

Appendix K

**Preliminary Archaeology and Cultural
Heritage Survey Report**

Physical Cultural Resources
Preliminary Archaeological Survey in the proposed
Nam Ngiep 1 Hydropower Project (NNHP-1).

1. Introduction

a. Objectives

The objectives of the preliminary archaeology and cultural heritage survey are to:

- Identify and assess the presence of archaeological and cultural heritage sites of significance located within the vicinity of the proposed Nam Ngiep 1 Hydropower Project.
- Assess the risk of direct or indirect impacts from the proposed project on identified archaeological and cultural heritage sites.
- Identify appropriate management and mitigation measures.

b. Scope and Study Area

The archaeological and cultural significance study is inherent in the Environmental and Social Impact Assessment (ESIA), which is being undertaken for the proposed Nam Ngiep Hydropower Project.

The scope of the work is to: (i) contextualize the cultural significance attributed to the cultural heritage sites by the various concerned parties, in particular by the local communities, the scholars and the governmental organizations; (ii) demonstrate that the private sector is agreeable to abide by the article 42 of the law on the protection of the cultural heritage (concerning evaluation of impact assessment); and (iii) illustrate that the study on cultural heritage is inspired by the best practices as recommended by the World Bank concerning the Potential Cultural Resources (PCR) management (see "Handbook, The World Bank Physical Cultural Resources (PCR) safeguard Policy, 2002).

c. Study Team

The survey team was composed of:

- *Department of Museums and Archaeology (DMA) Professional Staff.*
- *Office of Information and Culture of Hom District, Vientiane Province:*
Mr. Buaphet, Chief.
- *Office of Information and Culture of Borikhan District, Bolikbamsay Province:*
Mr. Viengnakhone, Deputy Chief.

2. Methodology

a. Literature Review

1. Old publications on Lao archaeology were reviewed (see bibliography at annex)

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2. Recent reports on archaeological survey conducted at several construction projects such as (i) the Nam Theun 2 Hydropower; (ii) Sepon Mining; and (iii) Phu Bia Mining.
3. Recent publications on the prehistory of Vietnam, Cambodia and Thailand, in particular concerning Hoabinhian and Neolithic sites, were reviewed in order to conduct a comparative study of such issues in neighbouring countries. A general overview of the archaeology of Southeast Asia, and the current understanding with regards to Laos can be found with the book "Early Cultures of Mainland Southeast Asia" (Higham 2002).

b. Methods in the field

1. Village consultation: The local villagers were invited to show any objects with prehistoric, archaeological, historical or cultural values they have collected and to relate some of their oral traditions (folk tales, legends, myths, sayings) concerning their landmarks and/or cultural objects.
2. Field observation: The survey team attempted to locate prehistoric and historical sites by visiting places indicated by villagers and searching for any evidence of human activities that occurred in different periods of time.
3. Toponymic study: Local names of places are analysed in the hope that they might lead to the discovery of ancient sites.
4. Documentation of sites and artefacts: Documentation was carried out by textual and metric recording, photography, drawings and mapping.

c. Assessment of sites

A system of assessing the significance of a site has not been created; the criteria for such assessment have not been scholarly defined. Therefore it is uneasy to assess the significance of a site as our knowledge on Lao archaeology remains limited as the total number of studied sites is still fewer than five. Therefore the time line remains incomplete and for such a small quantity of sites or "population", in terms of statistics, representation of the reality is not but impartial. In such context, new discoveries are often the only ones of their type known and the trends are to provide them the characters of uniqueness and representativeness.

For this current study we have attempted to define three main criteria to assess a site, as following:

- Site contents: on the basis of artefact finds, is a site significant by the amounts and the quality of those artefacts?
- Site condition: is the site still intact or has it undergone through any disturbances?
- Representativeness : based on its material culture is the site representative of a particular period of human evolution or cultural development?

In this report each site or area of interest will be assigned a significance rating from none, low, medium to high with the understanding that the sites are evaluated with the criteria as above-mentioned. These ratings are broadly defined as follows:

- 2 *Department of Museums and Archaeology, October 2007.
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- None: Tangible or intangible cultural or historical heritage values cannot be demonstrated.
- Low: Tangible or intangible cultural or historical heritage values have been assigned but its exact location and/or existence remain to be verified. Alternatively, archaeological deposits could be eventually discovered with limited archaeological reconnaissance (e.g. test pitting).
- Medium: The existence of tangible or intangible cultural or historical heritage values has been reported, and, the existence of such values has been verified but they are not clearly of the highest significance. An archaeological site can be immediately identified using archaeological methodologies.
- High: The existence of tangible or intangible cultural or historical heritage values has been verified and such values are of highest importance. If it is an archaeological site there is significant potential for verification using archaeological methodologies.

In some cases there is no 'tangible' heritage values identified but 'intangible' values may exist.

Archaeology deals with 'material culture' i.e. actual objects and structures that are physical evidence of past human activities. While objects and structures are easily identifiable, a "site" is more difficult to define. Practically, it is a concentration of artefacts and/or structural remains that represent human activity; for example, the pottery shards, stone adze/axes and burials that are the remains of an ancient village. Sites did not exist in isolation but always connected or related to one another as the humans have always entertained a network of relationship amongst different communities. This indicates that sites are to be investigated within a complex of sites at each point of their existence.

3. Fieldwork

a. Locations of interest

The study area spans two districts; Hom of Vientiane Province and Borikhan of Bolikhamsay Province, central Laos.

Villages and open site that are suspected to have archaeological or/and cultural significance within the Nam Ngiep 1 Hydropower Project were visited. To capitalize the resources that were made available, our survey team attempted to maximize the land coverage of the study area and to gather the information that was deemed the most relevant.

b. Evidence:

1. Artefacts providing evidence of human occupation in prehistory
2. Sites that demonstrate human occupation in prehistory
3. Sites relating to recent history
4. Objects illustrating the recent history

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5. Oral traditions accounting the history of the various populations in the area and their movements in and/or out of the region

4. Results of village consultation survey

1. **Ban Nam Youak** (ບ້ານນ້ຳຢອກ) Hom District, Vientiane Province)

A. **Village profile.**

The village has been named after the Nam Youak River. “Youak” is a plant specie which predominantly grows along the banks of this river; ‘Nam’ in Lao means water or river.

Nam Youak joins the Nam Ngiap approximately 3 km away from the village. The population of this village was moved from high mountainous area of Phu Samsao, Phu Ngou and Phu Samliem, and was resettled on the terrace on the right bank of Nam Youak river, in 1984. This village is quite large and is made of 117 households with 712 inhabitants. The villagers are all of Hmong ethnic group, and they are animist.

Site of historic or cultural significance has not been reported to our survey team during village interview. Nevertheless, stone tools were found by chance during cultivation activities; the tools are still kept as valuable objects of heirloom in the family.



Public interview at Ban Nam Youak meeting hall.

