



**KINGDOM OF CAMBODIA**



# **REPORT ON ANGKOR**

*Preah Vihear Temple*

*Banteay Srei Temple*



**Reference: World Heritage Committee decision**

**32 COM 7 B. 65**

**(Quebec, CANADA, July 2008)**



**Phnom Penh  
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# INTRODUCTION

by

**His Excellency Mr. Sok An**

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**President of the  
APSARA National Authority**

**National Commission for  
UNESCO**



Angkor Thom

*Angkor Thom: causeway of the Giants*





## INTRODUCTION

For all Cambodians, Angkor embodies a sustainable reference, a cultural property to be identified with, and the beacon of the pride of the nation. This is why the silhouette of the Angkor Wat temple can be seen on Cambodia's flag.

Noteworthy is the fact that Cambodia is the sole nation worldwide to bear on its flag a monument inscribed on the World Heritage List.

This explains a close relationship with the World Heritage Convention and why the protection of Angkor is perceived by Cambodia as mandatory, a collective and individual effort. Besides, even during the darkest hours of our history in the last third of the 20<sup>th</sup> century, all political parties and trends asserted and committed their determination to the safeguarding of the Angkorian heritage. The only political movement to step out of this fortunate stance was the Khmer Rouge.

Pursuant to the application of the 32 COM 7B.65 World Heritage Committee Decision (taken in Quebec, Canada in July 2008, during the 32<sup>nd</sup> ordinary session of the Committee), the hereby report firstly introduces the state of things highlighting the Angkorian specificities:

1. **The tremendous size of the inscribed site:**  
The Khmer capital at its height in the 12<sup>th</sup> and 13<sup>th</sup> centuries covered 401km<sup>2</sup> (approximately 40,000 hectares) and was the largest urban complex in the world.
2. **The Complexity of the inscribed site**, which is, simultaneously:
  - an archaeological site,
  - a cultural landscape,
  - a forest,
  - a living site including rural activities,
  - a world-renowned tourist destination.
3. **The site integrity is put under dual pressures:**
  - a. endogenous: exerted by more than 100,000 habitants distributed over 112 villages and hamlets scattered over the site, who constantly try to expand their dwelling areas : this presents a potential threat to the archaeological site;
  - b. exogenous: related to the proximity of the town of Siem Reap, the seat of the province and a tourism hub: sprawling urbanisation threatens the boundaries of the eco-historical site.

Aware of the complexity of the situation, and in order to see to the better management of the safeguarding and development of the Angkor site, I personally asked, in early 2005, His Excellency Koïchiro Matsuura, at the time General Director of UNESCO, to assign to Angkor an expert to carry out an assessment on site and to submit relevant recommendations to the APSARA National Authority, which is charged with the management of the World Heritage Site.

An international expert, Mr. Lucien Chabason, a Heritage Legal Officer, firstly observed that despite the pressure of the tourism development “the overall situation of the protected areas (1 and 2) is satisfying”.

In order to sustain the values of the listed site, he also added recommendations supported by the 12<sup>th</sup> Plenary Session of the ICC (the International Coordinating Committee for the Safeguarding and Development of the Historic Site of Angkor) held on 28-29 November 2005.

The World Heritage committee expressed its full support through the 30 COM 7B.61 Decision (Vilnius, Lithuania, July 2006), for the recommendations and pushed for donor countries to support as a priority the setting up of an overall management plan for the Angkor site.

Two major contributions supported to this matter the APSARA National Authority:

- One from New-Zealand: a financial and technical contribution of the International Development Agency (NZAid) with the goal to set up an **Angkor Management Plan and Community Development Participation (AMP)**.
- The other from Australia: a financial and technical contribution of the International Development Agency (AUSAid) with the goal to set up a **Heritage Management Framework** of the Angkor heritage.

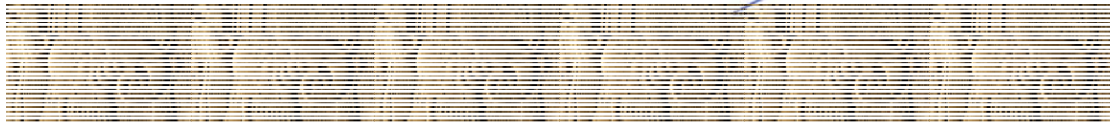
These projects, whilst perfectly meeting the concerns expressed by the ICC for Angkor and the World Heritage Committee, established for the APSARA National Authority—manager of the site—a **general methodological framework** as much for the **interventions** for conservation, for the maintenance and restoration of the monuments, as for the **monitoring** of the daily management of the site.

Thus, before the drafting of this report I asked all the department heads and directors working for the APSARA National Authority to secure a full implementation of the World Heritage Committee’s recommendations. Concrete examples, *infra*, illustrate the progresses achieved. Finally, in congratulating UNESCO and the Committee for their vigilance, I strongly reassert the determination of the Royal Government in the protection of all scopes and circumstances of Khmer heritage.

The protection of the Angkor site is a categorical imperative, undertaken by the APSARA National Authority, which will always strive towards this objective.



Sok An



## FIRST PART

# OVERVIEW



# CONTENTS

I.1. Background

I.2. Preliminary considerations

I.3. Angkorian specificities

I.4. The complexity of the Angkor Site

I.5. Risks, difficulties and challenges



*Bayon temple*





In short: Angkor was unveiled as a huge megalopolis surrounded by an enormous suburban area.

4. The overall management of the inscribed site and of the cultural and natural heritage of the town of Siem Reap was entrusted to a State institution with administrative status and financial independence. Under the supervision of the Presidency of the Council of Ministers, this body is named the APSARA National Authority: the Authority for the Protection of the Site and the Development of the Angkor Region. The Deputy Prime Minister, in charge of the Presidency of the Council of Ministers, presides over the institution, which is managed by a director general, who is in charge of the administration and general operations of the body.

Pursuant to the World Heritage Committee, the 9 May 2008, N° 50 ANK/BK decree (*anukret*) of the Royal Government of Cambodia restructured the APSARA National Authority to improve its effectiveness as manager of the Angkor site and of Siem Reap heritage in the following fields:

- a. Conservation of monuments;
- b. Preventive archaeology;
- c. Hydraulic networks;
- d. Forest;
- e. Environment and cultural landscapes;
- f. Cultural development;
- g. Tourism;
- h. Management of the habitat in the Park;
- i. Land-use planning;
- j. Community development;
- k. Public order and heritage police;
- l. Urban, cultural and natural heritage of Siem Reap.

## **The International Coordinating Committee for the Safeguarding and Development of the Historic Site of Angkor (ICC).**

### ***Role***

The ICC is an international coordinating mechanism for the assistance provided by different countries and organisations for the safeguarding and development of the historic site of Angkor. In order to fulfil its role, the ICC is kept informed about scientific projects or development operations undertaken on the site and in the Siem Reap-Angkor region. It sees to the consistency of the various projects and defines, when necessary, the technical and financial standards required. It highlights, when needed, any points requiring the attention of the concerned parties.

The ICC set out the implementation of procedures with a view to facilitate the assessment and monitoring of scientific, conservation and development projects put forward for the Angkor site.

The ICC coordinates the preparation of a methodological document on the ethics and practice of conservation at Angkor (conservation, showcasing and development).

### **Operation**

The ICC holds two sessions a year: plenary and technical.

The Plenary Session is usually held in early December and is co-chaired by the ambassadors of France and Japan in Cambodia. The countries and institutions that are full members of the ICC attend. With presentations and discussions focusing on overarching policy directions and announcements of funding available/fund-raising for new projects at Angkor, the Plenary Session is usually attended by ambassadors and institution officials. The technical teams are also invited. The Plenary Session does not include technical presentations on its agenda, although the technical teams active at Angkor are requested to submit beforehand their progress reports in English or French to the Secretariat. These in turn are translated into the other language, French or English, compiled and distributed. The progress reports thus collected are discussed at the session.



*Plenary Session on 15 December 2009*

The Technical Session is held in the early part of June, with the dual chair filled by the Cooperation and Cultural Affairs Officer for France and the Minister-Councillor from the embassy of Japan. The ICC members send their technical representatives. All teams with ongoing activities at Angkor give an overview of their operations, followed by a technical discussion.

Ex-officio members interested in the proceedings of the Committee may attend ICC meetings in an observational capacity, provided they obtain prior authorisation by submitting a request to attend to the Co-chairmen via the Secretariat.

An extraordinary meeting, a quadripartite, is held between sessions of the ICC, attended by the APSARA National Authority, the embassies of France and Japan, and UNESCO. Its purpose is to set directions and handle any emergency issues. A second Quadripartite Meeting is held the day before the ICC meeting to validate the agenda prepared by the Secretariat.

The ICC enjoys the technical support of two *ad hoc* groups of experts. The first group is the *ad hoc* group of experts for conservation, made up of four experts with diverse but

complementary skills in monument safeguarding and restoration. The two Co-chairmen recommend one expert each, while the other two are appointed by ICOMOS and ICCROM. The second group is the *ad hoc* group of experts for sustainable development. This group is likewise made up of three experts of varying and complementary skills: it started operations in 2006. Each of the two Co-chairmen designates one expert and the third is appointed by the APSARA National Authority.



During the three days preceding each meeting, the *ad hoc* conservation group of experts perform an assessment visit of operations currently being undertaken by technical teams. They report orally on their visit during the session. The *ad hoc* sustainable development group of experts works on a particular subject as long as is required and then inform the Committee of their conclusions. Submission of the report is not necessarily timed

for the ICC meetings. An assessment site visit may be conducted at any time the experts deem it necessary.

With a view to keep the ICC members informed of the state of operations on the Angkor site, the usual practice is that the Secretariat, assisted by the APSARA National Authority, organises the visit of particular working sites the day before the ICC meeting.

The actual indoor meeting follows this site visit. Each meeting is concluded with the formulation of recommendations. If adopted, they are distributed to all attendees in order to ensure that they are duly followed. The Secretariat is responsible for making a record of the meeting in English and French, which is distributed at the following meeting and published on the UNESCO Phnom Penh website ([www.unesco.org/phnompenh](http://www.unesco.org/phnompenh)). The record of the Plenary Session is also produced in the Khmer language, the translation being the responsibility of the APSARA National Authority.

### **Challenges**

The proceedings of the Committee have grown in scope from year to year. From approximately 50 attendees in 1995, over 250 attended its meetings in 2009. There has also been a continuous increase in the number of stakeholders on the Angkor site and in Siem Reap town, with projects involving safeguarding as well as sustainable development.

