). These finds set back even further the time of hominid dispersal out of Africa (Dennell \textit{et al.}, 1994).
*Homo erectus* skulls associated with the Puncangan Formation at **Sangiran** in Java, Indonesia have been re-dated to 1.66 million years. Another *H. erectus* skull associated with the same horizon at nearby Mojokerto is dated to 1.81 million years (Swisher *et al.*, 1994). However, Hyodo *et al.* (2002) have recently re-assessed Sangiran as being not older than 1.1 million years. Core flakes have also been recovered in association with the Kabuh Formation in nearby Ngebung and are dated to 0.75 to 0.25 million years ago. In spite of the uncertain re-dating, the Sangiran finds confirm a Southeast Asian hominid presence that is contemporaneous, if not older, than Dmanisi, Atapuerca or ‘Ubeidiya. Together the evidence shows that the emergence of hominids out of Africa had to be much earlier than 1.5 million years ago, as previous assumed.

The Sangiran sites were inscribed on the World Heritage List as the Sangiran Early Man Site in 1996, Reference 593.

A species radiating out of Africa even into Southeast Asia should find China within easy reach. Indeed, there are comparable human fossil and artefact finds in China. Human incisors recovered from the **Yuanmou Basin** near Danawu Village in Yunnan Province, China, have been estimated to be 1.7 million years old based on palaeomagnetic measurements (Zhu *et al.*, 2008). An earlier assessment puts Yuanmou at 800,000 - 700,000 years (Hyodo *et al.*, 2002).

Some cranial fragments were discovered at a small hill near Gongwang Village in eastern **Lantian**, Shaanxi Province, China associated with stone artefacts. The oldest of several palaeomagnetic interpretations is 1.15 million years while the youngest is 750,000 years (An *et al.*, 1990). The famous Chinese site of Zhoukoudian where Peking Man was found derives from the more recent Middle Pleistocene and is now considered to be at least 750,000 years old (Shen *et al.*, 2009).

The Peking Man Site at **Zhoukoudian** is a World Heritage site (Reference 449) inscribed since 1987. It is located at Fangshanxian County, in the Municipality of Beijing.

An older date of 1.75 million years (Gabunia *et al.*, 2000) was shortly afterwards reported for hominin remains found with pebble choppers discovered in **Dmanisi**, Republic of Georgia. This discovery argues “for an early pre-Acheulean migration out of Africa” (Gabunia *et al*. 2000). The 1.75 million-year date was derived from isotope analysis of the layer of basalt rock running beneath the cultural layer and to animal fossils in the overlying deposits.

The discovery of pebble-core and flake tools together with some fragments of human bones at the early Palaeolithic site ‘**Ubeidiya** in the Jordan Valley of Israel dated to between 2.6 and 1.7 million years was then cited as the earliest evidence of hominids outside Africa (Bar Yosef *et al.*, 1993; Repenning and Fejfar, 1982).
The Dmanisi Hominid Archaeological Site in the Republic of Georgia is on the UNESCO’s Tentative List for World Heritage inscription (Reference 5225). If the Dmanisi finds are authentic, they push back the timing by about 800,000 years for the first hominid presence in Europe before the date suggested by the fossil finds in the Gran Dolina cave of the Sierra de Atapuerca, Spain which date to 850,000 to 750,000 years ago. However, a human jawbone aged more than 1.2 million years was recently discovered in association with Oldowan Mode I stone tools in the Sima del Elefante Cave, very close to Gran Dolina in 2007 (Carbonell et al., 2008) thus reducing the gap.

This and other caves of the Sierra de Atapuerca were inscribed as the Archaeological Site of Atapuerca on the UNESCO World Heritage List (Reference 989) in 2000.

In summary, based on the current fossil record and the most recent dating of the sites, hominids were in Western Europe by 1.2 million years ago (Atapuerca), in Eurasia by 1.75 million years ago (Dmanisi), in the Levant (‘Ubeidiya) probably some time around 2.6 to 1.7 million years ago, in South Asia by 1.96 - 1.78 millions years ago (Riwat), in China by 1.7 million years ago (Yuanmou), and in island Southeast Asia by 1.81 million years ago (Mojokerto). In comparison, the oldest African Homo erectus or ergaster so far discovered is the Turkana Boy at approximately 1.7 million years old (Walker and Leakey 1993) and several remains from the Koobi Fora, Kenya dated to around the same age (Feibel et al., 2009).

AHLV adds to this debate by contributing one of the oldest indisputable dates, i.e. 1.83 million years, for a hominid presence in mainland Southeast Asia. This is consistent with the revised dates for the Sangiran fossils and provides rare evidence for Early Pleistocene dispersal which has to be considered in any account of the human journey out of Africa. This date is also associated with the hand axes from the AHLV, making them the oldest hand axes in the world; the nearest in age being hand axes from Africa, dated to 1.5 million years.

The earliest dates for hominid presence in Southeast Asia are found in Mojokerto, Indonesia (1.81 million years) and the Lenggong Valley, Malaysia (1.83 million years). The Mojokerto date was derived from an $^{40}\text{Ar}/^{39}\text{Ar}$ dating of the skull of the Mojokerto Boy while the Lenggong date was based on fission-track dating of the suevite which post-dated the hand axe found in it. Given the well-developed morphology of the embedded hand axe, the slow development of lithic forms in the early Palaeolithic and large number of stone tools embedded in suevite, it is highly probable that the hominid who made these stone tools would have predated the meteorite impact significantly.
This section compared the Archaeological Heritage of the Lenggong Valley with relevant archaeological sites in the world, especially those already inscribed on the World Heritage List. This comparative analysis indicates that the length of the culture sequence in the AHLV which begins from 1.83 million years ago is the longest thus far known in a single locality. This long occupation occurred in the context of a fairly stable palaeoenvironment consisting of tropical grasslands and later forests, with fresh water and plentiful food sources punctuated by two natural events in the archaeological record – a meteorite impact at 1.83 million years ago and the Toba volcanic eruption at 70,000 years ago.

This comparative analysis also indicated that AHLV is the only locality in the world with *in-situ* Palaeolithic lithic workshops that provide information on the technology for making stone tools. The discovery of Kota Tampan as an *in-situ* workshop site provides the first evidence on lithic technology in Southeast Asia. Kota Tampan identified the attributes for the whole range of tool-making assemblage. The AHLV sites also provided a unique insight into the use of quartzite and quartz for the making of stone tools. The choice of quartzite and quartz for making stone tools was prevalent throughout a wide geographical area of prehistoric Southeast Asia and there is no other known Palaeolithic workshop in the world that can explain this technology of stone tool making.

In addition, the extraordinary Palaeolithic skeleton, Perak Man, is the only known prehistoric skeleton in the world with the congenital deformity, *Brachymesophalangia* type A2. This rare congenital deformity continues to be present in human populations to this day. In addition, Perak Man is the most complete Palaeolithic skeleton in Southeast Asia and provides previously unknown knowledge on Palaeolithic burial rituals and belief systems.

Archaeological Heritage of the Lenggong Valley has also revealed evidence of one of the oldest dates of hominid presence outside Africa at 1.83 million years ago. This confirmed date is consistent with the revised date of 1.81 million years for the Mojokerto Boy, and provides rare evidence for Early Pleistocene dispersal into the far reaches of Asia which has to be considered in any discussion or theory on the human journey out of Africa.
3.d INTEGRITY / AUTHENTICITY

**Integrity:** The Lenggong Valley has provided a fertile and environmentally-stable habitat for repeated human occupation since early Palaeolithic times. The discovery of numerous *in-situ* open-air stone tool workshops has shown that the Valley’s stone resources have been exploited, with increasing technological sophistication, by various groups of humans since at least 1.83 million years ago, when a meteorite struck the valley and preserved many stone tools in the melted suevite. There is evidence to suggest that the Lenggong Valley was a prehistoric corridor for the dispersal of early hominids as well as modern humans (sp. *Homo sapiens sapiens*) out of continental Asia into the Indonesian islands and Australia. The clusters of early open-air and later cave sites in the valley, which constitute the nominated property, contain all the unique and otherwise important elements providing firmly-dated evidence for human occupation of the Lenggong Valley from early Palaeolithic period until 1,000 years ago. The spatial association, chronological sequencing and undisturbed character of the archaeological deposits of these sites hold the key to the integrity of this cultural landscape.

The open-air sites within the nominated property have shown that they are *in-situ* and undisturbed lithic workshops located on ancient river and lake shore terraces bearing gravel deposits. It is very important that the integrity of these open-air *in-situ* sites be maintained over time because they contain reliable, undisturbed and dated information on the prehistoric past. Disturbed archaeological sites are of little scientific value because the data is no longer in its original context.

The continued integrity of the property is ensured by the method of excavation and recording which follows a single system used throughout the valley. The utilisation of a common scientific research methodology at all sites assures that comparative studies can be made among or between sites.

All activities that occur within the nominated property that disturb the ground surface are closely monitored to ensure that the integrity of the AHLV, both of the excavated and unexcavated sites, remain intact. The entire valley has been identified as a relic cultural landscape containing a long chronological sequence with both open-air and cave sites that impact significantly on the understanding of world prehistory. Therefore, the archaeological integrity of the ensemble of sites is significant and is safeguarded within their geological and environmental contexts, in a systematic manner by site management policies and practices in order to assure their continued importance to science.
The archaeological evidence from all the *in-situ* open-air sites in the AHLV is paramount to the understanding of the evolution of Palaeolithic hominid culture outside Africa for both educational purposes and scientific research. The management regimes for site protection, monitoring of these excavated sites as set forth in the management plan for the nominated property (Draft Management Plan, Volume II), assure that that the integrity of the archaeological deposits of these open-air sites, as well as of other yet-to-be-excavated sites is safeguarded for public presentations as well as for future research.

In addition to the open-air sites, there are cave and rock shelters of archaeological importance within the nominated property. Of these, the most important site is Gua Gunung Runtuh, the cave where the Perak Man was excavated. This site has been gazetted as a National Heritage Site in 2005 (Gazette No.: P.U [B] 494) while the Perak Man, has been inscribed as a National Heritage Object (Gazette No.: P.U [B] 235). These are closely monitored and conserved.

The integrity of the nominated property therefore heavily depends upon the preservation and maintenance of the ensemble of archaeological sites in its original palaeoenvironment, where the extraordinarily long culture sequence has been preserved. Site management policies to monitor and mitigate surface disruptions as well as heritage impact assessments are required prior to the approval of any proposed activity or development within the nominated property. The management plan provides innovative solutions to the unique and special challenges on the integrity of the nominated property. These challenges include replacing traditional agricultural practices with alternative income-generating opportunities for local residents. In so doing, traditional practices such as guano collection in the caves (for use as fertilisers), which compromise the integrity of the nominated property, can be controlled.

**Authenticity:** The authenticity of the AHLV is assured through the use of internationally-accepted and corroborative methodologies of scientific research applicable to archaeological sites. These include:

*Scientific research conducted through systematic archaeological excavations* since 1987 have been carried out by USM. The results of these excavations and analyses have been made known to the public and subjected to peer review by the scientific community through extensive presentation in academic forums and exhaustive publication in international scientific journals (See Chapter 7.e BIBLIOGRAPHY). In addition, the data resulting from the excavations in the Lenggong Valley and conclusions drawn from this data have been subjected to further public scrutiny through being televised in a documentary concerning the evolution and dispersal of early man (*The Real Eve*, Discovery Channel, 2002. Director: Andrew Piddington).
Chronometric dating methods such as radiocarbon, thermoluminescence (TL), optically stimulated luminescence (OSL), and fission-track have been used to determine the dates of the sites and artefacts. A combination of techniques has been used to corroborate and validate the dating of the sites and artefacts. In addition, these chronometric determinations have been out-sourced to a range of competent laboratories outside Malaysia (Table 3.4), thus further assuring the reliability and credibility of the dating within the nominated property. Of particular importance is the establishment of the earliest date for the nominated property at 1.83 million years obtained through fission-track dating of the suevite formed by the meteorite impact. The suevite while still molten embedded a large number of Palaeolithic stone tools that were present in the impact area of Bukit Bunuh, thus providing undisputed evidence that the stone tools predated the 1.83 million year meteorite impact. The nominated property, therefore, contains one of the oldest, if not the oldest, in-situ hominid occupation site outside of Africa.

Table 3.4: Dating laboratories used in the research on the AHLV

<table>
<thead>
<tr>
<th>Chronometric method</th>
<th>Collaborating laboratories</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSL</td>
<td>1. University of Wollongong, New South Wales, Australia</td>
</tr>
<tr>
<td></td>
<td>2. Hiruzen Science Lab, Yokohama, Japan</td>
</tr>
<tr>
<td></td>
<td>3. Korea Basic Science Institute, Seoul, Korea</td>
</tr>
<tr>
<td>TL</td>
<td>1. Luminescence Dating Laboratory, University of Washington, USA</td>
</tr>
<tr>
<td></td>
<td>2. Hiruzen Science Lab, Yokohama, Japan</td>
</tr>
<tr>
<td></td>
<td>3. Korea Basic Science Institute, Seoul, Korea</td>
</tr>
<tr>
<td>Fission-track</td>
<td>1. Japan Geochronological Laboratory, Tokyo, Japan</td>
</tr>
<tr>
<td>Radiocarbon</td>
<td>1. Beta Analytical, Inc., Florida, USA</td>
</tr>
</tbody>
</table>
Comparative analysis is another standard and universally-accepted method of determining the authenticity of archaeological sites. This has been carried out in a systematic and exhaustive manner in all the research conducted in AHLV since 1987. Sites and artefacts excavated from the nominated property have been compared to contemporaneous sites in Southeast Asia and other parts of the world. This has confirmed and further expanded our knowledge on prehistoric culture traditions, especially on lithic technology.

Multidisciplinary research has been the approach taken in the Lenggong Valley since 1987. Disciplines such as geology, chemistry, zoology, geophysics, palynology, palaeoanthropology, to name a few, have provided strong corroborating scientific evidence, expanding our knowledge base on the prehistory of the AHLV. Scientific collaboration is especially important to extract maximum data on prehistory, which has no other form of evidence other than the artefacts left behind by early man and the environment in which they lived in.
CHAPTER 4

STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY

4.A PRESENT STATE OF CONSERVATION

4.B FACTORS AFFECTING THE PROPERTY
4.a PRESENT STATE OF CONSERVATION

Introduction
Cluster 1
Cluster 2

Introduction

Archaeological Heritage of the Lenggong Valley consists of a landscape of limestone massifs and gravel deposits on lake shores or river banks in the midst of a palaeoenvironment of tropical savannah or forest. Humans exploited the environment for its rich resources of food, material for tool-making and shelter or habitation sites in the rock shelters, fissures and caves. They left behind evidence of their culture in these sites. There is also evidence of two catastrophic natural events - a meteorite impact and the fallout from the Toba mega-colossal volcanic eruption - that disrupted life in this valley and beyond. Conservation efforts have therefore been made to protect the sites and their artefacts.

The unique and removable artefacts from the cave and open-air sites are currently exhibited and stored at the Lenggong Archaeological Museum (LAM) in Kota Tampan (Photo 4.1), the National Museum in Kuala Lumpur, Taiping Museum, Matang Museum, as well as at the Department of Museums Malaysia in Kuala Lumpur.

Photo 4.1: The display hall at the Lenggong Archaeological Museum
Artefacts for research and conservation are currently in the Centre for Global Archaeological Research (CGAR), USM, where professional archaeologists and conservationists have inventoried and conserved the artefacts according to international standards.

**Cluster 1**

**Bukit Bunuh-Kota Tampan Core Zone**: The Bukit Bunuh-Kota Tampan core zone sits on six lots of land with rubber and oil palm trees owned by either individuals or companies. This pattern of ownership protects the deposits until the companies begin their periodic replanting schemes which would then involve major surface disturbances. Currently replanting is not due and there is sufficient time to organise a government acquisition of the property or to impose a Heritage Impact Assessment before replanting or land use change is permitted.

The sites of Bukit Bunuh and Kota Tampan in the core zone are located between 7 and 15 metres above the floodplain of the Perak River which flows along the eastern border of the core zone. Therefore, flooding in the core zone is highly unlikely. However, the draft property management plan (Volume II) will include provisions for such natural risks.

Kota Tampan KT 1987, the original stone tool workshop site was back-filled in 1999 and is currently in the process of being exposed for display. Several trenches from another excavated site in Kota Tampan KT 2005 are currently protected by a roofed shed. However, exposure of the deposits in their trenches may be considered a risk to the artefacts in the tropics especially from unsightly mould and algal growth. Part of the conservation effort will involve research into suitable methods of preserving the in-situ deposits for public viewing.

At Bukit Bunuh BBH 2001, the 40,000-year old stone tool workshop site was uncovered from a buried gravel bed. This is younger than the KT 1987 workshop at Kota Tampan, dated to more than 70,000 years old. The Bukit Bunuh trenches here remain exposed but unprotected. The excavated stone tools are being studied and conserved at CGAR (USM).
Suevite rocks were unearthed and scattered on the surface or just below over an area of about 268.31 hectares during the construction of plantation terraces at Bukit Bunuh BBH 2007. These rocks, formed during the meteorite impact 1.83 million years ago, have neither known commercial nor ornamental value and therefore are largely ignored by collectors. Mixed up among them are some low grade haematite which may attract collectors. In any case, rock collection is controlled by State authorities and permission is likely to be withheld now that the site has recognised heritage value and implications for tourism.

A hand axe fashioned from metaquartzite and embedded in suevite was found in 2007. Fourteen others like it have been collected since then and these are kept temporarily at CGAR USM for further research. Over a thousand other stone tools similarly embedded in suevite in Bukit Bunuh BBH 2007 have been mapped. Those that have been embedded in huge suevite boulders have been left in-situ for display. This association of suevite with stone tools uniquely attests to the presence of hominids in the AHLV at least 1.83 million years ago.

The first metaquartzite hand axe found embedded in suevite from Bukit Bunuh BBH 2007 which has been dated to 1.83 million years ago was inscribed as a National Heritage Object (Gazette No. P.U. [A] 399) in 2009.

**Bukit Jawa Core Zone:** The original Bukit Jawa site (BJ 1 and BJ 2) at the Bukit Jawa Core Zone where rescue excavations were carried out had been subsequently destroyed by the construction of a trunk road ( FT 76) in 1996. Most of the stone artefacts recovered during the rescue excavation are now stored at CGAR USM while some of the better pieces are displayed at the Lenggong Archaeological Museum.

In 2005, Bukit Jawa was again excavated by CGAR USM. The excavated trenches with the artefacts have been exposed for display. The deep trenches with an overburden of 2 metres are now protected by a roofed shed and provided with information panels on the research and findings at Bukit Jawa.

In 2009, the Bukit Jawa site was inscribed in the National Heritage Register (Gazette No.: P.U. [B] 149), and this will ensure adequate protection and conservation.

**Bukit Kepala Gajah Core Zone:** The important caves in this core zone are Gua Gunung Runtuh where the Perak Man was found, Gua Kajang and Gua Teluk Kelawar. The hill itself is free from human activities but the caves have long been a source of guano much sought after by local villagers as fertiliser. However, the Lenggong Land and District Office has stopped issuing guano licences since 1996.
**Gua Gunung Runtuh:** This cave is part of a small hamlet, Kampung Gelok, accessible by a footpath that takes half an hour to traverse and then a 15-minute climb. It is currently monitored and maintained by the Department of National Heritage. The maintenance of the site is very basic and consists of undergrowth trimming, trash collection, and clearing of the access trail to the cave. The access to the cave is not restricted or guarded. Visitors frequently leave trash both outside and inside the cave and contaminate the cave walls with graffiti. Major rock falls and cave-ins made this site unsafe for unsupervised visits. The dryness of the interior of the cave has slowed down natural deterioration caused by plant growth and rock slides, and kept the bat population reduced. The trench from which Perak Man was excavated remains in place and has not been back-filled so as to be a record of its original location. In 2008, the Perak Man was inscribed as a National Heritage Object in the National Heritage Register (Gazette No.: P.U [B] 235), followed by the site of Gua Gunung Runtuh (Gazette No.: P.U [B] 494) as a National Heritage Site in 2009. This can be expected to lead to adequate management and conservation.

The Perak Man skeleton, a key icon in Malaysian archaeology, remained almost intact for more than 10,000 years in Gua Gunung Runtuh. The Perak Man survived for such a long time mainly because he was buried in a naturally controlled cave environment with a relatively cool and constant temperature of 24°C and dry slightly alkaline soil condition that was suited for bone preservation.

After removal, Perak Man was first kept in a custom-made airtight glass cabinet maintained at a constant relative humidity of 45% and stored in a purpose-built room maintained at a constant temperature of 20°C at the CGAR (USM).

The Perak Man was made available for further studies and display from 1991 to 2003. In 1996, the skeleton was displayed together with some of the most significant early man remains from all over the world at the “Reviving Pithecanthropus” exhibition in the National Science Museum, Tokyo, Japan (Annex 3, the exhibition catalogue). Two extremely accurate replicas of Perak Man were prepared by the Yazawa Institute of Replica Production, Tokyo for public displays as part of the conservation effort to shield the original skeleton from damage through handling. From 1999-2000, it was taken to be stored at the Department of Museums Malaysia in Kuala Lumpur during which time the skeleton was not well looked after and some bones went missing. Consequently, custody was returned to CGAR (USM) until 2003 when the skeleton was again moved to be stored at LAM in Kota Tampan. In 2009, the Perak Man was taken to the National Museum where he remains to this day (Photo 4.2).
Photo 4.2: Perak Man on display at the National Museum in Kuala Lumpur. The skeleton of Perak Man is kept in a custom-made airtight glass cabinet

**Gua Kajang**: This cave is easily reached by a paved road laid down through the neighbouring rubber plantation and maintained by the Lenggong District and Land Office. Excavations at the northern entrance of the cave have uncovered human remains. Intruders are known to enter frequently using this route to dig for guano, hunt for artefacts or engage in other activities. Irresponsible elements among them have added their graffiti. The excavation trenches are therefore being considered for back-filling to discourage irresponsible behaviour. The southern portion is covered with rubble from cave-ins. The Department of National Heritage has constructed a boardwalk with information panels linking Gua Kajang to a number of caves with archaeological and natural attractions.
**Gua Teluk Kelawar:** This rock shelter is easily accessible and only a 15-minute walk from the main road. The track briefly passes through a marsh and then small fruit orchards and a rubber plantation. The floor of the rock shelter has been previously disturbed by guano collectors. For the last decade, this site has been used as a field site for training archaeology students from USM. Fortunately, the roof of the shelter provides good protection from rain and wind thereby protecting the interior of the cave. Trenches excavated by students and researchers remain in place. The deeper ones dug by the collectors may be back-filled to prevent accidents to researchers, students or visitors. The Department of National Heritage has provided information panels and a gazebo at this site.

**Bukit Gua Harimau Core Zone:** This smaller limestone massif has seen some quarrying activities in the past which fortunately have been halted and discontinued. It bears one cave of heritage value, **Gua Harimau**.

**Gua Harimau:** This cave is reached by a dirt track through a rubber plantation. The journey on foot takes 30 minutes but it is now accessible by jeep. Intruders continue to collect guano from the cave and furthermore, irresponsible visitors have spread graffiti on some of the walls with charcoal and marker pens. The cave was once briefly used as a goat-pen in the late 70s. The excavation site is located at the front part of the entrance facing south and is somewhat exposed to the elements. The excavation trenches are being considered for back-filling. The Department of National Heritage has recently provided information panels and a gazebo.

### 4.b FACTORS AFFECTING THE PROPERTY

- **Development Pressures**
- **Environmental Pressures**
- **Natural Disasters and Risk Preparedness**
- **Visitor/Tourism Pressures**
- **Number of Inhabitants**

The integrity of the nominated property especially its landscape, contributes to its outstanding universal value and preserves the site for future research and study. The following factors will affect this integrity.
Development Pressures

The nominated property can best be described as being located in an agricultural valley. In seeking to move to a developed nation status, Malaysia plans to improve production efficiency and transfer to an industrial or large scale economy. Initiatives to meet such ends from Federal and Perak State governments will be exercised through implementing bodies that they control. National development strategies are currently unfolding according to two major plans. Malaysia Plans are Statements of budget allocations over five-year cycles. The current 9th Malaysia Plan began in 2007 and will end in 2010 after which the 10th Plan shall replace it and run from 2011-2015.

Sometime during 2007, a second development initiative was launched. Called the Northern Corridor Economic Region (NCER), this strategy joined a few similar initiatives, e.g. the East Coast Economic Region (ECER) and the Sarawak Corridor of Renewable Energy (SCORE), to accelerate growth and increase income levels over regions rather than States and over a much longer span of time.

The NCER includes the northern States of Perlis, Kedah, Penang and the Hulu Perak district of Perak State. The nominated property is located in Hulu Perak. The Northern Corridor Implementation Authority (NCIA) is the statutory body empowered to set the directions, strategies and policies to achieve the objectives and it has been given until 2025 (18 years) to realise them. The declared vision is for the NCER to be a world-class economic region of choice by 2025 to invest in, to live in, to work, to acquire knowledge, to visit and to raise families in a safe, clean and sustainable environment.

Three core economic sectors have been identified for the NCER, namely agriculture, manufacturing and tourism. The nominated property also falls within the Perak State North East Development Corridor which carries the vision of focusing on agriculture, eco-tourism and research.

The Perak State government has announced a policy to turn the State into the largest food producer in the country by 2015. This will be done by concentrating on several agricultural valleys, among them Lenggong. One strategy calls for small holdings to be sold or leased to private companies capable of putting the land to agricultural use on an economy of scale. Starts have been made. For example, a 13 acre agro-farm near Lenggong holds over 500 Boer goats and 100 cattle where before, small farms would have only tens of animals. If such encouragement continues, we may see more active agricultural activities in the core and buffer zones in the future as owners and companies respond to the government incentives and funding. However, cave sites should be relatively spared. Among the solutions to this issue may lie in changing land use in the clusters from agriculture to tourism-related and imposing Heritage Impact Assessment (HIA).
The NCIA also proposes to address the social-economic imbalance and to improve the quality of life as part of the strategy. This will reduce, if not, eliminate altogether intrusions into the core zone for guano collection, illegal wood felling, and other uncontrolled activities that disturb the archaeological sites as the hard core poor generally involved in such activities find better and more lucrative employment when the strategies take hold.

New population centres will develop as people are attracted to the area. This is evident already from the development of 2 large housing estates, Taman Bandar Baru Lenggong and Taman Kota Lenggong with a total of 171 units of shops and houses and estimated population of 700 people. Planning permission for a further 126 units of housing in Lenggong Town and Raban Lake has been given. However, these development projects do not encroach into the nominated property. Currently, there are no housing projects planned in the nominated property and if there is any in the future, inscription will empower the State to direct housing pressure away from the buffer zones.

Improving and expanding infrastructure and the built environment will create demand for building material. This should lead to pressure for quarrying the limestone hills. However, such pressures can be resisted by application of legal instruments and by diverting quarrying activities to those hills with demonstrated paucity of significant sites. Surveys by the USM team have identified several such limestone hills. Moreover, quarrying at any hill is under embargo currently. Other quarrying activities include the collection of granite, earth and sand. Licenses for these activities must also be obtained from the Lenggong Land and District Office. Guidelines will be issued to the Land and District Office to ban such activities in the nominated property.

Since both the Federal and State governments have declared tourism as a major sector in their separate plans for the Lenggong district, it may be expected that any adverse development that would threaten the nominated property and diminish its value as a sustainable tourism destination will be mitigated if not prevented by Federal and State legislations and policies. A case in point is the successful negotiations to seek an alternative site for an educational institution that was to be located at the Bukit Bunuh-Kota Taman core zone. Agreement was reached where the educational institution was moved to an alternative site outside the nominated property.
NCIA has also identified the Belum-Temengor Tropical Rainforest (BTTR) as an ecotourism destination in the NCER. Currently the Perak State government supports the Royal Belum State Park (117,500 acres) which together with the Temengor Lake, the Gerik Forest Reserve and the Temengor Forest Reserve will constitute the enlarged BTTR. BTTR will be one of the oldest rainforests in the world, will cover the area size of approximately 300,000 hectares and will be known for its rich biodiversity. NCIA has begun to develop a detailed and aligned implementation framework to ensure a sustainably developed and protected Belum-Temengor. Little of the archaeological character of the BTTR is currently known. The BTTR is contiguous to the Lenggong Valley and in prehistoric times both must have coalesced. The Archaeological Heritage of the Lenggong Valley will stand to benefit from the protection offered by this natural land reserve and from being a supplementary destination for visitors to the BTTR.

Cyclical replanting of oil palms as they reach and then surpass productive years will be a serious threat to the integrity of the Bukit Bunuh and Kota Tampan sites. Replanting requires new plantation roads which are usually bulldozed out of shrub land, removal in depth of roots of the old trees, and landscaping of the terrain among other activities. These activities will threaten the gravel beds and the in-situ workshops yet to be uncovered. Heritage Impact Assessment (HIA), transfer of development rights, acquisition by the government are among some of the protective measures that can be taken. Initial discussion has been made with the State government.

Looting is rare so far with only a few known cases of pilfered artefacts being offered for sale. However, with an increasing awareness of the significance of the site, more intrusions into these and other associated sites may occur unless strict security measures are taken.

Increasing awareness also brings more visitors and damage caused by them, both unintentionally, for example through trampling in the sites and altering cave conditions by their presence, and intentionally through vandalism and graffiti. A strict visitor management plan would mitigate these consequences.
Environmental Pressures

Archaeological Heritage of the Lenggong Valley is in the heart of a region which is largely agricultural. State and national plans will continue this function. Presently there is no area set aside for industrial activities in or around the buffer zones. A planned industrial estate at Air Kala on 3.68 acres of land is far outside the nominated property. There will be little or no risk of industrial pollution. Climate change will be an unlikely cause for change in the valley. Some concerns arise from the development plans announced for the region by both the State and Federal governments and private developers. Incentives to increase agricultural productivity may cause owners to switch land use and crops, and this may lead to unpredictable changes in the landscape and the environment. A Special Area Plan (SAP) will soon be initiated by the State Authority and the conservation of the nominated property shall be an important consideration in the plan.

Natural Disasters and Risk Preparedness

Flooding from the adjacent Perak River caused by unusually heavy rainfall will be the most probable natural disaster to be faced especially at Cluster 1 where the Perak River forms a considerable part of the boundary of the Cluster. The last flood was recorded over a few days in November 2009 with the highest flood level at 1.5 metres. In this flood, Cluster 1 core zone which is on high ground (between 7 – 15 metres) remained above water. However, a small area in the buffer zone experienced flooding in 2009 and 2010. The cause of the flood was a heavy volume of rain which exceeded the capacity of the drainage system. Total damages were estimated to be about US$ 900,000. The Lenggong District Flood Action Committee has long and short-term plans for flood mitigation under the 10th Malaysia Plan. Short-term solutions include the enlargement and dredging of Tasik Raban. The long-term proposals include the upgrading of 10 bridges and the diversion of a stream. Such preventive measures will definitely offer additional protection although flooding is of low risk in the nominated property.

Natural landslides are rare occurrences, not experienced in the vicinity of the core zones since work began in 1987. Prolonged droughts are also practically unheard of. The Lenggong Fire Brigade reports that they only experience small brush fires which they handle easily during hot dry seasons of the year.

There are no historical records of earthquakes in the Lenggong Valley.
Visitor / Tourism Pressures

At present, there is no available data on visitors to the nominated property due to two main reasons: visitors to the site are still very few and there is no entry point to the site to enable recording of visitor statistics. However, there is a CGAR USM archaeology field station located near Kota Tampan site which acts as the point of entry only for researchers and students to carry out archaeological study in the AHLV. Attractions within the nominated property are not actively promoted or packaged as tourism products either by government agencies or private travel businesses. The small number of visitors is generally brought to the site by friends and acquaintances that have knowledge about the caves. The caves are also visited by the locals living nearby. Several of the caves have been used by local and international film production companies as shooting locations. Basic infrastructure such as accessibility by roads, parking areas and boardwalks around several of the caves are in place to actually allow visitors to reach and visit the sites. Vandalism in the form of graffiti written with charcoal or marker pens is apparent on the walls and roofs of some of the caves. Otherwise, the nominated property does not presently experience any other type of visitor or tourism pressures.

However, the nominated property is an important part of the tourism zone of the district of Lenggong. The group of caves, the archaeological sites and especially the Lenggong Archaeological Museum are slowly becoming one of the principal tourism products within this district. Other better known tourism products are the Kampung Beng Homestay Programme at Tasik Raban or Lake Raban and natural waterfalls within recreational forests in Lata Kekabu. Tourism facilities supporting the products include Lenggong Resthouse and Lake Raban Resort (accommodation) as well as efficient road systems (accessibility).

Recorded visitor statistics to Raban Lake, covering visitors registered at Lake Raban Resort, Lenggong Rest House, Homestay Kampung Beng and Tropical Outdoor Pursuit Centre, are shown in Table. 4.1. A considerable portion of these visitors can be expected to have set aside time to visit the Archaeological Museum and perhaps go on to look at the archaeological sites. Directional signs to some of the cave have been erected by the local district council along the highway with this purpose in mind.
Table 4.1: Visitors to Raban Lake (2005 - 2009)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>21,079</td>
</tr>
<tr>
<td>2007</td>
<td>24,770</td>
</tr>
<tr>
<td>2008</td>
<td>31,967</td>
</tr>
<tr>
<td>2009</td>
<td>12,074</td>
</tr>
</tbody>
</table>

Note: Statistics for 2006-2008 is based on visitors registered at Raban Lake Resort, Lenggong Rest House, Homestay Kampung Beng and Tropical Outdoor Pursuit Centre. Statistics for 2009 is based on visitors to Raban Lake Resort and Lenggong Rest House. Source: Lenggong District Council (2010).

The nominated property is expected to experience an increase in visitor arrivals as it is included in several developmental strategic planning at different governmental levels. For example, the District Physical Development Strategy within Perak State Structure Plan (2001-2020) aims for tourism development focusing on the Archaeological Heritage of the Lenggong, Lake Temengor and the Royal Belum State Park. A Biodiversity Educational Centre under the Department of Wildlife and National Parks near Banding Island on the Temengor Dam receives visitors who wish to see a natural rainforest. Table 4.2 shows the visitor statistics for the Centre between 2005 and 2009.
Table 4.2: Visitors to Banding Biodiversity Educational Centre (2005 - 2009)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>398</td>
</tr>
<tr>
<td>2006</td>
<td>1,066</td>
</tr>
<tr>
<td>2007</td>
<td>897</td>
</tr>
<tr>
<td>2008</td>
<td>807</td>
</tr>
<tr>
<td>2009</td>
<td>745</td>
</tr>
</tbody>
</table>

Source: Banding Biodiversity Educational Centre (2010)

Previously, the Hulu Perak Local Plan for 2002 - 2005 contained two tourism development projects within a designated Hulu Lenggong Tourism Trail. The two projects were the Banding Tourism Cluster and the Lenggong Tourism Cluster, which did not completely materialise.

The Banding Tourism Cluster was basically an ecotourism-based project which included Lake Banding and Banding Island, the Royal Belum Forest, Lake Temengor and Baring Summit. An information centre was planned for Banding Island. This cluster would capitalise on the natural environment.

The Lenggong Tourism Cluster was more cultural and recreational and covered the AHLV. Participants were to be offered visits to the limestone caves and archaeological sites, the Archaeological Museum, historical tombs and mosques, accommodations at rural homestays and other attractions.

Only some of the items in each of the two projects have been implemented as new policies and plans overtook older ones.

NCIA has taken the lead now in developing plans for ecotourism at the Royal Belum State Park and the Temengor and Gerik Forest Reserves. Visitor arrivals to the nominated property can be expected to increase with the implementation of these plans as visitors will be able to combine their visit to the AHLV with visits to the Belum-Temengor Tropical Rainforest and vice versa thus enjoying both archaeological and natural heritage.
It is important that development in this area takes place in an appropriate and planned manner for the benefit of all participants and those relying on the area for their livelihood. An increase in the number of visitors would be expected to create the need for a Visitor Information Centre, upgrading of visitor facilities to international standards, and for more qualified specialist guides for the archaeological sites.

A visitor management strategy with the tourism management plan will be one of the steps needed to ensure that the assets of the nominated property are not compromised. This will encompass the improvement of facilities and infrastructure, setting up of controlled tourist routes, branding and marketing.