Informants:

1. Mr. Khu Song, 47, chief of the village
2. Mr. Yong Thao, 75, elder resource person
3. Mr. Sonsong Lau, 65, elder resource person
4. Mr. Bounma Her, 42, chairman of the village unit, Front for National Edification
5. Mr. Lor, 93, elder resource person
6. Mr. Kayi Song, 45, resource person

B. **Artefacts.**

Five polished stone tools were identified in this village. The details are as following:

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Inventory No. 1: polished stone adze/axe without shoulders.

Dimensions (cm)
 height: 9.7
 width at top: 2.8
 width at middle: 2.9
 width at base: 3.5
 thick at top: 0.6
 thick at middle: 1.8
 thick at base: 0.2

Provenance: Mr. Bounma Her, 42, found this object in his paddy field near the village in 2002, during earth work, about 40 cm depth.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Inventory No. 2: polished shouldered stone adze/axe.

Dimensions (cm)
 height: 7
 width at top: 1.3
 width at middle: 2.4
 width at base: 2.6
 thick at top: 0.6
 thick at middle: 1.8
 thick at base: 0.2

Provenance: Mr. Kayi Song, 45, found in his paddy field near the village on the Nam Youak bank in 2005.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Inventory No. 3: polished shouldered stone adze/axe.

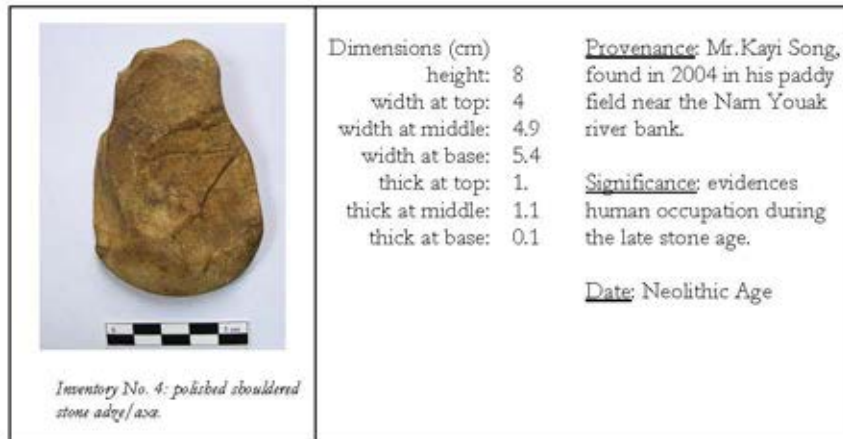
Dimensions (cm)
 height: 7.5
 width at top: 2.5
 width at middle: 5.4
 width at base: -
 thick at top: 2
 thick at middle: 2.3
 thick at base: -

Provenance: Mr. Kayi Song, found in 1999 at a slope of Phu Samliem mountain (about 7-8 Km upstream of Nam Ngiap from Ban Nong)

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age

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2. Ban Huaypamom (ບ້ານຫ້ວຍປາມ້ອມ Hom District, Vientiane Province)

A. Village profile.

Ban Huaypamom is the upper most village of Nam Ngiap 1 project, that our survey team has been visited. There is no road access to this village. The boat trip from Ban Nam Phuan takes about one hour. The village was founded in 1996, it was named after a creek *Huaypamom*, (*Huay* = creek, *pamom* = a specie of fish) and is located on the right bank of Nam Ngiap. The population consist of Himong ethnic group. They are 38 households and 224 inhabitants, and. They originated from many places such as . Pha Lavaek, Phu Hua Seua and even Nong Haet district, Xiengkhuang province. There were no places of historic or cultural significance either archaeological artefacts have been reported to us.

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Hmong traditional houses of Ban Huaypanom.

The summit of Phu Samliem or "triangular mountain", a view from Ban Huaypanom. The area that stone tool inv.No. 3 had been found there.

Informants:

1. Mr. Yia Long, 49, village headman.
2. Mr. Sia Mai, 45, village security.

B. Artefacts.

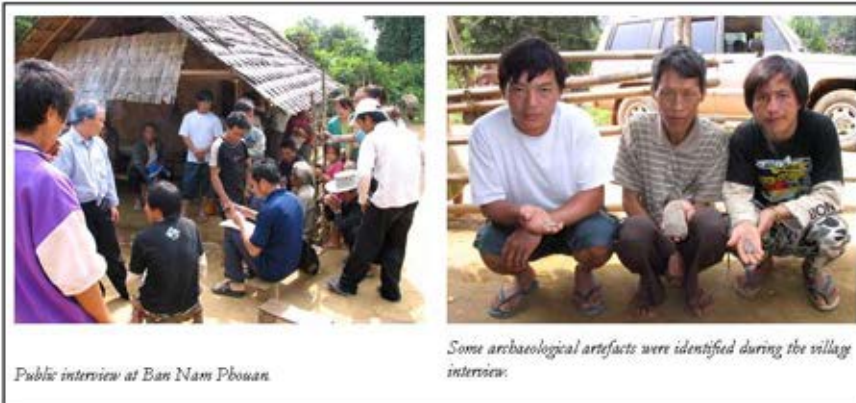
No artefacts of archaeological or historic significance were reported by the local people. This village is located South-east of Phu Samliem Mountain (Triangular mountain), that artefact No. 3 has been found. Refer to the map of the Service Geographique d'Etat, edition 1985 1:100 000, sheet E-48-39, it was marked Ph.Samlian, alt.1853 m asl.

3. Ban Nam Phouan (ບ້ານນ້ຳພວນ Hom District, Vientiane Province)

A. Village profile.

Ban Nam Phouan is at the end of the road that accesses the upstream area of the NNHP-1. This village is located on the right bank of Nam Ngiap and on the lower part of the confluence of Nam Phouan, for this reason the village is also called "Sop Phouan" (*Sop* in Lao means mouth, lips). The banks of the river in the NNHP1 reservoir area form a deep and steep "V" shape valley which supports some vegetation. The course of the river is broken by many abrupt changes in elevation which creates a series of cascades and rapids. The navigation is therefore impossible within this portion. This village was founded in 1981. Its population consist of Hmong ethnic group that was moved from Ban Nong Tao. There are 48 households and 309 inhabitants. There is neither cave site nor sacred places located within the vicinity of this village. However this region played an important role during the Indochina war particularly from 1960-68 as the Pathet Lao Movement implemented operations of strategical importance. This region was the natural land link between the Plateau of Xiengkhuang and the Mekong valley stretching from Vientiane to Bolikhamsay. By its rugged terrain the region facilitated the above mentioned operations. The region housed a series of hospitals and warehouses (foods and medicine) that were needed by the population. . These constructions have not survived as they were all made of perishable materials. Only live memory of people could still remember those critical moments.