The multiplication of investment projects submitted to the ICC for advisement, the almost exponential growth of tourist arrivals to Angkor, the fast-tracked development of the surrounding region of Siem Reap and the pressure that these factors bring to bear on the monuments and natural resources illustrate the multidimensional aspect of the issues present at Angkor. This has led the ICC to advocate measures to ensure management of the site that is

more in keeping with world heritage guidelines and more consistent in a long-term perspective. This has reaffirmed the need to develop a management plan to which all teams present on the site are expected to contribute. The establishment of the *ad hoc* group of experts for sustainable development was a major step in supporting the ICC and APSARA National Authority in the management of projects in this perspective. In addition to these priority concerns, issues as diverse as water resources, archaeology, environment, pollution, deforestation, stone decay, training, means of communication, controlling illicit trafficking, museums, as well as monument lighting projects are regularly the focus of recommendations.

The future challenges of the ICC involve helping the APSARA National Authority to adopt within its management of the Angkor site a long-term outlook, one that gives as much attention to the preservation of the historical and natural site as to the necessity of sustainable development, while preserving the integrity and sacredness of Angkor.

## I.2. PRELIMINARY CONSIDERATIONS

It is important to recall that when Angkor was inscribed on the World heritage List in December 1992, it was an exceptional measure, never yet repeated in the annals of this Committee. The archaeological site, *de facto*, met the authenticity criterion and possesses an outstanding universal value which justified its inscription according to criteria (I), (II), (III) and (IV), although in 1992 the conditions were not all gathered for an inscription on the World Heritage List. The site was:

1. mined throughout the covered area (401km<sup>2</sup>, close to 40,000 hectares).
2. Not accurately demarcated, nor were the buffer zones;  
But also, and this was a worsening factor, the safeguarding of Angkor was not regulated by:
  - a. any relevant protective legislation,
  - b. a national management body, to see to the protection of the site (monuments and environment), adequately staffed with regular financing.
  - c. An international body securing the monitoring and coordination of the contributions to the safeguarding of the heritage complex regarded as universal property.

Therefore, responding to the urgent appeal of His Majesty the King Father Norodom Sihanouk and of the General Director of UNESCO to “save Angkor”, the World Heritage Committee decided, firstly, to inscribed Angkor and then to obtain the implementation of the necessary legal and material conditions.

- In Santa Fe (USA), Angkor was inscribed on the List of World Heritage in Danger on 14 December 1992;
- On 5 July 2004 in Suzhou (China) Angkor was taken off the in Danger List;
- In the meantime (1993-2004), subsequent to the recommendations of the Tokyo intergovernmental Conference (12-13 October 1993) and the Paris intergovernmental Conference (14-15 November 2003), the following main achievements were implemented:
  - I.** The setting up of an International Co-ordinating Committee for the safeguarding and development of the Historic Site of Angkor, co-chaired by France and Japan with UNESCO as Standing Secretariat (21 December 1993).
  - II.** The establishment of the APSARA National Authority, the Authority for the Protection of the Site and the Development of the Angkor Region (19 February 1995).
  - III.** Promulgation of the Law pursuant to the Protection of National Cultural Heritage (25 January 1996).

### I.3. ANGKORIAN SPECIFICITIES

According to the terminology used at the Tokyo conference (12-13 December 1993) and reasserted by the Paris Conference (14-15 November 2003), Angkor is:

- A MONUMENTAL SITE,
- A NATURAL SITE,
- A LIVING RELIGIOUS SITE,
- A TOURISM SITE,
- And an ECONOMIC ZONE to strengthen the development potential of the ANGKOR/SIEM REAP region.

All this explains why the Conservation of the site is very complex, and why the challenges facing its management are great.

Three studies with complimentary observations and mostly converging conclusions have been for some time highlighting the specificities of the Angkor Park:

- a. The ZEMP (Zoning and Environmental Management Plan for the Site of Angkor), a multidisciplinary general study and approach (archaeology, environment, society, and development) carried out by international experts under the aegis of UNESCO and financed by UNDP (United-Nations Development Programme) and the Swedish International Development Agency (SIDA).
- b. The study on the development of the region of Siem Reap undertaken by urban planners, architects and economists of the BCEOM/ARTE financed by the French Development Agency (*Agence Française de Développement, AFD*) and supported by UNESCO.
- c. The Study on the Water Resources in Siem Reap implemented by experts from the Japanese International Cooperation Agency (JICA).

*The Angkor site*



## I.4. The complexity of the Angkor Site

A great site covering a large area (40,000 hectares), which values have been recognised on the international and national level (the Cambodian flag includes a silhouette of Angkor Wat), Angkor's complexity is unique as it is simultaneously:

1. an archaeological site revolving around imposing monuments and the remains of a succession of ancient cities;
2. a cultural landscape featuring structural elements of historical features: mainly the still imposing remains of large Khmer hydraulic engineering works (barays or water reservoirs, trapeangs or ponds to drain the land and to hold water, moats and canals), the rice field plots of land, the axis of the royal causeway routes, the ancient bridges and surrounding walls of the cities or temples.  
All these man-made elements bear testimony to the ecosystem, the effect of anthropisation and to the modelling of the Angkorian territory throughout the centuries.
3. A natural environment where monuments are an integral part, including the forest and several types of vegetal canopy, the hydraulic system and the relief lines outlining this environment: the mass of the Kulen plateau on one side and on the other the hills or *phnoms* overlooking the site: Phnom Krom, Phnom Bakheng and Phnom Bok. The Tonle Sap Great Lake demarcates this environment to the east.
4. The living environment of more than 100,000 people spread over 112 villages and hamlets. These are mainly farmers, with some of them also practicing handicrafts and local trade. Many pagodas dot this landscape.
5. This area has become a famous tourism destination attracting more and more visitors as the conservation and development works have contributed to increasing the number of places to visit and of interest, thus promoting Angkor.
6. An area abutting the main population settlement with urban features: the town of Siem Reap which continues its phenomenal growth, accelerating with the pace of Angkorian tourism.

## I.5. RISKS, DIFFICULTIES AND CHALLENGES

As a major archaeological site within an impressive monumental complex, a landscape site within a natural environment, an area for farming with rural human settlement, an international tourism hub in symbiosis with a hosting town, Angkor is unprecedented.

1. Its features, functions and ongoing activities make for constant administrative or social strife, with personal and collective decision makers' and citizens' interests sometimes conflicting.

When these interests become insurmountable (in particular for land ownership), the obstacles cannot be overcome to secure harmonious management.

2. However, the main issue regards the World heritage properties which in **Angkor** are **sandwiched** between an **endogenous human settlement** (112 villages distributed within the boundaries of the inscribed site and existing before the listing) and an **exogenous human settlement** (Siem Reap town has recently developed to the south of Angkor with an international airport, with more than 100 hotels and guesthouses, strings of restaurants and cafes, markets, shops and an administrative quarter, as Siem Reap is the **seat of the province**)

Subsequently the heritage area is submitted to a constant dual stress:

- inside the site where habitat could expand at the expense of the protected zone,
- outside the site where Siem Reap could sprawl to the north, the Angkor area.

The following economic and social factors highlight these nagging risks:

- a. The exponential growth of cultural tourism has inferred tourism infrastructures (hotels, restaurants, shops and etc.) and raw lands.
- b. The steadily growing attraction of the "destination Angkor" (917 650 paid visitors in 2009) has accelerated the urban extension of Siem Reap and subsequently spurred intense real-estate speculation, threatening the protected public space.
- c. As for the rural populations settled within the protected area, aspirations to modernity (facilitated by a rapid opening to the outside world) are synonymous with the likely building of a modern dwelling. Thus, measures to protect heritage lands are mostly badly received by the local population, despite awareness and outreach campaigns, but may also be out of tune with the expectations of the same locals, hence difficulties arising, etc.



## II

### SECOND PART

# IMPLEMENTATION OF THE WORLD HERITAGE COMMITTEE RECOMMENDATIONS

*( 32 COM 7B.65 DECISION)*





# CONTENTS

## II.1. Land-use management

II.2. The fight against illegal occupation and construction, the appropriation and alienation of plots of land in the Angkor Park.

II.3. Clarification of the real-estate and ownership regulations to be applied in Zones 1 and 2 of Angkor.

### **Annex:** International community contribution to:

- the management of protected areas;
- the planning of the safeguarding and development activities,
- monitoring and coordination of permanent activities.

Consistent with the:

- a. Recommendations set out during the assignments (UNESCO) in September 2005 of legal expert Mr. Lucien Chabason following his analysis and assessments on site and in-depth discussions with the management of the APSARA National Authority (ANA), in charge of managing the Angkor site.
- b. 30 COM 7B.61 Decision adopted by the World Heritage Committee in its 30<sup>th</sup> Session (Vilnius, Lithuania, July 2006).
- c. The ICC recommendations adopted after proposals from the *ad hoc* group of experts at the 13<sup>th</sup> and 14<sup>th</sup> plenary sessions of the ICC in December 2006 and November 2007.

To implement the recommendations on land-use management, the Royal Government of Cambodia drafted an *Anukret* (sub-decree adopted by the Council of Ministers) on the restructuring of the public Institution, the ANA, which is responsible for the management of the World Heritage site (Monuments and archaeology, hydraulic networks, forest, environment and cultural landscape, cultural development and heritage standards, tourism, land-use planning and habitat management in the Park, agricultural and community development, public order and law enforcement and safeguarding of the cultural and natural heritage of Siem Reap).

The N° 50 ANK/BK *anukret* dated, 9 May 2008, provided for the new modalities of organisation and operation of the management of the APSARA National Authority.

Activities carried out within the framework of this legal and regulatory text allowed in particular for the implementation of the recommendations of the World Heritage Committee as per the 32 COM 7B.65 Decision (32<sup>nd</sup> Session of the Committee, Quebec, Canada, July 2008).

The implementation is still ongoing and must continue with vigilance and consistency, as the issues and difficulties take time to resolve on this gigantic site (401 km<sup>2</sup>) where more than 100,000 people live and farm, most of them in precarious conditions but fiercely attached to their soil and land.



## II.1. LAND-USE MANAGEMENT

### II.1.1. Provision

The N° 50 ANK/BK *anukret* from 9 May 2008 specifically provided for the establishment of a Department of Land-use and Habitat Management in the Angkor Park.