**Number of Inhabitants**

Estimated human population located within the nominated property based on statistical data obtained from the Lenggong District Council:

**Cluster 1**
Area of core zone: Nil
Buffer zone: 2,513
Total: 2,513
Year: 2002

**Cluster 2**
Area of core zones: Nil
Buffer zone: 4,350
Total: 4,350
Year: 2002
CHAPTER 5

PROTECTION AND MANAGEMENT OF THE PROPERTY

5.A OWNERSHIP

5.B PROTECTIVE DESIGNATION

5.C MEANS OF IMPLEMENTING PROTECTIVE MEASURES

5.D EXISTING PLANS RELATED TO MUNICIPALITY AND REGION IN WHICH THE PROPOSED PROPERTY IS LOCATED

5.E PROPERTY MANAGEMENT PLAN

5.F SOURCES AND LEVEL OF FINANCE

5.G SOURCE OF EXPERTISE AND TRAINING IN CONSERVATION AND MANAGEMENT TECHNIQUES

5.H VISITOR FACILITIES AND STATISTICS

5.I POLICIES AND PROGRAMMES RELATED TO THE PRESENTATION AND PROMOTION OF THE PROPERTY

5.J STAFFING LEVELS
5.a OWNERSHIP

The ownership profile based on land records from the Lenggong District Council for the nominated shown in Table 5.1.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>NUMBER OF LAND LOTS</th>
<th>TOTAL AREA (Hectares)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CLUSTER 1:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bukit Bunuh-Kota Tampan Core Zone</td>
<td>6</td>
<td>281.06</td>
</tr>
<tr>
<td>Buffer Zone</td>
<td>460</td>
<td>827.34</td>
</tr>
<tr>
<td>Total in Cluster 1</td>
<td>466</td>
<td>1,108.40</td>
</tr>
<tr>
<td><strong>CLUSTER 2:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Bukit Jawa Core Zone</td>
<td>7</td>
<td>6.18</td>
</tr>
<tr>
<td>ii. Bukit Kepala Gajah Core Zone</td>
<td>State Land</td>
<td>108.25</td>
</tr>
<tr>
<td>iii. Bukit Gua Harimau Core Zone</td>
<td>State Land</td>
<td>3.15</td>
</tr>
<tr>
<td>Buffer Zone</td>
<td>935</td>
<td>959.43</td>
</tr>
<tr>
<td>Total in Cluster 2</td>
<td>942</td>
<td>1,077.01</td>
</tr>
<tr>
<td><strong>Total in nominated property</strong></td>
<td><strong>1,408</strong></td>
<td><strong>2,185.41</strong></td>
</tr>
</tbody>
</table>

Source: The record of ownership is available at the Lenggong Land and District Office (Annex 8)
**Bukit Bunuh-Kota Tampan Core Zone:** The Bukit Bunuh-Kota Tampan core zone takes up 6 lots of land comprising oil palm smallholding (2 lots), LAM (1 lot) and a statutory body, Majlis Amanah Rakyat (MARA) (3 lots). Excellent co-operation from these owners has been extended to the CGAR USM archaeological team that has worked in the area since 1987. It is expected that such co-operation will continue in the foreseeable future while plans are being considered for land acquisition by the State. In 1995, MARA had intended to build a large vocational training complex on their lots at Kota Tampan adjacent to the excavation sites, KT 1987 and KT 2005. However, in view of the heritage value of these lots, MARA shifted to an alternative site provided by the State government, indicating government co-operation and support for heritage conservation. Thus, this augurs well for the future management of the nominated property.

**Bukit Jawa Core Zone:** This is the smallest core zone that covers 7 lots of land under rubber cultivation and under one individual ownership, which is currently in the process of being acquired.

**Bukit Kepala Gajah and Bukit Gua Harimau Core Zones:** Limestone hills from the foot of the hill upwards remain State land, and under State laws, public ownership also extends up to 10 metres from the foothills. This has been used to delineate the core zones at Bukit Kepala Gajah (BKG) where Perak Man was found in one of its caves and at Bukit Gua Harimau (BGH) where the only evidence for a Bronze Age occupation in Malaysia so far was found in the cave there.

The first meeting between a representative group of owners and community leaders with the Perak State authorities and the Department of National Heritage took place on 27th April 2010. The idea of a World Heritage listing was accepted in principle but reservations were naturally expressed about curbs and limitations that would be imposed on land use in order to preserve the OUV of the nominated property.
5.b PROTECTIVE DESIGNATION

The preservation and conservation of the sites will conform to the common principles of practice that are undertaken and enforced by the various government agencies such as the Department of National Heritage, the Department of Museums (both within Ministry of Information, Communications and Culture), the Department of Town and Country Planning and the various local authorities (both within the Ministry of Housing and Local Government) in the whole of Peninsular Malaysia. Each in their own way with their own set of operating procedures and policies and together in collaboration plays very important roles in maintaining and safeguarding the heritage entities within the country. The following legal instruments in Malaysia will be invoked to preserve and conserve the nomination of the AHLV as World Heritage Site:

Land Acquisition Act (1960) and amendments to date: This is the Act that relates to land acquisition and the assessment of compensation to be made on account of such acquisition, and other matters related thereto.

Local Government Act, 1976 and amendments to date (Annex 4): Generally this Act covers the lowest form of government which is often under the exclusive purview of the State Authority. Local government is enforced by appointed officials (and occasionally elected) who form a local authority council with the power to collect assessment taxes, create laws and rules referred to as by-laws, grant licenses and permits for any trade, provide basic services and amenities such as waste and garbage collection and treatment, and plan and develop the area under its jurisdiction. The nominated property falls within the Lenggong District Council.

Together with certain provisions in the Town & Country Planning Act (vide), this Act empowers local authorities to contribute in maintaining historic buildings or sites and acquire any land with or without buildings for the purpose of protecting the significant context of the site. Part XII Section 101 (C) (iv) of the Act provides local planning authority with the power to contribute to the maintenance of a building or historic site and the power to acquire land for the specific purpose for maintaining a building or historic site. The Act also enables local authorities to raise or receive grants toward establishment and maintenance of public monuments and memorials, art galleries and museums.

Town and Country Planning Act, 1976 (Act 172) and amendments to date (Annex 5): This is the Act for the proper control and regulation of town and country planning, in Peninsular Malaysia and for related purposes. Several amendments provide relevant powers to the local authority to make provisions that will assist in the preservation and protection of the nominated property.
One of these is a section under Part V-A of the Act to provide a Tree Preservation Order that allows a local planning authority to place a preservation order on a tree or a group of them. This recognises that trees can be essential components in an area to be conserved.

Another later (2001) amendment, Section 16B (1), allows the State Director of Town Planning or the local planning authority, on their own or on the direction of the State Planning Committee to prepare a Special Area Plan (SAP) for an appropriate area for conservation purposes. The plan must contain detailed guidelines for implementation and management of the site. Such designated sites can then be gazetted for protection against interventions that would destroy its integrity in respect to its heritage value.

The management plan for this nominated property (Volume II: Draft Property Management Plan) will be the basis for the SAP.

Development control by statute is exercised by local authorities since every development proposal must obtain planning permission before it can be implemented. This ensures that development is in accordance with the specified regulations and guidelines that have been imposed on the site where the intended development is to be carried out.

Section 58 allows unlimited and discretionary authorisation for the State Authority and the National Physical Planning Council to make additional rules to expedite this Act for, among others, protection of ancient monuments, lands, and buildings that have historic or architectural significance.

National Heritage Act, 2005 (replacing the repealed Antiquities Act of 1976)(Annex 6): This is the enabling Act which provides for the statutory conservation and preservation of national heritage, natural heritage, tangible and intangible cultural heritage, underwater cultural heritage, treasure trove and for related matters. The scope of the new Act is decidedly wide and all encompassing. It is a comprehensive legislation casting a broad net over both tangible and intangible, natural and cultural heritage and how it is to be administered and enforced.

The Act is divided into 17 Parts with 126 Sections to include provisions for administration of the Act, the formation of a National Heritage Council, Heritage Fund, National Heritage Register, Designation of Heritage Site, Declaration of Heritage Object, Underwater Cultural Heritage, Declaration and Protection of National Heritage, Treasure Trove, Licensing, Appeal, Enforcement Powers and Offences.
It was tabled to Parliament for approval on the 6<sup>th</sup> December 2005 and became effective as national law on the 1<sup>st</sup> March 2006. This Act, in general, considered all provisions of the Antiquities Act, 1976 and Treasure Trove Act, 1957; therefore these two Acts were repealed on the same date.

**Definition of Heritage:** The scope and definition of heritage as stipulated in the Antiquities Act, 1976 was limited to monuments and heritage sites. This National Heritage Act, 2005 extends the scope and definitions of heritage to include not only tangible but also intangible characteristics so that they now very closely resemble the scope and definitions adopted or recommended by UNESCO and ICOMOS.

**Administration of Heritage:** The 2005 National Heritage Act clarifies the management of heritage in the country and established for the first time a department under the then Ministry of Culture, Arts and Heritage (currently known as the Ministry of Information, Communications and Culture). The Act places high responsibility on its Minister, who is authorised to issue policies, statements or directives with regard to heritage protection and activities. In general, the Act ensures both federal and state authorities are in agreement on any decision made on heritage matters; thus conflict can be avoided or minimised.

To administer the country’s heritage and to carry out the powers and functions of the Act, a Commissioner of Heritage has been appointed. The Commissioner’s numerous functions include, *inter alia*, the designation of sites, registration of objects and underwater cultural heritage; establishment and maintenance of the National Heritage Register and the determination and specification of the categories of heritage to be listed in the Register; establishment and maintenance of the liaison and co-operation with the State Authorities in respect of conservation and preservation of heritage matters; advising and co-ordinating with local planning authority, Council and other bodies and entities at all levels for the purpose of safeguarding, promoting and dealing with any heritage.

**Heritage Fund:** Under the Act, a Heritage Fund (Part V) which is controlled by the Commissioner of Heritage was established for the purposes of conservation and preservation of any heritage area, research, study, publication of materials, and any other expenses. It provides means of acquiring the fund, such as, money from the government, grants from the Consolidated Fund, donations, levies, investments and external loans to name a few. Already in 2006, the Government has allocated RM 35 million (US$ 10 million) in the fund, and about RM 100 million (US$ 29 million) more under the 9<sup>th</sup> Malaysia Plan (2006 to 2010). The highest commitment by the Government to protect and promote the nation’s heritage is thus abundantly clear.
**National Heritage Register:** One of the many strengths of the Act is that it requires the establishment of a National Heritage Register that contains a list of inscribed tangible and intangible, cultural and natural objects and sites that are important to the country. The criteria and procedure for inscription are clearly enunciated in the Act.

The sites and artefacts from the nominated property, listed in the National Heritage Register (Annex 7) are:

1. Kota Tampan was inscribed in the Register in 2009 (Gazette No: awaited)
2. Gua Gunung Runtuh was inscribed in the Register in 2009 (Gazette No: P.U. [B] 494)
3. Bukit Jawa was inscribed in the Register in 2009 (Gazette No: P.U. [B] 149)
4. Perak Man was declared a National Heritage Object in the Register in 2007 (Gazette No: P.U. [B] 235)
5. The first hand axe found embedded in suevite was declared a National Heritage Object in the Register in 2009 (Gazette No: P.U. [A] 399)

Amendments to the National Heritage Act 2005 to protect Malaysian sites which are in the UNESCO World Heritage List have been completed and will be tabled sometime during the 2011 Malaysian Parliamentary sitting.

In conclusion, the Acts mentioned above allow for the preservation and conservation of national heritage effectively, with the involvements of Federal and State governments working in concert.

**5. c MEANS OF IMPLEMENTING PROTECTIVE MEASURES**

Statutory protection is carried out by the enforcement of national laws jointly applied in collaboration between the Lenggong District Council representing the State Government and the Department of National Heritage representing the Federal Government as stated in 5.b.

Currently, site management is carried out by the Lenggong District Council (the local authority) with the co-operation of the Department of National Heritage, and with the occasional assistance of CGAR USM.
The Department of National Heritage has provided directional signs, information panels and extensive length of boardwalk that connects several caves at the Bukit Kepala Gajah core zone, as well as sheds to protect excavation trenches at the Bukit Jawa and Kota Tampan sites. The Department has outsourced basic maintenance (grass cutting, sweeping, cleaning) for all the important sites.

Directional signs to some of the archaeological sites have been erected by the Lenggong District Council on its own initiative and at its own expense (Photo 5.1).

CGAR (USM) who has been awarded research grants by the Department of National Heritage and the Ministry of Higher Education to research the archaeology of the valley, also provides monitoring and conservation expertise. CGAR inspects the sites in the nominated property and reports any problems to the Department of National Heritage.

The LAM acts as an informal visitor centre. The Museum also recommends individuals who can act as guides to the sites on a fee-paying basis.
As there is no on-site manager at the moment to take charge of non-statutory duties, the Department of National Heritage is largely only reactive. This situation will change by the end of 2011 when the proposed Draft Property Management Plan (Volume II) is implemented after approval from all parties concerned.

5.d EXISTING PLANS RELATED TO MUNICIPALITY AND REGION IN WHICH THE PROPOSED PROPERTY IS LOCATED (E.G. REGIONAL OR LOCAL PLAN, CONSERVATION PLAN, TOURISM DEVELOPMENT PLAN)

The Ninth Malaysia Plan (2006-2010)
The Tenth Malaysia Plan (2011-2015)
Northern Corridor Economic Region (NCER) Initiatives (2007-2025)
Perak Spatial Development Strategy

This section summarises the current plans which impact on the Lenggong Valley.

The Ninth Malaysia Plan (2006-2010): The Ninth Malaysia Plan represented the five-year blueprint of the national mission, outlining the policies and key programmes aimed at fulfilling the Mission’s thrusts and objectives for the period of 2006-2010. It also represented the first of three Malaysia Plans that form the National Mission to achieve Vision 2020. As such, the Ninth Malaysia Plan is consistent with the ambition to build a country with an advanced economy which is balanced, honourable, skilled, progressive and far-sighted.

In the Ninth Malaysia Plan, there were two core thrusts that affected the Lenggong District, namely the agricultural and tourism sectors. The government planned to further expand the national agricultural sector by opening up more lands, replanting programmes for rubber and oil palm trees, agricultural infrastructure development, enhancing productivity through new technologies, research and development, and human capital development. The expansion of national agriculture sector bypassed the core zones of the nominated property.
In relation to tourism development, a number of strategic thrusts were put forward. Among them were to focus on sustainable tourism development, and enhancing tourism products and services. The sustainable tourism development policy stressed on preserving and enhancing natural and cultural assets that are susceptible to environmental damages. Local authorities and communities were encouraged to be more actively involved in project preparation, implementation and maintenance to ensure adverse environmental impact is minimised. Based on that principle as well, several sustainable tourism development products were planned including ecotourism, agro-tourism and homestay, and heritage tourism. These strategic thrusts may have direct or indirect impacts on the AHLV’s tourism sector.

The Tenth Malaysia Plan (2011 – 2015) has been formulated with various new approaches towards becoming a high income and high productivity economy, in line with the New Economic Model. The main approach to achieve that will be to adopt strategies based on specialisation, given that strong and sustainable competitiveness is difficult to achieve without specialisation. This Plan will focus on 12 national key economic areas (NKEAs) which have potential to generate high income. The following are the NKEAs:

i. Oil and gas;  
ii. Palm oil and related products;  
iii. Financial services;  
iv. Wholesale and retail;  
v. Tourism;  
vi. Information and communications technology (ICT);  
vii. Education services;  
viii. Electrical and electronic;  
ix. Business services;  
x. Private healthcare;  
xi. Agriculture; and  
{xii. Greater Kuala Lumpur.

Thus, the above key economic areas that are related to Lenggong District will be mainly palm oil sector, agriculture, and tourism industry. Besides the focus on the key economic areas, the Tenth Malaysia Plan is also relied on the existing cluster development initiatives such as the Northern Corridor Economic Region (NCER). The cluster-based development approach that will be adopted in the corridors will exploit the potential and available resources and serve as a catalyst to growth. Cluster development will focus on selected sectors as well as identify key investors, including government-linked companies and the private sector, to lead the development of clusters in the corridors. In addition, connectivity and linkages between the clusters and its suburban and rural hinterland will be improved to ensure direct benefit to these areas.
The Tenth Malaysia Plan is also concerned with the well-being of the country’s environmental condition. The Government will, therefore, promote economic opportunities that create value from conservation. For example, ecotourism can generate income particularly for local communities to encourage the conservation of the country’s flora and fauna. This is evident in the case of Belum Forest (in Hulu Perak District) which is currently being developed and promoted as an ecotourism destination and included in the NCER initiatives and Perak State Structural Plan.

**Northern Corridor Economic Region (NCER):** The Northern Corridor Economic Region development programme is a Government initiative to accelerate economic growth and elevate income levels in the northern region of Peninsular Malaysia – encompassing the states of Perlis, Kedah, Pulau Pinang and the north of Perak. The NCER initiative will span from 2007 to the end of the 12th Malaysia Plan period, i.e. 2025.

There are a number of objectives behind the NCER initiative. Firstly, the programme is part of the Government’s commitment to helping the Region maximise its economic potential and closing the development and income gap between the different regions in Malaysia. Secondly, the Malaysian economy aims to move towards higher value-added and knowledge-based economic activities to drive further increases in per capita income. The NCER has the potential to make Malaysia a regional leader in a number of these sub-sectors.

In the NCER initiatives, Hulu Perak District and Lenggong District are located within the Butterworth-Kulim-Baling-Pengkalan Hulu-Grik Corridor. The Hulu Perak District including Lenggong Sub-district are strategically planned to become the region’s major food production zones. The predominant activity is agriculture, ranging from commercial crops (rubber and oil palm) to fruit orchards, fisheries and animal husbandry. For this purpose, the Ministry of Agriculture has identified 202 hectares of land in Lenggong District as suitable for aquaculture activities. However, the above development initiatives bypass the nominated property.
Besides agricultural-based industries, Hulu Perak is also programmed to be a nature and adventure holiday destination which is centered on Gerik (the administrative centre of Hulu Perak). Amongst the planned initiatives are:

i. Enhancing connectivity to the major highways e.g. North-South Expressway.
ii. Courting major investors to set up a wildlife conservation centre within the Royal Belum Forest as an anchor tourist attraction.
iii. Establishing forest adventure activities that meet the standards required to attract foreign tourists e.g. survival camps, 4WD races, dirt biking and jungle paintballing.
iv. Establishing selected river activities.
v. Establishing a number of smaller niche attractions e.g. farm tours and treetop walks in the Royal Belum Forest.

Perak Spatial Development Strategy: The Perak Spatial Development Strategy is aimed at achieving a balanced and integrated development agenda. The state has been divided into four development corridors. The nominated property falls within the North Eastern Corridor. The strategy for this corridor outlines the need to sustain its bio-diversity, wildlife and natural heritage. This will in part involve upgrading and expansion of appropriate infrastructure. The nominated property of AHLV was not included in this spatial development strategy.

The Perak Spatial Development Strategy is interpreted in the formulation of the Perak Structure Plan which in turn determines the District of Hulu Perak Local Plan. The Perak Structure Plan (2001-2020) and the Hulu Perak Local Plan (2002-2015) which include the Lenggong Sub-district have been completed and gazetted. The Special Area Plan for the nominated property in the Lenggong Sub-district will be prepared with special focus on the preservation and conservation of the nominated property once it is inscribed on the World Heritage List.

Perak Structure Plan (2001-2020): The development policy of the Perak Structure Plan is based on a combination of existing resources and future potentials that lie within the region’s internal strengths, geographical factors, road infrastructures, and existing development corridors.
For the Hulu Perak District where Lenggong Sub-district is situated, the focus within the structure plan revolves around the development of Belum Valley region which covers Gerik township that will become the centre of growth for the State of Perak sub-region. On the other hand, Hulu Perak district that consists of natural forest reserves, highland areas, rivers and lake reserves will be promoted as the research, ecotourism, and forest biotechnology hub. In addition, a number of potential tourism assets within this district including the Royal Belum Forest, a free-trade zone in Pengkalan Hulu, a transportation terminal, centres for education and research, agricultural activities (fruit and herb orchards), fisheries, and livestock farms have been identified.

In this plan there is no mention of heritage development for the Lenggong Valley. However, when the Special Area Plan (SAP) for the nominated property is formulated, modifications can be made to this Perak Structure Plan, to include heritage protection and promotion.

District of Hulu Perak Local Plan (2002 – 2015): The District of Hulu Perak Local Plan translate the development policies formulated in the above Perak Spatial Development Strategy and Perak Structure Plan into the development of Hulu Perak at the local level. It provides a guideline for the local governments in the planning and implementation of development activities in their respective areas. This Local Plan briefly touches upon the archaeological discoveries in the nominated property. The Local Plan has not been reviewed in the light of the very important archaeological discoveries made since then. The proposed Special Area Plan will override the current Local Plan for the nominated property.

The nominated property of the AHLV will be put under the jurisdiction of Lenggong District Council; this will facilitate the implementation of the Management Plan.

5.e PROPERTY MANAGEMENT PLAN OR OTHER MANAGEMENT PLAN

The detailed and integrated plan for the protective management of the nominated AHLV is included as Volume II: Draft Property Management Plan for the Archaeological Heritage of the Lenggong Valley. A brief review of the contents is presented here. There is a clear need for innovative management of AHLV. The objective of the Draft Property Management Plan for the AHLV is therefore to present a comprehensive long-term strategy and phased implementation guidelines to preserve, manage and promote the Outstanding Universal Value (OUV) of the AHLV for present and future generations.
Specific objectives of this Draft Property Management Plan are:

i. To develop sustainable site management strategies in order to preserve and protect the OUV of the AHLV.

ii. To develop site maintenance and monitoring strategies in order to protect and conserve excavated and potential sites as well as their archaeological finds from natural harm and from human activities.

iii. To develop risk management strategies in order to:
    a. Preserve the OUV of the AHLV.
    b. Safeguard important potential sites so as to allow future research.
    c. Prevent destruction of potential archaeological sites in the property.

iv. To develop conservation strategies in order to:
    a. Conserve and protect the special character, ambience and tranquility of the property.
    b. Prevent destruction of potential archaeological sites.

v. To develop research policies and strategies in order to:
    a. Enhance and strengthen the OUV of AHLV as a World Heritage Site.
    b. Safeguard important potential sites so as to allow future research.
    c. Reconstruct the archaeological past of the AHLV.

vi. To develop tourism and visitor management strategies in order to:
    a. Promote educational and learning opportunities.
    b. Integrate, coordinate and optimize the sustainable use of resources.
    c. Provide for ongoing stakeholder participation and collaboration.
    d. Develop the property as a tourist attraction of international, national and local significance.
    e. Provide, operate and maintain appropriate infrastructure services to satisfy visitor needs as well as to protect the site.
vii. To develop community awareness and outreach programmes in order to:
   a. Communicate vital information about the property to the public.
   b. Involve the local communities in the protection of the property.

There are well-established statutory processes for the management of the site by Federal and State authorities.

The Draft Property Management Plan (Volume II) pays due respect to international conventions and recommendations such as the 1972 UNESCO Convention for the Preservation of the World Culture and Natural Heritage, the relevant Recommendations of the UNESCO General Assembly, the 1990 ICOMOS International Charter for the Protection and Management of the Archaeological Heritage, and the 2000 ASEAN Declaration on Cultural Heritage.

The Draft Management Property Plan is to be used as a manual to guide site managers and local government administrators on how to preserve, use, conserve, fund, manage, and protect the archaeological landscape and its essential values which make the AHLV of local, national and international significance. It contains the strategic options and the official guidelines for the conservation of the OUV found at the core and buffer zones for the nominated property, to be observed by all stakeholders: public authorities (Federal, State and District), private sector and the local community. The purpose of these options and guidelines is to ensure the effective protection of the AHLV for present and future generations.

At the present time, the Department of National Heritage and the Lenggong District Council are responsible for the maintenance and management of the AHLV.

A Heritage Unit (HU) within the Lenggong District Council was formed at the end of 2010 in order to ensure the protection of the AHLV during this nomination process. Presently, the HU under the Lenggong District Council is structured as shown in Chart 5.1.
Upon inscription, the HU will be given additional responsibility, upgraded and expanded to become the World Heritage Office (WHO) for AHLV. With the WHO replacing HU, the new coordination structure of the nominated property shall follow the scheme shown as Chart 5.2:
The Heritage Steering Committee (HSC) will be the highest level authority to monitor the implementation of the Draft Property Management Plan in the State of Perak. This committee will also act as a forum for the discussion of issues concerning the management of the property. The HSC will be chaired by the Chief Minister of the State of Perak to give official force to this Draft Property Management Plan. The area covered by this Draft Property Management Plan is the AHLV World Heritage Property. The HSC will have representation from Federal, State and Local governments, as well as independent members including archaeologists and heritage experts.

The HSC will undertake the following roles:

- To safeguard the property within the framework of sustainable development.
- To liaise with the Department of National Heritage to ensure that the heritage values for which the property has been inscribed are conserved in all authenticity and integrity, according to the international standards outlined in the World Heritage Convention and its Operational Guidelines.
- To monitor the condition of the property and agree on appropriate action to deal with any threat to its well-being and in the process, to develop and agree on such further principles and guidance as might be needed for the protection of the OUV of the property.
- To monitor statutory development plans and government guidance and encourage the appropriate authorities to keep under review the statutory and other designations, in order to ensure the continued protection of the property and its setting, and to propose, as necessary, legal regulations, policy documents and codes of practice to give effect to the Plan.
- To monitor the implementation of the WHO, the Management Plan and the setting up of a monitoring programme and the updating of the Plan periodically.
- To decide on conservation programmes, proposals for display, interpretation and visitor facilities, proposals for training, education and awareness raising programmes,
- To be responsible for fundraising.
- To approve all budgets, including those for major conservation, restoration and preservation projects, and other programmes and projects undertaken by the General Manager.
- To adjudicate on disputes arising from the implementation of the Plan.
- To receive reports from the WHO on its activities, budget and performance.
A Heritage Technical and Scientific Committee (HTSC) will be set up to oversee and advise the WHO on the proper implementation of the work plan according to the Draft Property Management Plan. The HTSC shall be chaired by the District Officer of Hulu Perak and will comprise representatives from the Department of National Heritage, Lenggong District and Land Office, Lenggong District Council, CGAR, as well as other agencies that are relevant.

The primary function of WHO is to manage and liaise with the local authorities on all matters pertaining to the property which are outside the purview of the current statutory system including liaison with State, Federal and International organizations and agencies for betterment of the property. Issues that arise could include matters pertaining to security, research, impact assessment, site interpretation, public awareness and community liaison.

The WHO is headed by a General Manager who must be knowledgeable in matters related to the conservation and management of the archaeological sites. The General Manager of WHO will be appointed from a state government agency. He or she will be supported by the current HU staff. Some functions of WHO will be outsourced or delegated to relevant government agencies and private contractors. For example, conservation and research will be assisted by the Department of National Heritage and archaeologists from CGAR. Local governments such as District Council will play crucial roles in the maintenance and protection of the property. It is preferable for the World Heritage Office to be located in Cluster 1.

The WHO will ensure unified management of the implementation of the Management Plan within the property. Its main functions are:

a. To manage and deliver agreed-upon programmes of work.
b. To advise the Heritage Steering Committee (HSC), Heritage Technical and Scientific Committee (HTSC) and any other appropriate policy-making and decision-making bodies on policy and other issues arising during the implementation of the Plan.
c. To prepare Periodic Reporting for World Heritage Centre (WHC).
d. To prepare six-monthly reports to the State Party (Department of National Heritage).
e. To liaise with the State Party (Department of National Heritage) on issues and problems pertaining to the management of the property.
f. To submit development plans and HIA to the State Party (Department of National Heritage).
WHO will ascertain all communication with WHC goes through the State Party (Department of National Heritage). The operational functions of the WHO in the property are:

a. To ensure heritage conservation.
b. To encourage and facilitate research.
c. To educate future generations.
d. To develop sustainable archaeological tourism and to manage visitor facilities and visitor services.
e. To encourage community involvement in positive actions to conserve their archaeological heritage.
f. To develop proposals and funding packages for major projects.
g. To execute agreed-upon and funded projects.
h. To supervise monitoring of the property.
i. To prepare budgets, to manage and monitor expenditures within agreed budgets.
j. To prepare and present reports on the implementation of the Management Plan.
k. To function as the Secretariat of the HSC and HTSC, and to attend meetings related to this function and others when matters relating to the implementation of this Management Plan are under consideration.

5.f SOURCES AND LEVELS OF FINANCE

The operational funds shall be the responsibility of the State of Perak, while the development funds may come from both federal and state governments. The operational budget is to ensure the administrative functions. The development budget is to implement the objectives of the projects and programmes. Additional funds may be sought from non-governmental sources.

The development budget is proposed and approved for a 5-year period with annual allocation made based on the 5-year approved ceiling i.e. through the State’s Five Year Plan. It is the responsibility of the General Manager of the WHO to prepare the work plan and budget, and report them annually to the State of Perak and any other funding agency on the implementation of the work plan.

Fees collected from visitors and services by WHO will be channelled into a special fund for the conservation and outreach programmes at the AHLV.
5.g SOURCES OF EXPERTISE AND TRAINING IN CONSERVATION AND MANAGEMENT TECHNIQUES

The Lenggong District Council (LDC) and the Department of National Heritage manage AHLV in the interim until the administrative framework for a WHO as set out in the Draft Property Management Plan (Volume II) comes into being. The interim measures include the Department of National Heritage taking responsibility for site maintenance, preparation and monitoring while the LDC uses its statutory powers to protect the sites. The World Heritage Office (WHO) envisioned in the Draft Property Management Plan will have professional archaeologists and other experts to take full charge of all aspects of management for the site. Until this management body is incorporated, the Department of National Heritage has provided a grant to the CGAR USM to take charge of further research and to provide advice when experts in research, conservation and management are requested by either Department of National Heritage or LDC.

The Lenggong Archaeological Museum (LAM) comes under the Department of Museums Malaysia, also in the Ministry of Information, Communications and Culture. It is the public showcase for the Archaeological Heritage of the Lenggong Valley and is located on the Bukit Bunuh-Kota Tampan Core Zone.

Both the Department of National Heritage and the LDC are thus assured of technical, training and conservation support from two independent bodies, USM and LAM, directly involved in current research and conservation at Lenggong Valley.

The University of Science Malaysia Archaeological Field Station at Lenggong

The USM Archaeological Field Station (AFS) is a facility built on a 2-acre plot (Lot PT526) of land provided by the state government in the buffer zone of Cluster 1 and near to the Kota Tampan sites. The facility was completed in 2004 and has laboratory space, dormitories & bedrooms for staff and students, a small office, kitchen, toilets, and seminar room which together occupy approximately 615.4 m². The Station is managed and operated by the CGAR (USM).

The Station provides continuing research under the auspices of the Department of National Heritage on the archaeology of the Lenggong Valley. It is primarily used for the training of students from USM and staff from the Department of Museums Malaysia and the Department of National Heritage. It will become the portal for academic research and training while advising and assisting the HU or WHO in their efforts to protect, preserve and conserve the archaeological integrity of the valley. The Station will continue to host visiting scientists who wish to participate in research in the nominated property by providing facilities and opportunities.
The Station is staffed by a rotating team from USM and a permanent on-site security team. The Station remains within the responsibilities of the Director of CGAR. USM itself will be providing off-site expertise and training in conservation and management techniques through CGAR and its other professional and academic centres. The principal officers at CGAR are listed in Table 5.2.

Table 5.2: Archaeologists at the Centre for Global Archaeological Research (CGAR), University Science of Malaysia who are currently involved in the management, research and development at The Archaeological Heritage of the Lenggong Valley.

<table>
<thead>
<tr>
<th>Position</th>
<th>Person</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>Dr. Mohd. Mokhtar Saidin</td>
<td>22 years</td>
</tr>
<tr>
<td>Deputy Director</td>
<td>Dr. Stephen Chia Ming Soon</td>
<td>21 years</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Mr. Mohd. Jeffrey Abdullah</td>
<td>13 years</td>
</tr>
<tr>
<td>Lecturer</td>
<td>Mr. Hamid Mohd. Isa</td>
<td>10 years</td>
</tr>
<tr>
<td>Science Officer</td>
<td>Mr. Abdul Mutalib bin Abdullah</td>
<td>3 years</td>
</tr>
<tr>
<td>Research Officer</td>
<td>Mr. Ahmad Fadly bin Jusoh</td>
<td>1 year</td>
</tr>
<tr>
<td>Academic Staff Training Scheme (PhD Candidates)</td>
<td>Mr. Eng Ken Khong Ms. Goh Hsiao Mei Mr. Shaiful Idzwan Shahidan Mr. Velat Bujeng</td>
<td>2 years 5 years 10 years 10 years</td>
</tr>
</tbody>
</table>

Table 5.3: List of Courses or workshops offered at or attended by staff from CGAR since 2004
<table>
<thead>
<tr>
<th>Date</th>
<th>Training</th>
<th>Trainers and experts from</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Workshop on History of Ceramics: Earthenware, Stoneware and Porcelain</td>
<td>Dr. Stephen Chia, Centre for Archaeological Research Malaysia (CGAR)</td>
</tr>
<tr>
<td>4/6/2006-30/6/2006</td>
<td>Introduction to Archaeology (KUASA I) to Department of National Heritage staff</td>
<td>Senior staff, CGAR</td>
</tr>
<tr>
<td>12/10/2008-24/10/2008</td>
<td>Introduction to Archaeology (KUASA II)</td>
<td>Senior staff, Centre for Global Archeological Research (CGAR) Malaysia</td>
</tr>
<tr>
<td>21/5/2009-24/5/2009</td>
<td>Workshop on XRF analysis and pollen analysis</td>
<td>Mr. Abdul Hamid Othman and Mr. Alias Noon from Department of Geology National University of Malaysia</td>
</tr>
<tr>
<td>10/8/2009-13/8/2009</td>
<td>Workshop on GIS</td>
<td>Prof. Ruslan Rainis School of Humanities, USM</td>
</tr>
<tr>
<td>19/4/2010-10/5/2010</td>
<td>Attachment programme for archaeological excavation at the ancient iron smelting site of Ban Sai Tho 7 in Burirum, Thailand.</td>
<td>Supervised by Faculty of Archaeology, Silpakorn University, Thailand</td>
</tr>
</tbody>
</table>
Undergraduate courses from CGAR USM will be made available for the training of specialist guides for the AHLV and for the staff of the HU or WHO (Table 5.4).

Table 5.4: Regular undergraduate courses that can be converted into training modules for specialist guides and heritage site management staff

<table>
<thead>
<tr>
<th>Date</th>
<th>Regular undergraduate courses</th>
<th>Trainers and experts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yearly</td>
<td>Introduction to Archaeology</td>
<td>Dr. Mohd. Mokhtar Saidin</td>
</tr>
<tr>
<td></td>
<td>Archaeology of Southeast Asia</td>
<td>Dr. Stephen Chia Ming Soon</td>
</tr>
<tr>
<td></td>
<td>Science in Archaeology</td>
<td>Mr. Mohd. Jeffrey Abdullah</td>
</tr>
<tr>
<td></td>
<td>Archaeological Excavation</td>
<td>Mr. Hamid Mohd. Isa</td>
</tr>
<tr>
<td></td>
<td>The Ascent of Man and Civilization</td>
<td>Mr. Hamid Mohd. Isa</td>
</tr>
</tbody>
</table>

The Lenggong Archaeological Museum (LAM)

The LAM is a museum dedicated to display the results of the archaeological research carried out in the valley since 1987. It is a two-storey building erected on 8.16 acres of land donated by the Perak state government. It is the first and only museum now in Malaysia specialising in prehistoric archaeology. The museum will when complete consist of three galleries. Two – the Kota Tampan Gallery and the Lenggong Gallery - were completed in 2001 and officially opened to the public in 2003. The museum has an administration office, an audiovisual room, a research room, a conservation laboratory and a cafeteria. Currently, the museum has one Assistant Curator, 2 Museum Assistant and 1 support staff.

The current exhibition includes a replica of the Perak Man, prehistoric artefacts excavated from the Lenggong Valley and items related to Orang Asli (Malaysian Aborigines). In addition, through its organised programmes and activities that include forums, workshops and video shows, the museum provides education and information on the prehistoric period of the Valley to the public. The museum also facilitates group tours to the archaeological sites led by independent guides.