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Informants:

1. Mr. Dwa Vang, 33, deputy headman of the village.
2. Mr. Song Vang, 30, vice secretary of the village party unit.
3. Mr. Yang Ker, 60, elder resource person.
4. Mr. So Pao Vang, 50, elder resource person.
5. Mr. La Her, 31, chief, village security.
6. Mr. Ka May, 40, secondary school teacher.
7. Mr. Phia Vang, 35, secondary school teacher.
8. Mr. Siamoa Vang, 38, resident
9. Mr. Yiasa Vang, 37, village security.
10. Mr. Da Vang, 36, village youth organization.
11. Mr. Chongka Vang, 56, elder resource person.
12. Mr. Hwa Yang, 31, resident

B. Artefacts.

Four polished stone tools were shown to our survey team.

	Dimensions (cm)	<u>Provenance:</u> Heirloom of Mr. La Her.
	height: 3.8	<u>Significance:</u> evidences human occupation during the late stone age.
	width at top: 1.8	
	width at middle: 4.2	
	width at base: 4.2	
	thick at top: 0.8	<u>Date:</u> Neolithic Age
	thick at middle: 0.9	
thick at base: 0.2		

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Inventory No. 6: polished shouldered stone adze/ axe.



Inventory No. 7: polished shouldered stone adze/ axe.

Dimensions (cm)
 height: 5.2
 width at top: 1.3
 width at middle: 3.2
 width at base: 3.2
 thick at top: 1.1
 thick at middle: 1.3
 thick at base: 0.2

Provenance: Chance find by the parent of Mr. Song Vang in 1997, at the foot hill near the village.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Inventory No. 8: polished shouldered stone adze/ axe.

Dimensions (cm)
 height: 13.7
 width at top: 2.4
 width at middle: 5.2
 width at base: 6
 thick at top: 1.2
 thick at middle: 1.6
 thick at base: 0.2

Provenance: Mr. Chungkua Vang, 54, found this object at the foot of a big tree on the slope of Thongbay hill near the village.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Inventory No. 9: polished stone adze/ axe without shouldered.

Dimensions (cm)
 height: 5.3
 width at top: 2.1
 width at middle: 2.5
 width at base: 2.6
 thick at top: 0.1
 thick at middle: 1
 thick at base: 0.1

Provenance: Mr. Por Sung, 23, found in his paddy field this year.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age

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4. **Ban Nong** (ບ້ານໜອງ Hom District, Vientiane Province)

A. **Village profile.**

The village is officially named *Ban Nong* but it is commonly called *Ban Sop Youak* (ສົບຢວກ), referring to its new location; “at the mouth of the Nam Youak”. Prior to resettlement, Ban Nong was located at the foothill of Phu Katha mountain, several kilometres upstream from the confluence and on the opposite bank of the river. The village was named after the presence of a large pond that existed nearby; “Nong” means pond. In 1987, a track (off road) was constructed by the government aiming to break the isolation and to link Ban Nong to its direct administrative centre located at Pha Lavaek. Villagers living in disseminated hamlets were therefore encouraged to regroup and resettle along this track so that they could be reached for basic services, e.g. schooling, health care, trading etc. When the Nam Ngiap is low during dry season trucks can cross the river at Ban Sop Youak and from there, heading South they can reach Bolikhamsay province on an old track. Places of significance in terms of archaeology, history and scenic beauty have not been reported by the interviewees. However, judging from significant archaeological objects that have been found, collected by local villagers and shown to our survey team, the Ban Nong area can be regarded as a site that witnessed human occupation during prehistoric times. Further investigation (survey and test pitting) is highly recommended as the area has great potential of prehistory.



Meeting with the resource persons at Ban Nong. Due to harvest season, most of the villagers are working in the field during the day time, and our only chance to conduct interview with them might be at night time.

Informants:



1. Mr. Kheu Yang, aged 28, deputy headman of the village.
2. Mr. Bialeu Song, aged 48, chairman of the village unit, Front for National Edification
3. Mr. Seu Song, aged 23, second deputy headman of the village
4. Mr. Saymao Yang, aged 45, village security
5. Mr. Cha Song, aged 31, village security
6. Mr. Yuatua Yang, aged 43, chief, village's Youth organization
7. Mr. Hakong Yang, aged 48, chief, village's Forest Unit
8. Mr. Yuatong Yang, aged, deputy chief, village security

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9. Mr. Yada Yang, aged 53, chairman of the village unit, Front for National Edification
10. Mr. Yialeu Yang, aged 58, Front for National Edification
11. Mr. Khu Yang, aged 33, resource person
12. Mr. Yeu Yang, 46, resource person
13. Mr. Vacheu Song, 53, resource person
14. Mr. Yeuthor Song, 45, resource person
15. Mr. Yianeng Song, 47, resource person
16. Mr. Kaye Song, 37, resource person

B. Artefacts.

Our survey took place in heart of the harvesting period, a time when the farmers leave home at dawn and returned at dusk as they wanted to spend the full day at their paddy fields. Upon our request many inhabitants, in particular those who owned archaeological artefacts kindly stayed at the village and attended our village interview. Amongst objects that were put available to our study some were indeed of inestimable importance as they were rare and they were holding missing key information for our understanding about the production of stone tools during prehistoric times in Laos.

 <p><i>Inventory No. 10: crescent shaped grinding stone; assessed as a masterpiece by our study team.</i></p>	<p>Dimensions (cm) height: 27 width: 19 thick: 10</p> <p><u>Provenance:</u> Mr. Saymao Yang, 45, found 2 pieces of stone objects (no.6 & 7) buried together in horizontal position at about 80 cm depth at his paddy field in 2006.</p> <p><u>Significance:</u> evidences human occupation during the late stone age.</p> <p><u>Date:</u> Neolithic Age</p>
 <p><i>Inventory No. 11: weight for planting stick.</i></p>	<p>Dimensions (cm) outer diameter: 9-9.2 hole diameter: 2.9-3.9 thick: 2.7</p> <p><u>Provenance:</u> Mr. Saymao Yang, 45, found 2 pieces of stone objects (no.6 & 7) buried together in horizontal position at about 80 cm depth at his paddy field in 2006.</p> <p><u>Significance:</u> evidences human occupation during the late stone age.</p>

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Date: Neolithic Age



Inventory No. 12: polished stone adze/ axe without boulders.

Dimensions (cm)
height: 5.6
width at top: 2.2
width at middle: 2.5
width at base: 2.6
thick at top: 0.2
thick at middle: 1.2
thick at base: 0.2

Provenance: Mr. Saymao Yang, 45, found in 1995 at his former Ban Nong village, located beyond the right bank of Nam Youak river, on the slope of Phu Katha mountain. During digging post holes of his new house, he found this object at about 1m depth.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Inventory No. 13: copper bars used as money.

Dimensions (cm)
height: 12.3-12.6
width at middle: 2.2
thick: 0.6

Provenance: These currency bars were found 8 together by Mr. Sithong Song in the paddy field near Huay Pamom creek area, about 1 km from the confluent of Sop Youak.