Due to the presence of the population living in this historical area, this new Department has been assigned to analyse, assess, monitor and carry out activities in close relation to the present day situation of the Angkor Park as inscribed on the world Heritage List (UNESCO) and to its future

It is headed by an architect in chief, with the rank of under-secretary of State and appointed as deputy general director of the ANA.

### II.1.2. Assignments

The Department has been assigned the following tasks:

- land-use management,
- construction work,
- Religious and built heritage,
- Relationships with the population.

### II.1.3. Work Units

The Department comprises of work Units distributed as such, the:

- a. land-use management office;
- b. works office,
- c. religious and built heritage office,
- d. relationships with the population office,
- e. activity support office.

### II.1.4. Activities

#### ***Legal protection:***

The government has promulgated laws, regulations and other miscellaneous legal texts in order to challenge the creeping urbanisation of Siem Reap in the direction of the Park, which is located to the north of the city:

- N° 001 NS *Kret* (decree) providing for the zoning and management of the Siem Reap/Angkor region, dated 28 May 1994;
- N° NS/RKM 0196/26 *Krâm* (Law) providing for the protection of cultural heritage, dated 25 January 1994;
- N° NS/RKM 0810/14 *Krâm* (Law) providing for the land law, dated 30 August 2001;
- The N° 70 SSR government Decision, dated 16 September 2004 providing for land-use in the Angkor Park: "All lands located in zone 1 and 2 of the Angkor site are State properties".

## ***Protection of the land***

- a. The Community Learning Centres (CLC) project with the input of the National Federation of UNESCO Association in Japan (NFUAJ):  
A first centre in the protected areas has just been completed at the Kok Srok village in the Roluos commune, Prasat Bakong district. The department selected the land, the architecture plans of the building and monitored the work site. The main objective of the CLC is to develop and strengthen the capacity of the village communities by means of informal education and vocational training.  
NFUAJ is currently preparing additional CLCs in more villages located within the Angkor Park.
- b. *The Community development project:*  
The recently developed projects will succeed, as they foster villagers to keep and exploit their lands instead of selling them to outsiders whose only natural goal will be to build houses, thus encroaching on the Park. As it is still forbidden to build inside the Park, these outsiders create problems for the Department and ANA.
- c. *Measures on the protection of the territory:*  
They are firstly aimed at mitigating the pressures exerted on the Park by using the following means:
- adopting a Master Plan for the sustainable development of the city of Siem Reap with a view to alleviating the pressures on the Park.
  - A strict application of the laws and regulations on illegal constructions in the Park.
  - Registry of the village plots of land and setting up land-use plans (plotting map).
  - Developing appealing human settlements located outside the protected zones 1 and 2.
  - Organising ecotourism activities outside the Park (archaeological Park of Tani).
  - Raising awareness of heritage protection (targeting the general public, the young and Buddhist monks)
- d. *The Master Plan of Siem Reap town:*  
The Integrated Master plan for the sustainable development of the city of Siem Reap/Angkor has just been set up by the JICA. It plans for a **development of the city to the south**. The administrative services of the province are already being relocated to the south.

## ***Social welfare***

### ***a. Raising awareness***

A Joint initiative with the Department of Communication, the outreach programme targeting the general public and the authorities deals with the importance of heritage preservation, the relevant laws and regulations, the participation of all and each individual's civic duty.

A reflection was carried out on the best way to achieve a genuine and efficient collaboration with local communities. A Community-based development programme was then set up to associate the communities with all the initial stages of the Management plan up to the management of the Park proper.



***Outreach campaigns targeting the locals living in the Angkor Park***

### ***b. Liaison Officers***

Up to now, there has been a lack of communication between the ANA and the local communities. Through a partnership project with New-Zealand, the Angkor Participatory Natural Resource Management and Livelihoods Programme, which is being implemented, a team of liaison officers was created. They are responsible for maintaining close relationships with the population. Seven staff were hired. They are being trained within the framework of the pilot project at the Srah Srang North and Rohal villages. Initially, it was decided to appoint one officer to each district and then one officer per commune, in order to participate in better land management.

## **II.2. THE FIGHT AGAINST ILLEGAL OCCUPATION AND CONSTRUCTION, AND THE APPROPRIATION AND ALIENATION OF PLOTS OF LAND IN THE ANGKOR PARK.**

### **II.2.1. Provisions**

The N° 50 ANK/BK *anukret* dated 9 may 2008 specially provided for the creation of the Department of Order and Co-operation (DOC).

It is headed by an army general, with the rank of under secretary of State and appointed as deputy general director of the ANA.

### **II.2.2. Assignments**

This new department replaced a former department which was almost exclusively focusing on the heritage police. It is in charge of:

1. Maintaining order and security in and around the monuments, in the different sites of the Angkor Park and in Parks managed by the ANA.
2. Gathering and compiling information and data on different legal offences: tree cutting, illegal grabbing of forested lands and unauthorised construction inside the protected areas.
3. The education of the population and contributing to the reduction of unlawful activities.
4. Cooperating with the government lawyer and the legal officers of the Presidency of the Council of Ministers in order to acquire the relevant capacities to engage in the department's functions and obligations.
5. Cooperating with the relevant competent authorities, at all levels, and with the management of all departments of the ANA in order to keep control of the Master Map of the five areas placed under the responsibility of the ANA and to prepare the response plans and measures pursuant to the different established principles regarding the protection of heritage properties.
6. Cooperating dynamically and permanently under the coordination of the Siem Reap Governor and relevant competent authorities to stop deforestation, illegal appropriation of lands and illegal constructions in the Siem Reap/Angkor region and in the other regions supervised by the ANA.
7. Cooperating with the Heritage police forces to stop and eradicate illegal excavations and the trafficking of artefacts in the region supervised by the ANA.
8. Cooperating with the tourism police on issues relating to the safety of domestic and international visitors in the Siem Reap/Angkor region and in the other regions supervised by the ANA.

### **II.2.3. Work Units**

The Department comprises of the following three offices:

- the administrative office,
- the legal aid office,
- the operations office.

The last two offices are tasked with:

- a. The legal aid office is in charge of:*

1. Gathering and compiling information and data on different law violations: tree cutting, illegal appropriation of forested lands and unauthorised construction inside the protected areas.
  2. Educating the population and contributing to the reduction of unlawful activities.
  3. Cooperating with the government lawyer and the legal officers of the Presidency of the Council of Ministers in order to acquire the relevant capacities to engage in the department's functions and obligations.
- b. *The operations office is in charge of:***
1. Maintaining order and security in and around the monuments, at the different sites of the Angkor Park and in the Parks managed by the ANA.
  2. Cooperating with the Heritage police forces to stop and eradicate illegal excavations and trafficking of artefacts in the region supervised by the ANA.
  3. Cooperating with the tourism police on issues relating to the safety of domestic and international visitors in the Siem Reap/Angkor region and in the other regions supervised by the ANA.
  4. Cooperating dynamically and permanently under the coordination of the Siem Reap Governor and relevant competent authorities to stop deforestation, illegal grabbing of lands and illegal construction in the Siem Reap/Angkor region and in the other regions supervised by the ANA, in order to protect heritage properties.

#### **II.2.4. Activities carried out**

##### ***Overview***

In the 401 km<sup>2</sup> protected areas of Angkor, which are divided into five zones, there are five districts (*sroks*), 21 communes (*khums*) and 112 villages. They include:

- Siem Reap town: Seven boroughs (*sangkats*) and 39 villages,
- *srok* Puok: 3 *khums* and 26 villages,
- *srok* Angkor Thom, 2 *khums* and 9 villages,
- *srok* Banteay Srey, 4 *khums* and 18 villages,
- *srok* Prasat Bakong, 5 *khums* and 20 villages,

There is a river flowing from north to south and to the east extend low brushes and large tree forests, ponds, trapeangs, streams, pools, ancient foundations, etc.

##### **a. *The population***

The population living in the protected areas increases year on year as per the natural population annual growth.

In 2008 there were 19,469 families for 98,853 habitants (50,225 female and 48,628 male).

They work as farmers, labourers, monument guards, and shopkeepers in the vicinity of the monuments.

##### **b. *The situation***

This has recently changed in the protected zones:

1. *Situation in the monuments:* UNESCO and some ICC for Angkor member countries focused on the restoration and propping up of monuments to reinforce them. Some monuments are being restored; foreign specialists have restored others.



2. *Infrastructure*: regarding sewage, bridges and roads, the ANA planned to build, improve and fix some of these infrastructures. These works facilitated traffic and improved the safety of the monuments and of the population and visitors inside the protected areas; they also contributed to reducing the number of accidents, etc.
3. *Illegal activities*: the Department of Order and Cooperation is in charge of the safety and acts to eradicate illegal activities in the conservation areas of the Angkor Park. Illegal activities include: illegal occupation of land, deforestation in order to build habitations or to farm land, sand dredging in rivers, which alters the natural landscape, illegal construction of houses, enclosing and extending lands to sell them. These are violations of the protected areas as provided for by the N° 001/NS Royal decree on determining the zoning and management of the Siem Reap/Angkor region and the N° 70 Decision of the Royal Government on determining the land-use standards of zones 1 and 2 of the Angkor Park detailing the need to preserve their original integrity.

All the ANA managers and concerned Departments are constantly cooperating and have carefully set up an awareness programme for the population to fight against illegal activities pertaining to heritage interests and the protection of the Angkor region.

Since the creation of the ANA, a public Institution, on 15 February 1995 and the promulgation of the N° 001 NS Royal decree dated 28 may 1994 and the N° 70/SSR Royal



*Demolitions of illegal constructions*



government decision dated 16 November 2004, education, communication and awareness campaigns are regularly carried out. They are key activities in order to reach the population and malicious individuals who have not given up their illegal activities in the protected areas. Despite these campaigns, some individuals among the population, even civil servants, members of the army and monks have yet to realise the scope of the power endowed to the ANA by the government.

From now on, the Department of Order and Cooperation will fan out its forces to directly educate the population, to report any offenders and to draft contracts to stop any illegal activities. In some cases proceedings have started. The ANA has also engaged in legal proceedings. Nevertheless, existing violations and illegal activities are still going on and their eradication has yet to reach 100 per cent. The fight continues.