Currently, the administration of the LAM falls under the purview of the Department of Museums Malaysia of the Ministry of Information, Communications and Culture.
LAM was established as a vehicle to exhibit the important results from archaeological research in the Lenggong Valley. Since the establishment of the National Heritage Act 2005, archaeological research, preservation and conservation of archaeological sites and monuments, the current maintenance, and the development of the archaeological sites in the Lenggong Valley have become the responsibility of the Department of National Heritage. The Department of Museums Malaysia now no longer plays a role in archaeological research and its functions also do not include the protection and preservation of sites. Therefore, LAM should be placed under the Department of National Heritage so that it can be logically integrated into the overall plan of AHLV. The LAM is also strategically located in Core Zone 1 near the Kota Tampan site and therefore a suitable area to be developed as a Visitor Information Centre cum WHO. Initial discussions regarding this issue have taken place in order to resolve these conflicting roles.
5.h VISITOR FACILITIES AND STATISTICS

Presently basic low key visitor facilities exist in and around the nominated property. The visitor facilities and statistics are listed in Table 5.5 and Table 5.6 below:

Table 5.5: Visitor facilities and statistics

<table>
<thead>
<tr>
<th>Attractions</th>
<th>Visitor infrastructure</th>
<th>Visitor numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehistoric Archaeological Heritage Sites</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Cluster 1: Bukit Bunuh – Kota Tampan</td>
<td>• Access: dirt road to Bukit Bunuh archaeological sites</td>
<td>No records</td>
</tr>
<tr>
<td>• Cluster 2: Bukit Kepala Gajah (Gua Gunung Runtuh, Gua Teluk Kelawar, Gua Kajang)</td>
<td>• Boardwalk connects most of the excavated caves at Bukit Kepala Gajah where each stopover. A number of other facilities include signages, shelters, toilets and car park were built for visitors.</td>
<td>No records</td>
</tr>
<tr>
<td>Bukit Jawa</td>
<td>• A shed protects one of the trenches available for public viewing</td>
<td>No records</td>
</tr>
<tr>
<td>• Bukit Gua Harimau (Gua Harimau)</td>
<td>No built infrastructure</td>
<td>No records</td>
</tr>
</tbody>
</table>
### Attractions

<table>
<thead>
<tr>
<th>Attractions</th>
<th>Visitor infrastructure</th>
<th>Visitor numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lata Kekabu Recreation Park (waterfall)</td>
<td>Multi-purposes hall, interpretative signage, camping sites, shelters, car park, prayers room, and toilets.</td>
<td>2,388 groups and individuals (2008) 2,413 groups and individuals (2009)</td>
</tr>
<tr>
<td>Tasik Raban (artificial lake created by dam)</td>
<td>Lake resort, boat jetty, fishing platforms, food outlets, children playground, prayers room, car park, and toilets.</td>
<td>No records</td>
</tr>
<tr>
<td>Homestay Kampung Beng</td>
<td>There are currently about 50 families participating in this homestay programme.</td>
<td>1,031 participants (2009)</td>
</tr>
<tr>
<td>Fisheries Technology Development Centre (Perak State Fisheries Office)</td>
<td>The Centre is to train local communities about fisheries-based industry. Lenggong is famous for their salted fish (or locally known as <em>ikan pekasam</em>).</td>
<td>No records</td>
</tr>
<tr>
<td>Lenggong Tourism Information Centre (under Lenggong District Council)</td>
<td>Located at the rest area near the Raja Nazrin Bridge.</td>
<td>No records</td>
</tr>
</tbody>
</table>
Tourism in the nominated property is still in its incipient stage. Visitor statistics for the archaeological sites (e.g. caves) within the core areas are not available. Nevertheless, statistics from the Lenggong Archaeological Museum can be used as an indicator of intent since many visitors to the Museum inquire about visiting the caves and open-air sites. The numbers of visitors specifically to the museum between 2007 and 2009 are given in Table 5.6.

Table 5.6: Museum visitor statistics

<table>
<thead>
<tr>
<th>Month</th>
<th>Domestic visitors</th>
<th>No. of visiting groups (e.g. government offices, private companies, higher learning institutions, schools etc.)</th>
<th>Foreign visitors</th>
<th>Total visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>3026</td>
<td>120</td>
<td>14</td>
<td>3160</td>
</tr>
<tr>
<td>February</td>
<td>3179</td>
<td>112</td>
<td>12</td>
<td>3303</td>
</tr>
<tr>
<td>March</td>
<td>3082</td>
<td>505</td>
<td>10</td>
<td>3597</td>
</tr>
<tr>
<td>April</td>
<td>4797</td>
<td>474</td>
<td>15</td>
<td>5286</td>
</tr>
<tr>
<td>May</td>
<td>5974</td>
<td>500</td>
<td>18</td>
<td>6492</td>
</tr>
<tr>
<td>June</td>
<td>6078</td>
<td>542</td>
<td>44</td>
<td>6664</td>
</tr>
<tr>
<td>July</td>
<td>7026</td>
<td>951</td>
<td>10</td>
<td>7987</td>
</tr>
<tr>
<td>August</td>
<td>7531</td>
<td>800</td>
<td>11</td>
<td>8342</td>
</tr>
<tr>
<td>September</td>
<td>7803</td>
<td>1219</td>
<td>13</td>
<td>9035</td>
</tr>
<tr>
<td>October</td>
<td>7936</td>
<td>1271</td>
<td>10</td>
<td>9217</td>
</tr>
<tr>
<td>November</td>
<td>7754</td>
<td>1561</td>
<td>10</td>
<td>9325</td>
</tr>
<tr>
<td>December</td>
<td>7802</td>
<td>1371</td>
<td>11</td>
<td>9184</td>
</tr>
<tr>
<td>Sub-total</td>
<td>71,998</td>
<td>9,426</td>
<td>178</td>
<td>81,592</td>
</tr>
</tbody>
</table>

Year: 2007
<table>
<thead>
<tr>
<th>Month</th>
<th>Domestic visitors</th>
<th>No. of visiting groups (e.g. government offices, private companies, higher learning institutions, schools etc.)</th>
<th>Foreign visitors</th>
<th>Total visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>2046</td>
<td>110</td>
<td>10</td>
<td>2166</td>
</tr>
<tr>
<td>February</td>
<td>3087</td>
<td>466</td>
<td>10</td>
<td>3563</td>
</tr>
<tr>
<td>March</td>
<td>3265</td>
<td>521</td>
<td>13</td>
<td>3799</td>
</tr>
<tr>
<td>April</td>
<td>4015</td>
<td>600</td>
<td>11</td>
<td>4626</td>
</tr>
<tr>
<td>May</td>
<td>4182</td>
<td>635</td>
<td>10</td>
<td>4827</td>
</tr>
<tr>
<td>June</td>
<td>3906</td>
<td>500</td>
<td>10</td>
<td>4416</td>
</tr>
<tr>
<td>July</td>
<td>2378</td>
<td>639</td>
<td>15</td>
<td>3032</td>
</tr>
<tr>
<td>August</td>
<td>2182</td>
<td>2242</td>
<td>16</td>
<td>4440</td>
</tr>
<tr>
<td>September</td>
<td>931</td>
<td>91</td>
<td>9</td>
<td>1031</td>
</tr>
<tr>
<td>October</td>
<td>1261</td>
<td>993</td>
<td>13</td>
<td>2267</td>
</tr>
<tr>
<td>November</td>
<td>2323</td>
<td>1021</td>
<td>28</td>
<td>3372</td>
</tr>
<tr>
<td>December</td>
<td>3085</td>
<td>509</td>
<td>13</td>
<td>3607</td>
</tr>
<tr>
<td>Sub-total</td>
<td>32,661</td>
<td>8327</td>
<td>158</td>
<td>41,146</td>
</tr>
</tbody>
</table>

Year: 2008
Visitors wishing to stay overnight in the vicinity are assured of accommodation in the facilities listed in Table 5.7. The Table includes the number of recorded guests at these facilities over a 3-year period (2008-2010).

**Table 5.7: Accommodation facilities**

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Facilities</th>
<th>Number of guests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasik Raban Resort</td>
<td>• This facility offers 12 rooms with 28 beds.</td>
<td>4,163 visitors (2008)</td>
</tr>
<tr>
<td></td>
<td>• Meeting facilities</td>
<td>4,332 visitors (2009)</td>
</tr>
<tr>
<td></td>
<td>• Boat jetty</td>
<td>1,361 (until Feb 2010)</td>
</tr>
<tr>
<td>Lenggong Rest House</td>
<td>• This facility offers 23 rooms with 46 beds.</td>
<td>7,630 visitors (2008)</td>
</tr>
<tr>
<td></td>
<td>• Meeting facilities</td>
<td>7,742 visitors (2009)</td>
</tr>
<tr>
<td></td>
<td>• Cafeteria</td>
<td>1,309 (up to Feb 2010)</td>
</tr>
<tr>
<td></td>
<td>• Karaoke room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Viewing Tower</td>
<td></td>
</tr>
<tr>
<td>Homestay Kampung Beng</td>
<td>There are currently about 50 families participating in this homestay programme.</td>
<td>1,031 (2009)</td>
</tr>
</tbody>
</table>
5.i POLICIES AND PROGRAMMES RELATED TO PRESENTATION AND PROMOTION OF THE PROPERTY, AND ALSO TOURISM MANAGEMENT PLAN

Presently, very few policies and programmes related to presentation and promotion of the AHLV is in place. Only strategies for the development of the tourism in Lenggong district in general have been initiated as discussed in the District of Hulu Perak Local Plan. These include the establishment of the Lenggong Tourism Community Council which consists of various governmental agencies and private businesses that are related to tourism. The council acts as the coordinator for tourism products and assets in the area.

Another strategy which was initiated by the Lenggong District Council is the upgrade of its Tourism Unit with the appointment of a full-time officer who shall be responsible for promotion of tourism. This move is hoped to improve awareness of the travelling public of what Lenggong has to offer and eventually to influence their decisions to visit Lenggong.

The proposed strategies for tourism management listed in the Draft Property Management Plan that will direct attention to and target AHLV are as follows:

a. Development of interesting archaeological and educational packages to attract foreign and local visitors. Recruit and train local people to be licensed heritage tour guide.

b. Development of proper marketing and promotion programme by identifying the niche market.

c. Collaboration with other attractions, government agencies, and private companies to develop and promote tourism in this area.

d. Establishment of visitor records.

e. Provision of mechanism for local community participation via decision-making power (e.g. establishment of local heritage community) and economic activities (e.g. tour guide, local cottage industry, supporting services).
The implementation of visitor management strategy targeting AHLV will be as follows:

Visitor flow management:

a. A policy will be developed whereby all visitors must enter through a common point of entry where they can select from a fixed suite of tour options. The appropriate tour options will be developed in line with the facilities available:

- One day visit: include the museum, guided tours of all sites and lunch at Kampung Luat (approximately 6 hours).

- Short visit: include the museum plus both Kota Tampan sites, KT 1987 and KT 2005, (approximately 2 hours).

b. All visits will begin from the LAM, where visitors will need to purchase their tickets at the ticket counter. Alternatively, they can pre-pay their tickets through designated travel agencies (or online).

c. The entrance is separated from the exit. There will be a waiting area for visitors next to the ticket counter.

d. Visitors will go through checks to ensure that no potentially harmful or foreign objects are brought into the site.

Visitor impact management:

The following activities or objectives will be included into the tour process:

a. Explanation about visitors’ code of conduct and their role in conservation and preservation.

b. Involvement of visitors in the protection process by being shown examples of specific issues in degradation during the tour.

c. Attention directed to signages and interpretation boards that reinforce awareness of and participation in preservation measures.
5.j. STAFFING LEVELS (PROFESSIONAL, TECHNICAL, MAINTENANCE)

Currently until inscription, the Heritage Unit of the Lenggong District Council assumes all statutory and non-statutory responsibilities for the care and protection of AHLV in collaboration with the Department of National Heritage. Existing staff of the Lenggong District Council share this responsibility (refer to Chart 5.1).

Upon inscription, the functions of the HU will be taken over by the World Heritage Office which shall be managed by a General Manager. Staffing level for the rest of the WHO will be determined later. Professional and technical functions may be outsourced to collaborating institutions or agencies such as the Department of National Heritage, Lenggong District Council, CGAR and the Public Work Department.
CHAPTER 6

MONITORING

6.A  KEY INDICATORS FOR MEASURING STATE OF CONSERVATION

6.B  ADMINISTRATIVE ARRANGEMENTS FOR MONITORING PROPERTY

6.C  RESULTS OF PREVIOUS REPORTING EXERCISES
6.a KEY INDICATORS FOR MEASURING STATE OF CONSERVATION

In archaeological sites, it is obvious that the preservation of the ground is of utmost importance. Both Man and Nature can erase and destroy historical evidence. Generally we have little control over disturbances caused by nature for instance through erosion, geological changes, climate and fluvial processes over time. However, we can control human interference into the archaeological records that were safely stored in the ground over a long period of time.

Any digging into the overburden by changes in land use and development such as new road cuttings, and agricultural activities such as replanting, quarrying and guano collecting will disturb the integrity of the site. Such disturbances to these deposits will diminish the value of the site, causing immeasurable loss. This will be further discussed in the Draft Property Management Plan (Volume II).

Besides ground conservation of the open-air and cave sites, there are also other aspects to be conserved and protected. Conservation of artefacts, landscape, site access, visitor control, carrying capacity, capacity building, research and awareness are all important in site conservation.
Table 6.1 below lists out the key indicators for measuring the state of conservation at the Archaeological Heritage of the Lenggong Valley. It is by no means exhaustive but is indicative of the range of factors to be considered in measuring the state of conservation (Volume II: Draft Property Management Plan of the AHLV).

**Table 6.1: Key indicators for use as measures of the state of conservation of the archaeological sites in the nominated property.**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Disturbances to the mapped open-air and cave sites (such as disturbances to the cave floors, graffiti and vandalism).</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>2. Cases of site deterioration such as deforestation, loss of ground cover and the approximate area of damage.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>3. Cases of disturbances and intrusions attributed to natural processes.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>4. Number of bird species present in and around the property as a measure of its environmental health.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>5. Number of visitors to the open-air and cave sites (increased or decreased numbers).</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>6. Number of marked trees felled.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>7. Number of infrastructure added (sheds, viewing platforms, etc.) and repaired.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>8. Changes to cave floor integrity due to reasons such as unauthorized excavation and uncleared trash.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>9. Number of stones and fragments missing from their recorded positions or whose condition had deteriorated among surface elements in Bukit Bunuh.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>Conservation of artefact</td>
<td>Periodicity</td>
<td>Responsibility</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------------------------------------</td>
<td>-------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td><strong>Indicator</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Number of artefacts removed for safeguarding, research or display to LAM, CGAR, the National Museum or others.</td>
<td>Six monthly</td>
<td>WHO &amp; Department of National Heritage</td>
</tr>
<tr>
<td>2. Number of artefacts prepared for display.</td>
<td>Six monthly</td>
<td>WHO &amp; Department of National Heritage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development Control</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Number of development approved within the nominated property.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>2. Number of development projects started within the nominated property.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>3. Heritage Impact Assessment orders issued for developments that will impact the OUV.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>4. Number of projects requiring HIA started.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
</tbody>
</table>
### Development Control

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. An annual visual inspection of the site by a soil consultant or civil engineer should be carried out to identify areas where erosion may be a problem. Erosion is currently not a significant problem because vegetation cover is good but this can change.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
</tbody>
</table>

### Research and outreach

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excavation licenses given out by the Department of National Heritage.</td>
<td>Annually</td>
<td>The Department of National Heritage</td>
</tr>
<tr>
<td>2. Number of academic papers and publications on Lenggong Valley archaeology.</td>
<td>Annually</td>
<td>CGAR</td>
</tr>
<tr>
<td>3. Number of interviews given to journalists and number of articles published in the popular media.</td>
<td>Annually</td>
<td>WHO &amp; Department of National Heritage</td>
</tr>
</tbody>
</table>

### Site Access/Visitor impact

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Signs of visitor pressure on footpaths and/or walkways such as excessive erosion, destruction of surrounding ecology and aesthetic value, that may indicate that the conservation of the area is being threatened.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>2. Visitor satisfaction levels and the overall visitor experience will be monitored through visitor surveys.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
</tbody>
</table>
### Site Access / Visitor impact

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Visitors’ contributions to the local economy.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>4. Increased in length of boardwalks at caves sites.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>5. Number of projects to enhance safety and security for visitors.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>6. Number of new visitor facilities e.g. rest areas, toilets.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
</tbody>
</table>

### Overall Conservation Efforts

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tourism impacts on the OUV.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>2. Amount of management budgets.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>3. Number of full-time positions unfilled.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>4. Number of consultants for period exceeding 3 months assisting in conservation and management.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>5. Existence of the capacity-building programmes.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>6. Number of training carried out or received on conservation.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
</tbody>
</table>
The WHO will review the indicators and their management implications. Based on this analysis, a work plan will be drawn up by the WHO and submitted to HSC and HTSC for the appropriate action to address the issues. The WHO will review and keep all records (or copies of records) pertaining to key indicators and their follow-up actions. While in practice, on-site monitoring takes into account all of the Management Plan’s strategic objectives simultaneously, the management responses need to meet the seven specific areas of work which are stated in objective of the Management Plan.

a. Site management  
b. Site maintenance  
c. Risk preparedness  
d. Conservation  
e. Tourism and visitor management  
f. Community awareness and outreach programme

6.b ADMINISTRATIVE ARRANGEMENTS FOR MONITORING PROPERTY

Until the formation of World Heritage Office (this Volume, Chapter 5, Section 5.e) the Draft Property Management Plan calls for cooperation between the Department of National Heritage and the Lenggong District Council in the monitoring arrangements. Currently, officers from the Department of National Heritage make regular visits to the sites to visually assess the state of conservation of the major sites. Adverse changes are reported for remedial action. In this, both the Department of National Heritage and the Lenggong District Council are supported by the staff of the CGAR. The CGAR team also provides their own monitoring and security for some of their sites and reports any infringement to the District Council for further action.

The few owners of oil palm plantations at the open sites at Bukit Bunuh and Kota Tampan have been informed of the need to keep digging and other work such as replanting to a minimum and to consult with the archaeological team on their future land use and replanting plans in order to avoid disturbing the sites. Cooperation between the scientists and the landowners have been excellent so far and this is not expected to be an issue. The owners are encouraged because the prospects of hosting visitors to these sites may bring in extra income for them. The owners moreover have been monitoring their own properties in a competent manner against intruders and poachers. This monitoring can help in site conservation.
**Table 6.2: Compilation of administrative arrangements for monitoring the state of conservation of the Archaeological Heritage of the Lenggong Valley. The World Heritage Office shall be responsible for all monitoring after it is formed (Volume II: Draft Property Management Plan).**

<table>
<thead>
<tr>
<th>Issues</th>
<th>Monitored by</th>
</tr>
</thead>
<tbody>
<tr>
<td>The condition of open-air sites</td>
<td>WHO</td>
</tr>
<tr>
<td>The condition of cave sites</td>
<td>WHO</td>
</tr>
<tr>
<td>Looting</td>
<td>WHO</td>
</tr>
<tr>
<td>Infrastructure and construction projects</td>
<td>Department of National Heritage, Lenggong District Council and WHO</td>
</tr>
<tr>
<td>Archaeological artefacts</td>
<td>Department of National Heritage and WHO</td>
</tr>
<tr>
<td>Land use and infrastructure development</td>
<td>Lenggong District Council and WHO</td>
</tr>
</tbody>
</table>

**6.c RESULTS OF PREVIOUS REPORTING EXERCISES**

Inspections of the property have been carried out on an irregular basis since 2007 by officers from the Department of National Heritage upon listing of the sites on the National Heritage Register. Prior to this date, there was no regular monitoring. The Department is assisted by the archaeology team from University of Science Malaysia in this task. When The Archaeological Heritage of the Lenggong Valley Draft Property Management Plan comes into effect, a World Heritage Office (WHO) will be formed. The WHO shall gather all previous reports and publications on sites excavated in the nominated property and extract a detailed description of each site in order to record its original state of conservation.
Table 6.3: Key references to detailed first descriptions of each of the excavated site in the nominated property.

<table>
<thead>
<tr>
<th>Site</th>
<th>Year of discovery</th>
<th>First published report</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bukit Bunuh-Kota Tampan Core Zone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bukit Bunuh BBH 2007</td>
<td>2007</td>
<td>Mokhtar, 2010</td>
</tr>
<tr>
<td>Kota Tampan KT 1987</td>
<td>1986</td>
<td>Zuraina and Tjia, 1988</td>
</tr>
<tr>
<td><strong>Bukit Jawa Core Zone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bukit Kepala Gajah Core Zone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gua Gunung Runtuh</td>
<td>1990</td>
<td>Zuraina, 1994</td>
</tr>
<tr>
<td>Gua Kajang</td>
<td>1917</td>
<td>Evans, 1918</td>
</tr>
<tr>
<td>Gua Teluk Kelawar</td>
<td>1990</td>
<td>Zolkurnian, 1998</td>
</tr>
<tr>
<td><strong>Bukit Gua Harimau Core Zone</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gua Harimau</td>
<td>1952</td>
<td>Williams-Hunt, 1952</td>
</tr>
</tbody>
</table>
CHAPTER 7

DOCUMENTATION

7.A PHOTOGRAPHS, SLIDES, IMAGE INVENTORY AND AUTHORIZATION TABLE AND OTHER AUDIOVISUAL MATERIALS

7.B TEXTS RELATING TO PROTECTIVE DESIGNATION, COPIES OF PROPERTY MANAGEMENT PLANS

7.C FORM AND DATE OF THE MOST RECENT RECORDS OR INVENTORY OF THE PROPERTY

7.D ADDRESS WHERE INVENTORY, RECORDS AND ARCHIVES ARE HELD

7.E BIBLIOGRAPHY
7.a PHOTOGRAPHS, SLIDES, IMAGE INVENTORY AND AUTHORIZATION TABLE AND OTHER AUDIOVISUAL MATERIALS

The authorization table and a visual index of the attached CD (image files for 7A) are presented in the following pages.

The authorization for non-exclusive cession of right in favour of UNESCO World Heritage Center according to the requirement of the World Heritage Operational Guidelines is also presented below.

<table>
<thead>
<tr>
<th>Image no.</th>
<th>Caption</th>
<th>Date of photo (Mo/Yr)</th>
<th>Photographer*</th>
<th>Copyright owner*</th>
<th>Contact details of owner*</th>
<th>Non-exclusive cession of rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Systematic excavation of <em>in-situ</em> lithic workshop sites in Kota Tampan Archaeological Heritage of Lenggong Valley</td>
<td>2003</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR, USM</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>March 22nd 1987, Kota Tampan, Lenggong seeing and touching a stone tool that had been “hiding” for more than 70,000 years. This discovery opened up the Lenggong Valley, Perak, as the earliest and most important archaeological area in Malaysia. Together with later discoveries that turned the clock back 1.83 million years, it paved the way for the growth of archaeology in Malaysia</td>
<td>2003</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR, USM</td>
<td></td>
</tr>
<tr>
<td>Image no.</td>
<td>Caption</td>
<td>Date of photo (Mo/Yr)</td>
<td>Photographer*</td>
<td>Copyright owner*</td>
<td>Contact details of owner*</td>
<td>Non-exclusive cession of rights</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>------------------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>3</td>
<td>The excavation site at Kota Tampan, Lenggong. About 74,000 years ago, this site was a stone tool-making “workshop”, now it is an important Paleolithic site that provided information on the lithic industry of Paleolithic Southeast Asia</td>
<td>2003</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR USM</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The ash from the volcanic eruption that formed Lake Toba about 74,000 years ago, settled in the Paleolithic lakes in Lenggong. At one of these, the now-dry palaeolake in Bukit Jawa, excavations revealed that more than 3 metres of ash had been trapped in it. As a result, the sediments had somewhat maintained their integrity, indicating the severity of the last Toba eruption, which is believed to be the most catastrophic in human history and would certainly have impacted on prehistoric life in Lenggong</td>
<td>2003</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR USM</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>The rain of ash from Toba settled in thick deposits all over Lenggong. Over time fluvial processes changed their composition and appearance. In parts of Lenggong, such as this in Kampung Sungai Gerus, ash deposits about 4 meters thick can be seen above the ground, while in the palaeolake (opposite) they are about 3 meters deep</td>
<td>2003</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR USM</td>
<td></td>
</tr>
<tr>
<td>Image no.</td>
<td>Caption</td>
<td>Date of photo (Mo/Yr)</td>
<td>Photographer*</td>
<td>Copyright owner*</td>
<td>Contact details of owner*</td>
<td>Non-exclusive cession of rights</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>----------------------</td>
<td>---------------</td>
<td>-----------------</td>
<td>--------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Lenggong Valley Chronological Sequence</td>
<td>2010</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR USM</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Excavation at Gua Gunung Runtuh, a cave that was occupied from about 13,000 to 2,000 years ago</td>
<td>2005</td>
<td>CGAR</td>
<td>USM</td>
<td>USM</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>The location of Gua Gunung Runtuh (GGR) 400 m above sea level, Ulu Jepai, Gelok in Lenggong, Pera</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Gua Gunung Runtuh</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Oval Unifacial Pebble Tool from Gua Gunung Runtuh</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Chopper from Bukit Bunuh (BBH 2001)</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Unique hand axe made of suevite from Bukit Bunuh (BBH 2001)</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>The Perak Man (right) was buried in a foetal position about 10,000 - 11,000 years ago. He died at ripe old age of 40-45 (life span then was only 25-30 years) and was buried with meat from several types of animals, stone tools, and shells</td>
<td>2005</td>
<td>CGAR</td>
<td>USM</td>
<td>USM</td>
<td></td>
</tr>
<tr>
<td>Image no.</td>
<td>Caption</td>
<td>Date of photo (Mo/Yr)</td>
<td>Photographer*</td>
<td>Copyright owner*</td>
<td>Contact details of owner*</td>
<td>Non-exclusive cession of rights</td>
</tr>
<tr>
<td>----------</td>
<td>------------------------------------------------------------------------</td>
<td>-----------------------</td>
<td>---------------</td>
<td>------------------</td>
<td>---------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>14</td>
<td>At the excavation at Gua Gunung Runtuh, Lenggong, additional lighting was needed as the work progressed deeper into deposit. The 10,000 - 11,000-year-old Perak Man was discovered in this cave</td>
<td>2005</td>
<td>CGAR</td>
<td>USM</td>
<td>USM</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>The skeleton in-situ with knees drawn up to the chest</td>
<td>2005</td>
<td>CGAR</td>
<td>USM</td>
<td>USM</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Excavation of Perak Man in progress</td>
<td>2005</td>
<td>CGAR</td>
<td>USM</td>
<td>USM</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Computer Tomography of the mandibular pathology suggestive of an aggressive dental cystic pathology or tumour, causing widespread sepsis and might have been his main cause of death</td>
<td>2005</td>
<td>CGAR</td>
<td>USM</td>
<td>USM</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Cluster 1: Bukit Bunuh - Kota Tampan Core Zone</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH</td>
<td>MICC</td>
</tr>
<tr>
<td>19</td>
<td>Gua Teluk Kelawar Site</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH</td>
<td>MICC</td>
</tr>
<tr>
<td>20</td>
<td>Gua Harimau Site</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH</td>
<td>MICC</td>
</tr>
<tr>
<td>21</td>
<td>Gua Gunung Runtuh Site</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH</td>
<td>MICC</td>
</tr>
<tr>
<td>22</td>
<td>Kota Tampan (KT 1987) Site</td>
<td>2003</td>
<td>CGAR</td>
<td>CGAR</td>
<td>CGAR</td>
<td>USM</td>
</tr>
<tr>
<td>Image no.</td>
<td>Caption</td>
<td>Date of photo (Mo/Yr)</td>
<td>Photographer*</td>
<td>Copyright owner*</td>
<td>Contact details of owner*</td>
<td>Non-exclusive cession of rights</td>
</tr>
<tr>
<td>----------</td>
<td>-------------------------------------------------------------------------</td>
<td>------------------------</td>
<td>---------------</td>
<td>------------------</td>
<td>--------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>23</td>
<td>23 Flake Tool from Bukit Bunuh (BBH 2001)</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>24 Chopper from Kota Tampan</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>25 Flake Tool from Kota Tampan</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>26 A view of islands in Raban Lake south of the nominated property reminiscent of the possible environment of prehistoric Bukit Bunuh, Bukit Jawa and Kota Tampan</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>27 Cluster 2: Bukit Jawa, Bukit Kepala Gajah and Bukit Gua Harimau Core Zones.</td>
<td>2010</td>
<td>Omar Ariff</td>
<td>DNH</td>
<td>DNH MICC</td>
<td></td>
</tr>
</tbody>
</table>

* CGAR - Centre for Global Archaeological Research; USM- University of Science Malaysia, 11800 Penang, MALAYSIA; DNH MICC- Department of National Heritage, Ministry of Information, Communications and Culture, Level 10, Chulan Tower, Jalan Conlay, 50694 Kuala Lumpur, MALAYSIA
7.b TEXT RELATING TO PROTECTIVE DESIGNATION, COPIES OF PROPERTY MANAGEMENT PLANS OR DOCUMENTED MANAGEMENT SYSTEMS AND EXTRACTS OF OTHER PLANS RELEVANT TO THE PROPERTY

The nomination dossier is Volume I: Archaeological Heritage of the Lenggong Valley, Nomination Dossier for Inscription on the UNESCO World Heritage List.

The property management plan is the accompanying document, Volume II: Draft Property Management Plan for Archaeological Heritage of the Lenggong Valley.

Large prints of relevant maps referred to in the Dossier are separately stored in a canister and labeled with their AHLV Annex Reference Number from the text in the Dossier and a title e.g. AHLV Annex 1: Topographic map of the Lenggong Valley.

Bound copies of texts relating to protective designation and extracts of other plans relevant to the property are labeled with their AHLV Annex Reference Number from the text in the Dossier and a title e.g. AHLV Annex 4: Local Government Act, 1976 and amendments to date are stored together in the Document Box: AHLV Nomination Dossier Annexes.

The Annexes are:

Annex 1: Topographic map of the Lenggong Valley (Map canister)
Annex 2: Figure 1.5 - Map of Lenggong Valley showing the four core zones and buffer zone in Cluster 1 and Cluster 2 (Map canister)
Annex 3: The exhibition catalogue – Reviving Pithecanthropus (Document box)
Annex 4: Local Government Act, 1976 and amendments to date (Document box)
Annex 5: Town and Country Planning Act 1976 and amendments to date (Document box)
Annex 7: Extracts from the National Heritage Register (Document box)
7.c FORM AND DATE OF THE MOST RECENT RECORDS OR INVENTORY OF THE PROPERTY

The Malaysian Department of National Heritage within the Ministry of Information, Communications and Culture is entrusted with the care and management of archaeological and other heritage sites of Malaysia which are protected by the National Heritage Act, 2005. Components of the Archaeological Heritage of the Lenggong Valley are in the National Heritage List. These are:

1. Kota Tampan was inscribed in the Register in 2009 (Gazette No: in process)
2. Gua Gunung Runtuh was inscribed in the Register in 2009 (Gazette No: P.U. [B] 494)
3. Bukit Jawa was inscribed in the Register in 2009 (Gazette No: P.U. [B] 149)
4. Perak Man was declared a National Heritage Object in the Register in 2007 (Gazette No: P.U. [B] 235)
5. The first hand axe found embedded in suevite was declared a National Heritage Object in the Register in 2009 (Gazette No: P.U. [A] 399)

The mechanism of registration and the whole inventory is being updated and reformed to meet international standards and to become an effective tool for the protection and management of the Archaeological Heritage of the Lenggong Valley. This responsibility will be carried out by the AHLV World Heritage Office (WHO) when it is established.

Since 1987, the Upper Perak Archaeological Project, managed by University of Science Malaysia, has kept meticulous inventory of all excavations and artefacts. Part of the inventory has been published. The new World Heritage Office in partnership with University of Science Malaysia will prepare an updated and complete inventory of all the nominated sites and buffer zone.
7.d ADDRESS WHERE INVENTORY, RECORDS AND ARCHIVES ARE HELD

All documents, records and archives concerning the Archaeological Heritage of Lenggong Valley are kept in the following premises.

**Department of National Heritage**
Ministry of Information Communications and Culture
Level 10, Chulan Tower,
Jalan Conlay,
50694 Kuala Lumpur,
MALAYSIA

**Centre for Global Archaeological Research**
University of Science Malaysia
11800 USM, Penang
MALAYSIA

**Lenggong Archaeological Museum**
Department of Museums Malaysia
Kota Tampan,
33400 Lenggong,
Perak Darul Ridzuan,
MALAYSIA

Once established, the World Heritage Office of the Archaeological Heritage of the Lenggong Valley will take charge of coordinating and integrating these inventories, records and archives.
7.e  BIBLIOGRAPHY

Extracts or full copies / reprints of the bibliography are provided in the document Files: AHLV Bibliography File 1: Copies Of Reference For Chapter 2, AHLV Nomination Dossier For Inscription on the UNESCO World Heritage List and the AHLV Bibliography File 2: Copies of References for Chapter 3, AHLV Nomination Dossier for Inscription on the UNESCO World Heritage List.


Anderson, D. D.  

Ariffin, M.N.K., Nawawi, M.N.M, Mokhtar, S., Shaffwan, M.S.M., Firdaus, A.M. and Hanis M.M.  

Bard, E., Hamelin, B., and Fairbanks, R.G.  

Bar-Yosef, O., Goren-Inbar, N., and Gilead, I.  

Beaumont, P., and Vogel, J.  

Bird, M. I., Taylor, D., and Hunt, C.  
Brown, F., and Gathogo, P.

Bulbeck, D.

Bulbeck, D., and Zuraina Majid

Callenfels, P. S., and Evans, I. H.


Challenging the "Out of Africa" theory.

Chazan, M., and Horwitz, L.

Chia, S.

Chia, S., and Zolkurnian Hasan
2005 Gua Harimau, a prehistoric cemetery in Lenggong, Perak In Zuraina Majid (Ed.), *The Perak Man and other prehistoric skeletons of Malaysia* Penang: Universiti Sains Malaysia Press. 363-383.

Collings, H. D.

Delagnes, A., and Roche, H.

Dennell, R., Rendell, H., Hailwood, E., and Hurcombe, L.

De Warrimont, J.P.

Dizon, E., and A.Pawlik, J.

Duckworth, W. L.

Evans, I.H.N.


Feibel, C., Lepre, C., and Quinn, R.


Gamble, C.


Goh, H. M.


Hamid Mat Isa


Harrisson, T.


Heaney, L. R.


Hill, C., Soares, P., Mormina, M., Macaulay, V., Meehan, W., Blackburn, J., Clarke, D., Raja, J.M., Ismail, P., Bulbeck, D., Oppenheimer, S., and Richards, M.


Horowitz, A.


Hutchison, C.

Hutterer, K.


Kamminga, J. and Wright, R.V.S.

Kenoyer, J., and Heuston, K.

Kibunjia, M.

Kiparissi-Apostolika, N.

Klein, R., and Hublin, J.

Lambeck, K., and Chappell, J.

Matsumura, H.
Matsumura, H., and Zuraina Majid

Mokhtar Saidin


2005 Cave formation of sites with skeletal remains in Lenggong, Perak. In Zuraina Majid (Ed.), *The Perak Man and other prehistoric skeletons of Malaysia* Penang: Universiti Sains Malaysia Press. 119-130.


Movius, H.

Paddayya, K.
1982 *The Acheulian culture of the Hunsgi Valley (peninsular India): A settlement system perspective*. Hunsgi River Valley (India); India; Antiquities; Acheulian culture; Land settlement patterns, Prehistoric; Hunsgi River Valley. Deccan College Postgraduate and Research Institute (Poona). 96-112.

Paddayya, K., Jhaldiyal, R., and Petraglia, M.

Paddayya, K., and Petraglia, M.

Petraglia, M., LaPorta, P., and Paddayya, K.  

1994 Final Report of excavations at Moh Khiew Cave, Krabi Province; Sakai Cave, Trang Province and Ethnoarchaeological Research Hunter-gatherer Group, Socall Mani or Sakai or Orang Asli at Trang Province. *The Hoabinhian research Project in Thailand*. 2

Rendell, H., and Hailwood, E.  

Rendell, H., Dennell, R., and Halim, M.  

Repenning, C.A.  

Roberts, M., and Parfitt, S.  

Robert, R.G., Morwood, M.J., and Westaway, K.E.  

Rose, W., and Chesner, C.  
Sackett, J.  
1999  *The archaeology of Solvieux: an upper Paleolithic open air site in France.* Los Angeles: UCLA Institute of Archaeology.

Samsuddin, A., and Nizam, A.  

Schepartz, L.A., Miller-Antonio, S., and Bakken, D.A.  

Semaw, S.  
2000  The world's oldest stone artefacts from Gona, Ethiopia: their implications for understanding stone technology and patterns of human evolution between 2.6–1.5 million years ago. *Journal of Archaeological Science,* 27(12):1197-1214.

Shang, H., Tong, H., Zhang, S., Chen, F., and Trinkaus, E.  

Shen, G., Gao, X., Gao, B., and Granger, D. E.  

Shipton, C., Petraglia, M., and Paddayya, K.  
2009  Stone tool experiments and reduction methods at the Acheulean site of Isampur Quarry, India. *Antiquity,* 83: 769-785.

Shoochongdej, R.  

Shutler, R.  
Sieveking, G. D.

Simanjuntak, T.

Slimak, L., Roche, H., Mouralis, D., Buitenhuis, H., Balkan-Atli, N., Binder, D., Kuzucuoglu, C., Grenet, M.

Sorensen, P.

Srisuchat, A.


Voris, H.

Wakankar, V.

Walker, A., and Leakey, R.
Weidenreich, F.

Williams-Hunt, P.D.R.


Wolpoff, M.

Wu, X.

Yamei, H., Potts, R., Baoyin, Y., Zhengtang, G., Deino, A., Wei, W., Clark, J., Guangmao, X., Weiwen, H.


Zolkurnian Hasan

Zuraina Majid


Zuraina Majid, and Tjia, H.