Significance: evidences of trade exchange between communities.

Date: c.19th AD

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Inventory No. 14: stoneware jar.

Dimensions (cm)
 height: 16
 diameter at the neck: 12
 maximum diameter: 20
 diameter at the base: 12

Provenance: This jar was found in 2005 by Mr. Yotua Yang, 43, when digging his rice terraces in the former Ban Nong village near Sop Youak confluent. It was buried 80 cm depth in vertical position, and no content inside.

Significance: evidences the production of stoneware jar by high temperature firing in a kiln.

Date: c. 19th-20th AD



Inventory No. 15: polished bouldered stone adze/axe.

Dimensions (cm)
 height: 9.5
 width at top: 2.5
 width at middle: 4.3
 width at base: 5.3
 thick at top: 1.3
 thick at middle: 2.2
 thick at base: 0.2

Provenance: Heirloom of Mr. Kou Yang, 33. His parent moved from former Ban Nong.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Dimensions (cm)
 height: 7.7
 width at top: 3.6
 width at middle: 4.2
 width at base: 5.9
 thick at top: 1.3
 thick at middle: 1.8
 thick at base: 0.2

Provenance: Heirloom of Mr. Kou Yang, 33. His parent moved from former Ban Nong.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age

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Inventory No. 16: fan shape polished stone adze/ axe without shouldered.



Inventory No. 17: polished shouldered stone adze/ axe.

Dimensions (cm)
 height: 4.8
 width at top: 1.7
 width at middle: 3.5
 width at base: 3.7
 thick at top: 1.2
 thick at middle: 1.6
 thick at base: 0.2

Provenance: This stone tool was found in the cassava plantation of Mr. Vacheu Song, 54, in the area of the old Ban Nong in 1987.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age



Inventory No. 18: polished stone adze/ axe without shouldered.

Dimensions (cm)
 height: 2.4
 width at top: 1.7
 width at middle: 2
 width at base: 2.3
 thick at top: 0.8
 thick at middle: 0.8
 thick at base: 0.1

Provenance: This object was found together with others stone tools of similar size and shape, kept in a small pottery pot. The younger brother of Mr. Acheu Song discovered in 1986 then distributed one to each of his family member.

Significance: evidences human occupation during the late stone age.

Date: Neolithic Age

5. **Ban Hatsaykham** (ບ້ານຫາວຊາຍຄຳ Borikhan District, Bolikhamsay Province)

A. **Village profile.**

Ban Hatsaykham is located on the left bank of Nam Ngiap and immediately below the dam site (a few Kilometres away). It is a small village as it is made of 23 households with 165 inhabitants. The population is of Hmong ethnic group. Ban Hatsaykham was founded in 1994. The villagers migrated from people who were formerly living in the upstream area nearby Ban Nong or Sop Youak. The trip takes a day walking through rugged terrain as fluvial navigation is made impossible by a series of dangerous rapids and cascades.

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The villagers informed us about the existence of a Buddha cave, which is located at approximately 6 km from the village, upstream and on the right bank of the Nam Ngiap. The cave is not immediately on the bank but at approximately 200 m further inland, at the foothill of Phu Hong, a mountain that belongs to the Phu Kata range. The cave would have housed a large collection of Buddha statues but it was looted (in 1987). Three bronze statues survived the looting and were then moved to the Buddhist temple of Ban Hat Yun (10 km away from the cave) for their security. Both Phu Hong, “the Palace Mountain” and Phu Kata, “the pan shaped mountain” would have been named after the famous “Sinxay epic”, a masterpiece of Lao classic literature because they were believed to be the real places of that story.



Ban Hatsaykham.

Informants:

1. Mr. Yeu Song, 54, resource person.
2. Mrs. Neng Vang, resource person.
3. Mr. Xiengsi Thammavong, 54, deputy village headman.

B. Artefacts.

	<p>Dimensions (cm)</p> <p>height: 17</p> <p>width at top: 1.7</p> <p>width at middle: 3.1</p> <p>width at base: 3.5</p> <p>thick at top: 1.7</p> <p>thick at middle: 1.7</p> <p>thick at base: 0.3</p>	<p><u>Provenance:</u> Mr. Yeu Song, 54, found this stone tool in Nam Ngiap river during fishing in 2006.</p> <p><u>Significance:</u> evidences human occupation during the late stone age.</p> <p><u>Date:</u> Neolithic Age</p>
<p><i>Inventory No.19: polished shouldered stone adze/asa.</i></p>		

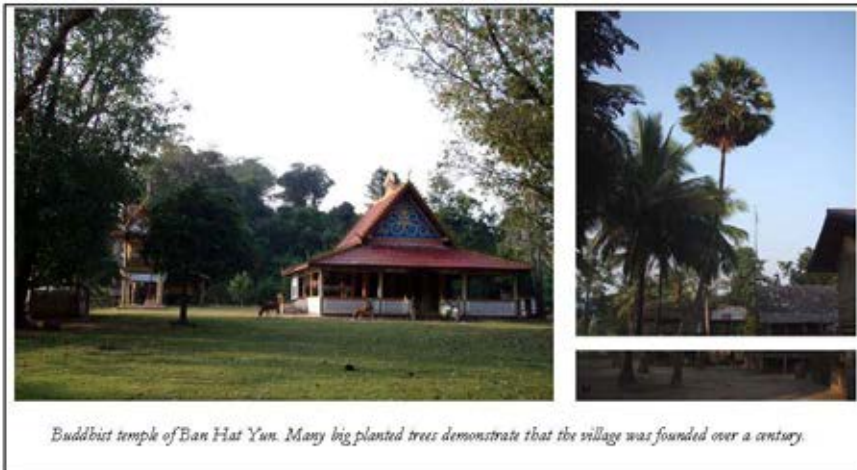
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6. **Ban Hat Yun** (ບ້ານຫາດຢຸນ Borikhan District, Bolikhamsay Province)

A. **Village profile.**

The village is situated on the left bank of the Nam Ngiap River. It is composed of 91 households and 536 inhabitants. The population is of Tai Neua ethnic group, which is a subgroup of Lao Lourn. They are Buddhist and thus they have built a Buddhist temple in their village. The village is believed to be several hundreds years old but there is no firm evidence.

During the Indochinese war time (1960s), the village was destroyed by the Royalist troops and was thus abandoned as the inhabitants went to live in the forest. It was resettled again in 1970. Ban Hat Yun was a stronghold of Pathet Lao forces because it was the gate from the Xiengkhuang Plateau (under Pathet Lao control) to the plain of the Mekong River. In 1975, Ban Hat Yun played an important role for the Pathet Lao when they overthrew the Royalist administration and seized the power at Paksan, the capital city of the Bolikhamsay province.



Informants:

1. Mr. Phouvieng Phiakao, 45, headman of the village.
2. Mr. Mr. Xiengsi Thammavong, 54, deputy village headman.

B. **Artefacts.**

There were no any artefacts showed to us in this village.