*Demolition of illegal constructions*

### **Effective operations**

The control and halting of constructions and of different illegal activities in the Angkor area are as follows:

#### **For 2008:**

- Control and halt of illegal construction activities: 644 occurrences
- Illegal activities ceased: 315 occurrences
  - Sand dredging sites 41 cases
  - Excavating, transporting and selling soil 33 cases
  - Backfilling and digging soil 32 cases
  - Halting forested land misappropriation 38 cases
  - Destruction of illegal makeshift shelters 34 cases
  - Seizure of illegal construction materials 134 cases

#### **For 2009 (up to August):**

- Control and halt of illegal construction activities: 387 occurrences
- Illegal activities ceased: 164 occurrences
  - kiosks constructions halted 4 cases
  - Fencing stopped 82 cases
  - Sand dredging halted in 21 locations
  - Backfilling stopped 29 cases
  - Excavating, transporting and selling soil 22 cases
  - Halting forested land misappropriation 6 cases
- Constructions dismantled 126 cases
- Seizure of illegal construction materials 18 cases
- Drafting of letters requesting the Siem Reap Governor intervention 4 cases
- Claims filed at the Siem Reap tribunal 8 cases
- Tribunal issued protection and preservation warrants 7 cases



*Seizure of illegal construction materials*



*Before and after the demolition of a souvenir shop*

## ***Security-discipline***

### ***Security activities***

The Department of Order and Cooperation was able to strengthen its cooperation with the different forces: all the provincial authorities and ANA Departments, the Tourism Transport Association, companies related with the ANA activities, the heritage and tourism police, the Tourist guide Associations, Tuk-Tuk and motorcycle Associations and the population living in and around the protected zones. The DOC was then able to secure safety, to control serious and minor illegal land grabbing activities and also ensure the safety of domestic and international visitors. All the existing forces have harmoniously carried out their activities and succeeded to date in and around the protected areas. There are no major threats to safety. Yet, some minor scams, and incidents of relatively harmless theft in and around the Angkor Park areas continue.

### ***Cooperation and activities***

#### **Strengths**

The Royal Government established the Department of Order and Cooperation within the ANA in order to eradicate miscellaneous illegal activities. Thus, teams were formed to maintain order in the Angkor site and the ANA has fully cooperated, financing the materials and other needs and supporting the policy in place.

The DOC prepared a programme to fight criminal activities in the Angkor Park by cooperating with all the existing local authorities and organisations, in order to keep the authenticity, integrity and value of the site. The department constantly acts to stop any kinds of misdemeanour on site in the demarcated zone of 401km<sup>2</sup> in cooperation with all the existing forces and legal institutions of the country.

The department, using the available resources provided by the ANA, undertook actions against all kinds of illegal activity, enforcing the decisions taken by the management.

#### **Weaknesses**

Despite the unwavering commitment of the DOC in acting against misdemeanours within the Angkor site, some ground needs to be made to restore balance and stability in the area. The Angkor site covers 401 km<sup>2</sup>. The fight against illegal activities is constant and the deployed forces must be motivated and clean to efficiently carry out their missions. It must be said that there are still some weaknesses. The area, as said, is extensive with 40,000 hectares and great distances (up to 40 kilometres). There are an abundance of cultural and natural properties; in short, the entire Angkor site is constituted of heritage items. For example, there are archaeological remains spread across almost all of the five protected areas; therefore emphasize must be placed on raising the awareness on the need to protect and preserve, targeting the local authorities including the ANA staff. They must, for once and for all, realise that to slow down the cooperation would be a failure going against the policy of the Royal government and would prevent the planned success, a success expected by both the country and UNESCO.

We are heading in the right direction, but we must not give up.

## **Conclusion**

The fraudulent activities carried out within the Angkor site are far from being eliminated. In order to preserve the original features of the zone and the authenticity of the heritage , measures must be taken.

Some individuals are committing violations inside the Angkor Park, in particular sand dredging, illegal construction, deforestation and illegal diggings, without overlooking individuals openly threatening the department and the cooperating authorities.

In order to meet the expectations of the Royal government and to earn the trust of UNESCO and of the World Heritage Committee, the following shall be applied:

“The Rule of Law applies to Cambodia. Those continuing to breach the laws shall be severely punished by the judiciary institutions”.

### II.3. CAPACITY BUILDING OF THE APSARA NATIONAL AUTHORITY

The recommendations formulated by the World Heritage Committee and by the ICC for Angkor are always followed.

Regarding capacity building for planning, intervention and monitoring of each Department of the ANA, these recommendations match.

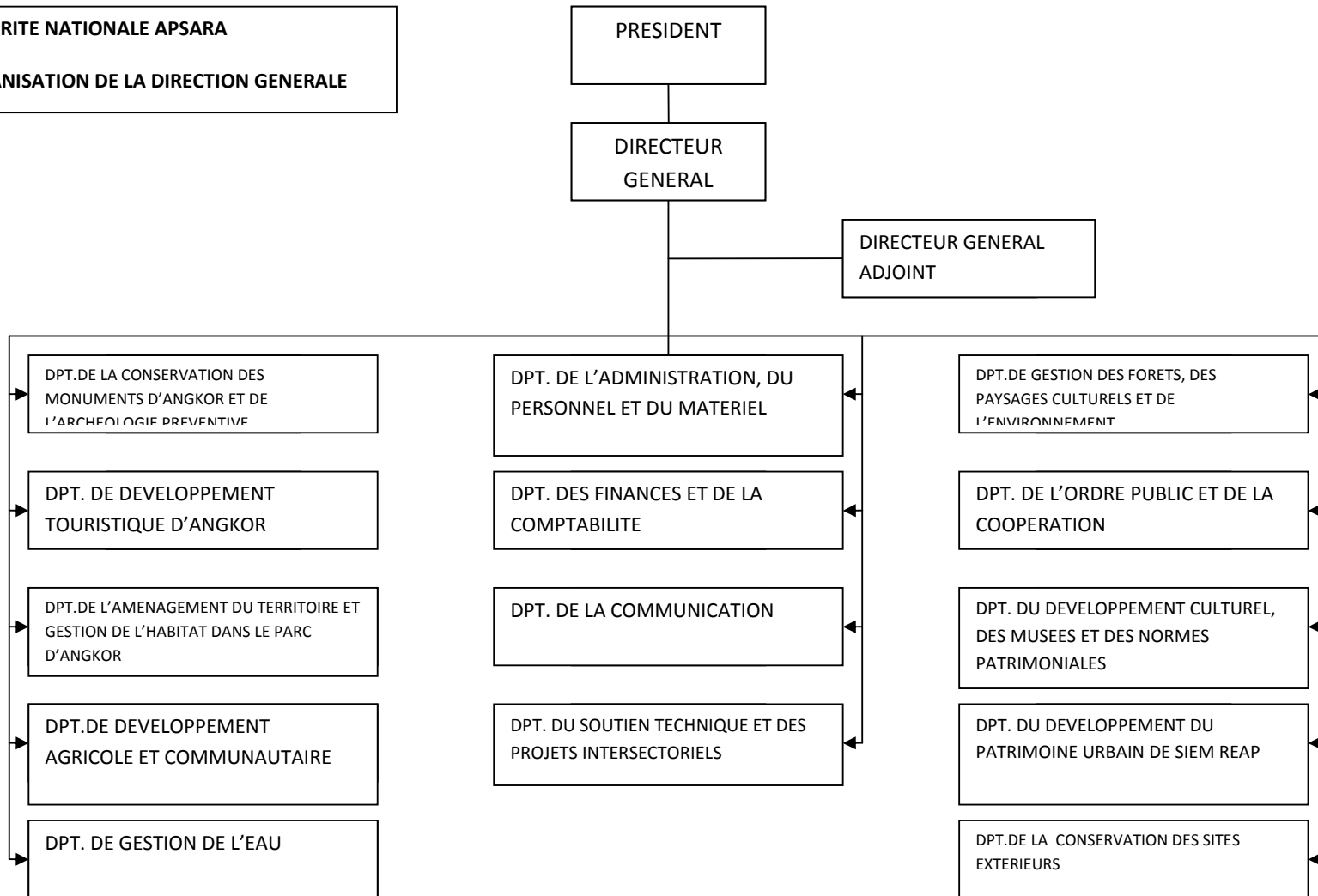
However, the major burdens and challenges faced by the manager of this enormous heritage site, represented by Angkor (40,000 hectares), which require additional means and resources, should not be overlooked.

With human resources playing a key role, the Royal Government was convinced to provide the ANA, in particular after the 2008 restructuring, additional staff and to diversify their functions.

In mid-January 2010, the staff comprised of:

- Archaeologists:	86
- Architects:	35
- Engineers:	15
- Senior technicians:	101
- Guards:	832
- Forest rangers:	159
- Public order and tourism police officers:	253