Zuraina Majid, Johan Arif, Lim, A., Mokhtar Saidin, Jeffrey Abdullah and Chia, S.
2005 GTK 1: a skeleton from Gua Teluk Kelawar, Lenggong, Perak, dated 8,400 +/- 40 BP. In Zuraina Majid (Ed.), *The Perak Man and other prehistoric skeletons of Malaysia* Penang: Universiti Sains Malaysia Press. 345-362.
Internet Sources


CHAPTER 8

CONTACT INFORMATION

8.A PREPARER

8.B OFFICIAL LOCAL INSTITUTION/ AGENCY

8.C OTHER LOCAL INSTITUTIONS

8.D OFFICIAL WEB ADDRESS
8.a PREPARER

Directed by
Emeritus Professor Dato’ Zuraina Majid
Commissioner of Heritage
Department of National Heritage
Ministry of Information Communications & Culture
MALAYSIA

Research Team
Dr. Sam Teng Wah, Consultant, (Usains Holding Sdn. Bhd.)
Dr. Mokhtar Saidin, Assoc. Prof. & Director (CGAR, USM)
Dr. Stephen Chia Ming Soon, Assoc. Prof. & Deputy Director (CGAR, USM)
Dr. Kalsom Kayat, Assoc. Prof. & Coordinator (Tourism & Hospitality Postgraduate Programmes, UUM)
Mr. Mohd. Jeffrey Abdullah, Lecturer (CGAR, USM)
Mr. Hamid Md. Isa, Lecturer (CGAR, USM)
Mr. Ahmad Edwin Mohamed, Lecturer (Tourism & Hospitality Programmes, UUM)
Mr. Shaiful Idzwan Shahidan, Tutor (CGAR, USM)
Ms. Goh Hsiao Mei, Tutor (CGAR, USM)
Mr. Nor Akmal Yang Ghazali, Council Secretary (Lenggong District Council)
Mrs. Mahani Md. Salleh, Research Officer (CGAR, USM)
Mrs. Noor Aiza Abdul Rahim, Research Officer (CGAR, USM)
Ms. Nor Khairunnisa Talib, Postgraduate Student (CGAR, USM)
Ms. Nur Asikin Rashidi, Postgraduate Student (CGAR,USM)

Secretariat
Mr. Rosli Haji Nor, Director of Conservation & Archaeology (Department of National Heritage)
Mr. Mohd Syahrin Abdullah, Head of Policy and International Affairs (Department of National Heritage)
Mr. Muhamad Zakiee Ab Rahman, Heritage Officer (Department of National Heritage)
Ms. Nor Azimah Supa’at, Heritage Officer (Department of National Heritage)
Ms. Nurul Azreen Amirludin, Assistant Heritage Officer (Department of National Heritage)
Mr. Muhammad Fazlin Abdul Aziz, Senior Heritage Asisstant (Department of National Heritage)
Mr. Muhd Khairy Abu Bakar, Heritage Asisstant (Department of National Heritage)
Ms. Nuraini Jamil, Heritage Asisstant (Department of National Heritage)

Graphic Design
Mr. Muhd Minsya Baharudin, Research Officer (CGAR, USM)

Photographic Credits
Archaeology in Malaysia
The Perak Man & Other Skeletons of Malaysia
Center for Global Archaeological Research (USM)
Mr. Omar Ariff (Globalpicts.com)
8.b OFFICIAL LOCAL INSTITUTION/AGENCY

Department of National Heritage
Ministry of Information Communications and Culture
Level 10, Chulan Tower,
Jalan Conlay,
50694 Kuala Lumpur, MALAYSIA

Phone : +603 - 2167 5100
Fax : +603 - 2171 6029

E-mail : zuraina@warisan.gov.my
syahrin@warisan.gov.my

8.c OTHER LOCAL INSTITUTIONS

Lenggong District Council,
Jalan Alang Iskandar,
33400, Lenggong,
Perak Darul Ridzuan,
MALAYSIA
Email: setiausaha@mdl.gov.my

Centre for Global Archaeological Research,
University of Science Malaysia,
11800 USM, Penang
MALAYSIA
Email: dir ark@usm.my

8.d OFFICIAL WEB ADDRESS

www.warisan.gov.my
CHAPTER 9

SIGNATURE ON BEHALF OF THE STATE PARTY

ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY
This Nomination Dossier is hereby submitted to the World Heritage Committee, UNESCO, for application to be inscribed in the World Heritage List as:

ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY

by

MALAYSIA

DATO’ SERI UTAMA DR. RAIS YATIM
MINISTER
MINISTRY OF INFORMATION COMMUNICATIONS AND CULTURE MALAYSIA

21 JANUARY 2011
LISTS

ABBREVIATIONS
CHARTS
FIGURES
PHOTOS
TABLES
ANNEXES
### LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFC</td>
<td>Archaeological Field Station</td>
</tr>
<tr>
<td>AHLV</td>
<td>Archaeological Heritage of Lenggong Valley</td>
</tr>
<tr>
<td>AHLVMP</td>
<td>Archaeological Heritage of Lenggong Valley Management Plan</td>
</tr>
<tr>
<td>ASM</td>
<td>Archaeological Site Manager</td>
</tr>
<tr>
<td>ASO</td>
<td>Archaeological Site Officer</td>
</tr>
<tr>
<td>ATO</td>
<td>Archaeo-Tourism Officer</td>
</tr>
<tr>
<td>BBH</td>
<td>Bukit Bunuh</td>
</tr>
<tr>
<td>BBH – KT</td>
<td>Bukit Bunuh-Kota Tampan</td>
</tr>
<tr>
<td>BBT</td>
<td>Bukit Batu Tukang</td>
</tr>
<tr>
<td>BGB</td>
<td>Bukit Gua Badak</td>
</tr>
<tr>
<td>BGD</td>
<td>Bukit Gua Dayak</td>
</tr>
<tr>
<td>BGH</td>
<td>Bukit Gua Harimau</td>
</tr>
<tr>
<td>BJ</td>
<td>Bukit Jawa</td>
</tr>
<tr>
<td>BKG</td>
<td>Bukit Kepala Gajah</td>
</tr>
<tr>
<td>BTTR</td>
<td>Belum-Temengor Tropical Rainforest</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CARM</td>
<td>Centre for Archaeological Research Malaysia</td>
</tr>
<tr>
<td>CGAR</td>
<td>Centre for Global Archaeological Research</td>
</tr>
<tr>
<td>CT-Scan</td>
<td>Computerised Tomography Scan</td>
</tr>
<tr>
<td>DNH</td>
<td>Department of National Heritage</td>
</tr>
<tr>
<td>ECER</td>
<td>East Coast Economic Region</td>
</tr>
<tr>
<td>ERS</td>
<td>Electron Spin Resonance</td>
</tr>
<tr>
<td>FELDA</td>
<td>Federal Land Development Authority</td>
</tr>
<tr>
<td>FM</td>
<td>Financial Manager</td>
</tr>
<tr>
<td>FMS</td>
<td>Federated Malay States</td>
</tr>
<tr>
<td>GGR</td>
<td>Gua Gunung Runtuh</td>
</tr>
<tr>
<td>GH</td>
<td>Gua Harimau</td>
</tr>
<tr>
<td>GK</td>
<td>Gua Kajang</td>
</tr>
<tr>
<td>GK 1</td>
<td>Gua Kajang Skeleton 1</td>
</tr>
<tr>
<td>GK 2</td>
<td>Gua Kajang Skeleton 2</td>
</tr>
<tr>
<td>GM</td>
<td>General Manager</td>
</tr>
<tr>
<td>GTK</td>
<td>Gua Teluk Kelawar</td>
</tr>
<tr>
<td>GTK 1</td>
<td>Gua Teluk Kelawar Skeleton 1</td>
</tr>
<tr>
<td>HSC</td>
<td>State Lenggong Valley Heritage Steering Committee</td>
</tr>
<tr>
<td>HTC</td>
<td>State Lenggong Valley Heritage Technical Committee</td>
</tr>
<tr>
<td>HU</td>
<td>Heritage Unit</td>
</tr>
<tr>
<td>ICOMOS</td>
<td>International Council of Monuments and Sites</td>
</tr>
<tr>
<td>KT</td>
<td>Kota Tampan</td>
</tr>
<tr>
<td>LAM</td>
<td>Lenggong Archaeological Museum</td>
</tr>
<tr>
<td>LCT</td>
<td>Large Cutting Tools</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------</td>
</tr>
<tr>
<td>LDC</td>
<td>Lenggong District Council</td>
</tr>
<tr>
<td>MCP</td>
<td>Malayan Communist Party</td>
</tr>
<tr>
<td>MPAJA</td>
<td>Malayan People Anti-Japanese Army</td>
</tr>
<tr>
<td>NCER</td>
<td>Northern Corridor Economic Region</td>
</tr>
<tr>
<td>NCIA</td>
<td>Northern Corridor Implementation Authority</td>
</tr>
<tr>
<td>NEM</td>
<td>New Economic Model</td>
</tr>
<tr>
<td>NKEAs</td>
<td>National Key Economic Areas</td>
</tr>
<tr>
<td>OSL</td>
<td>Optically Stimulated Luminescence</td>
</tr>
<tr>
<td>PASSC</td>
<td>The Planetary and Space Science Centre</td>
</tr>
<tr>
<td>RISDA</td>
<td>Rubber Industry Smallholders Development Authority</td>
</tr>
<tr>
<td>SCORE</td>
<td>Sarawak Corridor of Renewable Energy</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>USM</td>
<td>University of Science Malaysia</td>
</tr>
<tr>
<td>WHO</td>
<td>World Heritage Office</td>
</tr>
</tbody>
</table>
LIST OF CHARTS

Chart 1.1: World Heritage nominated property “Archaeological Heritage of the Lenggong Valley” 1

Chart 5.1: Organizational chart of the Heritage Unit Administration in the Lenggong District Council 168

Chart 5.2: The Coordinating Structure for the Management of the World Heritage Site 168
LIST OF FIGURES

Figure 1.1: Location of Malaysia 2

Figure 1.2: Location of Lenggong Valley in the state of Perak, Malaysia 3

Figure 1.3: The nine principal local government districts in Perak. Hulu Perak is the largest district and is divided into Lenggong, Pengkalan Hulu and Gerik Sub-districts. The Archaeological Heritage of Lenggong Valley (AHLV) is located in the Sub-district of Lenggong 4

Figure 1.4: Topographic map of the Lenggong Valley (Annex 1) - the nominated property is located in the box 6

Figure 1.5: Map of Lenggong Valley showing the four core zones and buffer zones in Cluster 1 and Cluster 2 7

Figure 1.6: Satellite image of the nominated property - Archaeological Heritage of the Lenggong Valley (Source: Malaysian Remote Sensing Agency [ARSM]) 8

Figure 1.7: Map of significant sites in the core zones of the nominated Property 9

Figure 1.8: Land use map in the Archaeological Heritage of the Lenggong Valley (AHLV) 10

Figure 1.9: Principles governing the demarcation of the buffer perimeters Of Cluster 1 and Cluster 2 12

Figure 2.1: Lenggong Valley in relation to the topography of Peninsular Malaysia 14

Figure 2.2: Map showing proximity of Belum-Temengor Rainforest to Lenggong 15

Figure 2.3: Sundaland Landmass during the Pleistocene period 17
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.4 – 2.7</td>
<td>A reconstruction of the course of Perak River and the Ancient Chenderoh Lake over the course of time, from 200,000 – 40,000 years ago</td>
<td>19</td>
</tr>
<tr>
<td>2.8</td>
<td>Open-air sites in the nominated property</td>
<td>21</td>
</tr>
<tr>
<td>2.9</td>
<td>Geophysical anomalies illustrate a meteorite impact crater in Bukit Bunuh</td>
<td>29</td>
</tr>
<tr>
<td>2.10</td>
<td>High terraces, overfit valleys, landslide scars and water outlet are indicator the Chenderoh palaeolake</td>
<td>34</td>
</tr>
<tr>
<td>2.11</td>
<td>Location of significant caves sites in the nominated property</td>
<td>36</td>
</tr>
<tr>
<td>2.12</td>
<td>Map of significant sites in the core zones of the nominated Property</td>
<td>41</td>
</tr>
<tr>
<td>2.13</td>
<td>A drawing of 1.83 million years metaquartzite hand axe based on the CT scan</td>
<td>44</td>
</tr>
<tr>
<td>2.14</td>
<td>Location of limestone massifs and significant sites in AHLV</td>
<td>52</td>
</tr>
<tr>
<td>2.15</td>
<td>The excavation trenches in Gua Gunung Runtuh</td>
<td>59</td>
</tr>
<tr>
<td>2.16</td>
<td>An artist impression of the Perak Man with congenital deformity</td>
<td>65</td>
</tr>
<tr>
<td>2.17</td>
<td>Drawing of oval unifacial pebble tools buried with the Perak Man</td>
<td>69</td>
</tr>
<tr>
<td>2.18</td>
<td>The burial area of Perak Man and the associated mortuary objects</td>
<td>71</td>
</tr>
<tr>
<td>2.19</td>
<td>Burials 1-3 and their associated artefacts found during excavations at Gua Harimau in 1988</td>
<td>83</td>
</tr>
<tr>
<td>2.20</td>
<td>The shape of the stacked shallow pottery bowls and small globular vessel as seen in photo 2.50; together with other vessel shapes from Gua Harimau</td>
<td>87</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Figure 2.21</td>
<td>Burial 8 revealed a cluster of human teeth and bones associated with pottery and food remains</td>
<td>90</td>
</tr>
<tr>
<td>Figure 2.22</td>
<td>Burial 9 and its associated finds</td>
<td>91</td>
</tr>
<tr>
<td>Figure 2.23</td>
<td>The Movius Line separates regions with hand axe industries from those without</td>
<td>95</td>
</tr>
<tr>
<td>Figure 2.24</td>
<td>Culture sequence of sites in the nominated property</td>
<td>99</td>
</tr>
<tr>
<td>Figure 2.25</td>
<td>The Malacca Sultanate at the point of its collapse in the 16th century</td>
<td>106</td>
</tr>
<tr>
<td>Figure 2.26</td>
<td>The Japanese Malaya Campaign, 8th December, 1941 – 15th February, 1942. The Japanese Patani column struck through Grik into the Lenggong Valley corridor and then on to Kuala Kangsar and Ipoh</td>
<td>108</td>
</tr>
<tr>
<td>Figure 3.1</td>
<td>A Boxgrove Flint Biface (taken from the Boxgrove Official website at <a href="http://matt.pope.users.btopenworld.com/boxgrove/sitelithic.htm">http://matt.pope.users.btopenworld.com/boxgrove/sitelithic.htm</a>)</td>
<td>123</td>
</tr>
</tbody>
</table>
# LIST OF PHOTOS

<table>
<thead>
<tr>
<th>Photo Number</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 2.1</td>
<td>An example of a gravel layer bearing archaeological artefacts</td>
<td>22</td>
</tr>
<tr>
<td>Photo 2.2</td>
<td>An exposed gravel layer in Bukit Jawa, typical of AHLV</td>
<td>22</td>
</tr>
<tr>
<td>Photo 2.3</td>
<td>Gravel layer located at a shallow depth at the Bukit Bunuh BBH 2001 excavation trench. Much of the overburden had been removed by plantation activities</td>
<td>23</td>
</tr>
<tr>
<td>Photo 2.4</td>
<td>The Bukit Bunuh crater in 2000 showing the centre of the Meteorite impact. Suevite and other impactites (left, foreground) were exposed through plantation activities. This view is no longer visible in 2010 because the oil palm trees have grown</td>
<td>24</td>
</tr>
<tr>
<td>Photo 2.5</td>
<td>Exposed suevite boulders at the Bukit Bunuh meteorite impact site seen in an aerial photograph taken in August 2010</td>
<td>24</td>
</tr>
<tr>
<td>Photo 2.6</td>
<td>Shatter cones, evidence of a meteorite impact seen in Bukit Bunuh</td>
<td>27</td>
</tr>
<tr>
<td>Photo 2.7</td>
<td>Microscopic evidence from crossed-lamellar PDFs on Quartz is indicative of a meteorite impact in Bukit Bunuh</td>
<td>27</td>
</tr>
<tr>
<td>Photo 2.8</td>
<td>Unpolarised photomicrograph showing nickel (Ni) in suevite, evidence of a meteorite impact in Bukit Bunuh</td>
<td>28</td>
</tr>
<tr>
<td>Photo 2.9</td>
<td>Impact melt breccia in the form of a suevite rock from the Bukit Bunuh meteorite impact site (Right : thin-sliced section)</td>
<td>30</td>
</tr>
<tr>
<td>Photo 2.10</td>
<td>Stony meteorite remnant from Bukit Bunuh is evidence of a meteorite impact (Right: thin-sliced section)</td>
<td>30</td>
</tr>
<tr>
<td>Photo 2.11</td>
<td>Breccia suevite from Bukit Bunuh is indicative of a meteorite impact at the site</td>
<td>31</td>
</tr>
<tr>
<td>Photo 2.12</td>
<td>Kota Tampan was located on the shores of a palaeolake which has since receded and remnants of the lake can still be seen in the background</td>
<td>32</td>
</tr>
</tbody>
</table>
Photo 2.13: The Kota Tampan KT 1987 excavation site in 1988

Photo 2.14: A hand axe embedded in suevite rock

Photo 2.15: South-western face of Bukit Kepala Gajah in Cluster 2

Photo 2.16: Southern face of Bukit Gua Harimau in Cluster 2

Photo 2.17: CT scan of a hand axe embedded in suevite from Bukit Bunuh

Photo 2.18: Location and association of in-situ stone artefacts in Bukit Bunuh

Photo 2.19: Chopper excavated from Bukit Bunuh (40,000 years ago)

Photo 2.20: The only suevite handaxe excavated from Bukit Bunuh (40,000 years ago)

Photo 2.21: Palaeoadze excavated from Bukit Bunuh (40,000 years ago)

Photo 2.22: Perimeter Flaked Pebble Tool excavated from Bukit Bunuh (40,000 years ago)

Photo 2.23: Flake tool excavated from Bukit Bunuh (40,000 years ago)

Photo 2.24: Conjoined artefact from KT 1987

Photo 2.25: In-situ location of artefacts in Bukit Jawa site

Photo 2.26: Bukit Jawa site

Photo 2.27: Massive stone tool from Bukit Jawa requiring the use of both hands to handle

Photo 2.28: The location of Gua Gunung Runtuh (GGR) in Bukit Kepala Gajah limestone massif

Photo 2.29: The opening to the west at Gua Gunung Runtuh has been blocked by rock fall
Photo 2.30: Excavation at Gua Gunung Runtuh in 1990. Perak Man was later discovered about 20cm below X

Photo 2.31: The skeleton of Perak Man found in situ with knees drawn up to the chest and a reenactment of how he was buried

Photo 2.32: The excavation of Perak Man in progress

Photo 2.33: (A) The Perak Man and (B) Computerised tomography of the sagittal section through the mandible suggesting an aggressive tumour that could have caused his death

Photo 2.34: Mandible showing excessive wearing of the incisal and occlusal surfaces of his teeth, suggestive of a fibrous diet

Photo 2.35: Skull of perak man

Photo 2.36: Abnormal proximal phalanges

Photo 2.37: Riverine shells – Brotia with apices chopped and whole (right)

Photo 2.38: Marks of haematite suggest that this slab and hammerstone were used to grind haematite which was probably sprinkled on the burial as is a tradition in many prehistoric societies

Photo 2.39: Charred and uncharred bones

Photo 2.40: The front view of Gua Kajang

Photo 2.41: The tunnel in Gua Kajang is interspersed with deep man-made holes over which crude wooden platforms had been laid to provide passage between the two mouths of the tunnel

Photo 2.42: The 2007 excavation at Gua Kajang

Photo 2.43: GK 1 skeletal remains from Gua Kajang

Photo 2.44: Gua Teluk Kelawar excavation site
Photo 2.45: The skeletal remain of GTK 1, dated to 8,400 ± 40 BP

Photo 2.46: Gua Harimau site

Photo 2.47: The excavation of Gua Harimau

Photo 2.48: Burial 1 (in-situ) recovered during excavation at Gua Harimau between in 1988

Photo 2.49: Shell earings found in a burial in Gua Harimau, Lenggong, were made by cutting off the base of Conus sp shells

Photo 2.50: Stacked shallow bowls containing food remains (upper right) found in a burial in Gua Harimau

Photo 2.51: Part of the broken bronze celt found together with both halves of its clay bivalve moulds

Photo 2.52: Ornaments found associated with the burials at Gua Harimau – from left bangles, earings, bone pendant, translucent bead and shell necklace

Photo 2.53: Bronze celt found in Gua Harimau

Photo 2.54: The symbol of Lenggong near Tasik Raban. A smaller tree on which a larger felled tree trunk (centre) had landed on, bounced it back upright (terlanggung)

Photo 3.1: A flint scatter outlining the limbs of a 500,000 years old tool maker taken from the Boxgrove Official website at http://matt.pope.users.btopenworld.com/boxgrove/sitelithic.htm

Photo 3.2: A refitted flint nodule from Maastricht. Refitting is considered an appropriate characteristic of an in-situ site. There are many examples of refitting that can be seen in the AHLV
Photo 3.3: Bifacial Large Cutting Tools (LCT) from the Bose basin.
(A) Bogu 91001, no. 1, made on a large cobble.
(B) Hengshandao 94, no. 3, made on a large flake with minimal retouching on the ventral surface.
(C) Yangwu 91003, no. 1, made on a large flake.
The right and left sides of the figure show opposite faces of each LCT (Scale bars at lower right of each image indicate 1 cm)

Photo 4.1: The display hall at the Lenggong Archaeological Museum

Photo 4.2: Perak Man in display at the National Museum in Kuala Lumpur. The skeleton of Perak Man is kept in a custom-made airtight glass cabinet.

Photo 5.1: Directional sign to the archaeological sites in the Lenggong Valley
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1.1</td>
<td>Coordinates of Cluster 1 and Cluster 2 in the nominated property</td>
<td>5</td>
</tr>
<tr>
<td>Table 1.2</td>
<td>Central coordinates for the core zones in the nominated property</td>
<td>5</td>
</tr>
<tr>
<td>Table 1.3</td>
<td>The area of the nominated property</td>
<td>11</td>
</tr>
<tr>
<td>Table 2.1</td>
<td>Sea levels during the Pleistocene (after Bard et al., [1990]; Voris [2000]; Lambeck and Chappell, [2001]; Bird et al., [2005])</td>
<td>16</td>
</tr>
<tr>
<td>Table 2.2</td>
<td>A summary of the main criteria required to confirm the impact crater at the Bukit Bunuh site at Lenggong Valley</td>
<td>26</td>
</tr>
<tr>
<td>Table 2.3</td>
<td>Dating of archaeologically significant cave sites in Cluster 2</td>
<td>38</td>
</tr>
<tr>
<td>Table 2.4</td>
<td>Distribution of lithic artefacts by type from the disturbed and undisturbed areas of Gua Gunung Runtuh</td>
<td>72</td>
</tr>
<tr>
<td>Table 2.5</td>
<td>Earliest reported dates for sites outside Africa</td>
<td>94</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>Comparable Prehistoric Culture Sequences in a Single Locality</td>
<td>116</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Comparable in-situ Palaeolithic workshops</td>
<td>121</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Comparable evidence for the Oldest Hominid Presence Outside Africa</td>
<td>131</td>
</tr>
<tr>
<td>Table 3.4</td>
<td>Dating laboratories used in the research on the AHLV</td>
<td>138</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Visitors to Raban Lake (2005 - 2009)</td>
<td>151</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Visitors to Banding Biodiversity Educational Centre (2005 - 2009)</td>
<td>152</td>
</tr>
<tr>
<td>Table 5.1</td>
<td>Ownership pattern in the nominated property</td>
<td>154</td>
</tr>
</tbody>
</table>
Table 6.1: Key indicators for use as measures of the state of conservation of the archaeological sites in the nominated property.  186

Table 6.2: Compilation of administrative arrangements for monitoring the state of conservation of the Archaeological Heritage of the Lenggong Valley. The World Heritage Office shall be responsible for all monitoring after it is formed (Volume II: Draft Property Management Plan).  191

Table 6.3: Key references to detailed first descriptions of each of the excavated site in the nominated property.  192
LIST OF ANNEXES

Annex 1: Topographic map of the Lenggong Valley

Annex 2: Figure 1.5 - Map of Lenggong Valley showing the four core zones and buffer zone in Cluster 1 and Cluster 2

Annex 3: The exhibition catalogue – Reviving Pithecanthropus

Annex 4: Local Government Act 1976 and amendments to date

Annex 5: Town and Country Planning Act 1976 and amendments to date

Annex 6: National Heritage Act 2005

Annex 7: Extracts from National Heritage Register
PREFACE

This Management Plan consists of a comprehensive long-term strategy and phased implementation guidelines aimed at preserving the Integrity and Authenticity of the Archaeological Heritage of the Lenggong Valley. It begins by introducing the site description of the nominated property, the criteria under which the inscription is proposed, its Outstanding Universal Value, and the present situation in the nominated property. This is followed by a discussion on the administrative structure and funding that is to support the Management Plan. The rest of the Management Plan outlines the management strategies and monitoring programmes to promote the protection and conservation of the OUV found at the core and buffer zones of the nominated archaeological property.
# DRAFT PROPERTY MANAGEMENT PLAN

## PREFACE

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
</tr>
</tbody>
</table>

## CHAPTER 1: BACKGROUND DESCRIPTION OF PROPERTY AND PRESENT STATE OF CONSERVATION

<table>
<thead>
<tr>
<th>1.1 The Nominated Property</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 The Criteria under which the Inscription is Proposed</td>
<td>7</td>
</tr>
<tr>
<td>1.3 The Proposed Statement of the Outstanding Universal Value</td>
<td>11</td>
</tr>
<tr>
<td>1.4 The Excavation Sites in the Nominated Property</td>
<td>13</td>
</tr>
<tr>
<td>1.5 Present State of Conservation</td>
<td>21</td>
</tr>
<tr>
<td>1.6 Existing Legislation and Guidelines Protecting the AHLV</td>
<td>27</td>
</tr>
<tr>
<td>1.7 The Need for and the Role of the Management Plan</td>
<td>37</td>
</tr>
</tbody>
</table>

## CHAPTER 2: THE PLAN OBJECTIVES AND AIMS OF THE MANAGEMENT PLAN

| 38 |

## CHAPTER 3: ADMINISTRATIVE STRUCTURE AND FUNDING

<table>
<thead>
<tr>
<th>3.1 Administration</th>
<th>41</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2 Funding Mechanism</td>
<td>48</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

**CHAPTER 4: THE STRATEGY**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Introduction</td>
<td>49</td>
</tr>
<tr>
<td>4.2 Site Management</td>
<td>49</td>
</tr>
<tr>
<td>4.3 Site Maintenance</td>
<td>51</td>
</tr>
<tr>
<td>4.4 Risk Management</td>
<td>53</td>
</tr>
<tr>
<td>4.5 Conservation</td>
<td>54</td>
</tr>
<tr>
<td>4.6 Research</td>
<td>57</td>
</tr>
<tr>
<td>4.7 Tourism and Visitor Management</td>
<td>62</td>
</tr>
<tr>
<td>4.8 Community Awareness and Outreach</td>
<td>74</td>
</tr>
</tbody>
</table>

**CHAPTER 5: MONITORING AND IMPLEMENTATION**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Monitoring</td>
<td>76</td>
</tr>
<tr>
<td>5.2 Implementation</td>
<td>81</td>
</tr>
</tbody>
</table>

**LIST OF ABBREVIATION**

**BIBLIOGRAPHY**
CHAPTER 1

BACKGROUND DESCRIPTION OF PROPERTY AND PRESENT STATE OF CONSERVATION
BACKGROUND - DESCRIPTION OF PROPERTY AND PRESENT STATE OF CONSERVATION

1.1. The Nominated Property

1.1.1 The nominated property (Chart 1.1) is a serial nomination for two clusters; Cluster 1 and Cluster 2, combined as the Archaeological Heritage of the Lenggong Valley (or in short, AHLV).

Cluster 1 consists of Bukit Bunuh-Kota Tampan Core Zone (281.06 hectares) and its buffer zone (827.34 hectares). The total area for Cluster 1 is 1,108.40 hectares.

Cluster 2 consists of Bukit Jawa Core Zone (6.18 hectares) and the two limestone hill massifs of Bukit Kepala Gajah Core Zone (108.25 hectares) and Bukit Gua Harimau Core Zone (3.15 hectares). Together with its own buffer (959.43 hectares), Cluster 2 occupies 1,077.01 hectares.

The total area for the nomination is 2,185.41 hectares.

* The nominated property is referred to throughout the text as “Archaeological Heritage of the Lenggong Valley”, “AHLV” or “nominated property”.

---

**Chart 1.1: World Heritage nominated property “Archaeological Heritage of The Lenggong Valley”**
1.1.2 The map of Malaysia is as follows:

Figure 1.1: Location of Malaysia
1.1.3 The AHLV is located in the Malay Peninsula within the State of Perak. Within Perak it falls under the administrative boundary of Lenggong Sub-district which is part of the larger Hulu Perak District. It is located about 100 km north of the Capital State of Perak, Ipoh (see Figure 1.2 and Figure 1.3).

*Figure 1.2: The Geographical Location of Lenggong Valley in Malaysia*
CHAPTER 1

ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY

Figure 1.3: The nine principal local government districts in Perak. Hulu Perak is the largest district and is divided into Lenggong, Pengkalan Hulu and Gerik Sub-districts. The AHLV is located in the Sub-district of Lenggong.

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>AREA (KM²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HULU PERAK</td>
<td>6,563</td>
</tr>
<tr>
<td>KUALA KANGSAR</td>
<td>2,541</td>
</tr>
<tr>
<td>KINTA</td>
<td>1,958</td>
</tr>
<tr>
<td>BATANG PADANG</td>
<td>2,712</td>
</tr>
<tr>
<td>HILIR PERAK</td>
<td>1,727</td>
</tr>
<tr>
<td>PERAK TENGAH</td>
<td>1,282</td>
</tr>
<tr>
<td>MANJUNG</td>
<td>1,168</td>
</tr>
<tr>
<td>KRIAN</td>
<td>958</td>
</tr>
<tr>
<td>LARUT, MATANG &amp; SELAMA</td>
<td>2,096</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21,005</td>
</tr>
</tbody>
</table>

Legend:
- INTERNATIONAL BOUNDARY

Figure 1.3: The nine principal local government districts in Perak. Hulu Perak is the largest district and is divided into Lenggong, Pengkalan Hulu and Gerik Sub-districts. The AHLV is located in the Sub-district of Lenggong.
1.1.4 The geographical coordinates for the nominated property are given in Table 1.1 and Table 1.2 below:

**Table 1.1: Coordinates of Cluster 1 and Cluster 2 in the nominated property**

<table>
<thead>
<tr>
<th>Cluster/ Limits*</th>
<th>North</th>
<th>South</th>
<th>East</th>
<th>West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster 1</td>
<td>Latitude</td>
<td>5° 5'34.17&quot;N</td>
<td>5° 2'59.83&quot;N</td>
<td>5° 4'10.08&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude</td>
<td>100°58'0.29&quot;E</td>
<td>100°57'57.42&quot;E</td>
<td>100°58'39.97&quot;E</td>
</tr>
<tr>
<td>Cluster 2</td>
<td>Latitude</td>
<td>5° 9'16.49&quot;N</td>
<td>5° 6'46.93&quot;N</td>
<td>5° 7'49.84&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude</td>
<td>100°59'5.37&quot;E</td>
<td>100°59'39.08&quot;E</td>
<td>100°59'58.23&quot;E</td>
</tr>
</tbody>
</table>

*Limits refer to the extreme cardinal points for each cluster.

**Table 1.2: Central coordinates for the core zones in the nominated property**

<table>
<thead>
<tr>
<th>Core zone</th>
<th>Coordinate of centre point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bukit Bunuh – Kota Tampan</td>
<td>Latitude 5° 4’ 4.47”N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100° 58’ 20.38”E</td>
</tr>
<tr>
<td>Bukit Jawa</td>
<td>Latitude 5° 6’46.44”N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100°59’31.84”E</td>
</tr>
<tr>
<td>Bukit Kepala Gajah</td>
<td>Latitude 5° 0’ 34.30”N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100° 58’ 0.09”E</td>
</tr>
<tr>
<td>Bukit Gua Harimau</td>
<td>Latitude 5° 8’ 57.84”N</td>
</tr>
<tr>
<td></td>
<td>Longitude 100° 58’ 50.64”E</td>
</tr>
</tbody>
</table>
1.1.5 The following map (Figure 1.4) illustrates the map of Lenggong Valley showing the four core zones and buffer zones in Cluster 1 and Cluster 2.
1.2 The Criteria under which the Inscription is Proposed

Criterion (iii)

*Bear a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared.*

1.2.1 Archaeological Heritage of the Lenggong Valley is one of the longest culture sequences in a single locality in the world, covering an extraordinary range of nearly 2 million years and spanning all the periods of hominid history outside of Africa. The artefactual evidence for this is found in the open-air and cave sites which comprise the nominated property, situated in close physical proximity to one another within a crater created by an ancient meteorite strike located in a river valley which has remained geologically and environmentally stable for the past 2 million years.

1.2.2 The key markers in this long culture sequence can be seen in the excavated sites of: Bukit Bunuh, Kota Tampan, Bukit Jawa, Gua Gunung Runtuh and Gua Harimau.

1.2.3 The open-air site of Bukit Bunuh BBH 2007 located in Cluster 1 records the earliest hominid presence thus far known in Southeast Asia at 1.83 million years ago with the discovery of some of the oldest hand axes in the world and other tools embedded in suevite – a rock type formed under high heat and pressure that resulted from a meteorite impact dated by the fission-track technique to 1.83 million years ago.

1.2.4 Evidence for continued hominid presence in the Lenggong Valley is found in a long chronological series of *in-situ* open-air stone workshop sites located throughout Clusters 1 and 2 and extending from Bukit Jawa (200,000-100,000 years), to Kota Tampan (70,000 years), and to another Bukit Bunuh BBH 2001 site (40,000 years).

1.2.5 Kota Tampan in Cluster 1 is a rare example in the world of a prehistoric site where the cause and date of site abandonment can be determined. Presence of ash from the last catastrophic Toba volcanic eruption in the *in-situ* Kota Tampan site suggests that man had to suddenly flee the site because of this major catastrophe around 74,000 to 70,000 years ago, leaving behind his tool-making ‘equipment’ and both finished and unfinished tools in the workshop.
In addition to the open-air sites, the Lenggong Valley contains numerous cave and rock shelter sites which were occupied by the inhabitants of the valley during late Palaeolithic when both geological and climatic conditions created habitable floors in the caves. There are a total of five limestone massifs, containing caves and rock shelters within the nominated property’s core zones and buffer.

The cave sites in Cluster 2 - Gua Gunung Runtuh (13,000 - 1,000 years) and Gua Harimau (4,000 - 1,000 years) – which contain human burials among other archaeological finds such as earthenware and bronze artefacts, give further evidence of the prolonged and permanent presence of humans in the Lenggong Valley from the Palaeolithic through the Neolithic into the Metal Age. These sites give an extraordinary and unique insight into the culture, lifeways and burial practices of the prehistoric nomadic hunter-gatherers in the Lenggong Valley.

Gua Gunung Runtuh contained the remains of Southeast Asia’s oldest most complete Palaeolithic human skeleton, the iconic Perak Man, dated by the radiocarbon technique to the late Palaeolithic 10,120 ± 110 BP (Beta-38394). Analysis of the remains of Perak Man shows that he was born with a congenital deformity known as Brachymesophalangia type A2, a rare condition which continues to be present in modern human populations. The fact that the Perak Man skeleton was preserved in its entirety (an extremely rare occurrence in Southeast Asia due to climatic conditions which do not favour the preservation of human remains), enables us to understand the genetic make-up and medical history of early human populations.

Cave drawings by local aborigines bring the Lenggong Valley sequence up to historical times.

Criterion (iv)

Be an outstanding example of a type of building, architectural or technological ensemble or landscape which illustrates a significant stage in human history.
1.2.10 Human existence during the Palaeolithic, the longest period in human history, centred around stone resources. Stones provided the raw material for the earliest tools and the archaeological remains of stone tools and stone workshop sites are important evidence of early man’s ability to make and use tools. Thus, the discovery of numerous undisturbed in-situ stone tool workshops in the Lenggong Valley dated in a long chronological sequence covering the entire Palaeolithic period provides a key to the understanding of the development of human culture in Southeast Asia at this significant stage of human history.

1.2.11 In-situ Palaeolithic sites are rare globally because climatic changes and catastrophic climate events such as floods which occur repeatedly over time, tend to erode many of the oldest sites and displace the artefacts contained therein. This, coupled with repeated human activity at many sites, can destroy sites and disturb the original association and seriation of artefacts causing damage to the integrity of most Palaeolithic occupation sites and diminish the validity of archaeological evidence through the loss of the original context.

1.2.12 Archaeological Heritage of the Lenggong Valley provides an outstanding and extraordinary record of the Palaeolithic technological ensemble of prehistoric people. With their rich and unique evidence of in-situ stone tool workshops spanning a 200,000-year period of time, these sites reflect the evolution of human cognitive complexity in the form of a rational and systematic mind, an understanding of lithology and an efficient method of stone tool production. An outstanding example of lithic manufacturing of the Palaeolithic period is to be found at the in-situ Kota Tampan site which has become an important global reference site for Palaeolithic tool production.

1.2.13 The undisturbed archaeological sites in the Lenggong Valley are unique because they preserve in-situ an outstanding record of the evolution of human cognitive complexity evidenced by the development of lithic tradition and stone tool technology over an extremely long time sequence from 1.83 million years ago to the recent past.
1.2.14 The cultural sequence of the nominated property is illustrated in Chart 1.2 below.