7. **Ban Tha Hua** (ບ້ານທ່າເຮືອ Borikhan District, Bolikhamsay Province)

A. **Village profile.**

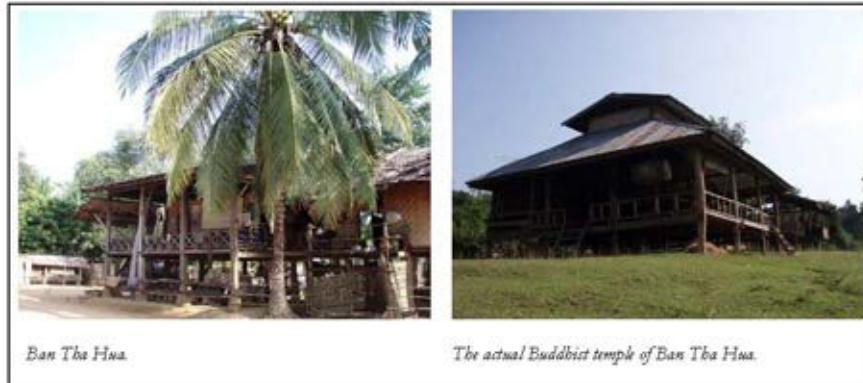
Ban Tha Hua is located on the left bank of Nam Xao, a tributary of Nam Ngiap. It is a small village with 48 households and 275 inhabitants. There are 10 families of Lao Theung (an ethnic group that belongs to the Mon-Khmer linguistic family), the rest is

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made of Lao Lum ethnic group. The inhabitants migrated from inland area such as Nakhata and Vang Or when they founded the village during 1980s. There is a Buddhist temple at the village but without a permanent monk. “Tha Hua” means “river port”. In old times when tracks were not constructed, this area was reached from the Mekong valley only by boats coming upstream on the Nam Ngiap River. The boat trip ended at Tha Hua because the river was no longer navigable beyond this port (cascades and rapids). Going up north, a land route therefore connected Tha Hua to the Plateau of Xiengkhuang. Caravans ensured transportation of goods between these two centres. Some caravans descending from the Xiengkhuang Plateau prolonged their journey beyond Tha Hua as far as to Bolikhamsay city, because the land route was shorter than that on the river. Nowadays, in parallel with the land transportation the fluvial traffic remains important because it inter-connects the villages that are on the riverine network; the Nam Ngiap and its tributaries. A regular navigation service is operational from Tha Hua down to Bolikhamsay including the villages along the Nam Xao, an important tributary of Nam Ngiap.

Tha Hua is also referred to local oral traditions which mentioned that once upon the time a golden boat sank in the Nam Xao, nearby its confluence with the Nam Ngiap. For this the boatmen still give offerings (flowers, candles, cigarettes...) to the spirit of this mythical boat when they passed the believed site of this legendary shipwreck.

The history of the village was told by Mr. Bounhieng Sayalath, aged 47, deputy headman of the village. Mr. Sombat Chaleunsay, aged 31, village security, guided us to 3 historic sites which are made of ruins that probably contained brick Buddhist temples. These sites are located on the opposite bank of the river.



Ban Tha Hua

The actual Buddhist temple of Ban Tha Hua.

Informants:

1. Mr. Bounhieng Sayalath, 47, deputy headman of the village.
2. Mr. Sombat Chaleunsay, 31, village security.

B. Artefacts.

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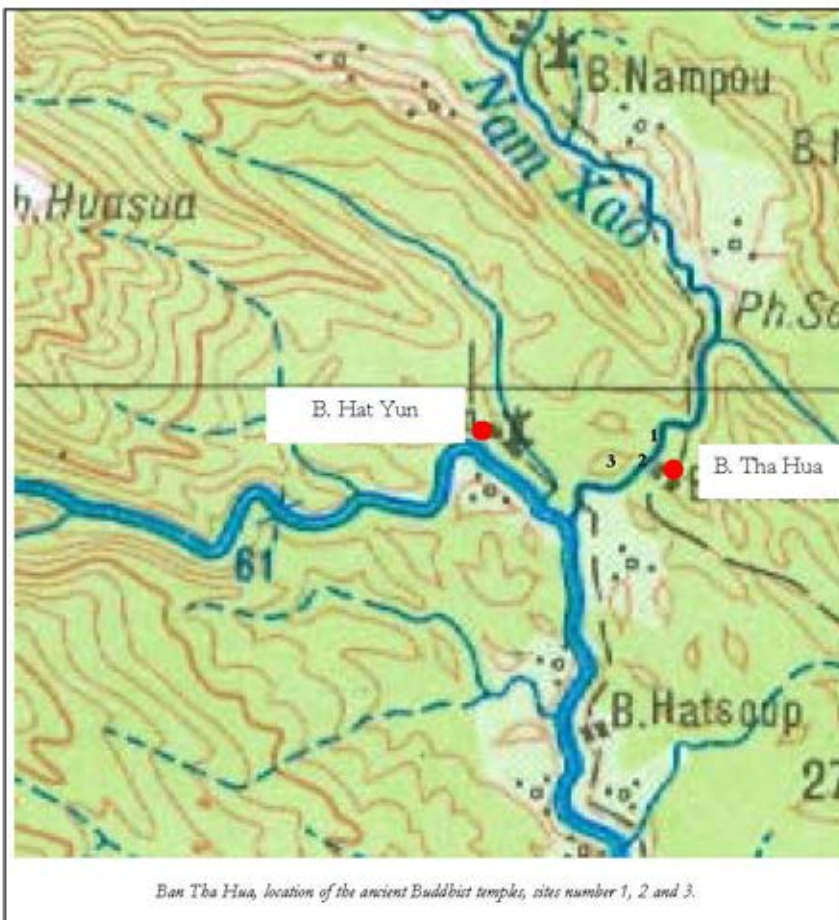
Inventory No.20: Bronze Buddha image (meditation)

Dimensions (cm)
 height: -
 width: -
 thick: -

Provenance: This bronze Buddha image was found in the ruins of an old temple (site no.1) located on the opposite bank of the actual Ban Tha Hua village in 2006, now kept in the new temple.

Significance:

Date: Late Lane Xang Period, (c. 19 A.D)



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8. Ancient Buddhist temple of Ban Tha Hua, Site No. 1.

The site Number 1 is located on the right bank of a flat terrace of Nam Xao River, which is now transformed to a farm land of the village. This land parcel is fenced around and belonging to private property. The brick structure is situated at the central part of this land parcel, about 20 m from the river bank. Its actual state of preservation is very poor. It was suffered from weathering and vandalism, only a mound of bricks about 2.50 metres high without any precise shape can be survived. According to the limit of the mound, its shape seems to be rectangular about 8 x 16 m, oriented east-west. Because of the thick bushes it was hard to determine detail description of this temple. We did observe a looting hole in the middle of the mound and remains of some fragmented Buddha statues, made of stone and mortar. The size of bricks is 5 x 11 x 23 and 5 x 12 x 24. Probably the upper structure of this temple is made of wood and cover with roof tiles. The remains of wooden structure can not be seen, but the evidence of roof tile still be found in situ.