**AUTORITE NATIONALE APSARA  
ORGANISATION DE LA DIRECTION GENERALE**



# III

## THIRD PART

# ANALYSIS PER SECTOR

## 2009 REPORT OF THE DEPARTMENTS OF THE APSARA NATIONAL AUTHORITY

### *Background – Activities undertaken – Difficulties and Challenges – Solutions and Implementations*



# ***INTRODUCTION***

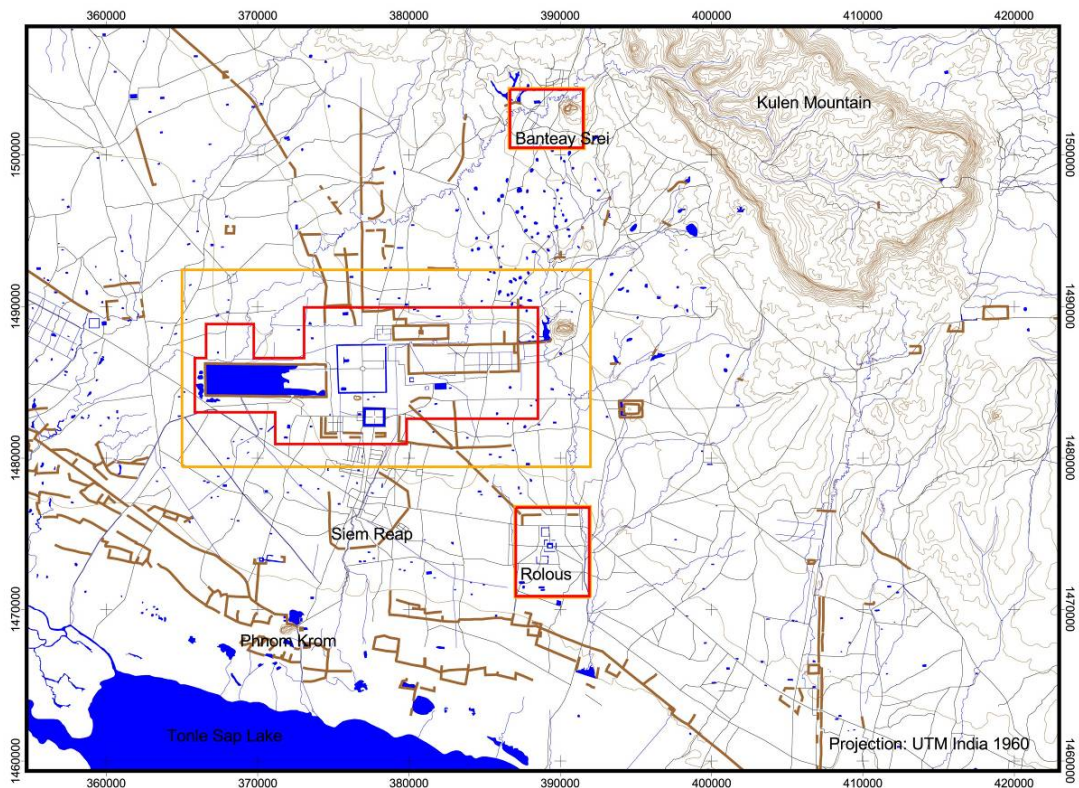


The archaeological Park of Angkor consists of monuments scattered under forest canopy, surrounded by paddy fields and shrubbery. Angkor is not only a geographical area inscribed on the World Heritage List with outstanding monuments and artistic features but also represents a dynamic culture cluster reaching beyond the country's borders, throughout the ancient Khmer Empire and a remarkable model of coherent land-use planning.

Angkor is also a living site composed of 112 villages with 120,000 people occupying three main areas: Banteay Srei, Roluos and Angkor proper, covering an area of 40,100 hectares. Water, the forest and the population bring harmony to the Angkor Park. Some five kilometres upstream, to the south, is the city of Siem Reap (population 203,000). Water is a vital resource for citizens and tourists.

The Angkor Park borders the north of sprawling Siem Reap. This expansion has been fuelled by political stability and tourism. In 2000, 466,000 visitors came to Cambodia: there were 917,650 in 2009.

Up to mid-2004, conservation works on monuments remained the priority, superseding the issues linked with the village communities who have been living in the Park for millennia. The 2003 Paris Conference on Angkor initiated a change in policy, and presently the ANA objective is not only conservation but also sustainable development.



### **III.1. MONUMENT CONSERVATION**

The tasks assigned include: daily maintenance, conservation projects on monuments, propping, construction of stairs, of wooden platforms, archaeological research and ceramic studies, condition surveys, stone carving and infrastructure plans. The Department has successfully undertaken all of these major tasks.

The above activities are being detailed using prioritised projects where further discussions and technical explanations are required, as are additional studies and research.

#### **1. PHNOM KROM:**

*Prasat* Phnom Krom's structures are in bad condition in many locations on the stone layers. Besides this, the roofing stones have fallen and broken into pieces. The following causes can be given:

- The location: Prasat Phnom Krom was built on a rocky hill of 125 metres, overlooking the Tonle Sap Lake and is exposed to severe winds that bring dust, weathering and decaying to many locations within the temple, in particular the towers.
- Nature: The differences in climate cause heat, wind and humidity, inferring different types of monsoon, facilitating the growth of algae and lichens on the sandstone layers.
  - a. Presence of lichens and plants on towers,
  - b. salt from bat guano, facilitating the growth of fungi.
- The construction technique and materials used: the sandstones used for the construction of the structure were of bad quality, which facilitated the exposure of the monument to greater levels erosion when compared to other temples.

#### **2. ANGKOR WAT:**

The temple of Angkor Wat, built under Suryavarman II is located six kilometres to the north of Siem Reap.

In order to facilitate access and to prevent accidents, the ANA built wooden stairs leading to the temple enclosure:

- To the first level up to the Preah Proan, to the Churning of the Sea of Milk bas-reliefs (southeast of the temple) and to the history gallery to the south.
- To the first level to the south;
- To the cruciform terrace.

There is a total of twelve stairs.

All these reversible stairs were erected for the official visit of His Majesty King Norodom Sihanouk and the President of the People's Republic of China in 2000.

Later on, the ANA also built wooden stairs to the south of the temple, at the entrance and inside the monument proper to prevent the decay of the sandstones and to ease access. A total of 97 stairs were built from 2000 to 2009. The ramps and propping scaffolds are in koki wood.



***N.B.: The role of the stairs once works are completed***

*Pros:*

- To provide access to the top of the monuments for restoration materials;
- To protect ancient sandstone stairs from damage caused by nature and wearing away from being walked upon;
- To ensure safety and ease of access;

This project endorsed by the ICC for Angkor succeeded thanks to the support of the international *ad hoc* group of experts.

***a. The naga balustrade:***

*Restoration background*

The Angkor Wat temple has been restored and safeguarded by national and international institutions: GACP, WMF, Sophia University, IGes, etc. and by the ANA. The balusters of the naga banister (balustrade) flanking the entrance causeway of the west gopura were replaced in the 1960s with concrete and cement equivalents. Works carried out by French restorers, with the dates indicated on each baluster. Other balusters were restored by the Angkor conservation in the 1980s. Presently, the ANA continues the works substituting the concrete and cement with sandstone whilst preserving the original shape. Recently, three sandstone pillars have been built for a trial. Eventually, 328 columns and 33 items on the naga balustrade that are made of concrete will be replaced with sandstone.

***b. The Churning of the Sea of Milk:***

*Restoration rationale*

The restoration project undertaken by WMF on the southern gallery featuring the Churning of the Sea of Milk focuses on the bas-reliefs, on verifying the drainage of a portion of the roof and improving the ancient structure using the relevant technology and materials. The materials formerly used present a major threat to the gallery and its bas-reliefs, requiring emergency care and strict measures. The WMF works on this project in close collaboration with the ANA and the German-Apsara Conservation Project (GACP), employing stone conservation and restoration techniques used in ancient Khmer monuments. Works include: the inventory of the recorded stones, dismantlement of stones, cleaning of white sediments on the stone surface and reinforcement of the roof structure. The project takes into account the restoration and reinforcement planning, fixing the drainage system and the reconstruction process. Reconstruction uses a new technique of lead sheets inserted into the open joints between the successive layers in order to prevent humidity from penetrating the bas-reliefs.

***Protection of the Churning of the Sea of Milk bas-reliefs.***

*Restoration schedule*



According to the agreement, the project's duration is of three years, from December 2007 to December 2010. The cooperation between the ANA and WMF actually started in December 2008.

### **3. PHNOM BAKHENG:**

#### *Monument restoration background*

Since the dramatic civil war in Cambodia, the Angkor Conservancy, under the supervision of the Ministry of Culture and Fine arts, has collected several sculptures and Buddhist images and stored them in the southern library, access to which was blocked with sandstone blocks. The Conservation project at Phnom Bakheng is today implemented by WMF in collaboration with the ANA.

Comprehensive surveys have revealed the overall stability of the structure, though there is some damage caused by the growth of vegetation and the invasion of trees. Also, soil and rubble fill the space between the front wall and the underlying basement rocks, and water pressure created by soil saturation and accumulation of water at the rear of the front wall have created further damage. The laterite blocks used to fill the front wall stones are in a state of decay and a small portion of the basement rock presented some movement.

As previously stated, several Buddhist statues have been gathered by the Angkor Conservancy and stored inside the southern library, which in turn was blocked with sandstone blocks and bricks. One statue had its head inside the storage area whereas the rest of the body was outside. This drew much criticism from domestic and international visitors. Therefore, a collaborative project with the team in charge of the inventory has been set up to remove the sandstone blocking the door and to strengthen the doorframes. In the future, all these Buddhist sculptures and images will be reinstated to their original locations.

#### 4. PREAH KÔ:

##### *Conservation and restoration project*

Since 1925, the EFEO has been carrying out systematic research on the Preah Kô site and restored the two towers between 1932 and 1937:

- the site was cleared and trees growing on brick structures were cut;
- Reinforcement of the towers at the concrete doorjambs, on pillars and columns.
- Improvement of the stone platform.

Rodolfo Lujan, an expert, contracted by UNESCO in 1992, undertook an initial diagnosis. An international team of experts, from Guatemala, France, the United Kingdom, Hungary and Italy with the contribution of their Cambodian counterparts, set up an emergency restoration project. The project started in January 1994 and lasted until 1996. The central tower of Preah Kô was reinforced following financing from the ANA; works were completed towards the end of 2007. In October 2008, the ANA allocated additional funding to continue the structural strengthening of the pillars and columns of the western central tower and northwest tower for another year. Works were completed in October 2009.



#### 5. ANGKOR THOM SOUTHERN GATE CAUSEWAY:

##### *The restoration process*

According to EFEO documentation, the causeway of Angkor Thom's South gate was restored in 1963, as were the damaged Asuras and Devatas flanking it:

- In 1993 The Ministry of Culture and Fine Arts decided to remove several Asura and Devata heads, which were stored at the Angkor Conservancy and replaced with 25 moulded heads in concrete.
- In 2008, the ANA removed two of the concrete heads (Asura number 47 and Devata number 5) to replace them with sandstone copies.
- Presently ten concrete heads (5 Asura and 5 Devatas) are being replaced by sandstone copies.



## 6. BAKONG NORTH GATE:

### *Restoration background*

According to EFEO documentation, the different stages of restoration were as follows:

- In 1936 Henri Marchal, the conservator, cleared the temple of its vegetation.
- From 1936 until 1943, Maurice Glaize consolidated and restored the entire structure of the temple, in particular the central tower and the four gates.
- In 1987, the Angkor Conservancy started to prop and consolidate portions of the temple, e.g. the roof of the North gate, which was strengthened with wood.

### *Risk assessment at the North gate of Bakong*

The causes of the damage to the North gate are several: age, weathering and the construction technique used on the gate, as the roofing had only one vault.

### *Stone decay*

Most of the time the stone decay in the Angkor region is caused by the deterioration of the ancient architectural structure. Several factors come into account:

#### *a. Natural:*

- Large trees;
- Mosses, algae, fungi, lichens;
- Bacteria,
- Birds, bats, insects;
- Natural decaying processes.

#### *b. Chemical:*

- The stones of the temple are submitted to the effects of water and airborne chemical substances.
- These chemical substances penetrate the temple structure, causing rapid chemical reactions, changing the original stone properties.