*Chart 1.2: The chronological sequence of the AHLV*
1.3  The Proposed Outstanding Universal Value

1.3.1  The AHLV, which comprises both open-air and cave sites, provides a series of chronologically-ordered and spatially-associated culture sequences from the Palaeolithic through the Neolithic to the Metal period. These sites have been chronometrically dated from 1.83 million to 1,000 years ago. Thus, the AHLV is one of the longest archaeological culture sequences found in a single locality in the world.

1.3.2  The AHLV also contains a large number of undisturbed *in-situ* Palaeolithic sites making it, in this respect, unique outside of Africa and of extraordinary importance for the study of the culture of Palaeolithic man. *In-situ* Palaeolithic sites are extremely rare because over the long time periods involved, natural processes and human activities disturb original context, obscuring and confounding the cultural record.

1.3.3  The extraordinary survival of very early Palaeolithic archaeological evidence at Bukit Bunuh BBH 2007 in the AHLV is due to the fact that a meteorite impact 1.83 million years ago preserved many Palaeolithic stone tools in the melted suevite.

1.3.4  Evidence for continued hominid presence in the AHLV is found in a long chronological series of *in-situ* open-air stone workshop sites extending from Bukit Jawa (200,000-100,000 years) to Kota Tampan (70,000 years), and to Bukit Bunuh BBH 2001 (40,000 years).

1.3.5  Kota Tampan is a rare example in the world of a prehistoric site where the cause and date of site abandonment can be determined. Presence of ash from the last catastrophic Toba volcanic eruption in the *in-situ* Kota Tampan site suggests that man had to suddenly flee the site because of this major catastrophe around 74,000 to 70,000 years ago, leaving behind his tool-making ‘equipment’ and both finished and unfinished tools in the workshop.
1.3.6 Prior to the excavation of Kota Tampan in 1987, little was known about how prehistoric man made stone tools in Southeast Asia and it had been assumed that the lithic tradition in this part of the world was under-developed. Because Kota Tampan is an undisturbed Palaeolithic stone tool workshop, the association of artefacts (raw materials, completed as well as unfinished tools, and tool-making debris) is clearly visible. This assemblage of artefacts has revealed and made possible the identification and classification of multiple tool types with specialized functions and is evidence of a lithic technology in Southeast Asia as sophisticated as anywhere else in the world. Furthermore, this in-situ stone tool workshop provides a mean to understand the cognitive behaviour of the tool makers. Their choice of raw material, an understanding of lithology, and an efficient method of production reveal a rational and systematic approach to tool-making. This has made Kota Tampan an important global reference site for Palaeolithic stone tool-making.

1.3.7 Perak Man, buried in the cave site of Gua Gunung Runtuh, is the only prehistoric skeleton in the world born with a congenital deformity known as Brachymesophalangia type A2. He is also the oldest, most complete skeleton found in Southeast Asia, chronometrically dated to 10,000 years ago. Extensive studies on Perak Man and the associated mortuary goods provide a very rare insight into Palaeolithic life, disease, belief systems and burial rituals.

1.3.8 The AHLV is singularly significant for dating the earliest presence thus far known of prehistoric people in Southeast Asia. The undisturbed archaeological sites in the AHLV are exceptional because they preserve in-situ an outstanding record of the evolution of human cognitive complexity evidenced by the development of lithic tradition and stone tool technology over an extremely long time sequence from 1.83 million years ago to the recent past, covering the Palaeolithic, Neolithic and Metal ages.

1.3.9 These archaeological discoveries, all located within a single valley whose geology and environment have remained stable over the past 2 million years, provide important milestones in dating the presence of prehistoric people in Southeast Asia and impact on theories concerning the expansion of hominids throughout Australasia and the evolution of their stone tool cultures, making the AHLV a unique cultural landscape of outstanding universal value for the study and understanding of prehistoric man.
1.4 Excavation Sites in the Nominated Property

Excavation sites in Bukit Bunuh-Kota Tampan Core Zone of Cluster 1

1.4.1 Within Bukit Bunuh-Kota Tampan Core Zone, there are two open-air sites namely Bukit Bunuh (BBH) (Photo 1.2) and Kota Tampan (KT) which are approximately 1 kilometre apart. These sites together cover a significant part of a palaeolake shore and old river terraces. Finds of immense impact to world archaeology made from excavations, past and on-going, at these Bukit Bunuh and Kota Tampan sites have shown that they are unique and rare in-situ Palaeolithic workshop sites separately dated to about 40,000 and 70,000 years ago respectively. The proximity of Bukit Bunuh and Kota Tampan and the continuity of gravel beds, similar sources of the raw materials and lithic tradition allow them to be treated as a single Bukit Bunuh–Kota Tampan Core Zone.
1.4.2 The Bukit Bunuh BHH 2007, in addition, bears the geological scars of a meteorite impact (Photo 1.3) which has been dated to 1.83 million years ago by fission-track technique. The site is strewn with impact breccias such as suevite and other impactites. Hand axes and other tools embedded in suevite and recovered from Bukit Bunuh are the extraordinary key witnesses to the presence of early man in the valley at 1.83 million years ago.
1.4.3 Thus, the Bukit Bunuh sites bear testimony to two prehistoric periods. These two separate prehistoric periods and the sites connected to them are labelled BBH 2001 for the 40,000 year old cultural layer, and BBH 2007 for the 1.83 million old impact event.

1.4.4 At Kota Tampan, two series of excavations were conducted. The excavation site and trenches from 1987 are labelled KT 1987, while the site and trenches from the 2005 excavation are labelled as KT 2005.

1.4.5 A catastrophic event, the Toba mega-colossal volcanic eruption dated by OSL (optically stimulated luminescence) to at least 70,000 years ago, had mingled its volcanic ash with the lithic artefacts recovered at Kota Tampan and this mixture has suggested the 70,000-year date for the lithic workshop sites there.

1.4.6 At Kota Tampan sites (Photo 1.4), stone assemblages uncovered from trenches KT 1987 and KT 2005 show that the Palaeolithic inhabitants of Kota Tampan then had a good understanding of the raw materials (quartz and quartzite) and knew how to produce tools that would be the most economic and efficient in terms of their manufacture and use, that is, they were forming and experiencing a mental or cognitive template for stone tool-making.
1.4.7 Quartzite flakes (hardness 7), were present by the thousands in the trenches and could not all have been broken and concentrated in the sand and gravel by natural processes. Quartzite produces a sharp edge upon flaking. The sharp edge will be blunted or rounded during water transport. The presence of so many pieces with sharp edges in an assemblage precludes their formation by natural processes elsewhere at source to be transported to the Kota Tampan site by river flow. Besides this, many broken pieces could be fitted together and identifiable attributes for various tool types were repeatedly found. Thus, the workshop site is considered in-situ and a remarkable and rare demonstration of lithic technology from the Palaeolithic period.

1.4.8 In addition, the spatial arrangement of artefacts observed during the excavation, (for instance, between anvils and flakes, and flakes and cores), together with the positions of the anvils with battered marks on their top surfaces and the cores and flakes that could be conjoined (refitted), strengthen the suggestion that the artefacts are in-situ, or undisturbed.

1.4.9 The cause of the abandonment of the site that left the workshop in the undisturbed state was a catastrophic natural event. This catastrophic event was the mega-colossal Toba volcanic eruption generally recognised to have happened 74,000 years ago. The evidence of this association of the workshop and the Toba eruption lies in the commingling of volcanic ash with stone tools at Kota Tampan. A chronometric OSL dating at the cultural layer at a Kota Tampan of KT 2005 independently provided a date of 70,000 years ago. Together these dates fix the time of the abandonment to 74,000 – 70,000 years ago.
Figure 1.4: Soil stratigraphy at excavation trench in Kota Tampan

Excavation sites in Cluster 2

1.4.10 Cluster 2 comprises of three core zones - the open-air Bukit Jawa Core Zone, and the two limestone massifs belonging to the Bukit Kepala Gajah Core Zone and Bukit Gua Harimau Core Zone - from which have been recovered important archaeological remains which together testify to a uniquely long culture sequence of prehistoric presence from the Palaeolithic through the Neolithic to the Metal Age in the AHLV.
**Bukit Jawa Core Zone**

1.4.11 The Bukit Jawa Core Zone has been interpreted as a Palaeolithic tool workshop site on the shores of an island in a palaeolake now long desiccated. The zone is generally undisturbed with the cultural layer protected by a thick overburden. A road-building project prompted a rescue operation and two sites, BJ 1 and BJ 2, were selected. BJ1 and BJ2 were some 400 metres apart and located at the southern and northern shores of the palaeo-island respectively. The richness and extent of the finds from both sites suggest that the Palaeolithic population was relatively high, practised a similar lithic technology through time and probably settled on this site because it was a source of the raw material. Since then, the new road destroyed BJ 1 and BJ 2. A new site about 100 metres away from the road has been excavated and similar materials were recovered from it. This site is now protected under the National Heritage Register (Gazette No: P.U. [B] 149).

1.4.12 The technique of tool-making using anvils and hammerstones was similar to but not as technologically developed as that uncovered at Kota Tampan. The completed tools appear to be prototypes of Kota Tampan. Generally, they were mostly from quartz, large and crudely produced with large flakes, and reminiscent of middle Palaeolithic tools. Some are so massive as to require holding with both hands.

**Bukit Kepala Gajah Core Zone**

1.4.13 Bukit Kepala Gajah Core Zone comprises of three important cave sites, namely Gua Gunung Runtuh, Gua Kajang and Gua Teluk Kelawar.

1.4.14 **Gua Gunung Runtuh** was used as an intentional burial for the Perak Man (Photo 1.5) during the late Palaeolithic, about 10,120 ± 110 BP. Detailed analyses on the remains of Perak Man indicated that he was a hunter-gatherer of the Australomelanesoid affinity. The body of Perak Man was probably prepared for burial before *rigor mortis* set in and mortuary goods were placed around the body. Perak Man was buried with 10 stone tools, 2,878 of *Brotia* shells and meat whose bone residues weighed 1.261 kg. Furthermore, forensically, Perak Man is the only prehistoric skeleton in the world bearing sign of a congenital deformity known as *Brachymesophalangia* type A2. Perak Man is the oldest most complete modern human skeleton found so far in Southeast Asia. Perak Man is now a National Heritage Object (Gazette No: P.U. [B] 235).
1.4.15 A joint Department of National Heritage Malaysia and University of Science Malaysia (USM) excavation was carried out in Gua Kajang in 2007. This excavation indicated that the cave had been used between about 10,820 ± 60 BP and 7,890 ± 80 BP (radiocarbon dates from riverine shells).
1.4.16 At Gua Kajang, two human burials (GK 1 and GK 2) from possibly different cultural layers were also uncovered. However, these skeletons were not complete. GK 1, a 50% incomplete female skeleton, was found face down and probably in a flexed position (prone-flexed) with legs folded to the chest and arms folded to the shoulders. Approximately 1 metre away and southeast of GK1, the leg bones of the other human skeleton (GK 2) were found. The skeletal remains of GK 1 and GK 2 were identified as adults but their ages at death cannot be determined. Palaeoanthropological studies show that GK 1 bears *Australomelanesoid* features, which is quite consistent among the late Palaeolithic skeletons uncovered so far in the AHLV.

1.4.17 Systematic excavations in **Gua Teluk Kelawar** uncovered a human burial in 2004. The skeleton known as GTK 1 was found buried in a tight foetal position, its bones extremely fragile, poorly preserved and in part crushed beyond recognition. An associated shell sample from the burial has been radiocarbon dated to 8,400±40 BP (Beta-193000).

1.4.18 Associated with the GTK 1 burial were stone tools, animal bones and *Brotia* shells that are similar to the mortuary goods of both Perak Man and GK 1. A palaeoanthropological study showed that GTK 1, a female, was of the *Australomelanesoid* stock, just like the Perak Man.

**Bukit Gua Harimau Core Zone**

1.4.19 **Gua Harimau** (Photo 1.6) is the only large cave site in this core zone and was briefly investigated by Williams-Hunt in 1951 who found skeletal remains of a juvenile associated with a stone adze and pottery that was radiocarbon dated to 3,450 ± 150 BP (Williams-Hunt 1952). Further excavations conducted by the Centre for Global Archaeological Research (CGAR) at University of Science Malaysia during the 1987-88 seasons uncovered seven more human burials (Burial 1 – Burial 7), dated to between 4,920 ± 270 BP and 1,760 ± 195 BP.

1.4.20 In 1995, four further human burials (Burial 8 – Burial 11), dated to between 3,170 ± 60 BP and 3,080 ± 60 BP were also found in Gua Harimau. The burials 1 to 11 were found incomplete and in very fragile conditions. A variety of burial items such as earthenware vessels, stone tools, stone adzes, bark-cloth beater, shells and stone ornaments, food remains, bronze axes and bronze moulds were associated with these burials.
1.4.21 Gua Harimau can be considered to hold the most representative set of pottery found in the AHLV. Most were cord-marked bowls and footed vessels shaped from local clay. These types were common throughout prehistoric mainland Southeast Asia.

![Photo 1.6: The entrance of Gua Harimau](image)

1.5 Present State of Conservation

1.5.1 Statutory protection is carried out by the enforcement of national laws jointly applied in collaboration between the Lenggong District Council representing the State of Perak Government and the Department of National Heritage representing the Government of Malaysia.

1.5.2 Currently, site management is carried out by the Department of National Heritage in collaboration with the Lenggong District Council (the local authority), and with the occasional assistance of the Centre for Global Archaeological Research (CGAR).

1.5.3 The Department outsources basic maintenance (grass cutting, sweeping, cleaning) to private contractors at the important sites. Protective sheds have been built over open-air sites.
1.5.4 Funding for all these constructions and services come from the Department of National Heritage. Regular supervision and monitoring of the properties are provided by the Department of National Heritage.

1.5.5 The Lenggong District Council has constructed directional signs to several of the archaeological sites on their own initiative and at their own expense.

1.5.6 The CGAR has been awarded research grants from both the Ministry of Higher Education and the Department of National Heritage to investigate the archaeology of the nominated property and inspects the properties at both clusters and reports any problems to the Department of National Heritage.

1.5.7 **Bukit Bunuh**: At the 40,000-year old Bukit Bunuh BBH 2001 stone workshop site, a total of 20 trenches were excavated, 5 have been back-filled since 2005 while the remaining 15 trenches are being considered either for backfilling or preparation for display.

1.5.8 All the stone artefacts excavated from Bukit Bunuh have been analysed, studied and the result of the study has been published. The majority of these stone artefacts are now stored at CGAR, USM.

1.5.9 The original and first piece of suevite with the embedded hand axe that has been dated to 1.83 million years ago is kept temporarily at CGAR for further research and study (BBH 2007). In 2009, this hand axe embedded in suevite was inscribed as a National Heritage Object (Gazette No: P.U. [A] 399) in the National Heritage Register. Since this first find, 14 other stone hand axes similarly embedded in suevite have been recovered.

1.5.10 At Bukit Bunuh, suevite and stone artefacts were found scattered on the surface and subsurface over an area of about 268.31 hectares. These suevite boulders have neither known commercial nor ornamental value and therefore they are being left undisturbed in Bukit Bunuh. Archaeologists from CGAR conduct frequent field surveys to map or collect the surface stone artefacts. Over a thousand other stone tools embedded in suevite have been mapped on the site. It should be noted however that the impact breccias may have value to some rock collectors.

1.5.11 Exploitation of mineral resources is controlled by state authorities and permission is likely to be withheld now that the site has recognised heritage value and implications for tourism.
1.5.12 **Kota Tampan**: Kota Tampan is represented by trenches at excavation sites, KT 1987 and KT 2005. In 2009, Kota Tampan was inscribed on the National Heritage Register (Gazette No. – in process).

1.5.13 At the KT 1987 excavation site, the original workshop site is currently under restoration after being back-filled in 1999.

1.5.14 The excavated stone artefacts from KT 1987 have also been analyzed, inventoried and the results from the study have been published.

1.5.15 Some of the stone artefacts from KT 1987 are currently being displayed at the Lenggong Archaeological Museum (LAM), while the rest are kept at the CGAR, the National Museum, and the Department of Museums Malaysia in Kuala Lumpur, and Matang Museum.

1.5.16 All the three excavated trenches from KT 2005 have been left in-situ and are currently protected by roofed structures.

1.5.17 The excavated stone artefacts from KT 2005 have been analyzed, inventoried and the results from the study have been published. All the artefacts from KT 2005 are now stored at the LAM.

1.5.18 The old sites of BJ1 and BJ2 at **Bukit Jawa** where rescue excavations were carried out have been completely destroyed by construction of the highway in 1996.

1.5.19 The stone artefacts recovered during the rescue excavation have been studied and the results of the study have been published, and most of these artefacts are now stored at CGAR while some of the better pieces are displayed at the LAM.

1.5.20 New trenches were opened adjacent to a cutting at the Bukit Jawa site by CGAR in 2005. The cutting exposed an in-situ gravel layer with stone tools. The excavated trenches, are now protected by a roofed shed to display the cultural layer at Bukit Jawa.

1.5.21 In 2009, Bukit Jawa was inscribed on the National Heritage Register (Gazette No: P.U. [B] 149).

1.5.22 There are more than 20 caves located in the Bukit Kepala Gajah limestone massif. All the archaeologically significant cave sites have been well-studied and they are Gua Gunung Runtuh, Gua Teluk Kelawar and Gua Kajang.
1.5.23 The caves at Bukit Kepala Gajah have been frequently disturbed by guano diggers up until the early 1990s. However, the Lenggong Land and District Office has stopped issuing guano digging licenses since 1996.

1.5.24 Vandalism particularly the writing of graffiti on walls has been seen in some of the caves. It is particularly noticeable at Gua Kajang and Gua Teluk Kelawar. Signages on rare occasions have been damaged.

1.5.25 **Gua Gunung Runtuh**: Of the 16 excavated trenches in 1990-1991, only trenches A1 and A2 have been protected to show visitors the Perak Man’s burial plot. This site will be included as part of the tourist attraction. All the excavated artefacts from 1990-1991 have been studied and the results of the study have been published, and most of the better pieces are exhibited at the LAM.

1.5.26 The Perak Man skeleton was first conserved *in-situ* and prepared for transfer to the laboratory at CGAR. At CGAR, the skeleton was preserved in a custom-made air-tight glass cabinet with a constant relative humidity of 45% to 50% and a constant temperature of around 20°C. In 2008, Perak Man was inscribed as a National Heritage Object (Gazette No: P.U. [B] 235) in the National Heritage Register. The Perak Man skeleton is now preserved and displayed at Gallery 2 of the National Museum in Kuala Lumpur.
1.5.27 The site of Gua Gunung Runtuh (Photo 1.7) is monitored and maintained by the Department of National Heritage under the Ministry of Information, Communications and Culture Malaysia.

1.5.28 The maintenance of this site is very basic. It consists of undergrowth trimming, trash collection and removal, and clearing of the access trail to the important cave.

1.5.29 The dryness of the interior of the cave has slowed down natural deterioration caused by plant growth and rock falls, and kept the bat population low.

1.5.30 In 2009, Gua Gunung Runtuh (Gazette No: P.U [B] 494) was inscribed on the National Heritage Register.

1.5.31 Gua Teluk Kelawar: Since 1998, Gua Teluk Kelawar (Photo 1.8) was often used as a site for an archaeological field school for undergraduate students from CGAR. Artefacts recovered are analyzed, inventoried and temporarily stored at CGAR.
1.5.32 The inner floor of the rock shelter has been badly disturbed by guano collectors. Holes dug by guano collectors and trenches left by archaeological students remain as is.

1.5.33 In 2005, an incomplete human skeleton (GTK 1) dated about 8,000 years ago was discovered at Gua Teluk Kelawar. This skeleton was conserved in-situ, removed, examined and the results published. The skeleton is now kept at CGAR in a specially built dry cabinet in order to preserve it.

1.5.34 The maintenance of this site is very basic. It consists of undergrowth trimming, trash collection and removal, and clearing of the access trail to this rock shelter. The access to this site is not restricted or guarded. The management plan will propose improvements to the site management and conservation.

1.5.35 Gua Kajang: Archaeological excavation in Gua Kajang was first conducted by Evans in 1917. However, the old trenches can no longer be traced. In 1990, two 1m x 1m trial trenches were excavated by Chia (1997) who recovered some Neolithic pottery sherds.
1.5.36 In 2007, an excavation conducted by Goh (2008) uncovered some human remains from the late Palaeolithic period. The human bones have been conserved, studied, and the results have been published. The bones are now preserved at CGAR.

1.5.37 The maintenance of Gua Kajang as at Gua Teluk Kelawar is very basic. The management plan will propose improvements to the site management and conservation.

1.5.38 **Gua Harimau**: The interior of this cave has suffered from guano digging in the past which fortunately have been halted and discontinued. The site was also used a goat pen in the early 1970s.

1.5.39 The site was first excavated by William-Hunts in 1952 and later by Zuraina in 1988 and Zolkurnian in 1997. The excavation uncovered 11 human remains mostly in fragments associated with Neolithic-Metal period pottery, bronze celts and moulds, shell necklace, stone and shell bracelets, shell earrings, bark-cloth beater and food remains. Most of the artefacts are now preserved and displayed at the LAM.

1.5.40 Gua Harimau is easily accessible by foot on a dirt track through a rubber plantation. Graffiti using charcoal or marker pens left by irresponsible visitors can be seen on the walls of the cave.

1.5.41 The excavation site is located at the cave entrance facing south and is somewhat exposed to the elements. The excavation trenches will be considered for back-filling.

1.5.42 The maintenance of this site is very basic too.

### 1.6 Existing Legislation and Guidelines Protecting the AHLV

1.6.1 The preservation and conservation of the sites will conform to the common principle of practice that are undertaken and enforced by the various government agencies such as the Department of National Heritage, the Department of Museums (both within the Ministry of Information, Communications and Culture), the Department of Town and Country Planning and various local authorities (both within the Ministry of Housing and Local Government) in the whole of Peninsular Malaysia. Each in their own way with their own set of operating procedures and policies and together in collaboration plays very important roles in maintaining and safeguarding the heritage entities within the country.
1.6.2 The following legal instruments in Malaysia will be invoked to preserve and conserve the nomination of the AHLV as World Heritage Site:

1.6.2.1 Land Acquisition Act, 1960 (Act 486) and amendments to date

This is the Act that relates to land acquisition and the assessment of compensation to be made on account of such acquisition, and other matters related thereto.

1.6.2.2 Local Government Act, 1976 (Act 171) and amendments to date

Generally this Act covers the lowest form of government which is often under the exclusive purview of the State government (State Authority). Local government is enforced by appointed officials (and occasionally elected) who form a local authority council with the power to collect assessment taxes, create laws and rules referred to as by-laws, grant licenses and permits for any trade, provide basic services and amenities such as waste and garbage collection and treatment, and plan and develop the area under its jurisdiction. The nominated property falls within the Lenggong District Council.

Together with certain provisions in the Town & Country Planning Act (vide), this Act empowers local authorities to contribute in maintaining historic buildings or sites and acquire any land with or without buildings for the purpose of protecting the significant context of the site. Part XII Section 101(C)(iv) of the Act provides local planning authority the power to contribute in the maintenance of a building or historic site and the power to acquire land for the specific purpose for maintaining a building or historic site. The Act also enables local authorities to raise or receive grants toward establishment and maintenance of public monuments and memorials, art galleries and museums.

1.6.2.3 Town and Country Planning Act, 1976 (Act 172) and amendments to date

This is the Act for the proper control and regulation of town and country planning in Peninsular Malaysia and for related purposes. Several amendments provide relevant powers to the local authority to make provisions that will assist in the preservation and protection of the nomination.

One of these is a section under Part V-A of the Act to provide a Tree Preservation Order that allows a local planning authority to place a preservation order on a tree or group of them. This recognizes that trees can be essential components for an area to be conserved.
Another later (2001) amendment, Section 16B (1), allows the State Director of Town Planning or the local planning authority, on their own or on the direction of the State Planning to prepare a Special Area Plan (SAP) for an appropriate area for conservation purposes. The plan will contain detailed guidelines for implementation and management of the site. Such designated sites can then be gazetted for protection against interventions that would destroy its integrity in respect to its heritage value.

Development control is exercised by local authorities since every development proposal must obtain planning permission before it can be implemented. This ensures that development is in accordance with the specified regulations and guidelines that have been imposed on the site where the intended development is to be carried out.

Another section, 58, allows unlimited and discretionary authorization for the State Authority (state government) and the National Physical Planning Council to make addition rules to expedite this Act for, among others, protection of ancient monuments, lands and buildings that have historic or architectural significance.

1.6.2.4 National Heritage Act, 2005 (Act 645)

This is the enabling Act which provides for the conservation and preservation of national heritage, natural heritage, tangible and intangible cultural heritage, underwater cultural heritage, treasure trove and for related matters. The scope of the new Act is decidedly wide and all encompassing. It is a comprehensive legislation casting a broad net over both tangible and intangible, natural and cultural heritage and how it is to be administered and enforced.

The Act is divided into 17 Parts with 126 Articles to include provisions for administration of the act, the formation of a National Heritage Council, Heritage Fund, National Heritage Register, Designation of Heritage Site, Declaration of Heritage Object, Underwater Cultural Heritage, Declaration and Protection of National Heritage, Treasure Trove, Licensing, Appeal, Enforcement Powers and Offences.

It was tabled to Parliament for approval on the 6th December 2005 and came into effective as a national law on the 1st March 2006. This Act, in general, considered all provisions of the Antiquity Act 1976 and Treasure Trove Act 1957; therefore these two Acts were repealed on the same date.
**Definition of Heritage:** The scope and definition of heritage as stipulated in the Antiquity Act 1976 was limited to monuments and heritage sites. This National Heritage Act 2005 extends the scope and definitions of heritage to include not only tangible but also intangible characteristics so that they now very closely resemble the scope and definitions adopted or recommended by UNESCO and ICOMOS.

**Administration of Heritage:** The Act clarifies the management of heritage in the country and recognizes, for the first time, a specialised management unit under the newly formed Ministry, the Ministry of Culture, Arts and Heritage (currently known as the Ministry of Information, Communications, and Culture). The Acts places high responsibility on its Minister, who is authorised to issue policies, statements or directives with regards to heritage protection and activities. In general, the Act ensures both federal and states authorities are in agreements on any decisions made on heritage matters; thus conflict can be avoided or minimised.

To administer the country’s heritage and to carry out the powers and functions of the Act, a Commissioner of Heritage has been appointed. The Commissioner’s numerous functions include, *inter alia*, the designation of sites, registration of objects and underwater cultural heritage; establishment and maintenance of the National Heritage Register and the determination and specification of the categories of heritage to be listed in the Register; establishment and maintenance of the liaison and cooperation with the State Governments in respect of conservation and preservation of heritage matters; advising and coordination with the local planning authority, the Council and other bodies and entities at all levels for the purpose of safeguarding, promoting and dealing with any heritage and the provision of advice to the Minister with regard to any matter in respect of conservation and preservation of heritage.

**National Heritage Council:** In making decision on matters related to heritage, both the Minister and Commissioner of Heritage may receive advice and guidance on administration, enforcement and all matters relating to heritage from the National Heritage Council [Part IV, Article 9(1)] on which sit representatives of many different agencies. However, the Minister and Commissioner of Heritage are not bound to act upon the advice of the Council [Part IV, Article 9(2)].
**Heritage Fund:** Under the Act, Heritage Fund (Part V) which is controlled by the Commissioner of Heritage for the purposes of conservation and preservation of any heritage area, research, study, publication of materials and any other expenses for the purposes of this Act. It provides means of acquiring the fund, such as, money from government grant from Consolidated Fund, donations, levy, investments and external loans to name a few. Already in 2006, the Government has allocated RM35 million (US$10 million) in the fund, and about RM100 million (US$29 million) more under the 9th Malaysia Plan (2006 to 2010). The highest commitment by the Government to protect and promote the country heritage is thus abundantly clear.

**National Heritage Register:** One of the many strengths of the Act is that, it requires the establishment of a National Heritage Register that contains a list of inscribed tangible and intangible, cultural and natural objects and sites that are important to the country. The criteria and procedures for inscription are clearly enunciated in the Act.

The power to declare a site, building or objects as a National Heritage lies only with the Minister; and before declaring such a site, the Minister has to consult and get agreements from:

i. The State – if the heritage is situated on state land;
ii. The Owner, Trustee or Custodian of the heritage;
iii. For the Living Person – consent from the person is required;
iv. For the intangible with copyright – copyright owner has to agree.

Among those listed in the National Heritage Register are:

In summary:

1. Kota Tampan site was inscribed in the National Heritage Register in 2009 (Gazette No: in process).
2. Gua Gunung Runtuh site was inscribed in the National Heritage Register in 2009 (Gazette No: P.U. [B] 494).
3. Bukit Jawa site was inscribed in the National Heritage Register in 2009 (Gazette No: P.U. [B] 149).
4. Perak Man was declared a National Heritage Object in 2007 (Gazette No: P.U. [B] 235).
5. The first hand axe found embedded in suevite was declared a National Heritage Object in 2009 (Gazette No: P.U. [A] 399).
Amendments to the National Heritage Act 2005 to protect Malaysian sites enlisted into the UNESCO World Heritage List have been completed and will be tabled before the 2011 Malaysian Parliamentary sitting.

In conclusion, the Acts mentioned above allow for the preservation and conservation of national heritage effectively, with the involvements of Federal and State governments working in concert. In addition, both Federal and State governments will be aware of national obligations to the World Heritage Convention which Malaysia acceded to in 1988.

1.6.3 Existing Plans Related to the AHLV

1.6.3.1 The management plan for the AHLV complements plans embedded in the Ninth and Tenth Malaysia Plan, Northern Corridor Economic Region (NCER) Initiatives, Perak Spatial Development Strategy, Perak State Seventh Structural Plan and District of Hulu Perak Local Plan.

1.6.3.2 The Ninth Malaysia Plan (2006-2010): The Ninth Malaysia Plan represented the five-year blueprint of the National Mission, outlining the policies and key programmes aimed at fulfilling the Mission’s thrusts and objectives for the period of 2006-2010. It also represented the first of three Malaysia Plans that form the National Mission to achieve Vision 2020. As such, the Ninth Malaysia Plan is consistent with the ambition to build a country with an advanced economy which is balanced, honourable, skilled, progressive and far-sighted.

In the Ninth Malaysia Plan, there were two core thrusts that affected the Lenggong District, namely the agricultural and tourism sectors. The government planned to further expand the national agricultural sector by opening up more lands, replanting programmes for rubber and oil palm trees, agricultural infrastructure development, enhancing productivity through new technologies, research and development, and human capital development. The expansion of national agriculture sector bypassed the core zones of the nominated property.
In relation to tourism development, a number of strategic thrusts were put forward. Among them were to focus on sustainable tourism development, and enhancing tourism products and services. The sustainable tourism development policy stressed on preserving and enhancing natural and cultural assets that are susceptible to environmental damages. Local authorities and communities were encouraged to be more actively involved in project preparation, implementation and maintenance to ensure adverse environmental impact is minimised. Based on that principle as well, several sustainable tourism development products were planned including ecotourism, agrotourism and homestay, and heritage tourism. These strategic thrusts may have direct or indirect impacts on the AHLV’s tourism sector.

1.6.3.3 The Tenth Malaysia Plan (2011 – 2015) has been formulated with various new approaches towards becoming a high income and high productivity economy, in line with the New Economic Model. The main approach to achieve that will be to adopt strategies based on specialisation, given that strong and sustainable competitiveness is difficult to achieve without specialisation. This Plan will focus on 12 national key economic areas (NKEAs) which have potential to generate high income. The following are the NKEAs:

i. Oil and gas;
ii. Palm oil and related products;
iii. Financial services;
iv. Wholesale and retail;
v. Tourism;
vi. Information and communications technology (ICT);
vii. Education services;
viii. Electrical and electronic;
ix. Business services;
x. Private healthcare;
xi. Agriculture; and
xii. Greater Kuala Lumpur.
Thus, the above key economic areas that are related to Lenggong District will be mainly palm oil sector, agriculture, and tourism industry. Besides the focus on the key economic areas, the Tenth Malaysia Plan is also relied on the existing cluster development initiatives such as the Northern Corridor Economic Region (NCER). The cluster-based development approach that will be adopted in the corridors will exploit the potential and available resources and serve as a catalyst to growth. Cluster development will focus on selected sectors as well as identify key investors, including government-linked companies and the private sector, to lead the development of clusters in the corridors. In addition, connectivity and linkages between the clusters and its suburban and rural hinterland will be improved to ensure direct benefit to these areas.

The Tenth Malaysia Plan is also concerned with the well-being of the country’s environmental condition. The Government will, therefore, promote economic opportunities that create value from conservation. For example, ecotourism can generate income particularly for local communities to encourage the conservation of the country’s flora and fauna. This is evident in the case of Belum Forest (in Hulu Perak District) which is currently being developed and promoted as an ecotourism destination and included in the NCER initiatives and Perak State Structural Plan.

1.6.3.4 **Northern Corridor Economic Region (NCER):** The Northern Corridor Economic Region development programme is a Government initiative to accelerate economic growth and elevate income levels in the northern region of Peninsular Malaysia – encompassing the states of Perlis, Kedah, Pulau Pinang and the north of Perak. The NCER initiative will span from 2007 to the end of the 12th Malaysia Plan period, i.e. 2025.

There are a number of objectives behind the NCER initiative. Firstly, the programme is part of the Government’s commitment to helping the Region maximise its economic potential and closing the development and income gap between the different regions in Malaysia. Secondly, the Malaysian economy aims to move towards higher value-added and knowledge-based economic activities to drive further increases in per capita income. The NCER has the potential to make Malaysia a regional leader in a number of these sub-sectors.
In the NCER initiatives, Hulu Perak District and Lenggong District are located within the Butterworth-Kulim-Baling-Pengkalan Hulu-Grik Corridor. The Hulu Perak District including Lenggong Sub-district are strategically planned to become the region’s major food production zones. The predominant activity is agriculture, ranging from commercial crops (rubber and oil palm) to fruit orchards, fisheries and animal husbandry. For this purpose, the Ministry of Agriculture has identified 202 hectares of land in Lenggong District as suitable for aquaculture activities. However, the above development initiatives bypass the nominated property.

Besides agricultural-based industries, Hulu Perak is also programmed to be nature and adventure holiday destination which is centered on Gerik (the administrative centre of Hulu Perak). Amongst the planned initiatives are:

i. Enhancing connectivity to the major highways e.g. North-South Expressway.
ii. Courting major investors to set up a wildlife conservation centre within the Royal Belum Forest as an anchor tourist attraction.
iii. Establishing forest adventure activities that meet the standards required to attract foreign tourists e.g. survival camps, 4WD races, dirt biking and jungle paint balling.
iv. Establishing selected river activities.
v. Establishing a number of smaller niche attractions e.g. farm tours and treetop walks in the Royal Belum Forest.

1.6.3.5 Perak Spatial Development Strategy: The Perak Spatial Development Strategy is aimed at achieving a balanced and integrated development agenda. The state has been divided into four development corridors. The nominated property falls within the North Eastern Corridor. The strategy for this corridor outlines the need to sustain its bio-diversity, wildlife and natural heritage. This will in part involve upgrading and expansion of appropriate infrastructure. The nominated property of AHLV was not included in this spatial development strategy.

The Perak Spatial Development Strategy is interpreted in the formulation of the Perak Structure Plan which in turn determines the Hulu Perak Local Plan. The Perak Structure Plan (2001-2020) and the Hulu Perak Local Plan (2002-2015) which include the Lenggong Sub-district have been completed and gazetted. The Special Area Plan for the nominated property in the Lenggong Sub-district will be prepared with special focus on the preservation and conservation of the nominated property once it is inscribed on the World Heritage List.
1.6.3.6 Perak Structure Plan (2001-2020): The development policy of the Perak Structure Plan is based on a combination of existing resources and future potentials that lie within the region’s internal strengths, geographical factors, road infrastructures, and existing development corridors.

For the Hulu Perak District where Lenggong Sub-district is situated, the focus within the structure plan revolves around the development of Belum Valley region which covers Gerik township that will become the centre of growth for the State of Perak sub-region. On the other hand, Hulu Perak district that consists of natural forest reserves, highland areas, rivers and lake reserves will be promoted as the research, ecotourism, and forest biotechnology hub. In addition, a number of potential tourism assets within this district including the Royal Belum Forest, a free-trade zone in Pengkalan Hulu, a transportation terminal, centres for education and research, agricultural activities (fruit and herb orchards), fisheries, and livestock farms have been identified.

In this plan there is no mention of heritage development for the Lenggong Valley. However, when the Special Area Plan (SAP) for the nominated property is formulated, modifications will be made to the Perak Structure Plan to protect AHLV.

1.6.3.7 District of Hulu Perak Local Plan (2002 – 2015): The District of Hulu Perak Local Plan is to translate the development policies formulated in the above Perak Spatial Development Strategy and Perak Structure Plan into the development of Hulu Perak at the local level. It provides a guideline for the local governments in the planning and implementation of development activities in their respective areas. The Local Plan has not been reviewed in the light of the very important archaeological discoveries made since then. This Local Plan briefly touches upon the archaeological discoveries in the nominated property. The proposed Special Area Plan will override the current Local Plan for the nominated property.