Site No. 1: remains of Buddhist temple. Brick structure of altar, sanctuary and fragmented Buddha statues are still visible on the surface. 1, 3. A mound of ruins covered by vegetations; 4,5. Fragment of arm and body of the main Buddha statue made of mortar and bricks; 2. Buddha seated on Naga, Maravijaya, stone.

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9. Ancient Buddhist temple of Ban Tha Hua, Site No. 2.

The site No. 2 is located approximately 100 m south of the site No. 1. A platform of bricks about 1 m high was remained visible on the surface. A big hole about 2 x 2 m and 1.50 m deep indicates a recent vandalism of this site.

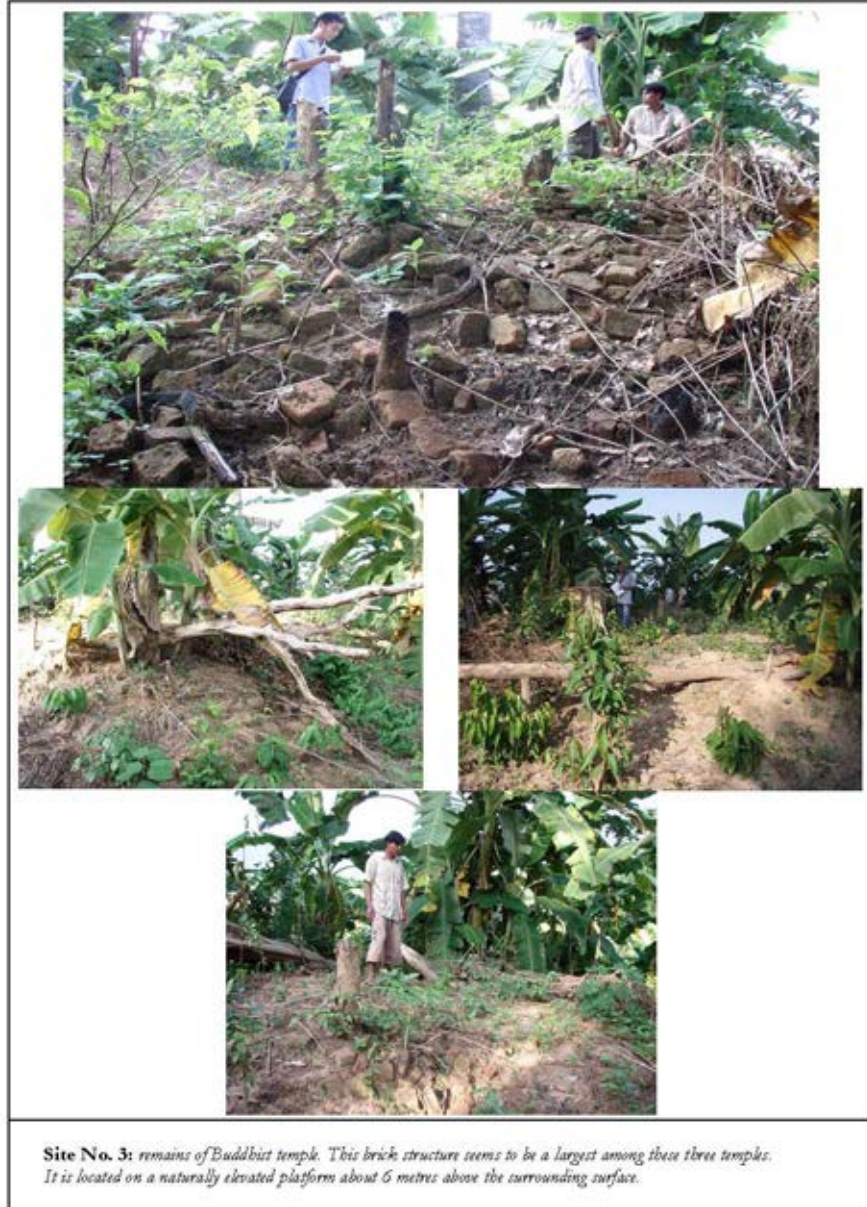
Potsherds of historic period were also observed by the survey team in the vicinity of these ruins; this may indicate the presence of important historic settlements in this area. According to Mr. Sombat Chaleunsay, similar but smaller ruins once existed in the village; this might also support the idea of dense population in historic period in this area.



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10. Ancient Buddhist temple of Ban Tha Hua, Site No. 3.

This site is located about 400 metres south-west of the site No. 2. Its size is approximately 12 x 18 m, oriented NE-SW. The brick platform remained is about 2 m high. Brick size: 6 x 12 x 24.



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5. Conclusions and Recommendations

Conclusions

The survey has shown that the area under study is rich in sites of archaeological, historical, cultural and natural beauty significance.

a. Prehistory:

1. Objects

Any research in Prehistory has ever been conducted within the area under study. In general a polished stone tool is a key indicator of the Neolithic Age while the knapped one evidences the Palaeolithic Age. It is noticed that the entire collection of stone objects collected by the villagers and shown to us consisted exclusively of polished stone tools; none was a flaked stone tool. However, the total absence of knapped stone tool does not mean that there was no human occupation during the whole Palaeolithic Age. This total absence is explained by the fact that a knapped stone tool, unlike the polished one cannot be identified by a non-specialist. Knapped stone tools as well as the materials that result from knapping such as flakes and cores are hardly discernible from natural pebbles by a villager or a man of the street; they are recognized and identified by archaeologists and those who are trained in this discipline. A polished stone tool is easily recognizable as it has a peculiar shape no matter the type it belongs to i.e. with or without shoulders. Most of the time these adzes are well kept and handed down from one generation to the next because they are considered as precious objects embedded with some magical power. The stone adze has thus been associated with a series of rituals as it is related to a particular believe. For example in Sekong province, a polished stone tool is used during the foundation of a village where the stone tool receives a blood of a buffalo and is buried in the trench that marks the establishment of a new communal house. Throughout the country, a polished stone tool is used as "an amulet" inside a grain house where rice is stored, because it is believed to slow down the consumption of the rice. Therefore the polished stone tools are preserved for their invisible power and not as evidence of prehistory.

A total number of 16 polished stone tools have been shown to our survey team; many more were reported but could not be shown to us for some reasons.