### *Restoration technique*

- Anastylis was used for the restoration of the North gate at Bakong.
- The stone rubble broken before and during restoration were pieced together and reassembled.

- The stone roof was repaired and strengthened by the insertion of laterite blocks on the tower to support the weight of the old roof which collapsed due to both weathering and the ancient construction technique, which used only one vault.
- The restoration site was planned, so that there will be sufficient space for the works. The drainage systems and scaffoldings do not disturb the other structures of the monument:
- The restoration of the North gate of Bakong is under the supervision of Khmer technicians working for the Department of Conservation of Monuments and Preventive Archaeology of the ANA.
- The restoration project was initiated in August 2009 and will be completed in January 2011.

## 7. TA PROHM:

### *A brief description of the temple*

A concentric temple, Ta Prohm has five rectangular enclosures located at the four cardinal points. The outer surrounding wall measures 1,105 x 663 metres. The area of the temple is covered with thick vegetation and roots penetrate the temple's walls, roofs, etc. The temple's soil is more or less even, averaging 23 metres above sea level. The fourth surrounding wall measures 220 x 250 metres. The intermediate area between this wall and the outer wall was allegedly a place to host visitors. Around the fourth enclosure a "mat" in the shape of a causeway was built from east to west. There is an additional moat between the third and fourth enclosures. The final inner enclosure contains the main sanctuary, whereas the other sanctuaries are located between the second and third surrounding walls.

### *Materials*

The temple was built in sandstone. The foundation is made of laterite; the roof of the galleries and the access gate form corbelled vaults. The temple was adorned with carvings of apsaras and the gables were decorated with nagas and other mythological characters and carvings. It was built in the "*Sarvato Bhadra*" style (which can be accessed from all directions).



## 8. The Bayon:



This is a cooperation between the Royal Government of Cambodia, represented by the ANA and the Japanese Government, represented by Waseda University (Tokyo), supervised by the UNESCO Office in Phnom Penh. It started in 2005 and has run for five years. The Japanese government allocated US\$2,397,781, and the ANA contributed US\$832,520, providing local materials and wages for local experts, drivers and workers.

The project focuses on three main aspects:

- the restoration of the South library;
- maintenance and restoration of the inner gallery and,
- the safeguarding of the central tower.



#### *Location and history*

The Bayon temple is located 1.7 kilometres to the north of Angkor Wat, in the heart of the Royal city of Angkor Thom, 1.5 kilometres north of the South gate.

It is a Buddhist temple, built by Jayavarman VII in the late 12<sup>th</sup> century.

A State temple, it is comprised of 54 towers, each ornamented with four faces of the alleged Boddhisatva Lokeshvara (the most common interpretation at present).

#### *Restoration history, studies and research:*

Studies, research and conservation/restoration works have been undertaken several times at the Bayon:

- The EFEO (French School of Asian Studies), created in 1900, set up the Angkor Conservancy in 1908 only, the main objectives of which were to study and research the Angkor archaeological park;
- Henri Dufour and Charles Carpeaux carried out preliminary missions from 1902 until 1904.
- Jean Commaille, the Angkor Conservancy conservator in 1911-1913, initiated the clearance of the forest surrounding the Bayon.
- Georges Trouvé began maintenance works on the central tower in 1933.
- Maurice Glaize, an architect, spearheaded the conservation and maintenance works from 1936 until 1946, using anastylosis.
- JSA (Japanese Safeguarding Angkor), a Japanese governmental team has been carrying out extensive conservation and restoration projects since 1994.



## **III.2. WATER**

### **Introduction**

#### ***Water management system***

Angkor, a World Heritage Site, has always attracted tourists as well as researchers and different specialists from numerous countries. Yet, only a few organisations have focused on the study of the site's hydrological and meteorological data. Water management is based on gathering data on the watershed. Hydrological phenomena never reoccur which means that any uncollected data are forever lost. This is the reason, since the Department was established in 2004, the system to gather data was initially performed manually then was automated.

As mentioned hereafter, the moats of Angkor Wat and the Royal Pond of Srah Srang must be filled twice a year, and this flooding requires accurate scheduling, especially in the dry season. The schedule depends on the forecasted reduction of the level of water from a database obtained through meteorological information. In order to gather this data the Department has been measuring the level of water in the Srah Srang and Angkor Wat moats since 2006. In March 2009, in collaboration with the Kanazawa University from Japan, a water pressure sensor and a data recorder were set to automatically measure the water level.

The flow and level of water in the Siem Reap, Pouk and Roluos Rivers are measured the whole year around using OTT, ADC and OTT QLiner equipment. Thirteen stations to measure the flow, of which five are located in the watershed of the Pouk River, operate only during the rainy season. The automatic water level measuring station will be set up in 2010-2011, located as shown in figure 2.4.

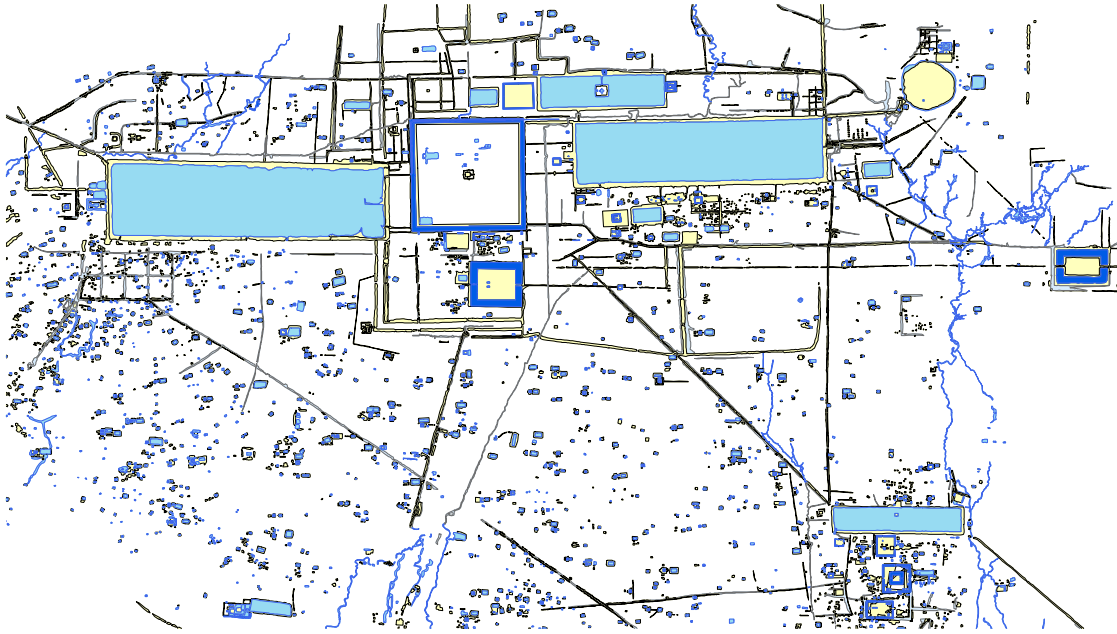
Figure 1.1 presents the geographical location and provides information on the management of the Khmer cultural landscape from the 9<sup>th</sup> century until the 15<sup>th</sup> century. The Angkor World Heritage site has been given, thanks to the findings of this data, the popular name of the "Hydraulic City".

The 1.2 and 1.3 figures show evidence of hydraulic skill and clearly demonstrate that water has been mastered since the 9<sup>th</sup> century.

#### **III.2.1 The use of water in the city:**

Water remains a big challenge for urban planners within the framework of the development policy of cities. The Ancient Khmer used mechanisms to collect water in the rainy season. This can be seen in Preah Vihear and on other sites. They built reservoirs, moats, ponds, retaining reservoirs, etc. But to maintain a constant supply in order to store water for the town's everyday use over the six months of the dry season was a difficult task, perhaps impossible. Hence the digging of man-made canals to channel water, construction of spillways, for example in Bampenh Reach (*figure 1.2.*), to redirect the natural flow of the River Pouk, which sourced at the time on Phnom Kulen, towards the man-made *Stung Siem*

Reap River, in order to supply the Angkor capital with water resources. This overflow weir played a dual role: it firstly supplied water to the city through the Siem Reap River and then prevented any prospective flooding by sending water to the Pouk and Siem Reap Rivers to prevent the inundation of the Angkor Capital. This is evidence that Khmer engineering as early as the 9<sup>th</sup> century used an automated system of water management.



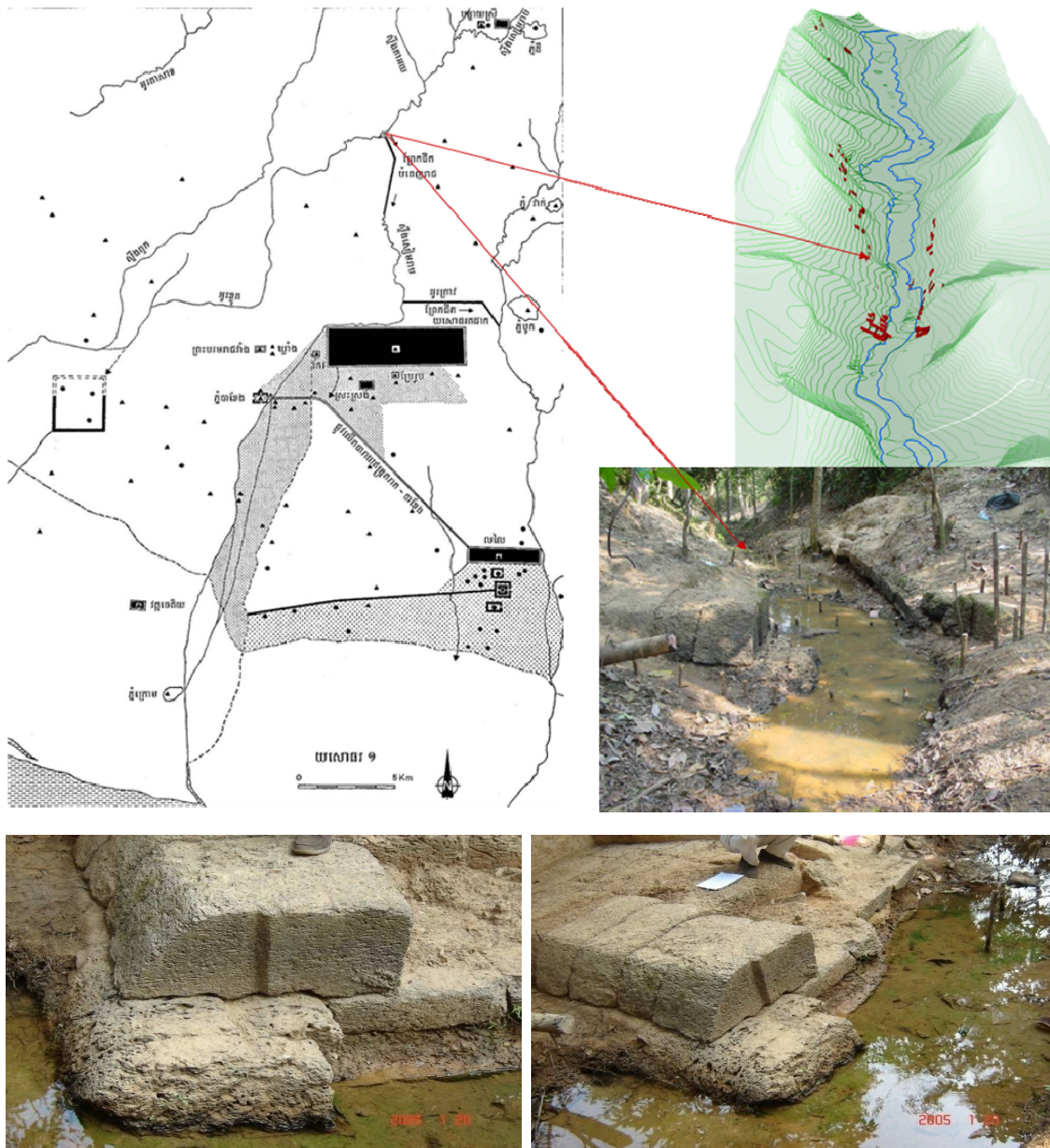
*Figure 1.1: Hydraulic system network in the Angkor Park*