The nominated property of the AHLV will be placed under the jurisdiction of Lenggong District Council; this will facilitate the implementation of the Management Plan.
1.7 The Need for and the Role of the Management Plan

1.7.1 There is a clear need for improved management of the AHLV. The Management Plan would have to consider the competing and perhaps potentially conflicting pressures and influence from a large number of different interests, both public and private. There is a need to balance conservation with economic development.

1.7.2 There is also a need for more precise and clear definition of objectives and policies, for resources, and for a means of implementing agreed-upon policies through cooperation among a number of agencies, the local community, and private individuals.
CHAPTER 2

THE PLAN - OBJECTIVES AND AIMS OF THE MANAGEMENT PLAN
THE PLAN - OBJECTIVES AND AIMS OF THE PROPERTY MANAGEMENT PLAN

2.1 This Management Plan aims to preserve the Integrity and Authenticity of the AHLV in response to any development and environmental pressures that the property faces. The Plan is intended to promote the protection and conservation of the property and it does so by setting out strategies and policies for the safeguarding of the landscape, its geological features and the archaeological remains it contains. These strategies and policies are intended to work within the context of the sustainable economic development plans of the Hulu Perak District, State of Perak, and Malaysia.

2.2 The vision of the Management Plan for the AHLV is to ensure and encourage sustainable archaeological heritage development and to provide a protection and development framework in order to maintain the authenticity and integrity of the site, as exemplified by its Outstanding Universal Values (OUV), within the framework of the World Heritage Convention.

2.3 The objective of the Management Plan for the AHLV is to present a comprehensive long-term strategy and phased implementation guidelines to preserve, manage and promote the significant heritage values of the AHLV for present and future generations.

2.4 Specific objectives of this Management Plan are:

   i. To develop sustainable site management strategies in order to preserve and protect the OUV of the AHLV.

   ii. To develop site maintenance and monitoring strategies in order to protect and conserve excavated and potential sites as well as their archaeological finds from natural harm and from human activities.

   iii. To develop risk management strategies in order to:

          a. Preserve OUV of the AHLV.
          b. Safeguard important potential sites so as to allow future research.
          c. Prevent destruction of potential archaeological sites in the property.
iv. To develop conservation strategies in order to:
   a. Conserve and protect the special character, ambience and tranquility of the property.
   b. Prevent destruction of potential archaeological sites.

v. To develop research policies and strategies in order to:
   a. Enhance and strengthen the OUV of AHLV as a World Heritage Site.
   b. Safeguard important potential sites so as to allow future research.
   c. Reconstruct the archaeological past of the AHLV.

vi. To develop tourism and visitor management strategies in order to:
   a. Promote educational and learning opportunities.
   b. Integrate, coordinate and optimize the sustainable use of resources.
   c. Provide for ongoing stakeholder participation and collaboration.
   d. Develop the property as a tourist attraction of international, national and local significance.
   e. Provide, operate and maintain appropriate infrastructure services to satisfy visitor needs as well as to protect the site.

vii. To develop community awareness and outreach programme in order to:
   a. Communicate vital information about the property to the public.
   b. Involve the local communities in the protection of the property.

2.5 In order to support the above objectives, the Administrative Structure and Funding will be established. This will be presented in the following Chapter 3.

2.6 The Management Strategies are detailed out in Chapter 4, and the Monitoring and Implementation in Chapter 5.

2.7 The Management Plan pays due respect to international conventions and recommendations such as the 1972 UNESCO Convention for the Preservation of the World Culture and Natural Heritage, the relevant Recommendations of the UNESCO General Assembly, the 1990 ICOMOS International Charter for the Protection and Management of the Archaeological Heritage, and the 2000 ASEAN Declaration on Cultural Heritage.
2.8 The Management Plan is to be used as a manual to guide site managers and local government administrators on how to present, use, conserve, fund, manage, and protect the archaeological landscape and its essential values which make it of local, national and international significance. It contains the strategic options and the official guidelines for the conservation of the OUV found at the perimeter and buffer zones of the nominated archaeological property, to be observed by all stakeholders: public authorities (Federal, State and District), private sector and local community. The purpose of these options and guidelines is to ensure the effective protection of the AHLV for present and future generations.
ADMINISTRATIVE STRUCTURE AND FUNDING

3.1 Administration

3.1.1 Implementation of the Management Plan involves decisions and actions relating to the efforts to safeguard the grounds and resources at and surrounding the AHLV. This requires a centralised office for its operations and administration.

3.1.2 Until recently, there was no single agency or organisation which has management responsibility for the non-statutory issues in the AHLV - areas such as research, education and training, tourism, community liaison, security, and Heritage Impact Assessments (HIA) are therefore not addressed holistically.

3.1.3 However, there are already well-established statutory requirements for the management of the site by the Local Authority. The existing system of control and guidance is provided for by the Town and Country Planning Act, 1976 (Act 172), the State of Perak Structure Plan (2001 - 2020) and the District of Hulu Perak Local Plan (2002-2015) and the National Heritage Act, 2005 (Act 645) which regulate development planning. It is recommended to have a Special Area Plan for the property and this Management Plan will form the basis for this Special Area Plan.

3.1.4 At the present time, the Department of National Heritage and the Heritage Unit under Lenggong District Council are responsible for the maintenance and management of the AHLV.

3.1.5 The Heritage Unit (HU) was formed at the end of 2010 in order to ensure the protection of the AHLV during the nomination process. Upon inscription, the HU will be given additional responsibility, upgraded and expanded to become World Heritage Office for AHLV.
3.1.6 Presently, the HU under Lenggong District Council is structured as follows:

*Chart 3.1: Organizational chart of the Heritage Unit under Lenggong District Council*
3.1.7 Upon inscription, the new coordinating structure of the nominated property shall follow the scheme shown as Chart 3.2:

**Chart 3.2: The coordinating agencies for the management of the World Heritage Site**

**STATE PARTY**
- Ministry of Information, Communications & Culture Malaysia
  - Department of National Heritage

**STATE AUTHORITIES OF PERAK**
- CHIEF MINISTER
  - Heritage Steering Committee (HSC)
- DISTRICT OFFICER
  - Heritage Technical & Scientific Committee (HTSC)

**WORLD HERITAGE OFFICE**

**ENABLING LAWS**
- National Heritage Act, 2005 (Act 645)
- UNESCO Convention Concerning the Protection of World Cultural & Natural Heritage, 1972

**ENABLING LAWS**
- National Heritage Act, 2005 (Act 645)
- Town & Country Planning Act, 1976 (Act 172)
- Local Government Act, 1976 (Act 171)
- Structural Plan
- Local Plan
- Special Area Plan

3.1.8 The Heritage Steering Committee (HSC) will be the highest level authority to monitor the implementation of the Management Plan in the State of Perak. This committee will also act as a forum for the discussion of issues concerning the management of the property.
3.1.9 The HSC will be chaired by the Chief Minister of the State of Perak to give official force to this Management Plan. The area covered by this Management Plan is the designated Core and Buffer Zones.

3.1.10 The HSC will have representation from Federal, State and Local governments, as well as independent members including archaeologists and heritage experts. The committee will have 14 members comprising the following:

1. Chief Minister of Perak (Chairman)
2. State Secretary
3. State Legal Advisor
4. State Financial Officer
5. State Executive Member for Tourism
6. State Executive Member for Heritage
7. Commissioner of Heritage, Department of National Heritage
8. Director, State Economic Planning Unit
9. Director, State Lands and Mines Office
10. Director, State Town and Country Planning Department
11. District Officer of Hulu Perak
12. President of Lenggong District Council
13. A representative from CGAR, USM
14. General Manager of WHO as Secretary to the Committee.

3.1.11 The HSC will undertake the following roles:

a. To safeguard the property within the framework of sustainable development.

b. To monitor statutory development plans and government guidance and encourage the appropriate authorities to keep under review the statutory and other designations, in order to ensure the continued protection of the property and its setting, and to propose, as necessary, legal regulations, policy documents and codes of practice to give effect to the Plan.

c. To monitor the condition of the property and agree on appropriate action to deal with any threat to its well-being and in the process, to develop and agree on such further principles and guidance as might be needed for the protection of the OUV of the property.

d. To approve all budgets, including those for major conservation, restoration and preservation projects, and other programmes and projects undertaken by the General Manager.

e. To be responsible for fundraising.
f. To liaise with the Department of National Heritage to ensure that the heritage values for which the property has been inscribed are conserved in all authenticity and integrity, according to the international standards outlined in the World Heritage Convention and its Operational Guidelines.

g. To decide on conservation programmes, proposals for display, interpretation and visitor facilities, proposals for training, education and awareness raising programmes.

h. To monitor the implementation of the WHO, the Management Plan and the setting up of a monitoring programme and the updating of the Plan periodically.

i. To receive reports from the WHO on its activities, budget and performance.

j. To adjudicate on disputes arising from the implementation of the Plan.

3.1.12 A Heritage Technical and Scientific Committee (HTSC) will be set up to oversee and advise the WHO on the proper implementation of the work plan according to the Management Plan. The HTSC shall be chaired by the District Officer of Hulu Perak and will comprise the Department of National Heritage, Lenggong District and Land Office, Lenggong District Council, CGAR, as well as other agencies that are relevant. The General Manager of WHO will be the Secretary for HTSC.

3.1.13 The World Heritage Office (WHO) will have linkages as follows:

Chart 3.3: World Heritage Office and its linkages with relevant agencies
3.1.14 The General Manager of WHO will be appointed from the existing state government agencies. He or she will be supported by the current HU staff. Some functions of WHO will be outsourced or delegated to relevant government agencies and others (Chart 3.3). For example, conservation and research will be assisted by the Department of National Heritage and archaeologists from CGAR. Local governments such as District Council will play a crucial role in the maintenance and protection of the property. It is preferable for the World Heritage Office to be located in Cluster 1.

3.1.15 The primary function of WHO is to manage and liaise with the local authorities on all matters pertaining to the property which are outside the purview of the current statutory system including liaison with Federal, State, and International organizations and agencies for betterment of the property. Issues that arise could include matters pertaining to security, research, impact assessment, site interpretation, public awareness and community liaison.

3.1.16 The WHO is headed by a General Manager who must be knowledgeable in matters relating to the conservation and management of the archaeological sites.

3.1.17 The WHO will ensure unified management of the implementation of the Management Plan within the property. Its main functions are:

a. To manage and deliver agreed-upon programmes of work.
b. To advise the Heritage Steering Committee (HSC), Heritage Technical and Scientific Committee (HTSC) and any other appropriate policy-making and decision-making bodies on policy and other issues arising during the implementation of the Plan.
c. To prepare Periodic Reporting for World Heritage Centre (WHC).
d. To prepare six-monthly reports to the State Party (Department of National Heritage).
e. To liaise with the State Party (Department of National Heritage) on issues and problems pertaining to the management of the property.
f. To submit development plans and HIA to the State Party (Department of National Heritage).
3.1.18 WHO will ascertain all communication with WHC goes through the State Party (Department of National Heritage). The operational functions of the WHO in the property are:
   a. To ensure heritage conservation.
   b. To encourage and facilitate research.
   c. To educate future generations.
   d. To develop sustainable archaeological tourism and to manage visitor facilities and visitor services.
   e. To encourage community involvement in positive actions to conserve their archaeological heritage.
   f. To develop proposals and funding packages for major projects.
   g. To execute agreed-upon and funded projects.
   h. To supervise monitoring of the property.
   i. To prepare budgets, to manage and monitor expenditures within agreed budgets.
   j. To prepare and present reports on the implementation of the Management Plan.
   k. To function as the Secretariat of the HSC and HTSC, and to attend meetings related to this function and others when matters relating to the implementation of this Management Plan are under consideration.

3.1.19 The WHO model will enable it to function independently while giving it the necessary *locus standi* within government. The WHO shall utilise existing acts from various relevant government agencies for the management of the property.

3.1.20 The WHO will be a member of One-Stop-Centre Committee under Lenggong District Council, for all planning approvals. Any construction in the core and buffer zones will need the approval from the Department of National Heritage via WHO.

3.1.21 Other types of development that involve digging of land such as agricultural, aquacultural and mining activities in the core and buffer zones have to obtain the approval of WHO. Where relevant, HIA will be requested and submitted to the Department of National Heritage.
3.2 Funding Mechanism

3.2.1 The operational funds shall be the responsibility of the State of Perak, while the development funds may come from both federal and state governments. The operational budget is to ensure the administrative functions.

3.2.2 The development budget is to implement the objectives of the projects and programmes. Additional funds may be sought from non-governmental sources.

3.2.3 The development budget is proposed and approved for a 5-year period with annual allocation made based on the 5-year approved ceiling i.e. through the State’s Five Year Plan.

3.2.4 It is the responsibility of the General Manager of the WHO to prepare the work plan and budget, and report them annually to the State of Perak and any other funding agency on the implementation of the work plan.

3.2.5 Fees collected from visitors and services by WHO will be channelled into a special fund for the conservation and outreach programmes at the AHLV.
THE MANAGEMENT STRATEGIES

4.1 The Introduction

The integrity of the nominated property especially its landscape, contributes to its outstanding universal value and preserves the site for future research and study. The factors that will affect this integrity have been set out in detail in Chapter 4, Section 4.b of Volume I: Archaeological Heritage of the Lenggong Valley - The Nomination Dossier for Inscription on the UNESCO World Heritage List. The strategies to manage these issues are enunciated below.

4.2 Site Management

4.2.1 Archaeological heritage is a fragile and non-renewable cultural resource. An archaeological property constitutes a basic record of human activities, and provides an understanding of past societies and our cultural and social roots but only if it is managed so that the information is preserved and communicated. It is crucial to ensure that the property is protected and managed to avoid degradation. Land use within the archaeological property must therefore be controlled and development coordinated in order to avoid the destruction of the archaeological heritage. The safeguarding of an archaeological property requires effective site protection and conservation, information management, development supervision and community outreach.

4.2.2 On-site development that lacks integrated planning and coordinated implementation may hamper protection efforts. Thus, the site management strategy focuses on collaborative efforts in management among the many stakeholders of the AHLV including the Department of National Heritage, Centre for Global Archaeological Research (CGAR) of University of Science Malaysia, Local Government, Ministry of Tourism, and the local communities. In addition, coordination among government agencies at the federal, state and district level is required for interventions and planning. The specific agencies and authorities include the Department of Forestry, the Department of Mineral and Geoscience, Land and District Office, District Council, Department of Wildlife, Department of Agriculture, FELCRA, RISDA, Department of Fisheries, and Ministry of Tourism.

4.2.3 A revision of existing plans especially the District of Hulu Perak Local Plan will support and enhance the effort in protecting the OUV of the property.
4.2.4 An application for Special Area Plan Status for the AHLV will be prepared for submission through the State of Perak Department of Town and Country Planning to ensure the conservation of the property.

4.2.5 A systematic archaeological survey of the entire property will be conducted in order to identify and document known as well as yet to be identified archaeological resources, distinguish archaeological resources of high conservation importance, sites holding information of conservation value, and sites of general interest.

4.2.6 A zoning map of the buffer will be constructed based on archaeological sensitivity where the most fragile and vulnerable areas will be accorded stricter regulations.

4.2.7 Heritage Impact Assessments (HIA) will be implemented to study the effect of future development on the property. Any planning permission sent to Local Council that involves development in Cluster 1 or 2 has to be forwarded to the WHO for its consideration and recommendation. Where HIA is needed, the application will be sent to the Department of National Heritage. If it is a major development that would affect the OUV of the property as mentioned in the UNESCO’s Operational Guidelines for the Implementation of the World Heritage Convention (page 45, para 172), then the necessary steps will be taken by the Department of National Heritage to protect the property.

4.2.8 Mechanisms for negotiation with the land owners, business operators, and interested and affected parties to manage the land use patterns are required. Some of the mechanisms are already mandated by Malaysian law. For instance, the Land Acquisition Act, 1960 and amendments to date allow the government to acquire land with adequate compensation for public purposes. If the owner is not satisfied with the compensation offered, an appeal to the High Court can be made. Other local coordination mechanisms may need to be developed in response to the specific needs of the AHLV.

4.2.9 Coordination will be undertaken with land owners, business operators and interested and affected parties to:

a. Cease the operation of land use within the nominated property which are incompatible with the protection and conservation of the property’s known and potential archaeological heritage.

b. Convert the incompatible land use into activities conducive to and in support of, the preservation of the property’s OUV, the protection of the landscape and conservation of the archaeological sites and their contents.
4.2.10 A set of incentives will be developed by means of a participatory process between government, property owners and interested and affected parties that will encourage, not only the conversion of land use, but also the stimulation and further development and conservation of the area.

4.2.11 For these resources defined as having high conservation importance or holding information of conservation value, the following guidelines apply:

a. Activities that may jeopardize the OUV of the property, for example guano collection and quarrying will be banned.
b. Researchers must get written authorization from the Department of National Heritage to access these sites for research purposes. If walkways are routed near archaeological resources that are sensitive to public access, protective fencing should be used to protect the resource.
c. Interpretive signage should be put in place to inform the public of responsible behaviour in the vicinity of archaeological sites.

4.2.12 The WHO will function as the One-Stop-Centre for coordination and implementation of the above tasks as well as all other actions necessary for the protection and management of the property.

4.3 Site Maintenance

4.3.1 Site maintenance is a set of decisions and actions that relate to continuous maintenance of the property so as to avoid unwanted damage and degradation to the resources. The objective of proper site maintenance of the AHLV is to protect and conserve excavated and potential sites as well as findings from natural harms and visitors.

4.3.2 Regular site maintenance is an essential part of any successful conservation programme. Regular site maintenance can control major problems, can prevent small ones from becoming larger, and can prevent many problems from occurring at all. To be effective it is vital that all maintenance is properly specified and scheduled and that proper records of work are kept to ensure that the necessary work is completed.

4.3.3 Particular problems that can be countered by regular maintenance include vegetation control, repairs to visitor facilities, and the prevention of deliberate damage by visitors.
4.3.4 Keeping the site clear of litter is also a powerful incentive for visitors to behave responsibly since they can see that the site is well-maintained. The presence of regular patrols on site is also of great help in protecting the property from damage. It is also important that casual or accidental damage is repaired as soon as possible.

4.3.5 A Maintenance Specification Schedule shall be drawn up by the WHO with an indication of what tasks are to be carried out, when and how often each task is to be carried out for all the sites.

4.3.6 It is important that there are adequate staff to carry out the maintenance work and that there is a high level of supervision to ensure high standards of maintenance. There may be opportunities for the use of local volunteers for some tasks.
4.4 Risk Management

4.4.1 Risk management is a set of decisions and actions that relate to the protection of the property against natural disasters, uncoordinated development or other unforeseen threats. Risk management also refers to special protection extended to resources that are fragile. The exposed nature of the AHLV open-site makes them particularly vulnerable. Lack of attention on risk management will result in damage, liabilities and eventual loss to the nation and the world. The following table shows the issues and the mechanisms to tackle the issues for risk management.

Table 4.1: Major issues and mechanisms for risk management

<table>
<thead>
<tr>
<th>Issues</th>
<th>Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Access (trespassing)</td>
<td>Demarcation of core areas and buffer.</td>
</tr>
<tr>
<td>b. Agriculture</td>
<td>Regular monitoring and coordination among relevant parties.</td>
</tr>
<tr>
<td>c. Flood</td>
<td>Flood mitigation plans around the sensitive sites and proper drainage for the excavated sites.</td>
</tr>
<tr>
<td>d. Fire</td>
<td>Plan fire break location in the map.</td>
</tr>
<tr>
<td>e. Theft and vandalism</td>
<td>Regular monitoring, guided tours, and surveillance system.</td>
</tr>
<tr>
<td>f. Over-capacity (tourism)</td>
<td>Carrying capacity limit will be established.</td>
</tr>
<tr>
<td>g. Incompatible infrastructure</td>
<td>Coordination among various government agencies and private companies will be initiated.</td>
</tr>
</tbody>
</table>
4.5 Conservation

4.5.1 Conservation of the AHLV is crucial; lack of conservation will jeopardize its OUV. For example, artefacts in the site must not be removed out of its context; it must be left in-situ to be of worth. The objectives of conservation of the AHLV are to conserve excavated sites, protect potential sites, prevent destruction of potential but yet-to-be excavated archaeology and to safeguard the property’s special character.

4.5.2 Caves and open-air sites require different approaches to their conservation and management.

Photo 4.1: Artefacts are carefully inventorised and safely stored at CGAR
4.5.3 Conservation of Archaeological Sites.

Conservation issues faced by the archaeological sites within the property and mechanisms that will be put in place to manage the issues are shown in Table 4.2 below.

**Table 4.2: Issues and mechanisms for conservation of archaeological sites**

<table>
<thead>
<tr>
<th>Issues</th>
<th>Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Protection of open-air sites from road and highway constructions, agricultural activities, illegal logging, housing estates, soil erosion, visitor pressure etc.</td>
<td>Protection of sites from development activities will be accomplished through:</td>
</tr>
<tr>
<td></td>
<td>• Implement HIA to study the effect of future development on the archaeological sites.</td>
</tr>
<tr>
<td></td>
<td>• A revision on existing plans especially the District of Hulu Perak Local Plan can also help in protecting the OUV of the sites.</td>
</tr>
<tr>
<td></td>
<td>• A study for a Special Area Plan should be carried out urgently by the Department of Town and Country Planning or Lenggong District Council.</td>
</tr>
<tr>
<td>b. Protection of cave sites from guano digging, vandalism, illegal logging, quarrying, environment (climate), visitor pressure etc.</td>
<td>A monitoring system will be implemented to protect the sites against guano digging, vandalism, illegal logging, quarrying, environment, and visitor pressure. As of now, guano digging activities and vandalism occur at Bukit Kepala Gajah (Gua Teluk Kelawar, Gua Kajang and Gua Harimau). The sites conditions will be monitored using digital data such as photographs and GIS, and field visit to record changes to the site so that preemptive action can be taken to protect them.</td>
</tr>
</tbody>
</table>
4.5.4 Conservation of Archaeological Artefacts

Conservation issues related to archaeological artefacts within the property and mechanisms that will be put in place to manage the issues are as Table 4.3 below.

<table>
<thead>
<tr>
<th>Issues</th>
<th>Mechanisms</th>
</tr>
</thead>
</table>
| c. Site preservation and conservation from various elements e.g. natural and human factors preservation and conservation. | • Backfilling of trenches and the building of shelters and drainage system to protect from rain and sun will be considered.  
• Preventive measures - site maintenance (cleaning), restrictions to selected sites e.g. GGR, guarded gates, fences, guided tour, purpose built walkways, and conservation awareness programs. |

| Table 4.3: Issues and mechanism for conservation of archaeological artefacts |
|-----------------|--------------------------------------------------|
| Issues          | Mechanism                                        |
| a. *In-situ* conservation (e.g. fragile skeletons). | a. A monitoring system will be implemented to protect these *in-situ* artefacts. |
| b. Handling and transportation of excavated artefacts. | b. All excavated artefacts are to be stored either at CGAR and Department of National Heritage for research and safe keeping. A master inventory of all excavated artefacts shall be kept with WHO. |
| c. Conservation and preservation of excavated artefacts. | c. Storage, handling and transportation of artefacts will be undertaken according to internationally accepted standard and procedures. |
| d. Storage and exhibition. | |

MALAYSIA | 56
4.6 Research

4.6.1 Research in the AHLV has a long history. It began in 1917 by British colonial officers and continuing until present.

4.6.2 The year 1987 marks a watershed of the AHLV. Zuraina Majid from USM, discovered the open site of Kota Tampan in 1987. This excavation was carried out by Zuraina in order to resolve some issues and problems regarding the stone tools and the dating of the site. Dating was also made possible by commingled volcanic ash in the cultural layer which can be attributed to the Toba mega-colossal volcanic eruption of 74,000 years ago.

4.6.3 Research since 1987 has revealed evidences contributing to the understanding of the OUV. This include the following discoveries:

a. Evidence of a meteorite impact
b. Hand axe embedded in suevite dated to 1.83 million years
c. Stone tool workshops
d. Volcanic ash from Toba
e. Human burials including Perak Man
f. Bronze technology

4.6.4 However, in spite of the importance of these finds, like all extensive prehistoric archaeological sites, only a small percentage of the AHLV has been excavated. Many potential sites have been identified, but are yet to be excavated.

4.6.5 Continued research into the history and archaeology of the AHLV is essential. Research improves our understanding of the past through the testing of existing hypotheses and the gathering of new evidence.

4.6.6 CGAR of USM is the designated lead agency to continue research and excavation in the area assuring consistency and comparability in research methodology. Other researchers who are interested to conduct research in the AHLV are to collaborate with CGAR.

4.6.7 Prior permission to conduct research and excavation at the AHLV must be obtained from the Department of National Heritage, who may attach special terms and conditions to the license. A record of research undertaken in the AHLV shall be submitted to and maintained by the WHO for the purpose of monitoring research activities.
4.6.8 According to the guidelines established by the CGAR, all research must adhere to the following:

**Table 4.4: Guidelines for research and excavation**

<table>
<thead>
<tr>
<th>Pre-excavation</th>
<th>Archaeological Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>– Any site survey should obtain permission from the land owner on which it is proposed to be carried out, the purpose, nature and extent of the purposed survey and such other particulars as may be required.</td>
</tr>
<tr>
<td></td>
<td>– Any artefact or ecofact found during the survey should be recorded and reported to the Commissioner of Heritage as stated in the National Heritage Act 2005.</td>
</tr>
<tr>
<td>Excavation</td>
<td>Archaeological Excavation</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>− An application for a license to excavate is needed and shall be made to the Commissioner of Heritage under the National Heritage Act 2005.</td>
<td></td>
</tr>
<tr>
<td>− The application for a license should be made by professionally-trained archaeologist and it should contain a full and accurate description of the land on which it is proposed to be carried out, the purpose, nature and extent of the purposed excavation and such other particulars as may be required.</td>
<td></td>
</tr>
<tr>
<td>− The local authority and private land owner should be informed and consulted before the commencement of any excavation.</td>
<td></td>
</tr>
<tr>
<td>− Excavation should be monitored and controlled by the Department of National Heritage so that the excavation follows the conditions stated in the license and the correct procedures and methods of excavation are used.</td>
<td></td>
</tr>
<tr>
<td>− All excavated artefacts should be properly recorded and documented (field notes, photographs, mapping, drawings and video recording) at the site by the researcher.</td>
<td></td>
</tr>
<tr>
<td>− Fragile artefacts such as human remains should be conserved at the site before removal by the researcher.</td>
<td></td>
</tr>
<tr>
<td>− The researcher shall consult the Department of National Heritage on the conservation of the site after excavation.</td>
<td></td>
</tr>
<tr>
<td>− Any artefact found during excavation shall be subjected to the laws and regulations stipulated under Section 48 of the National Heritage Act, 2005.</td>
<td></td>
</tr>
</tbody>
</table>
### 1. Analysis, cataloguing and inventory of the artefacts
- After analysis, each artefact should be properly labelled with all the necessary information by the researcher.
- Definition of artefact classes and attributes should be provided along with important references.
- Photographs or drawings of selected or representative artefacts.
- A standard format of cataloguing the artefact should be used by the researcher so that it can be easily understood by anyone using the catalogue.
- A complete inventory record of all the artefacts found during excavation and analyzed should be kept safely by the researcher for record and any inspection or auditing required and should be seen as a long-term loan from the Department of National Heritage.

### 2. Report and Publication
- Upon completion of the research, a copy of the final report of the research shall be written by the researcher following the standard format required by the Department of National Heritage and submitted to the Commissioner of Heritage.
- The report should include clear description of all areas investigated (including those where resources were not recovered or observed), topographic setting and stratigraphy, noted structures or features, artefacts type and an estimate of artefacts density, maps, figures and photographs of test locations, features and soil profiles, as appropriate.
- A copy of any form of publication (e.g. books, journal, video etc.) of the research findings by the researcher should be submitted to the Department of National Heritage and the WHO.
### Post-excavation

3. **Storage and conservation**
   - All artefacts under analysis or stored by the researcher or any other agencies are considered on-loan from the Department of National Heritage and should be eventually returned to the Department of National Heritage, the custodian of the artefacts upon completion of the study.
   - Artefacts kept by the researcher or other agencies for study should be preserved and catalogued properly.

4. **Exhibition and Education**
   - Exhibition should involve the researcher to ensure accurate presentation of the findings.
   - Talks, briefings and hands-on training of tour guides and local villagers by researchers so that they can present accurate information about the archaeology of AHLV to tourists and visitors.
   - Talks, briefings, educational visits and hands-on activities for school children, university students and members of archaeology clubs.
   - Exhibition of artefacts by museums of other agencies must take responsibility for the preservation of the artefacts on display.

5. **Future research**
   - All future research should have a research design that will enhance and protect the OUV of the WHS.
   - Future research will be monitored by the World Heritage Office and the Department of National Heritage.
4.7 Tourism and Visitor Management

Tourism Management

4.7.1 Generally, the very reasons why a property is chosen for inscription on the World Heritage List are also the reasons why millions of tourists flock to those sites. Considering heritage as information providers of the past and as being substantial to the understanding of contemporary life, it is a fundamental right to have access to the sites relevant to history. Therefore, the archaeological sites should be opened to the public. Another important reason for site accessibility is the possibility of explaining the work of archaeologists and raising conservation and preservation issues. According to the guidelines published by UNESCO, heritage properties especially World Heritage Properties must be accessible to the general public under the supervision of good management programmes to preserve its integrity and authenticity. However, accessibility to the property carries with it the fear for safeguarding of the sites. Visitor management is crucial in protecting the properties and at the same time delivering a quality experience to visitors.

4.7.2 Tourism is one of the Malaysia’s major engines of growth and has been earmarked as one of the important economic sectors in the Hulu Perak socio-economic development strategy. Tourism development is highlighted in the local plan of Hulu Perak. It is therefore essential that the Integrity and Authenticity of the AHLV are maintained and protected or else tourism’s economic and educational opportunities will be lost along with Malaysia’s irreplaceable heritage assets. The concept of sustainable tourism is rooted in the protection and maintenance of the heritage so that it can be enjoyed by both present and future generations. This means protecting the tangible archaeological heritage that includes archaeological sites as well as the natural features where those prehistoric activities took place.

4.7.3 Visitor management covers directing governments and site managers towards sustainable tourism practices as well as managing the number of visitors within the carrying capacity of the property and managing their behaviour when they are at the sites. The tourism potential in the area should be optimised without endangering the heritage resources.

4.7.4 If developed unsustainably, poorly planned tourism and inappropriate infrastructure will destroy the precious and unique character of the AHLV and result in fewer economic and educational opportunities for future generations. It is therefore vital that both heritage property and tourism support infrastructure such as roads, signage, visitor facilities, and food outlets are properly sited and developed in a sustainable way that does not diminish the OUV of the AHLV.
4.7.5 The development of tourism infrastructure in the AHLV is based on Local Plan. Currently, tourism infrastructure is adequate to cater for the number of tourist arrivals. However, the number of visitors is expected to increase after the inscriptions of the AHLV into UNESCO’s World Heritage List. The list of tourism attractions in and around the AHLV, and the capacity of existing tourism infrastructure is presented in the following tables (Table 4.5: List of Attraction and Statistic on Arrivals, and Table 4.6: Accommodation Facilities).

4.7.6 Tourism development in this district is associated with heritage trails that consist of limestone caves, archaeological excavation sites (e.g. ‘Perak Man’ site, stone tools workshops), and Lenggong Archaeological Museum. Other potential tourism resources are Tasik Raban (lake), agro-tourism (deer rearing) and homestay programmes. Tourism resources in Lenggong district together with statistics on arrivals are summarized in the following table.

Table 4.5: List of attractions and statistic on arrivals

<table>
<thead>
<tr>
<th>Attractions</th>
<th>Visitor infrastructure</th>
<th>Visitor numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehistoric Archaeological Heritage Sites</td>
<td>• Access: dirt road to Bukit Bunuh archaeological sites</td>
<td>No records</td>
</tr>
<tr>
<td>• Cluster 1: Bukit Bunuh – Kota Tampan</td>
<td>• Boardwalk connects most of the excavated caves at Bukit Kepala Gajah where each stopover. A number of other facilities include signage, shelters, toilets and car park were built for visitors.</td>
<td>No records</td>
</tr>
<tr>
<td>• Cluster 2: Bukit Kepala Gajah (Gua Gunung Runtuh, Gua Teluk Kelawar, Gua Kajang)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Attractions

<table>
<thead>
<tr>
<th>Attraction</th>
<th>Visitor infrastructure</th>
<th>Visitor numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bukit Jawa Harimau (Gua Harimau)</td>
<td>• A shed protects one of the trenches available for public viewing</td>
<td>No records</td>
</tr>
<tr>
<td></td>
<td>No built infrastructure</td>
<td>No records</td>
</tr>
<tr>
<td>Lenggong Archaeological Museum</td>
<td>Souvenir counter, car park, toilets, prayers room.</td>
<td>81,592 visitors (2007)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41,146 visitors (2008)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>78,808 visitors (2009)</td>
</tr>
<tr>
<td>Lata Kekabu Recreation Park (waterfall)</td>
<td>Multi-purposes hall, interpretative signage, camping sites, shelters, car park, prayers room, and toilets.</td>
<td>2,388 groups and individuals (2008).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2,413 groups and individuals (2009).</td>
</tr>
<tr>
<td>Tasik Raban (artificial lake created by dam)</td>
<td>Lake resort, boat jetty, fishing platforms, food outlets, children playground, prayers room, car park, and toilets.</td>
<td>No records</td>
</tr>
<tr>
<td>Homestay Kampong Beng</td>
<td>There are currently about 50 families participating in this homestay programme.</td>
<td>1,031 participants (2009)</td>
</tr>
<tr>
<td>Fisheries Technology Centre (Perak State Fisheries Office)</td>
<td>The Centre is to train local communities about fisheries-based industry. Lenggong is famous for their salted fish (or locally known as Ikan Pekasam).</td>
<td>No records</td>
</tr>
<tr>
<td>Lenggong Tourism Information Centre (under Lenggong District Council)</td>
<td>Located at the rest area near the Raja Nazrin Bridge.</td>
<td>No records</td>
</tr>
</tbody>
</table>
4.7.7 In developing visitor management strategies at the nominated property of the AHLV, a detailed study prior to the opening of the sites to will be conducted.

4.7.8 Tourism management at the AHLV shall:

a. Promote educational and learning opportunities.
b. Provide, operate and maintain appropriate infrastructure services to satisfy visitor needs as well as to protect the site.
c. Integrate, coordinate and optimize the sustainable use of resources.
d. Provide for ongoing stakeholder participation and collaboration.
e. Develop a tourist attraction of international, national and local significance.

Photo 4.3: Lenggong Archaeological Museum
4.7.9 There are several accommodation facilities available to cater for overnight tourists namely Tasik Raban Resort, Lenggong Rest House and Homestays. At the moment, Tasik Raban Resort is in the process of expansion to prepare for the increasing number of tourists. The 25-room Lenggong Rest House located in the middle of Lenggong town has recently been refurbished. There are several good restaurants with excellent Chinese or Malay food and the township has many shops, banks, clinics and other such facilities to cater to tourists’ needs.

4.7.10 A homestay facility offers accommodation in private rural homes to visitors in order for them to live with these rural families and so experience their culture and daily activities. *Kampung Beng* (Beng Village) is one such traditional village which sits on the bank of Chenderoh Lake whose ancient limits reached far into the AHLV. It is often used as a filming location by local and foreign film production companies. Visitors to the Homestay in 2009 came from France, Germany, Switzerland, Japan and United States. The uniqueness of Kampung Beng is that the motorboat is the usual mode of transport since most of the 4,000 hectare village settlement is spread out amidst the lake and mountainous areas within thick forest. The locality is also heavily involved in agro-business. There are deer and cattle farms and a Taiwanese terraced herbal padi venture. *Kampung Beng* is also famous for its venison meat which is branded as tasting better than those from anywhere else. The homestay programme is strongly supported by private tour agencies and included in tourism promotion programmes organised by the Perak government. Some of the marketing and branding strategies used here will influence similar strategies to be developed for the AHLV.
The table below depicts some details on the accommodation facilities available within the district.