2. Sites

The equation 'one archaeological object equals one archaeological site' is not applicable because more attributes are necessary to define a site. The presence of a living floor with objects *in situ* or a concentration of artefacts within a well defined deposit are good indicators of a prehistoric occupation site. In our case existence of prehistoric sites is felt by the stone tools that have surfaced, collected and shown to us by local villagers. By their number, these stone tools represent the tip of the iceberg; they however substantiate the existence of prehistoric sites. In our case, any concentration of artefacts has been found *in situ*; any living floor has been found because neither a test pit nor a trench has been dug. The objects shown to us have lost their original setting and their context of discovery is unverifiable; oral accounts are subject to inaccuracy. Although many artefacts can be plotted accordingly to their provenance, this does not necessarily infer the presence of a prehistoric site. To discover such sites, transects should be

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implemented in particular in the area where artefacts have been found. Villages could also have been built on top of ancient prehistoric settlements because such location could offer conditions that favoured human habitation. These conditions are nearly the same since time immemorial for instance , a flat land, presence of water and abundance of natural resource (fish, shells, game etc...), security and easy access.

b. History:

During the Indochina war, the popular movement of national liberation under the leadership of the Pathet Lao was in full development within the country. Xiengkhuang province was liberated in 1960; the area under study became thus a spearhead for directing the movement to the capital Vientiane. At the same time the Royalist army considered this area as a gateway to the Plateau of Xiengkhuang. Military clashes between the two antagonists occurred in many places which have now become historic places. Many places were also air bombed by US Air Force.

After 1973 as peace was restored, the villages returned and started to reconstruct their villages which were most of the time burnt by air raids. During the 1980s the villages living in the remote areas, were encouraged to regroup themselves into bigger villages along communication high ways such as the Nam Ngiap River and the tract that was newly constructed.

6. Impact Assessment

a. Direct Impacts

1. Sites and objects of archaeological, historical, cultural and natural beauty significance will be lost as they will be inundated.
2. The sense of place related to the sense of history will be lost as the sites of cultural and historical values will be inundated and will be no longer visible.
3. Sites of archaeological significance and those offering high potential for ecotourism are impoverished.

b. Indirect Impacts

1. Appreciation of arts and culture will be decreased
2. Looting and illicit traffic of antiquities will be increased.

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7. Management and Mitigation Measures

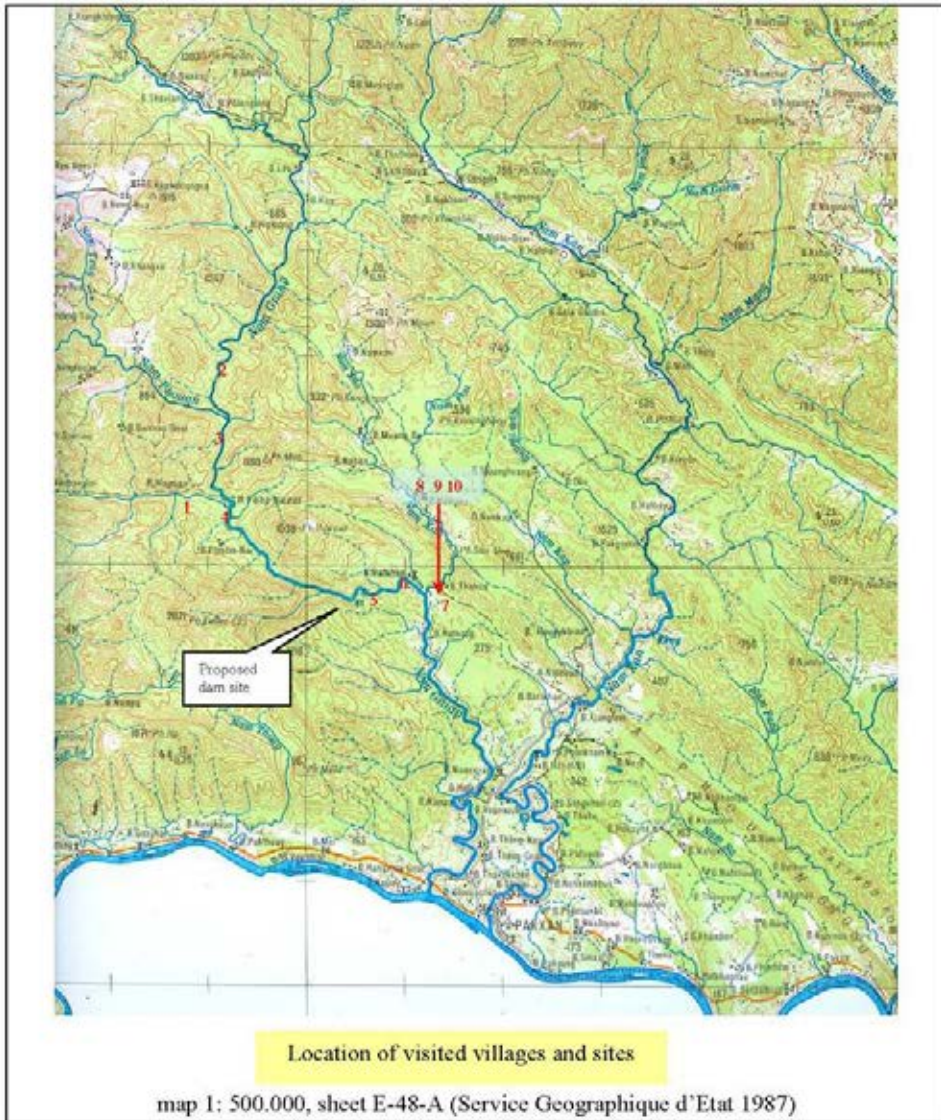
The mitigation measures are mentioned on the following paragraph concerning the recommendations.

Recommendations

1. Conduct systematic search for archaeological sites by implementing transects of test-pits within the villages that will be inundated in order to document, analyze and rescue archaeological materials.
2. Acquire the archaeological artefacts owned by the villagers before they sell to antique dealers (start a provincial collection of national treasures and objects of Museum values).
3. Construct a museum to house the collections, conserve, interpret, exhibit and carry out public education programs concerning awareness to cultural heritage and protection of environment.
4. Improve and create if absent the system of cultural heritage management at provincial, district and village levels. Train the local staff to deal with protection, chance find that will occur during earthworks for project constructions. Coordinate with the existing system at government level (Ministry of Information and Culture, National Committee for the protection of national cultural heritage).
5. Organise campaigns of public information and education concerning the protection of cultural heritage in order to raise public awareness and participation in cultural heritage activities.
6. Integrate actions of document and rescue the cultural heritage with the rest of the program of the hydropower project.