### **III.2.2. Flood management:**

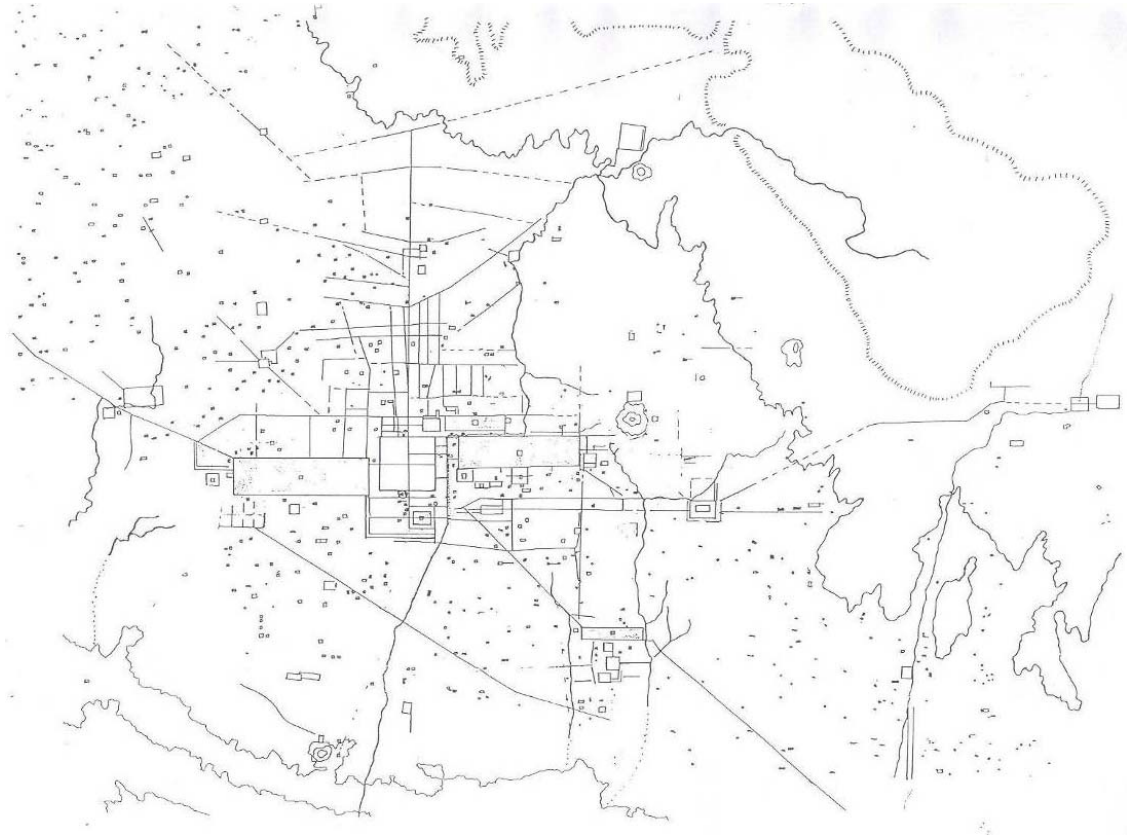
The Angkor Park is sandwiched between the Kulen Mountain and the Tonle Sap Lake. The city could have been flooded anytime during the rainy season or during major storms. To prevent natural disaster, the ancient Khmers used spillways, as mentioned previously, and they also built roads facing east-west which were used as dykes, slowing down the water flow from the mountain and storing or redirecting water. This enabled the protection of the city from flooding, as shown in figure 1.4.

### **III.2.3 Hydraulic engineering:**

Several elements provide evidence that the ancient Khmers understood the fluid mechanism. The Bampenh Reach spillway is a good example of a typical construction; the spillway was built following the water flow curve in order to mitigate turbulence and erosion downstream (see picture). Ancient Khmers were also versed in hydraulic force which explain the presence of small stone and laterite blocks used to build the spillway. To prevent any movement of the stone blocks and to keep them in their positions despite the torrential force of water, they cut vertical or horizontal strips in the stone blocks so that they could imbricate one with the other and form huge blocks. See figure 1.2



*Figure 1.2: 9<sup>th</sup> century-Bampenh Reach spillway to direct water to the capital Angkor*



*Figure 1.4: Roads and dykes network in the Angkor region*

### **III.2.4 The Khmer capitals in the Angkor region**

Central Cambodia's soil is loose and cannot support heavy loads. In order to build temples like Angkor Wat, Bayon, Ta Prohm, Preah Khan, etc, the best technique had to be found. Khmer engineers at the time discovered the physical properties of sand and water and realised that they could combine these two elements for building: sand once wet can support a heavy load. The discovery of this technique led them to locate the places where this theory could be applied. Studies have shown that the Angkor region is the best location, as underground water is close to the ground surface. They then used the immediate presence of underground water to completely fill the sand layer under the monument to ensure its stability. As early as 2005, open wells, on-site surveys and locating the Phnom Bakheng at the core of a thirty kilometres diameter provided evidence that the Angkor region's water table is between 3 to 6 metres deep, whereas in other regions the water table is more than 40 metres underground.

### III.2.5 Ancient reservoirs (barays)

Huge, man-made reservoirs, which are presently empty, may be refilled.

#### *a. The Western Baray (Yaçodharatataka)*

The second baray in terms of size (7.2 x 1.7 kilometres), it was built in 953 by Yaçovarman I. Not only it has dried up, but the village of Pradak settled there a long time ago. It is, then, difficult to refill it with this occupation and population. But it would be possible to refill it once Pradak village were relocated outside the baray enclosure.

#### *b. The Lolei Baray (Indratataka)*

This baray was the first built in the Angkor region. It measures 3.75 x 0.75 kilometres and was built by King Indravarman I. It is presently completely dry. This baray faces issues similar to those of the Western Baray. It could also be refilled thanks to the near-by Roluos River, but there is a large population living within its perimeter.

#### *c. The moats of Angkor Thom*

Only the southwest section of the Angkor Thom moats is flooded, as it was use as part of the system to fill the moats of the Angkor Wat temple. The rest of the moats of the Angkor Thom city are empty, in particular during the dry season. The entire system (12 x 0.9 kilometres) could be refilled by building a hydraulic structure which would secure the management of the whole water system.

#### *d. The Ta Prohm and Banteay Kdei moats*

The Ta Prohm and Banteay Kdei moats are actually empty. It is possible to set up a system, as no ancient mechanism existed (the moats were filled with rainwater as was the case at the royal pond of Srah Srang), to fill these moats with surface water. A system could be installed which would not only guarantee the filling of the moats but also prevent flooding inside the temples, as each year during the monsoon, the inner parts and access to the eastern gate of Ta Prohm are flooded.

### III.2.6 Protection and safeguarding

All Khmer temples located in flat terrain are surrounded by moats. The latter play a pivotal role: they collect running water from the temple during the monsoon and recharge the sand layer underneath the temple.

The ancient Khmers knew the vital role played by water resources in the safeguarding of the Angkor region and learned how to preserve water. This is why this vital resource is celebrated within the tradition, culture and spirit of the Khmers. Some of these customs are still celebrated today:

**a. The sacred water of the Kulen Mountain:**

Khmer ancestors carved the River of thousand lingas in the river beds of Mount Kulen and Kbal Spean, where these rivers source, before they flow into Siem Reap and the Angkor site plain. At Banteay Srei they flow together to form the Siem Reap River. The water flowing from the “thousand lingas” has become sacred and has been used in the major ceremonies (e.g. coronations) of the Khmer Kingdom since the 9<sup>th</sup> century. During coronation, the sacred water of Mount Kulen is used to bless the future King. This tradition is still practised. The Khmer population believes in the power of this sacred water, using it to cure diseases or during blessings to bring luck. But the real goal of the sacred water from Mount Kulen is to underline to the population the need to protect water resources, the region’s life-blood, and to maintain the sustainability of this resource, which is essential for the conservation and development of the Siem Reap region. Therefore, the water source of Mount Kulen will be lost if deforestation continues and the environment is destroyed.