Table 4.6: Accommodation facilities

<table>
<thead>
<tr>
<th>Accommodation</th>
<th>Facilities</th>
<th>Number of guests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tasik Raban Resort</td>
<td>• This facility offers 12 rooms with 28 beds.</td>
<td>4,163 visitors (2008)</td>
</tr>
<tr>
<td></td>
<td>• Meeting facilities</td>
<td>4,332 visitors (2009)</td>
</tr>
<tr>
<td></td>
<td>• Boat jetty</td>
<td>1,361 (until Feb 2010)</td>
</tr>
<tr>
<td>Lenggong Rest House</td>
<td>• This facility offers 23 rooms with 46 beds.</td>
<td>7,630 visitors (2008)</td>
</tr>
<tr>
<td></td>
<td>• Meeting facilities</td>
<td>7,742 visitors (2009)</td>
</tr>
<tr>
<td></td>
<td>• Cafeteria</td>
<td>1,309 (up to Feb 2010)</td>
</tr>
<tr>
<td></td>
<td>• Karaoke room</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Viewing Tower</td>
<td></td>
</tr>
<tr>
<td>Homestay Kg Beng</td>
<td>There are currently about 50 families participating in this homestay programme.</td>
<td>1,031 (2009)</td>
</tr>
</tbody>
</table>

4.7.11 There are independent guides who bring groups to explore the archaeological sites on foot. Many of these independent guides are usually locals who have formerly worked with archaeologists and researchers at the sites. The hike usually starts from the village of Kampong Gelok then through a rubber estate that leads to the narrow entrance of Gua Gunung Runtuh, which is the cave where the skeleton of Perak Man was excavated. The hike will usually include Gua Kajang and Gua Puteri, two adjacent caves in the eastern end of the limestone massif, Bukit Kepala Gajah. Gua Puteri is a cave about 100m from Gua Kajang. The cave entrance is accessed only after scrambling up a 10 meter steep slope of limestone rocks.
4.7.12 Strategies for tourism management within the property are:

a. Development of interesting archaeological and educational packages to attract foreign and local visitors. Recruit and train local people to be licensed heritage tour guide.
b. Develop proper marketing and promotion programme by identifying the niche market.
c. Collaboration with other attractions, government agencies, and private companies to develop and promote tourism in this area.
d. Establish visitor data records.
e. Provide mechanism for local community participation via decision-making power (e.g. establishment of local heritage community) and economic activities (e.g. tour guide, local cottage industry, supporting services).

Photo 4.4: Visitor facilities in Gua Teluk Kelawar Cluster 2
4.7.13 Local participation is crucial in sustainable tourism development for the nominated site can be achieved through:

a. Incorporating sense of belonging among the local residents.
b. Incorporating socio-cultural values into the site’s management planning and development by increasing community participation in policy, decision-making and site management.
c. Channelling economic benefits to local populations. This is can be initiated by organizing workshops for operators of homestay programmes, local craft-makers, cottage industries, food and beverage outlets to discuss about business opportunities in tourism in the AHLV.
d. Promoting sustainable development by way of empowering people, creation of jobs, and shifting attitudes.
e. Creating awareness among local residents on the importance of heritage tourism for the local socio-economic growth.

4.7.14 Coordination and collaboration of various stakeholders including the government’s agencies, private sectors, local people, and land owners is important for the success of heritage tourism development in Lenggong. Continuous tourism planning must be integrated with all other planning for social and economic development, and could be modeled as an interactive system.

Visitor Management

4.7.15 The requirements for visitor management in the AHLV are to:

a. Ensure the visitor carrying capacity is not exceeded.
b. Provide infrastructure for visitor safety, the protection of the archaeological heritage, and the protection of the site’s natural environment.
c. Educate visitors and local community to enhance appreciation of the sites’ values and inspire considerate attitudes toward the natural, cultural, and archaeological environment.
d. Generate and sustain local employment and development.
4.7.16 The implementation of visitor management strategy will be as follows:

Visitor flow management:

In order to ensure that visitation will not harm the nominated property, the following guidelines will be established:

a. A policy will be developed whereby all visitors must enter through a common point of entry where they can select from a fixed suite of tour options. The appropriate tour options will be developed in line with the facilities available.
   • One day visit includes the museum, guided tours of all sites and lunch at Kampung Luat (approximately 6 hours).
   • Short visit includes the museum plus both KT 74k (Kota Tampan 1987 and Kota Tampan 2005) and an all inclusive guided tours in Kota Tampan 87 (approximately 2 hours).

b. All visits will begin at the main building, which is the museum, where visitors will need to purchase their tickets at the ticket counter. Alternatively, they can pre-pay their tickets through designated travel agencies.

c. The entrance is separated from the exit. There will be a waiting area for visitors next to the ticket counter.

d. Visitors will go through body checks to ensure that no potentially harmful or foreign objects are brought into the site.

Visitor impact management:

The following activities or objectives will be included in the tour:

a. To explain about their code of conduct and their role in the protection and preservation of the nominated property.

b. To integrate visitors in the protection process, they will be shown examples of specific issues in degradation during the tour.

c. To place signage and interpretation boards to further enforce the preservation measures.
Photo 4.5: Signboard to the AHLV – “Welcome to the Heritage Valley of Lenggong”, erected by the Department of National Heritage
4.7.17 Enforcement and protection:

Issues related to enforcement and protection of the property for the purpose of visitor management and mechanisms that will be put in place to manage the issues are as Table 4.7 below.

<table>
<thead>
<tr>
<th>Issues</th>
<th>Mechanisms</th>
</tr>
</thead>
</table>
| a. Control visitor entrance and number of visitors | • All visitors will be required to register.  
• A quota or permit system will be implemented.  
• Group sizes will be limited.  
• Entry will be restricted.  
• Visitor flow management will be adhered to.  
• Regular patrolling will be implemented.  
• CCTV and signage will be used.  
• Locals will be trained to be the “ears and eyes”. |
| b. Manage visitor behaviour | • Preventive education programmes teaching low-impact ways to visit the site will be organized.  
• Interpretation programmes teaching respect for the site’s resources and protection issues will be conducted.  
• Programmes to allow involvement of the visitor in the preservation process will be organized. |
| c. Establish visitor zoning system | • All is accessible except for Gua Gunung Runtuh. |
### CHAPTER 4

#### Issues

<table>
<thead>
<tr>
<th>Issues</th>
<th>Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>d. Establish visitor management guideline</strong></td>
<td>The following will be implemented:</td>
</tr>
<tr>
<td></td>
<td>• One entry point will be designated and fees collection will initially be at this point.</td>
</tr>
<tr>
<td></td>
<td>• Determine carrying capacity at individual site and the limit of acceptable changes. How many visitors per day? What time? What basis do we use to develop carrying capacity? Thus, an inventory of existing conditions will be undertaken to provide the baseline data needed for indicators.</td>
</tr>
<tr>
<td></td>
<td>• Establish codes of conduct (or do’s and don’ts) regulations.</td>
</tr>
<tr>
<td></td>
<td>• Visitors are only allowed with a guide.</td>
</tr>
<tr>
<td></td>
<td>• Visitors are only allowed to visit according to a fixed timetable.</td>
</tr>
<tr>
<td><strong>e. Set up enforcement system</strong></td>
<td>• Checking for contrabands at entrance and exit points.</td>
</tr>
<tr>
<td><strong>f. Implement property management</strong></td>
<td>• Building appropriate railing to distant visitors from the artefact/cave walls/sites/trenches.</td>
</tr>
<tr>
<td></td>
<td>• Monitoring and patrolling.</td>
</tr>
<tr>
<td></td>
<td>• Fence the trenches and open air sites with exposed artefacts.</td>
</tr>
<tr>
<td></td>
<td>• Fence off cave mouths where appropriate.</td>
</tr>
</tbody>
</table>
Chapter 4

Archaeological Heritage of the Lenggong Valley

4.8 Community Awareness and Outreach

4.8.1 Community awareness is about communicating to the public the resources available in the AHLV and their importance. Community outreach is important to garner support from the stakeholders.

4.8.2 Community awareness can be promoted through:

1. Creating a high level of awareness among the local communities, the state and the country through the execution of a focused information and education campaign.
   
   a. Preparing promotional materials to provide information and create awareness and understanding of the AHLV.
   
   b. Creating an effective and sustainable education-based awareness programme regarding the importance of conserving the AHLV.
   
   c. Working with the Ministry of Education to incorporate the AHLV in the school curriculum in long term.
2. Promoting a sense of pride in and appreciation of Malaysian Heritage:
   
   a. Encourage “shared ownership” of the World Heritage Property and commitment to promote the property through building strong relations with the local communities. This will include providing communities with promotional material.
   
   b. A media-relations campaign aimed at using the media as an effective channel to reach the general public and to manage public perception.

3. Creating awareness among youths so that Malaysian Heritage will be preserved for future generations.

4. Developing quality and user-friendly promotional and communication material.

5. Positioning Lenggong as a National Centre of Excellence for prehistoric archaeological heritage appreciation and education.

6. Implementing a public relations policy involving the following:

   a. Development of a logo that would strongly link with printed and visual material such as poster, and billboard/signage. This will assist in developing strong identity or branding.
   
   b. Promotion of the area and provision of details to various stakeholders with a range of printed material such as information booklets maps (for both directional and educational uses), folders (for media and other use), newsletters and posters.
   
   c. Organization of media involvement and campaign.
   
   d. Sponsorship of local community involvement.
   
   e. Organization of educational programmes for creating awareness among the public especially school children and youth on the prehistory of the AHLV.
   
   f. Familiarisation trips for media and travel agents.
   
   g. Organization of signature annual events such as archaeological conventions.
CHAPTER 5

ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY

MONITORING AND IMPLEMENTATION

5.1 Monitoring

5.1.1 The successful implementation of the Management Plan for the AHLV depends upon a systematic mechanism of monitoring. The monitoring must be undertaken in order to measure the success of the efforts undertaken in the AHLV with respect to safeguarding the Integrity and Authenticity of the attributes of the property under which the AHLV is inscribed on the World Heritage List.

5.1.2 The following table of indicators guide the systematic and periodic monitoring activities at the property.

Table 5.1: Key indicators for use as measures of the state of conservation of the archaeological sites in the nominated property

<table>
<thead>
<tr>
<th>The open-air and cave sites in the nominated property</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator</strong></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
</tr>
<tr>
<td>1. Disturbances to the mapped open-air and cave sites (such as disturbances to the cave floors, graffiti and vandalism).</td>
</tr>
<tr>
<td>2. Cases of site deterioration such as deforestation, loss of ground cover and the approximate area of damage.</td>
</tr>
<tr>
<td>3. Cases of disturbances and intrusions attributed to natural processes.</td>
</tr>
<tr>
<td>4. Number of bird species present in and around the property as a measure of its environmental health.</td>
</tr>
<tr>
<td>5. Number of visitors to the open-air and cave sites (increased or decreased numbers).</td>
</tr>
<tr>
<td>6. Number of marked trees felled.</td>
</tr>
</tbody>
</table>
### The open-air and cave sites in the nominated property

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Number of infrastructure added (sheds, viewing platforms, etc.) and repaired.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>8. Changes to cave floor integrity due to reasons such as unauthorized excavation and uncleared trash.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
<tr>
<td>9. Number of stones and fragments missing from their recorded positions or whose condition had deteriorated among surface elements in Bukit Bunuh.</td>
<td>Six monthly</td>
<td>WHO</td>
</tr>
</tbody>
</table>

### Conservation of artifact

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Number of artefacts removed for safeguarding, research or display to LAM, CGAR, the National Museum or others.</td>
<td>Six monthly</td>
<td>WHO &amp; Department of National Heritage</td>
</tr>
<tr>
<td>2. Number of artefacts prepared for display.</td>
<td>Six monthly</td>
<td>WHO &amp; Department of National Heritage</td>
</tr>
<tr>
<td>Indicator</td>
<td>Periodicity</td>
<td>Responsibility</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1. Number of development approved within the core and buffer zones.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>2. Number of development projects started within the clusters.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>3. Heritage Impact Assessment orders issued for developments that will impact the OUV.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>4. Number of projects requiring HIA started.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>5. Number of infrastructure and construction projects and their impact on the OUV.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
<tr>
<td>6. An annual visual inspection of the site by a soil consultant or civil engineer should be carried out to identify areas where erosion may be a problem. Erosion is currently not a significant problem because vegetation cover is good but this can change.</td>
<td>Annually</td>
<td>WHO, Department of National Heritage &amp; Lenggong District Council</td>
</tr>
</tbody>
</table>
## Research and outreach

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Excavation licenses given out by the Department of National Heritage.</td>
<td>Annually</td>
<td>The Department of National Heritage</td>
</tr>
<tr>
<td>2. Number of academic papers and publications on Lenggong Valley archaeology.</td>
<td>Annually</td>
<td>CGAR</td>
</tr>
<tr>
<td>3. Number of interviews given to journalists and number of articles published in the popular media.</td>
<td>Annually</td>
<td>WHO &amp; Department of National Heritage</td>
</tr>
</tbody>
</table>

## Site Access / Visitor impact

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Signs of visitor pressure on footpaths and/or walkways such as excessive erosion, destruction of surrounding ecology, aesthetic value, etc that may indicate that the conservation of the area is being threatened.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>2. Visitor satisfaction levels and the overall visitor experience will be monitored through visitor surveys.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>3. Visitors’ contributions to the local economy.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>4. Increased in length of boardwalks at caves sites.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>5. Number of projects to enhance safety and security for visitors.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>6. Number of new visitor facilities e.g. rest areas, toilets.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
</tbody>
</table>
### Overall Conservation Efforts

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Periodicity</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tourism impacts on the OUV.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>2. Amount of management budgets.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>3. Number of full-time positions unfilled.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>4. Number of consultants for period exceeding 3 months assisting in conservation and management.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>5. Assistedances of the capacity-building programmes.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
<tr>
<td>6. Number of training carried out or received on conservation.</td>
<td>Annually</td>
<td>WHO</td>
</tr>
</tbody>
</table>

5.1.3 The WHO will review the indicators and their management implications. Based on this analysis, a work plan will be drawn up by the WHO and submitted to HSC and HTSC for the appropriate action to address the issues. The WHO will review and keep all records (or copies of records) pertaining to key indicators and their follow-up actions. While in practice, on-site monitoring takes into account all of the Management Plan’s strategic objectives simultaneously, the management responses need to meet the seven specific areas of work which are stated in objective of the Management Plan.

   a. Site management
   b. Site maintenance
   c. Risk preparedness
   d. Conservation
   e. Tourism and visitor management
   f. Community awareness and outreach programme
5.2 Implementation

5.2.1 A number of policies and strategies outlined in the chapters above have been discussed with federal and state government representatives and will be exercised immediately by the HU, and later by the WHO upon inscription. While the World Heritage Office (WHO) of AHLV is underway, funding, site management, site maintenance, risk management, conservation, research, tourism and monitoring mechanisms have not yet been implemented.

5.2.2 The goals should be prioritized and funds obtained. The World Heritage Office as key players in the success of this Management Plan need to be set up at the earliest and are anticipated to be fully operational upon inscription.

The role of the communities in the implementation of the Management Plan

5.2.3 The communities are the main stakeholder in the management of the Archaeological Heritage of the AHLV and this is reflected in the Management Plan. Communities should be involved in setting up programmes to support the strategies outlined in this Management Plan.

Funding arrangements

5.2.4 The funding of the implementation of the Management Plan is considerable. As specified in the funding mechanism strategy, it will be the duty of the World Heritage Office to prepare work plan and budget as well as to submit proposals for additional operational budget from non-governmental sources.

5.2.5 It is suggested to seek funds from corporate sponsors. Fees collected from visitors and services by WHO will be channelled into a special fund for conservation and outreach programmes at the AHLV. In addition, the World Heritage Office may want to sell souvenirs, guidebooks, postcards and refreshments to visitors, which will contribute to the overall budget.
Revision of the Management Plan

5.2.6 The Plan sets out policies for a period of 5 years. At the end of that time the Plan will need to be formally reviewed. For the duration of this Plan, the General Manager of WHO will keep its implementation under regular review and report to the Heritage Steering Committee on the effectiveness or otherwise of the policies.
## LIST OF ABBREVIATION

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHLV</td>
<td>Archaeological Heritage of Lenggong Valley</td>
</tr>
<tr>
<td>BBH</td>
<td>Bukit Bunuh</td>
</tr>
<tr>
<td>BGH</td>
<td>Bukit Gua Harimau</td>
</tr>
<tr>
<td>BJ</td>
<td>Bukit Jawa</td>
</tr>
<tr>
<td>BKG</td>
<td>Bukit Kepala Gajah</td>
</tr>
<tr>
<td>CGAR</td>
<td>Centre for Global Archaeological Research</td>
</tr>
<tr>
<td>FELCRA</td>
<td>Federal Land Consolidation &amp; Rehabilitation Authority</td>
</tr>
<tr>
<td>GGR</td>
<td>Gua Gunung Runtuh</td>
</tr>
<tr>
<td>GH</td>
<td>Gua Harimau</td>
</tr>
<tr>
<td>GK</td>
<td>Gua Kajang</td>
</tr>
<tr>
<td>GTK</td>
<td>Gua Teluk Kelawar</td>
</tr>
<tr>
<td>HIA</td>
<td>Heritage Impact Assessment</td>
</tr>
<tr>
<td>HSC</td>
<td>Heritage Steering Committee</td>
</tr>
<tr>
<td>HTSC</td>
<td>Heritage Technical &amp; Scientific Committee</td>
</tr>
<tr>
<td>HU</td>
<td>Heritage Unit</td>
</tr>
<tr>
<td>KT</td>
<td>Kota Tampan</td>
</tr>
<tr>
<td>LAM</td>
<td>Lenggong Archaeological Museum</td>
</tr>
<tr>
<td>NCER</td>
<td>Northern Corridor of Economic Region</td>
</tr>
<tr>
<td>OUV</td>
<td>Outstanding Universal Value</td>
</tr>
<tr>
<td>RISDA</td>
<td>Rubber Industry Smallholders Development Authority</td>
</tr>
<tr>
<td>USM</td>
<td>University of Science Malaysia</td>
</tr>
<tr>
<td>WHC</td>
<td>World Heritage Centre</td>
</tr>
<tr>
<td>WHO</td>
<td>World Heritage Office</td>
</tr>
</tbody>
</table>
BIBLIOGRAPHY

Callenfels, P. S. & Evans, I. H.

Chia, S.

Evans, I.H.N

Goh, H. M

Williams-Hunt, P.D.R.

Zolkurnian, Hassan

Zuraina Majid

Internet Sources

AKTA WARISAN KEBANGSAAN 2005

Penubuhannya Oleh Warisan (Oleh: Bersekutu) 2009

Para menjadikan klas yang diberikan oleh subseksi 49(1) Akta Warisan Kebangsaan 2005 [Aka 545], Pesuruhjaya mengesahkan Manara Perak yang dipamerkan di Museum Arkeologi Lenggong, Jabatan Museum Malaysia, Kota Tunap, Lenggong, Perak sebagai objek warisan.

Berlaku 1 Januari 2009

JWN/PB, 60/3/51/2/PN/PU/1527/IV

Dato' Profesor Emeritus Zuraini Majid
Pesuruhjaya Warisan

NATIONAL HERITAGE ACT 2005

DECLARATION OF HERITAGE OBJECT HISTORICAL OBJECTS 2009

In exercise of the powers conferred by subsection 49(1) of the National Heritage Act 2005 [Aka 545], the Commissioner declares the Perak Mail which is displayed at the Lenggong Archaeological Museum, Department of Museums Malaysia, Kota Tunap, Lenggong, Perak to be a heritage object.

Dated 1 Januari 2009

JWN/PB, 60/3/51/2/PN/PU/1527/IV

Dato' Profesor Emeritus Zuraini Majid
Commissioner of Heritage
P.U. (B) 493,

AKTA PERBADANAN AMANAH RAYA BERHAD 1995

PEMBERITAHUAN DI BAWAH SERI AYAM 39

Pada menjalankan kuasa yang diberikan oleh seri ayam 39 Akta Perbadanan Amanah Raya Berhad 1995 [Akta 522], Menteri meluluskan personal Perbadanan yang dinamakan dalam Jadual untuk memahami tugas dalam dan menjalankan, bagi pihak Perbadanan, apa-apa prosiding yang berterkaitan dengan Perbadanan.

PUBLIC TRUST CORPORATION ACT 1995

NOTIFICATION UNDER SECTION 38

In exercise of the powers conferred by section 38 of the Public Trust Corporation Act 1995 [Act 522], the Minister approves the officers of the Corporation named in the Schedule to institute, appear in and conduct, on behalf of the Corporation, any proceeding involving the Corporation.
P.U. (B) 493-494.

PENGURUS KAMPANAN AMANAH BAYA BERHAD
Chairman of Amanah Rayu Group Berhad

Diluluskan 21 Oktober 2009
Approved 21 October 2009

DENGU SORI MOHAMAD NAZMI BIN ABDUL AZIZ
Meniti di Jabatan Perdana Menteri
Minister in the Prime Minister’s Department

P.U. (B) 494.

AKTA WARISAN KEBANGSAAN 2005

NOTIS BENTETAPAN TAMAN SEBAGAI TAMPAK WARISAN

BARAWASANYA melalui Notis Tentang Niat untuk Menetapkan Tamak sebagai Tamak Warisan di bawah perengan 27(3)(a) Akta Warisan Kebangsaan 2005 (Akta 645) yang diisarkan dalam Waris dalam P.U. (B) 190/2009 pada 15 Jun 2009 dan dalam akhbar Utusan Malaysia dan New Straits Times pada 15 Jun 2009, units telah diberikan kepada pemunya yang dinyatakan dalam rang (1) Kenaspit atau tamak yang diperbahkkan dalam rang (2), (3), (4) dan (5) tentang unit Pusat Peraduan unik menetapkan tamak ia sebagai tamak warisan di luas warisan 57(2)(a) Akta:

DAN BARAWASANYA tiada apa-apa hambatan yang diterima oleh Pusat Peraduan untuk menetapkan tamak warisan.

DAN BARAWASANYA kekini Pihak berdaftar Negeri di bawah sebahagian 50 Akta telah diperoleh oleh Pusat Peraduan bagi penetapan ini:

MAKA UCIL YANG BERSAMAN, pada menjalankan usaha yang diterima oleh perengan 37(2)(a) Akta, Pusat Peraduan menetapkan tamak yang diperbahkkan dalam Jadual sebagai tamak warisan.
<table>
<thead>
<tr>
<th>Nama Penanggung Jawab</th>
<th>Tampak</th>
<th>Durian/Muzium Negeri</th>
<th>No. Lati</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Enang Bakhrida Negeri Perak</td>
<td>Taman Duria</td>
<td>Hulu Perak</td>
<td>-</td>
</tr>
<tr>
<td>2. Enang Bakhrida Negeri Perak</td>
<td>Cara Guna</td>
<td>Hulu Perak</td>
<td>Lot 0163</td>
</tr>
<tr>
<td>3. Enang Bakhrida Negeri Perak</td>
<td>Masjid Tanah</td>
<td>Seremban</td>
<td>Lot 1161</td>
</tr>
<tr>
<td>4. Jabatan Hal Ehwal Agama Islam, Negeri Sembilan</td>
<td>Masjid Tanah</td>
<td>Seremban</td>
<td>Lot 1161</td>
</tr>
<tr>
<td>5. Dewan Bahasa dan Pustaka</td>
<td>Bangunan Lalan</td>
<td>Kuala Lumpur</td>
<td>Lot 201</td>
</tr>
<tr>
<td>6. Enang Bakhrida Negeri Perak</td>
<td>Bangunan Bala, Matlis, Pengeran Sultan Ahmad</td>
<td>Selangor Perak</td>
<td>Lot 2635</td>
</tr>
</tbody>
</table>
NATIONAL HERITAGE ACT 2005

NOTICE OF DESIGNATION SITE AS HERITAGE SITE

Whereas in the Notice of Intention to Designate Site as Heritage Site under paragraph 27(2)(a) of the National Heritage Act 2005 (Act 645) published in the Gazette in P.U. (B) 190/2009 on 15 June 2009 and in the Utusan Malaysia and New Straits Times on 15 June 2009, notice has been given to the owners as specified in column (1) of the Schedule of the site as described in columns (2), (3) and (4) of the intention of the Commissioner to designate the site as a heritage site under paragraph 31(2)(a) of the Act:

And whereas no objection was received by the Commissioner against such designation:

And whereas the consent of the State Authority under section 30 of the Act has been obtained by the Commissioner for such designation:

Now therefore, in exercise of the powers conferred by paragraph 31(2)(a) of the Act, the Commissioner designates the site as described in the Schedule as a heritage site.

SCHEDULE

<table>
<thead>
<tr>
<th>No.</th>
<th>Description of Site</th>
<th>State</th>
<th>Local Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State Authority of Perak</td>
<td>Hulu Perak</td>
<td>Grik Perak</td>
</tr>
<tr>
<td>2</td>
<td>State Authority of Perak</td>
<td>The Cave of Geung Ramun</td>
<td>Hulu Perak</td>
</tr>
<tr>
<td>3</td>
<td>State Authority of Negeri Sembilan</td>
<td>Seremban Jamek Mosque</td>
<td>Seremban</td>
</tr>
<tr>
<td>4</td>
<td>The Islamic Religious Department of Negeri Sembilan</td>
<td>Seremban Jamek Mosque</td>
<td>Seremban</td>
</tr>
<tr>
<td>5</td>
<td>Dewan Balai Darbak</td>
<td>The Old Building of Omar Ali Saifuddin</td>
<td>Kuala Lumpur</td>
</tr>
<tr>
<td>6</td>
<td>State Authority of Perak</td>
<td>The British Building</td>
<td>Kuala Lumpur</td>
</tr>
</tbody>
</table>
P.U. (B) 494.495.

AKTA WARISAN KEBANGSAAN 2005

NOTE PENETAPAN TAPAK JERAGAS TAPAK WARISAN


Dan bahawa kita tidak apa-apa hadir yang diterima oleh Pesuruhjaya bawahan penetapan ini:

Dated 15 October 2009

[WNPP66057/51/29: FN:PU494.495/V]

Dato' Profesor Emeritus Zuraini Mahdi
Commissioner of Heritage
P.U. (A) 396.

AKTA PENGANGKUTAN JALAN 1987

KAEDAH-KAEDAH KENDERAN MOTIR (Pendaftaran dan Pelesenan) (Pindaan) 2009

Pada menjalankan kuasa yang diberikan oleh sekenyen 266 'Akta Pengangkutan Jalan 1987 (Akta 333)', Mentri membuak kaedah-kaedah yang berikut:

Nama dan permulaan kuat kuasa


   (2) Kaedah-Kaedah ini purut berkuat kuasa pada 1 Januari 2010.

Pindaan kaedah 9

2. Kaedah-Kaedah Kenderan Motir (Pendaftaran dan Pelesenan) 1959 (P.U. 173/1959), yang disebut "Kaedah-Kaedah itu" dalam Kaedah-Kaedah ini, dipinda dalam kaedah 9 dengan memasukkan setiap subkaedah (2) subkaedah yang berikut

"(4) The statement to a Director for change in possession of a motor vehicle under subrule (1), (2) or (3) shall be accompanied with a Motor vehicle inspection report for change in possession as in Form M.V.15 of the First Schedule hereto."
National Heritage

2. The intangible cultural heritage specified in the Schedule that have been declared as heritage objects in the Declaration of Heritage Object (Intangible Cultural Heritage) 2009 [P.U. (B) 199/2009] as published in the Gazette on 15 June 2009 and listed in the Register are declared to be National Heritage.

SCHEDULE

Fried sambal
yang lieu foo
Curry noodle
Tapiria mango cake
Chilli crab

Made 15 October 2009
[WWM.FP.860.3/51/12; PNP/1P/552/V]

Dato' Sri Utama Dr. Rais Yatim
Ministry of Information, Communication and Culture

P.U. (A) 398.

AKTA WARISAN KEBANGSAAN 2005

Perintah Warisan Kebangsaan (Perisytiharan Warisan Kebangsaan) (Warisan Kebudayaan Tidak Ketara) (No. 3) 2009

Para menjalankan kursus yang diberikan oleh subkesyen 6(1) Akta Warisan Kebangsaan 2005 [Akta 645]. Mentor membantu peserta yang berkena:

Nama

1. Perintah ini butuhkan dinamakan Perintah Warisan Kebangsaan (Perisytiharan Warisan Kebangsaan) (Warisan Kebudayaan Tidak Ketara) (No. 3) 2009.

Warisan Kebangsaan

P.U. (A) 399.

AKTA WARISAN KEBANGSAAN 2009

PERINTAH WARISAN KEBANGSAAN (PERSYIHRAN WARISAN KEBANGSAAN
OBJEK BERSEJARAH) (No. 2) 2009.

Pada menjabatku kini yang dibentuk oleh subdisyaran 67(4) Akta Warisan Kebangsaan 2009 [Akta 645], Mendanna menyelesaikan proses yang terikut:

Nama

1. Perintah ini bolehlah diamaikan Perintah Warisan Kebangsaan (Perisyihran Warisan Kebangsaan) (Objek Bersejarah) (No. 2) 2009.

Warisan Kebangsaan

2. Objek Bersejarah yang diamaikan dalam Judul yang telah disyorkan sebagai objek warisan dalam Perisyihran Objek Warisan (Objek Bersejarah) 2009 [P.U. (R) 1172000] yang diamaikan dalam Warta pada 16 April 2009 dan disemak dalam Dalat adalah disyorkan sebagai Warisan Kebangsaan.

JADUAL

<table>
<thead>
<tr>
<th>Perihal Objek Bersejarah</th>
<th>Lokasi Objek Bersejarah, Dipermeriksa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syiling emas pemerintahan Sultan Muzaffar Shah 11564-15703, Johor</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>Syiling emas Klang</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>Syiling emas pemerintahan Sultan Abidin Raja Shah 1 (1527/23-3564), Johor</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>Syiling emas pemerintahan Sultan Zainub Abidin II (1793-1808), Tenggarnau</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>Tepeh Malayo</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>Tepak sijih Sultan Abdul Samad</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>Patong Ayodya</td>
<td>Jabatan Museum Malaysia, Jalan Damansara, Kuala Lumpur</td>
</tr>
<tr>
<td>(1) Description of Historical Object</td>
<td>(2) Location of Historical Object Displayed</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>The deer's gold coin</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>The gold coin of Sultan Alauddin</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>Riayat Shah II's reign (1527-1564)</td>
<td>Jelate</td>
</tr>
<tr>
<td>The gold coin of Sultan Zainal</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>Abidin II's reign (1478-1482)</td>
<td>Terengganu</td>
</tr>
<tr>
<td>The Malay waist buckle</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>The Sultan Abdul Samad's betel chest</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>The statue of Avalokitesvara</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>The Terengganu-Royal inhauso</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>container</td>
<td></td>
</tr>
<tr>
<td>The sculpture of seated Buddha</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>The bronze belt</td>
<td>Department of Museum Malaysia, Jalan Daman, Kuala Lumpur</td>
</tr>
<tr>
<td>The stone tool in serpentine</td>
<td>Department of National Heritage Malaysia, Jalan Conify, Kuala Lumpur</td>
</tr>
<tr>
<td>Bukit Bantin, Lenggong, Perak</td>
<td></td>
</tr>
</tbody>
</table>

Made 15 October 2009

[HWN1960/3/51/1/2, PN(PU632/V)]

Dato' Sibi Utama Dr. RAI YATIM
Ministry of Information, Communication and Culture
In exercise of the powers conferred by section 2 of the Government Contracts Act 1949 [Act 120], the Minister of Women, Family and Community Development authorizes the State Director of Social Welfare as specified in the Schedule to sign all contracts the value of which shall not be more than two hundred thousand ringgit (RM200,000) for the department under her responsibility.

SCHEDULE

Dewan Kesihatan Masyarakat Negeri Perlis / State of Perlis Social Welfare Department

Dewan Kesihatan Masyarakat Negeri Kedah / State of Kedah Social Welfare Department
DAN BERBAHASA kezimah Pihak Berkuasa Negeri di bawah seksyen 30 Akta telah diperoleh oleh Pesanayasa bagi penegakanius:

MAKA dara yang diurakan, pada menjakika kesus yang dibebatkan oleh perangkat 3(2)(b) Akta. Pesanayasa menentukan tapak yang diperikan dalam masalah sebagai tapak warisan.

Berlakur 10 Februari 2009
[DNS (P), 3903/5/1; PNI (PU)-652/IV]

Datuk Profesor (Em) Zuraina Maid
Pendiniayasa Warisan

NATIONAL HERITAGE ACT 2005

NOTICE OF DESIGNATION SITE AS HERITAGE SITE

WHEREAS in the Notice of Intention to Designate Site as Heritage Site under paragraph 27(2)(a) of the National Heritage Act 2005 [Act 645] published in the Utusan in P.U. (B) 442/2008 on 17 November 2008 and in the Utusan Malaysia and New Straits Times on 17 November 2008, notice has been given to Malaysia Forestry Research and Development Board (MFRDB) for the Lax PT, 36749, P.T., 36750, P.T., 36751, Forest Research Institute Malaysia (FRIM), District of Gambik, Mukim Hulu, Negeri Selangor of the intention of the Commissioner to designate the site as a heritage site under paragraph 3(2)(a) of the Act:

AND WHEREAS no objection was received by the Commissioner against such designation:

AND WHEREAS the consent of the State Authority under section 30 of the Act has been obtained by the Commissioner for such designation:

NOW THEREFORE, in exercise of the powers conferred by paragraph 3(2)(a) of the Act, the Commissioner designates the site as determined in the Schedule as a heritage site.

Dated 10 February 2009
[DNS (P), 6001/5/1; PNI (P)-652/IV]

Datuk Profesor (Em) Zuraina Maid
Commissioner of Heritage

P.U. (B) 442.

AKTA WARISAN KEBANGSAAN 2005

NOTIFIKASI TAPAK SEBAGAI TAPAK WARISAN

BERBADARSYA melalui Notis Tengah Niat untuk Menetapkan Tapak sebagai Tapak Warisan di bawah perangkat 27(2)(a) Akta Warisan Kebangsaan [Akta 645] yang diterbitkan dalam Utusan P.U. (B) 433/2008 pada
3 November 2008 dan dalam akhbar Utusan Malaysia dan New Straits Times pada 3 November 2008, notis telah dibekalkan kepada Haji Harith bin Haji Mawardi bagi Lks 5669. Tapak Arkeologi Bukit Jawa di Daerah Hulu Perak, Mekin Longgong, Negeri Perak tentang nilai Penasihaya untuk memetikkan tapak itu sebagai tapak warisan di bawah perenggan 3[1]2(a) Akta:

DAN BAKAWASANA tiada apa-apa bantahan yang diterima oleh Penasihaya untuk penelapuan itu.

DAN BAKAWASANA kerjasama Pihak Berkamos Negeri di bawah sekser 30 Akta telah dipertahankan oleh Penasihaya bagi penelapuan itu:

MASALAH YANG BEMPITKAN, pada menjalankan kuasa yang dibekalkan oleh perenggan 3{1}{2(a)} Akta, Penasihaya memetikkan tapak yang diperhiskan di bawah sekser 30 Akta.

Bertatik 10 Februari 2009
[IWN, PP. 600/3/5/11; PN(PUP)652/IV]

DATO' PROFESSOR EMERitus ZURAIKHA MAID
PENASIHAYA WARISAN

NATIONAL HERITAGE ACT 2005

NOTICE OF DESIGNATION SITE AS HERITAGE SITE

Whereas in the Notice of Intention to Designate Site as Heritage Site under paragraph 27(2)(a) of the National Heritage Act 2005 [Act 645] published in the Gazette in P.U. (B) 493/2008 on 3 November 2008 and in the Utusan Malaysia and New Straits Times on 3 November 2008, notice has been given to Haji Harith bin Haji Mawardi for the Lks 5669, Bukit Jawa Archaeology Site at District of Hulu Perak, Mekin Longgong, State of Perak of the intention of the Commissioner to designate the site as a heritage site under paragraph 3[1]{2}(a) of the Act:

AND WHEREAS no objection was received by the Commissioner against such designation:

AND WHEREAS the consent of the State Authority under section 30 of the Act has been obtained by the Commissioner for such designation:

NOW THEREFORE, in exercise of the powers conferred by paragraph 3[1]{2}(a) of the Act, the Commissioner designates the site as described in the Schedule as a heritage site.

Dated 10 February 2009
[IWN, PP. 600/3/5/11; PN(PUP)652/IV]

DATO' PROFESSOR EMERitus ZURAIKHA MAID
COMMISSIONER OF HERITAGE
P.U. (B) 115.

AKTA NOTARI AWAM 1959

PELANTIKAN DI BAWAH SUBSEKSYEN 3(1)

Pada menjalankan kuasa yang diberikan oleh subseksyen 3(1) Akta Notari Awam 1959 [Akta 115], PeguamNegara melantik peguam bala dan peguam cara yang dimanakank dalam ruang (1) Jadual sebagai notari awam untuk menjalankan amalan di tempat yang dinyatakan dalam ruang (2) bagi tempoh dua tahun mulai tarikh yang dinyatakan dalam ruang (3).

NOTARIES PUBLIC ACT 1959

APPOINTMENT UNDER SUBSECTION 5(1)

In exercise of the powers conferred by subsection 3(1) of the Notaries Public Act 1959 [Act 115], the Attorney General appoints the advocates and solicitors named in column (1) of the Schedule to be notaries public to practise at the places specified in column (2) for a period of two years with effect from the dates specified in column (3).
**NASIONAL HERITAGE ACT 2005**

In exercise of the powers conferred by subsection 49(1) of the National Heritage Act 2005 [Act 645], the Commissioner declares the historical object listed in the Schedule to be heritage objects.