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Annex A






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Annex B




Identified archaeological artefacts

Village name	Object inventory number	Designation	Materials	Size (in cm)			Weight (in gr.)	Provenance (owner), Context of find	Picture
				Length / Height	Width	Thick			
Ban Nam Youak (Hom District, Vientiane Province) UPSTREAM	1	polished axe/adze without shoulders	stone	9.7	at top: 2.8 at middle: 2.9 at base: 3.5	at top: 0.6 at middle: 1.8 at base: 0.2	-	Mr. Bounma Her, 42, found this object in his paddy field near the village in 2002, during earth work, about 40 cm depth.	
Ban Nam Youak (Hom District, Vientiane Province) UPSTREAM	2	polished shouldered axe/adze	stone	7	at top: 1.3 at middle: 2.4 at base: 2.6	at top: 1.7 at middle: 1.9 at base: 0.2	-	Mr. Kayi Song, 45, found in his paddy field near the village on the Nam Youak bank in 2005	





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Ban Nam Youak (Hom District, Vientiane Province) UPSTREAM	3	polished shouldered axe/adze (broken)	stone	7.5	at top: 2.5 at middle: 5.4 at base: -	at top: 2 at middle: 2.3 at base: -	-	Mr.Kayi Song, found in 1999 at a slope of Phu Samliem mountain (about 7-8 Km upstream of Nam Ngiap from Ban Nong)	
Ban Nam Youak (Hom District, Vientiane Province) UPSTREAM	4	polished shouldered axe/adze	stone	8	at top: 4 at middle: 4.9 at base: 5.4	at top: 1.1 at middle: 1.1 at base: 0.1	-	Mr.Kayi Song, found in 2004 in his paddy field near the Nam Youak river bank.	
Ban Nam Youak (Hom District, Vientiane Province) UPSTREAM	5	weight for planting stick	stone	outer diam. 8.4- 9.4	hole diam. 2.2	2.9	-	Mr.Kayi Song, found in 2003 at Nam Tong creek.	




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Ban Nam Phouan (Hom District, Vientiane Province) UPSTREAM	6	polished axe/adze without shoulders	stone	2.4	at top: 1.7 at middle: 2 at base: 2.3	at top: 0.8 at middle: 0.8 at base: 0.1	-	This object was found together with others stone tools of similar size and shape, kept in a small pottery pot. The younger brother of Mr. Acheu Song discovered in 1986 then distributed one to each of his family member.	
Ban Nam Phouan (Hom District, Vientiane Province) UPSTREAM	7	polished shouldered axe/adze	stone	3.8	at top: 1.8 at middle: 4.2 at base: 4.2	at top: 0.8 at middle: 0.9 at base: 0.2	-	Heirloom of Mr. La Her.	
Ban Nam Phouan (Hom District, Vientiane Province) UPSTREAM	8	polished shouldered axe/adze	stone	5.2	at top: 1.3 at middle: 3.2 at base: 3.2	at top: 1.1 at middle: 1.3 at base: 0.2	-	Chance find by the parent of Mr. Song Vang in 1997, at the foot hill near the village.	




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Ban Nam Phouan (Hom District, Vientiane Province) UPSTREAM	9	polished shouldered axe/adze (with broken cutting edge)	stone	13.7	at top: 2.4 at middle: 5.2 at base: 6	at top: 1.2 at middle: 1.6 at base: 0.3	-	Mr. Chungkua Vang, 54, found this object at the foot of a big tree on the slope of Thongbay hill near the village.	
Ban Nam Phouan (Hom District, Vientiane Province) UPSTREAM	10	polished axe/adze without shoulders	stone	5.3	at top: 2.1 at middle: 2.5 at base: 2.6	at top: 0.1 at middle: 1 at base: 0.1	-	Mr. Por Sung, 23, found in his paddy field this year.	
Ban Nong (Hom District, Vientiane Province) UPSTREAM	11	grinding stone in form of a crescent	stone	27	19	10	-	Mr. Saymao Yang, 45, found 2 pieces of stone objects (no.6 & 7) buried together in horizontal position at about 80 cm depth at his paddy field in 2006.	
Ban Ban Nong (Hom District, Vientiane Province) UPSTREAM	12	weight for planting stick	stone	outer diam. 9-9.2	hole diam. 2.9-3.9	2.7	-	Mr. Saymao Yang, 45, found 2 pieces of stone objects (no.6 & 7) buried together in horizontal position at about 80 cm depth at his paddy field in 2006.	



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Ban Ban Nong (Hom District, Vientiane Province) UPSTREAM	13	polished axe/adze without shoulders	stone	5.6	at top: 2.2 at middle: 2.5 at base: 2.6	at top: 0.2 at middle: 1.2 at base: 0.2	-	Mr. Saymao Yang, 45, found in 1995 at his former Ban Nong village, located beyond the right bank of Nam Youak river, on the slope of Phu Katha mountain. During digging post holes of his new house, he found this object at about 1m depth.	
Ban Ban Nong (Hom District, Vientiane Province) UPSTREAM	14	a set of 4 copper bars used as money	copper	12.3- 12.6	2.2	0.6	-	These currency bars were found 8 together by Mr. Sithong Song in the paddy field near Huay Pamom creek area, about 1 km from the confluent of Sop Youak.	
Ban Nong (Hom District, Vientiane Province) UPSTREAM	15	jar (rim broken)	clay (stoneware)	16	diam. at neck: 12 max. dia m: 20 diam. at base: 12	-	-	This jar was found in 2005 by Mr. Yotua Yang, 43, when digging his rice terraces in the former Ban Nong village near Sop Youak confluent. It was buried 80 cm depth in vertical position, and no content inside.	

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Ban Nong (Hom District, Vientiane Province) UPSTREAM	16	polished shouldered axe/adze	stone	9.5	at top: 2.5 at middle: 4.3 at base: 5.3	at top: 1.3 at middle: 2.2 at base: 0.2	-	Heirloom of Mr. Kou Yang, 33. His parent moved from former Ban Nong.	
Ban Nong (Hom District, Vientiane Province) UPSTREAM	17	polished axe/adze without shoulders	stone	7.7	at top: 3.6 at middle: 4.2 at base: 5.9	at top: 1.3 at middle: 1.8 at base: 0.2	-	Heirloom of Mr. Kou Yang, 33. His parent moved from former Ban Nong.	
Ban Nong (Hom District, Vientiane Province) UPSTREAM	18	polished shouldered axe/adze	stone	4.8	at top: 1.7 at middle: 3.5 at base: 3.7	at top: 1.2 at middle: 1.6 at base: 0.2	-	This stone tool was found in the casava plantation of Mr. Vacheu Song, 54, in the area of the old Ban Nong in 1987.	

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B. Hatsaykham (Borikhan District, Bolikhamsay Province) DOWN STREAM	19	polished shouldered axe/adze	stone	17	at top: 1.7 at middle: 3.1 at base: 3.5	at top: 1.7 at middle: 1.7 at base: 0.3	-	Mr. Yeu Song, 54, found this stone tool in Nam Ngiap river during fishing in 2006.	
Ban Tha Hua (Borikhan District, Bolikhamsay Province) DOWN STREAM	20	Buddha image	bronze	-	-	-	-	This bronze buddha image was found in the ruins of an old temple (site no.1) located on the opposite bank of the actual Ban Tha Hua village in 2006, now kept in the new temple.	

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