**SCHEDULE**

<table>
<thead>
<tr>
<th><strong>Description of Historical Object</strong></th>
<th><strong>Location of Historical Object Displayed</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The gold coin of Sultan Muzaffar Shah's reign (1504-1570), Johore</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The dower's gold coin Registration No. 357</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The gold coin of Sultan Alauddin Riayat Shah I's reign (1527-1564), Johore</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The gold coin of Sultan Zainal Abidin II's reign (1793-1808), Terengganu</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The Malay waja buckle Registration No.: E1954.1979</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The Sultan Abu'l Suzan's bowl cornet</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The statue of Ahmad Kaisara</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The Terengganu Royal Infantry officer's Registration No.: E1508.1962</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The sculpture of seated Buddha</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
<tr>
<td>The bronze bell</td>
<td>Department of Museum Malaysia, Jalan Damanahara, Kuala Lumpur</td>
</tr>
</tbody>
</table>
the owners as specified in columns (1) of the Schedule of the site as described in columns (2), (3) and (4) of the intention of the Commissioner to designate the site as a heritage site under paragraph 31(2)(a) of the Act:

AND whereas no objection was received by the Commissioner against such designation:

AND whereas the consent of the State Authority under section 30 of the Act has been obtained by the Commissioner for such designation:

Now therefore, in exercise of the powers conferred by paragraph 31(2)(a) of the Act the Commissioner designates the site as described in the Schedule as a heritage site.

SCHEDULE

**Description of Site**

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of owner</th>
<th>District/State</th>
<th>Lot No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Malaysian National Board</td>
<td>Kuala Lumpur</td>
<td>712, Selangor</td>
</tr>
<tr>
<td>2.</td>
<td>Federal Land Development</td>
<td>Kuala Lumpur</td>
<td>712, Selangor</td>
</tr>
</tbody>
</table>

Dated 10 February 2009

[ISBN, PP. 600/3518; PN/PUP]652/TIV

Dato' Professor (Em) Zainab Majid
Commissioner of Heritage

P.U. (B) 148.

AKTA WARISAN KEBANGSAAN 2005

NOTIS PENETAPAN TAPAK SEBAGAI TAPAK WARISAN


DAN BAHAWA SANAAN tiada apa-apa batihan yang diterima oleh Perumahan tersebut penetapan ini:
P.U. (B) 6.

AKTA TAFSIRAN 1948 DAN 1967
PENTALANAN SEMENTARA FUNGSI-FUNGSI MENTERI

Pada menjalankan kuasa yang diberikan oleh sekatn 51 Akta Tafsiran 1948 dan 1967 [Aktor 511], Yang di-Pertuan Agong telah menggalakkan kabinet dalam tempoh yang disyaratkan dalam masing (1) Jadual fungsi-fungsi Menteri yang dinyatakan dalam masing (2) hendaklah dijalankan oleh Menteri yang dinyatakan dalam masing (3)

INTERPRETATION ACTS 1948 AND 1967
TEMPORARY EXERCISE OF MINISTERIAL FUNCTIONS

In exercise of the powers conferred by section 51 of the Interpretation Act 1948 and 1967 [Act 511], the Yang di-Pertuan Agong has directed that during the periods specified in column (1) of the Schedule the functions of the Ministers specified in column (2) shall be exercisable by the Ministers specified in column (3).
CRIMINAL PROCEDURE CODE

APPOINTMENT OF DEPUTY PUBLIC PROSECUTOR

In exercise of the powers conferred by subsection 376(3) of the Criminal Procedure Code [Act 135], the Public Prosecutor of Malaysia has appointed the persons named in column (1) of the Schedule to be Deputy Public Prosecutors with effect from the dates specified in column (2).

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Itsan bin Hasni</td>
<td>1-7-2009</td>
</tr>
<tr>
<td>Shahrul Rizal bin Majid</td>
<td>1-9-2009</td>
</tr>
</tbody>
</table>

Berlaku 28 Disember 2009

Dated 28 Disember 2009

[PN.BPA. 152/235/16 Bkt. 3(78); PN(PU)224/V]

TAN SRI ABDUL GANI PATAH
Pendakwah Raya Malaysia
Public Prosecutor of Malaysia

P.U. (B) 11.

AKTA WARISAN KEBANGSAAN 2003

NOTIS PENGESANAN TAPAK LEBARAN TAPAK WARISAN

BAMAHASANO melalui Notis Tentang Nama meneurapkan Tapak sebagai Tapak Warisan di bawah perenggan 37(2)(a) Akta Warisan Kebangsaan 2003 [Akta 645] yang disiarkan dalam Warta dalam P.U. (B) 16/2009 pada 5 Mac 2009 dan dalam akhbar Utusan Malaysia dan New Straits Times pada 5 Mac 2009, notis telah diterbitkan kepada pemilik tapak yang diperihalkan dalam Jadual, Jansir bin Dollah dan Mahmud bin Iman Mohamad, dan orang lain yang terjejas atau berkenaan kini akan terjejas tentang atas Pemohonnya untuk menentukan tapak itu sebagai tapak warisan di bawah perenggan 31(2)(a) Akta:

DAN BAMAHASANO tiada apa-apa bentakan yang diterima oleh Pemohonnya terhadap notis ini:

DAN BAMAHASANO keizinan Pihak Berkuasa Negeri di bawah seksyen 15 Akta telah diperoleh oleh Pemohonnya bagi notis ini:

MAKA UMUM YANG DEMIKIAN, pada menjalankan kuasa yang diberikan oleh perenggan 31(2)(a) Akta, Pemohonnya menetapkan tapak yang diperihalkan dalam Jadual sebagai tapak warisan.
NATIONAL HERITAGE ACT 2005

NOTICE OF DESIGNATION OF SITE AS HERITAGE SITE

WHEREAS in the Notice of Intention to Designate Site as Heritage Site under paragraph 27(2)(h) of the National Heritage Act 2005 [Act 645] published in the Gazette in P.U. (B) 76/2009 on 2 March 2009 and in the Utusan Malaysia and New Straits Times on 3 March 2009, notice has been given to the owners of the site as described in the Schedule, Jeriah bin Dطال and Mahmud bin Imam Musthamed, and other persons who are affected or are likely to be affected by the intention of the Commissioner to designate the site as a heritage site under paragraph 31(2)(a)(i) of the Act.

AND WHEREAS no objection was received by the Commissioner against such designation.

AND WHEREAS the consent of the State Authority under section 30 of the Act has been obtained by the Commissioner for such designation:

NOW THEREFORE, in exercise of the powers conferred by paragraph 31(2)(a)(i) of the Act, the Commissioner designates the site as described in the Schedule as a heritage site.

SCHEDULE

DESCRIPTION OF SITE

<table>
<thead>
<tr>
<th>Site</th>
<th>District/Muka/Ulu</th>
<th>Lot No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teluk Kelanar Cave</td>
<td>Hulu Perak</td>
<td>1626</td>
</tr>
<tr>
<td></td>
<td>Langgong</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perak</td>
<td></td>
</tr>
</tbody>
</table>

Dated 23 December 2009

[JWN.PP.6093/3/51/1; PN(PJ/6452/V)]

Dato' Professor Emeritus Zarahana Maid
Commissioner of Heritage
Systematic excavation of *in-situ* lithic workshop sites in Kota Tampan Archaeological Heritage of Lenggong Valley
March 22nd 1987, Kota Tampan, Lenggong - seeing and touching a stone tool that had been “hiding” for more than 70,000 years. This discovery opened up the Lenggong Valley, Perak, as the earliest and most important archaeological area in Malaysia. Together with later discoveries that turned the clock back 1.83 million years, it paved the way for the growth of archaeology in Malaysia.
The excavation site at Kota Tampan, Lenggong. About 74,000 years ago, this site was a stone tool-making “workshop”, now it is an important Paleolithic site that provided information on the lithic industry of Paleolithic Southeast Asia.
The ash from the volcanic eruption that formed Lake Toba about 74,000 years ago, settled in the Paleolithic lakes in Lenggong. At one of these, the now-dry palaeolake in Bukit Jawa, excavations revealed that more than 3 metres of ash had been trapped in it. As a result, the sediments had somewhat maintained their integrity, indicating the severity of the last Toba eruption, which is believed to be the most catastrophic in human history and would certainly have impacted on prehistoric life in Lenggong.
The rain of ash from Toba settled in thick deposits all over Lenggong. Over time fluvial processes changed their composition and appearance. In parts of Lenggong, such as this in Kampung Sungai Gerus, ash deposits about 4 meters thick can be seen above the ground, while in the paleolake (opposite) they are about 3 meters deep.
Excavation at Gua Gunung Runtuh, a cave that was occupied from about 13,000 to 2,000 years ago.

Perak Man was found below this level.
The location of Gua Gunung Runtuh (GGR) 400 m above sea level, Ulu Jepai, Gelok in Lenggong, Perak
Oval Unifacial Pebble Tool from Gua Gunung Runtuh
Chopper from Bukit Bunuh (BBH 2001)
Unique Handaxe made of suevite from Bukit Bunuh (BBH 2001)
The Perak Man (right) was buried in a foetal position about 10,000 - 11,000 years ago. He died at ripe old age of 40-45 (life span then was only 25-30 years) and was buried with meat from several types of animals, stone tools, and shells.

Almost 3,000 riverine shells, known as *siput sedut* (a local favourite today) were scattered on the Perak Man. These had their apex chopped off ready for the meat to be sucked out for eating. This picture above shows the two varieties of shells: the smooth-shelled *Brotia spinosa* and *Brotia costula*. The shell on the extreme right has the apex intact while they chopped the rest using a stone stool.
Left: At the excavation at Gua Gunung Runtuh, Lenggong, additional lighting was needed as the work progressed deeper into deposit. The 10,000-11,000-year-old Perak Man was discovered in this cave.
Above: The right hand of Perak Man is seen grasping food - only the bones of these animals remain.

Right: The skeleton in-situ with knees drawn up to the chest
Left: A reenactment of the burial position of Perak Man

Right: Excavation of Perak Man in progress
**Left:** Computer Tomography of the mandibular pathology suggestive of an aggressive dental cystic pathology or tumour, causing widespread sepsis and might have been his main cause of death

**Right:** Profile of inter-jaw relationship
GUA TELUK KELAWAR SITE
GUA HARIMAU SITE
GUA GUNUNG RUNTUH SITE
KOTA TAMPAN (KT 1987) SITE
Flake Tool from Bukit Bunuh (BBH 2001)
Chopper from Kota Tampan
A view of islands in Raban Lake south of the nominated property reminiscent of the possible environment of Prehistoric Bukit Bunuh, Bukit Jawa and Kota Tampan
Cluster 2: Bukit Jawa, Bukit Kepala Gajah and Bukit Gua Harimau Core Zones
MADAM REGINA DURIGHELLO
Director
World Heritage Programme
International Council on Monuments and Sites (ICOMOS)
49-51 rue de la Federation
75015 Paris
France

Dear Madam,

WORLD HERITAGE LIST 2012: ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY (MALAYSIA) – ADDITIONAL INFORMATION

I refer to your letter dated 9th September 2011, ref.no CB/MA 1396 with regards to the above matter.

2. We are pleased to submit herewith the additional information on Archaeological Heritage of the Lenggong Valley as per requested for your kind perusal. Should you have any further enquiries, please do not hesitate to contact us.

Thank you.

Yours sincerely,

(EMERITUS PROFESSOR DATO’ ZURAINA MAJID)
Commissioner of Heritage
Department of National Heritage
Ministry of Information, Communications and Culture
Malaysia
### WORLD HERITAGE LIST 2012: ARCHAEOLOGICAL HERITAGE OF THE LENGGONG VALLEY (MALAYSIA) – ADDITIONAL INFORMATION

<table>
<thead>
<tr>
<th>NO</th>
<th>POINTS</th>
<th>FEEDBACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>SERIAL SITE SELECTION</td>
<td>Besides those mentioned in the dossier, there are further reasons underlying the choice of nominated sites. The sites in the 2 clusters were chosen because they were undisturbed sites for the obvious reasons of the evidential value of undisturbed or <em>in situ</em> sites. They also had to be sites that produced important findings, of significance to the prehistory of the area and the region. Yet another reason for selecting the nominated sites in the 2 clusters is that these sites are also the significant sites that contribute towards the culture sequence and the OUV.</td>
</tr>
<tr>
<td>2.</td>
<td>COMPARATIVE ANALYSIS</td>
<td>The Niah Caves in Sarawak comprised a habitation site and burial site. The West Mouth, Niah, may span the period from approximately 40,000 years ago to 2,000 years ago. Having researched Niah (Zuraina 1982 <em>The West Mouth</em>...)</td>
</tr>
<tr>
<td>3.</td>
<td>Paragraph 100 of the Operational Guidelines for the implementation of the World Heritage Convention states that the property boundaries should include those areas which in the light of future research possibilities offer potential to contribute to and enhance understanding of the Outstanding Universal Value of the property. It is not possible to compare the findings at Niah with the sites in AHLV because of serious methodological weaknesses in the Niah excavations, where hard archaeological data derived from sound field techniques were neglected. The logical progression of archaeological research encompasses exploration, testing of possible sites, selective excavation, cleaning and cataloguing collections, identification and analysis of the collection, and publication of results ending in a final report. From 1957 on except for the final report, these stages were all contemporaneous.</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Niah in the Prehistory of Southeast Asia, Sarawak Museum Journal Monograph No3) and AHLV, I find that it is not possible to compare the findings at Niah with the sites in AHLV because of serious methodological weaknesses in the Niah excavations, where hard archaeological data derived from sound field techniques were neglected - it did not follow the logical progression of archaeological research…exploration, testing of possible sites, selective excavation, cleaning and cataloguing collections, identification and analyses of the collection, and publication of results ending in a final report. From 1957 on except for the final report, these stages were all contemporaneous.&quot; (Solheim 1977:34) “The Niah Research Program” in Journal of the Malaysian Branch of the Royal Asiatic Society, L1: 28-40.</td>
<td>The caves surveyed in the 3 limestone massifs are badly disturbed sites, where the archaeological potential was destroyed by guano digging, which resulted in a loss of stratigraphy and artifacts were found strewn around. This was a common activity until the 1990’s when the government, realizing the archaeological significance of AHLV, stopped the collection of guano, a valuable agricultural fertilizer.</td>
<td>Appendix A: Map of the Archaeological Heritage of the Lenggong Valley</td>
</tr>
</tbody>
</table>
is stated in the nomination dossier (p.51) that the nominated buffer zone for Cluster 2 contains three limestone massifs, Bukit Gua Badak, Bukit Batu Tukang dan Bukit Gua Dayak which have caves known to have cultural elements. The dossier (p.55) also mentions choppers found during a preliminary survey at Bukit Suring, also located in the buffer zone for Cluster 2, where work has not yet started.

What is the justification for not including these sites within the boundaries of the property?

| 4. | It is also mentioned in the nomination dossier (p.56) that within Cluster 2, the Bukit Kepala Gajah outcrop has more than 20 caves, of which 4 have been excavated including 3 containing prehistoric burials. Are all these caves within the property boundary, or are some within the buffer zone? |
| 5. | Figure 2.24 (p.99) in the dossier indicates that there are other sites not mentioned in relation to the property boundary – (Lawin, Temelong, Gua Ngaum, Gua Batu Putih, Gua Mesin). As well, other sites are mentioned in the dossier for farmers. This is such an old tradition that about 90% of cave sites in Malaysia have been destroyed to different degrees. Bukit Suring is an open area that has been disturbed by agriculture and housing, with some artifacts found on the surface. Because both these cave and open areas are disturbed, and not in situ they have little potential to contribute towards the enhancing and understanding of the OUV. |

All these caves are within the property boundary of Bukit Kepala Gajah limestone massif. This limestone massif is protected under the National Heritage Act 2005.

This chart shows the dates available for the excavated sites in the region. Temelong, Gua Bt Tukang, Gua Dayak, Gua Mesin are in the buffer zone. Gua Batu Putih, Lawin are not in AHLV, but about 60km north of AHLV. However, the chronology of the nominated sites is not affected.

Appendix B – Chronological Chart of sites in the nominated property
(p.103) as having been explored and excavated in the 1990s including Gua Badak, some of which contain rock art. Are these within the property boundary or are they in the buffer zone?

because the top levels of Gua Gunung Runtuh and Gua Harimau approximate that of these other sites. A modified chart is enclosed.

Gua Gong Badak and Gua Badak are caves that were badly disturbed when discovered. The rock art included drawings of cars, bicycles – recent work, and the cave was exploited for marble. Thus, they were of little archaeological value.

<table>
<thead>
<tr>
<th>6. <strong>JUSTIFICATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The argument for criterion (iii) encompasses not only the cultural tradition of the Austramalanesoid associated peoples from the Paleolithic through Neolithic but also the Mongoloid peoples of the Metal period represented at Gua Harimau. Since the argument is that this is one of the longest known stretches of culture sequences in a single locality, why isn't the cultural sequence of the Negrito people as represented at Gua Badak etc including their cave drawings included also (dossier pp. 101 &amp; 105)?</td>
</tr>
<tr>
<td>The existence of the Orang Asli Negrito culture in the AHLV is mentioned briefly in the dossier to show the prehistoric cultural sequence of AHLV continued into the ethnographic past and present day. The known culture of the Orang Asli is basically of the historical period dating back to maybe a few hundred years and today they live with the other races and cultures in Lenggong. We are not sure of their culture sequence and how far back it dates. There have been several postulations by early history enthusiasts on their arrival and origins as mentioned in the dossier. The Gua Badak rock paintings are only assumed to have been painted by the Orang Asli since it is a few hundred years old.</td>
</tr>
<tr>
<td><strong>JUSTIFICATION</strong></td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>The argument for criterion (iii) encompasses not only the cultural tradition of the Austramalanesoid associated peoples from the Paleolithic through Neolithic but also the Mongoloid peoples of the Metal period represented at Gua Harimau. Since the argument is that this is one of the longest known stretches of culture sequences in a single locality, why isn't the cultural sequence of the Negrito people as represented at Gua Badak etc including their cave drawings included also (dossier pp. 101 &amp; 105)?</td>
</tr>
<tr>
<td>The existence of the Orang Asli Negrito culture in the AHLV is mentioned briefly in the dossier to show the prehistoric cultural sequence of AHLV continued into the ethnographic past and present day. The known culture of the Orang Asli is basically of the historical period dating back to maybe a few hundred years and today they live with the other races and cultures in Lenggong. We are not sure of their culture sequence and how far back it dates. There have been several postulations by early history enthusiasts on their arrival and origins as mentioned in the dossier. The Gua Badak rock paintings are only assumed to have been painted by the Orang Asli since it is a few hundred years old.</td>
</tr>
</tbody>
</table>
Prehistorians are generally unable to confidently reconstruct the chronology of racial types, because the sporadic nature of archaeological evidence only allows for a reconstruction of the cultural sequence rather than the sequence of racial types.

The connection between material culture and racial type, and the connection between current populations and prehistoric populations is not easily seen in prehistoric cultural remains in AHLV.

Thus, in this dossier we refer to hominid, human culture, Homo sapiens except in cases where the particular skeleton can be identified according to racial type such as Australomelanesoid or Mongoloid.

7. **INVENTORY**

Clarify whether there is currently an accessible inventory/data base of the previously surveyed and reported sites within the nominated property and buffer zones, and within the Lenggong Valley as a whole. It is noted that an inventory has been kept since 1987, only parts of which have published (dossier p. 199).

The inventory, data and artifacts of the previously excavated sites in the whole valley is available in the Centre of Global Archaeological Research, University of Science Malaysia (USM).
OWNERSHIP

Not all of the nominated property is in State ownership. It is stated in the nomination dossier (p.155) that the Bukit Jawa nominated area of cluster 2 is in the process of being acquired and the nominated areas of Cluster 1 are being considered for acquisition. Is it intended that the whole area of the nominated property will be acquired by the State, and if so, when will the process be complete?

**Bukit Jawa** – The nominated area covers seven (7) land lots totaling 6.18 hectares, all of which are privately owned. Efforts are being made by the State Government to acquire these lots. Steps have been taken and acquisition usually takes approximately two (2) years from the time of approval by the State Government because of the long legal process involved.

**Bukit Bunuh** – The property in Cluster 1 covers an area of 281.06 hectares. This is a very large area and extremely costly to acquire especially given that the potential areas are in pockets. The areas of high potential have been identified (including the crater rim) and it is only these areas that will be acquired by the Perak State Government. The rest of the property will be protected under strict regulations to be detailed in the Special Area Plan (SAP), expected to be completed by 2013. Any intention of disturbing the ground for purposes such as replanting will first need to be cleared by an Archaeological Impact Assessment (AIA). The acquisition of the property in Cluster 1 was approved at the same meeting as above.

Appendix C – Minutes of the Perak State Executive Council Meeting.
<table>
<thead>
<tr>
<th>PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarify how the nominated property is currently protected – that is under what legislation? It seems that not all the nominated property is inscribed on the National Heritage Register (dossier p. 159). How are the nominated areas encompassing Bukit Bunuh, Gua Harimau, Gua Teluk Kelawar and Gua Kajang protected? Do the protected areas of Kota Tampan, Bukit Jawa and Gua Gunung Runtuh on the National Heritage Register coincide with the nominated property boundaries?</td>
</tr>
</tbody>
</table>

| The whole of nominated property is protected under the National Land Code 1965 and the Town and Country Planning Act 1976, where any removal of soil, rocks and minerals as well as development activities have to abide by these Acts and obtain approval from the State and Local Government. The Special Area Plan (SAP) will further refine the protection measures for the nominated property under Town and Country Planning Act 1976. |

<table>
<thead>
<tr>
<th><strong>CONSERVATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain what active conservation and maintenance is being undertaken. Is there a conservation plan for the archaeological sites?</td>
</tr>
</tbody>
</table>

In 2009, an upgrading project was undertaken to provide plank walks, information panels, rest areas, toilets and garbage bins in the nominated sites in Cluster 1 and Cluster 2. The open sites in the property are protected over by roofed structure sheltering and conserving the *in situ* artifacts.


The nominated areas of Bukit Jawa and Bukit Kepala Gajah (Gua Teluk Kelawar, Gua Gunung Runtuh, Gua Kajang) in Cluster 2 have been gazetted under the National Heritage Act 2005 and their boundaries coincide with the nominated property boundaries.

The boundaries for Kota Tampan and Bukit Bunuh in Cluster 1 do not coincide with the nominated boundaries. However, the property in Cluster 1 is sufficiently protected by the Town and Country Planning Act 1976 and National Land Code 1965.
Signages help guide visitor towards conserving the area. A Conservation Plan for archaeological sites is part of the Special Area Plan. Lenggong District Council is responsible for site maintenance such as garbage collection, site clearing and accessibility to the sites.

## MANAGEMENT

11. Clarify how many staff comprises the Heritage Unit which currently manages the nominated sites, and provide details of their qualifications.

Currently there are six (6) staff in the Heritage Unit. This unit is headed by **Head of Heritage Unit** who holds a degree (BSc) in Town and Country Planning. The three sections under this unit are:

i) **Technical Section** headed by an Assistant Engineer (Diploma in Engineering).

ii) **Enforcement Section** headed by an Assistant Legal Officer (Diploma in Law). She is supported by two (2) Assistant Enforcement Officers (Malaysian Certificate of Education equivalent to High School Diploma).

iii) **Administrative Section** headed by a Clerk (Malaysian Certificate of Education equivalent to High School Diploma).
12. Clarify the role of buffer zone residents in relation to management of the nominated property. Are they represented on the steering committee?

Based on the dossier (p.169), the Steering Committee comprises representation from Federal, State and Local Governments, as well as Independent Members including archaeologists and heritage experts. The members of State and Local Governments sitting on the Steering Committee automatically include residents of the buffer zone in their capacity as Councilor (Ahli Majlis) or Assistant Administrative Officer (Penghulu) or Village Headman (Ketua Kampung).
APPENDIX A :
MAP OF THE ARCHAEOLOGICAL HERITAGE
OF THE LENGGONG VALLEY
APPENDIX B:

CHRONOLOGICAL CHART OF SITES IN THE NOMINATED PROPERTY
APPENDIX C:
MINUTES OF THE PERAK STATE EXECUTIVE COUNCIL MEETING
Majlis menimbangkan Kertas Bil. 1402/9/06/2010 dan memutuskan seperti berikut:

Majlis bersetuju secara prinsip:

I. cadangan Pencalonan Tapak Arkeologi Prasejarah Lembah Lenggong sebagai Warisan Dunia UNESCO oleh Kementerian Penerangan, Komunikasi dan Kebudayaan Malaysia;

II. cadangan tentatif kawasan pencalonan seluas 5,198 hektar melibatkan 2,004 lot seperti berikut:

(a) Tapak Bukit Bentuk (Zon Utama 1/Core Zone 1) – 704.5 hektar;

(b) Bukit Jawa Koto Tapaman (Zon Utama 2/Core Zone 2) – 25.41 hektar;

(c) Kompleks Batu Kapur Bukit Kepala Gajah (Zon Utama 3/Core Zone 3) – 219.3 hektar;

(d) Kompleks Batu Kapur Bukit Gua Harimah (Zon Utama 4/Core Zone 4) – 7.824 hektar; dan

(e) kawasan penampakan (buffer) – 4,240.97 hektar

III. mewujudkan Rancangan Kawasan Khas (RKK) di bawah Akta Perancangan Bandar dan Desa 1976 bagi zon utama dan penampakan (core and buffer zone) tersebut menggunakan peruntukan Kerajaan Negeri yang akan dirunding dengan Pejabat Kewangan Negeri; dan

IV. membuat pengambilan balik tanah atau tukar-ganti tanah (land swapping) bagi tanah bermilik seluas 616.91 hektar di Zon Utama 1 dan 2 (Core Zone 1 dan 2), jika perlu bagi memastikan pemilikan tanah tidak melaksanakan aktiviti yang boleh menyenjukkan nilai arkeologi tapak tersebut.

V. cadangan-cadangan kemajuan pada masa akan datang hendaklah merujuk kepada Kerajaan Negeri terlebih dahulu.

[UPEN.Pk.(T)5/7/1/1-13(42)]
The Culture Sector
World Heritage Centre

H. E. Mr Mohd Zulkifli Bin
Mohammed Ambassador
Permanent Delegation of Malaysia to
UNESCO
UNESCO House

Ref: CLT/WHC/PSM/12/LJ/APA/227 16 August 2012

Subject: Inscription of Archeological Heritage of the Lenggong Valley
(C 1396), Malaysia, on the World Heritage List

Sir,

I have the pleasure to inform you that the World Heritage Committee, at its 36th session (Saint Petersburg, Russian Federation, 24 June – 6 July 2012), examined the nomination of the Archeological Heritage of the Lenggong Valley and decided to inscribe the property on the World Heritage List. The decision of the Committee concerning the inscription is attached.

I am confident that your government will take the necessary measures for the effective conservation of this new World Heritage property. The World Heritage Committee and its Secretariat, the World Heritage Centre, will do everything possible to collaborate with you in these efforts.

The Operational Guidelines for the Implementation of the World Heritage Convention (paragraph 168), request the Secretariat to send to each State Party with a newly inscribed property a map of the area(s) inscribed. Please examine the attached map and inform us of any discrepancies in the information by 1 December 2012.

The inscription of the property on the World Heritage List is an excellent opportunity to draw the attention of visitors to, and remind local residents of, the World Heritage Convention and the outstanding universal value of the property. To this effect, you may wish to place a plaque displaying the World Heritage emblem and the UNESCO logo at the property. You will find suggestions on this subject in the Operational Guidelines for the Implementation of the World Heritage Convention.

In many cases States Parties decide to hold a ceremony to commemorate the inscription of a property on the World Heritage List. Upon request to the World Heritage Centre by the State Party, a World Heritage Certificate can be prepared for such an occasion.

I would be grateful if you could provide me with the name, address, telephone and fax numbers and e-mail address of the person or institution responsible for the management of the property so that we may send them World Heritage publications.

Please find attached the brief descriptions of your site, prepared by ICOMOS and the World Heritage Centre, in both English and French. As these brief
descriptions will be used in later publications, as well as on the World Heritage website, we would like to have your full concurrence with their wording. Please examine these descriptions and inform us, by 1 December 2012 at the latest, if there are changes that should be made. If we do not hear from you by this date, we will assume that you are in agreement with the text as prepared.

Furthermore, as you may know, the World Heritage Centre maintains a website at http://whc.unesco.org/, where standard information about each property on the World Heritage List can be found. Since we can only provide a limited amount of information about each property, we try to link our pages to those maintained by your World Heritage property or office, so as to provide the public with the most reliable and up-to-date information. If there is a website for the newly inscribed property, please send us its web address.

All the Decisions adopted by the 36th session of the World Heritage Committee are available at the following web address of the World Heritage Centre: http://whc.unesco.org/archive/2012/whc12-36com-19e.pdf.

As you know, according to paragraph 172 of the Operational Guidelines for the Implementation of the World Heritage Convention, the World Heritage Committee invites the States Parties to the Convention to inform the Committee, through the World Heritage Centre, of their intention to undertake or to authorize in the area protected under the Convention major restorations or new constructions which may affect the outstanding universal value of the property.

May I take this opportunity to thank you for your co-operation and for your support in the implementation of the World Heritage Convention.

Please accept, Sir, the assurances of my highest consideration.

Kishore Rao
Director

cc: National Commission of Malaysia for UNESCO
ICOMOS
UNESCO Office in Jakarta
Extract of the Decisions adopted by the 36th session of the World Heritage Committee (Saint Petersburg, 2012)

Decision: 36 COM 8B.25

The World Heritage Committee,

1. Having examined Documents WHC-12/36.COM/8B and WHC-12/36.COM/INF.8B1,

2. Inscribes the Archaeological Heritage of the Lenggong Valley, Malaysia, on the World Heritage List, on the basis of criteria (iii) and (iv);

3. Adopts the following Statement of Outstanding Universal Value:

   Brief synthesis

The lush Lenggong Valley on the Malay Peninsula contains evidence in open-air and cave sites along the Perak River spanning all the periods of hominid history outside Africa from 1.83 million to 1,700 years ago.

Undisturbed in situ Palaeolithic stone tool workshops are located on the shores of a paleolake and ancient river gravel beds and dated in a long chronological sequence.

A meteorite strike 1.83 million b.p. blocked and diverted the river preserving Palaeolithic tools at Bukit Bunuh, where hand axes are among the oldest so far discovered outside Africa. Analysis suggests these were made by hominids which thus provide an extremely early date for hominin presence in South-East Asia.

A catastrophic Toba volcanic eruption 70,000 b.p. caused abandonment of a workshop site containing multiple tool types at Kota Tampan. Other workshop sites date from 200,000-100,000 BP at Bukit Jawa, 40,000 BP at Bukit Bunuh and 1000 BP at Gua Harimau.

The relative abundance of these sites hints at a relatively large or semi sedentary population.

Perak Man was discovered within Gua Gunung Runtuh cave. Perak Man is South-East Asia’s oldest most complete human skeleton. It is radiocarbon dated to 10,120 BP and identified as Australomelanesoid, a hominid type occupying the western part of the Indonesia archipelago and continental South-East Asia at the end of the Pleistocene and early Holocene.

Within the large karst outcrop of Bukit Kepala Gajah are 20 caves. Three of these, Gua Gunung Runtuh, Gua Teluk Kelawar and Gua Kajang, have revealed prehistoric burials.

Together these four sites in two clusters sites represent the sequence of significant stages in human history unrivalled in the region.

Criterion (iii): The series of cave and open air sites along the Perak River in the Lenggong Valley is an exceptional testimony to occupation of the area particularly during the Palaeolithic era, but also during the Neolithic and Bronze Age periods from 1.83 million years ago to 1,700 years ago.

Criterion (iv): The undisturbed in situ Palaeolithic stone tool workshops located on the shores of a paleolake and ancient river gravel beds and dated in a long chronological sequence are an outstanding ensemble of lithic technology.

Integrity

The Lenggong Valley has provided a fertile and environmentally stable habitat for repeated human occupation since early Palaeolithic times. The archaeological deposits are relatively undisturbed and generally in good condition, largely due to low visitation. The visual integrity is impacted by the current industrial agricultural plantations. The property contains all the elements necessary to express its values. However the whole valley holds the potential for further discoveries.
Authenticity

The authenticity of the property relates to the intactness of the sites themselves and of their landscape setting that allows understanding of ancient river gravel beds and the impact of meteoric impact. The documented evidence supports the values claimed for this site from 1.83 million to 1,700 years ago. The recent (post 1987) Lenggong Valley research relating to the story of early human migration ensures the reliability and authenticity of the property. Much of the documentation has been independently peer reviewed through the academic publishing process, albeit not yet on a fully international scale. The artefacts and research are available for study.

Protection and management requirements

All designated sites within the property are expected to be registered under the National Heritage Act 2005 and gazetted by 2012. The property is protected under the National Land Code 1965 and the Town and Country Planning Act 1976, where any removal of soil, rocks and minerals as well as development activities require approval from State and Local Governments. The Special Area Plan currently being prepared will further refine protection measures for the property and buffer zones under the Town and Country Planning Act.

The property including all components is managed by the Lenggong District Council (the local authority) with the co-operation of the Department of National Heritage (which is ultimately responsible for the nationally registered sites), and with the occasional assistance of the Centre for Global Archaeological Research, University of Science Malaysia.

A Heritage Steering Committee chaired by the Chief Minister of the State of Perak, with members representing Federal, State and Local governments and independent expert members, will cover all aspects of implementation of the Property Management Plan including fundraising. The Committee will be advised as to implementation of the work plan by a Heritage Technical and Scientific Committee, chaired by the District Officer. The District Council’s Heritage Unit will be upgraded to become the World Heritage Office headed by a General Manager, the staff of which will implement the work plan with external assistance from the University of Science Malaysia and others as required.

The Property Management Plan for the Archaeological Heritage of the Lenggong Valley needs to be completed, approved by all parties concerned and then the Plan will set out objectives including the development of tourism and visitor management strategies, risk management strategies and provision for stakeholder participation and collaboration.

In order to manage any increases in visitors, more active conservation needs to be undertaken to manage visitor impacts on the sites, to prevent graffiti and to address pressure for the development of tourism facilities in the buffer zone.

Responses to other potential threats, such as change of land use, housing development, and quarrying activities, need to be addressed through specific measures in the Management plan and the introduction of appropriate protection measures in planning policies.

4. Further recommends that the State Party:

   a) Ensures that the extension of buffer zones to additionally protect the setting of the property including palaeo-environmental features, ensuring that the boundaries of the buffer zones protect the entire perimeter of each site,

   b) Ensures that the sites of Bukit Bunuh and Bukit Gua Harimau remain protected under the National Heritage Act until the Special Area Plan is completed,

   c) Integrates the archaeological zoning plan that identifies areas of known archaeological significance within the property and buffer zones within the Property Management Plan,

   d) Continues to implement the approved Draft Management Plan until the adoption of the detailed Management Plan;
5. Recommends that the State Party give consideration to completing the Special Area Plan and a detailed Conservation Management Plan before February 2014.

Surface and coordinates of the property inscribed on the World Heritage List by the 36th session of the World Heritage Committee (Saint Petersburg, 2012) in accordance with the Operational Guidelines.

<table>
<thead>
<tr>
<th>Malaysia</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1396</td>
</tr>
<tr>
<td>Archaeological Heritage of the Lenggong Valley</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Serial ID No.</th>
<th>Name</th>
<th>Property</th>
<th>Buffer zone</th>
<th>Centre point coordinates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1396-001</td>
<td>Bukit Bunkh – Kota Tampan</td>
<td>261.06</td>
<td>827.34</td>
<td>N05 04 04.47 E100 58 20.38</td>
</tr>
<tr>
<td>1396-002</td>
<td>Bukit Jawa</td>
<td>6.18</td>
<td></td>
<td>N05 07 44 E100 59 34</td>
</tr>
<tr>
<td>1396-003</td>
<td>Bukit Kepala Gajah</td>
<td>108.25</td>
<td>959.43</td>
<td>N05 07 34.30 E100 58 0.09</td>
</tr>
<tr>
<td>1396-004</td>
<td>Bukit Gua Harimau</td>
<td>3.15</td>
<td></td>
<td>N05 08 57.84 E100 58 50.64</td>
</tr>
</tbody>
</table>

**TOTAL** 398.64 1786.77

**Brief Description in English**

Situated in the lush Lenggong Valley, the property includes four archaeological sites in two clusters which span close to 2 million years, one of the longest records of early man in a single locality, and the oldest outside the African continent. It features open-air and cave sites with Palaeolithic tool workshops, evidence of early technology. The number of sites found in the relatively contained area suggests the presence of a fairly large, semi-sedentary population with cultural remains from the Palaeolithic, Neolithic and Metal ages.

**Brief Description in French**

Situé dans la luxuriante vallée de Lenggong, le bien comprend quatre sites archéologiques répartis en deux groupes qui couvrent une période de près de deux millions d’années, l’une des plus longues traces documentées au monde de la présence des premiers hommes sur un même lieu, et le plus ancien hors d’Afrique. Il comprend des sites en plein air et des grottes avec des ateliers de fabrication d’outils datant du Paléolithique, témoignage d’une technologie précoce. Le nombre de sites découverts dans une zone relativement restreinte suggère la présence d’une population assez large, semi-sédentaire avec des vestiges culturels du Paléolithique, du Néolithique et de l’âge du fer.