*The “thousand lingas” at Mount Kulen*



**b. The moats:**

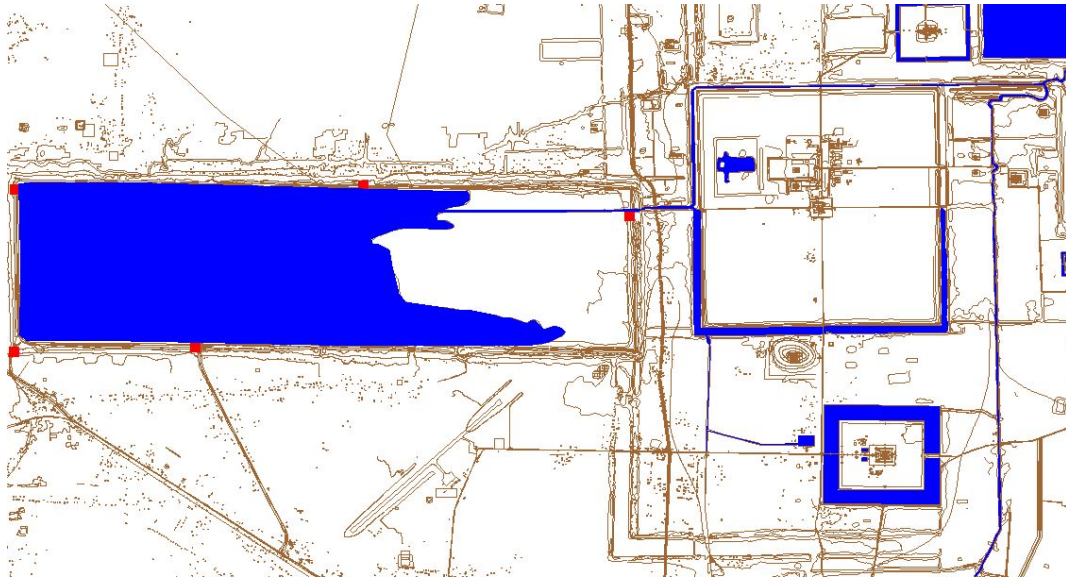
The Khmer temples located in the plains were built to the same technical pattern allowing stability on loose soil. To adapt to the aforementioned technique, the architects conceived the moat system. Thus, each temple is surrounded with moats which simultaneously collect rainwater and recharge the sand layer underneath the monument. The moats are also considered in the Khmer tradition as the Ocean and the temple as Mount Meru (the dwelling of the Gods).

The ancient Khmers knew that if the safeguarding of water was conveyed as a message or ordered, this would not be sustainable. So by including the water as both a form of life-blood and as the basis for a system of beliefs, the recommendations may have lasted.



## Angkor Wat

The Angkor Wat moats are filled twice a year, during the dry and rainy seasons. The Siem Reap River is used as a source of water to supply the moat flowing through the “French” spillway located to the north-east of Angkor Thom, through a canal located inside the northern and western moats of Angkor Thom and by the irrigation canal linking the south moats of Angkor Thom to the Trapeang Ses (former pond located opposite Angkor Wat), see figure 2.1.



**Figure 2.1: The Western Baray, Angkor Wat, Angkor Thom and their filling network**

The level of water inside the moats is measured daily. Actually, during the dry season, it takes more than a week to entirely fill the moats through water sent via the “French” spillway. The activity schedule is based on the database obtained from undertaken studies.

### *The Kravan temple*

The Kravan temple dates from the early 10<sup>th</sup> century. Built in brick, it measures 20 x 432 metres. It is located east of the circular road from Angkor Wat to the Royal Pond of Srah Srang and Banteay Kdei. Moats, as with all other Khmer temples, surround the temple. In 2009, during the dry season, the ANA built a system to fill the moats of the Kravan temple through an irrigation canal used by the local population. Following a request from the villagers who asked the ANA to improve their irrigation canals, the Water Management Department took this opportunity to also redirect water to the moats of the Kravan temple. Before this modification, the moats of the temple were solely filled by rainfall and run off water from the temple. During the monsoon, the level of water used to reach 25 centimetres, then evaporated and seeped in within a few days. In January 2010, during the dry season, the moats were still filled with water, to a level of approximately 30 centimetres.



*Moats of the Kravan temple on 28 November 2009*

**c. The barays or great reservoirs**

*The western baray*

The western baray is one of the largest, measuring 8 x 2.2 kilometres. Dating from the 11<sup>th</sup> century at the height of the Khmer Empire, it is the only baray which is still presently in use and can store up to 56 m<sup>3</sup> million of water. The stored water is used for irrigation, notably in the baray's southern area. The rehabilitation of the western baray began in 2007. It is aimed at reconstructing the damaged portions of the dykes and to reset them, but also includes:

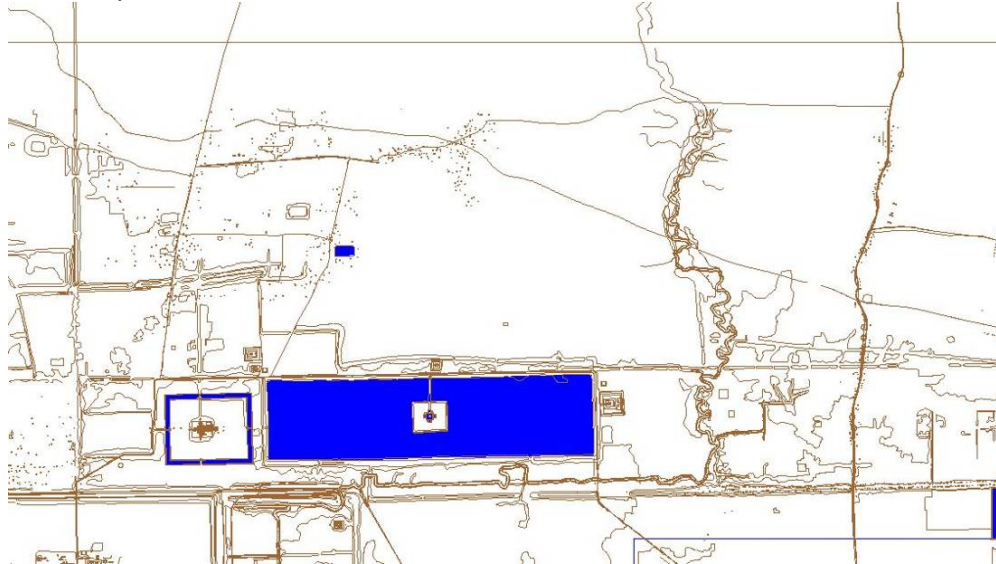
- researches on the ancient hydraulic system built in the 11<sup>th</sup> century;
- reinstatement of the historical and cultural landscape and the development of new visitor itineraries to diversify tourism;
- increasing the storage capacity to improve irrigation upstream and to supply water to Siem Reap and,
- recharging the water table in order to balance the uncontrolled extraction of underground water in Siem Reap.

*The Jayatataka (Northern baray)*

The fourth baray of the Angkor region, it measures 3,600 x 930 metres with a storage capacity of 10 m<sup>3</sup> million of water. Built in the 12<sup>th</sup> century (1181), it started drying up in the 16<sup>th</sup> century. Researches on the hydraulic system indicate several reasons as having caused the drying up of the Northern baray, mostly due to the destruction of its supply network. The ANA took the decision to rehabilitate the Northern baray alongside the Jayatataka Rehabilitation Project; the four main goals consist of:

- Researching the ancient hydraulic system dating from the 12<sup>th</sup> century, in order to understand the entire system before flooding it;
- Increasing storage capacity to benefit the population living in the Angkor Park and to serve as a management model for water usage, in particular on sharing water between the local communities and temples of the region.

- Recharging the water table in order to balance uncontrolled extraction of the underground water in Siem Reap.
- Reinstating the historical and cultural landscape and to develop new visitor itineraries to diversify the tourism on offer.



*Figure 2.2.: Northern baray (Jayatataka) with its filling network*



*Aerial view of the Northern baray, November 2009*



*The Northern baray on 10 November 2009*



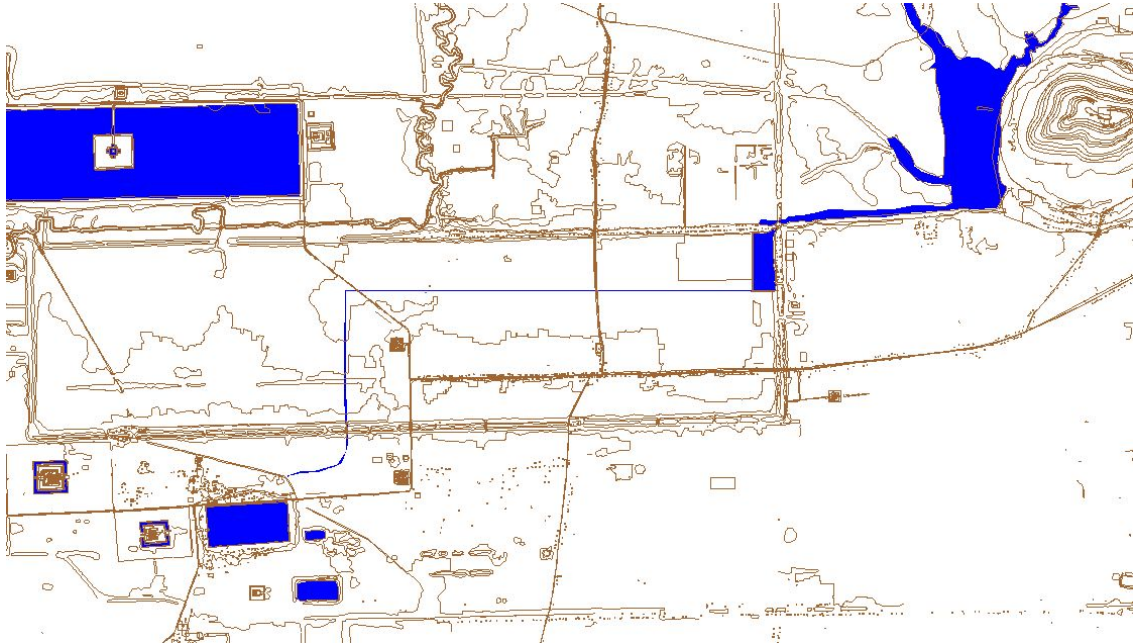
*The temple of Neak Poan in October 2009*

During the 2008 monsoon, for the first time since the 16<sup>th</sup> century, the Northern baray was filled with 700,000 m<sup>3</sup> of run off water from upstream once the damaged portions of the southern dyke were repaired. In the 2009 monsoon the baray received 2.98 m<sup>3</sup> million of water. The Northern baray also played a major role during typhoon *Ketsana* on 29-30 September 2009, taking in flood water and protecting from destruction the northern wall of the City of Angkor Thom by concentrating the water pouring in from the storm and prevented flooding from reaching the Leang Dai and Phlong villages.

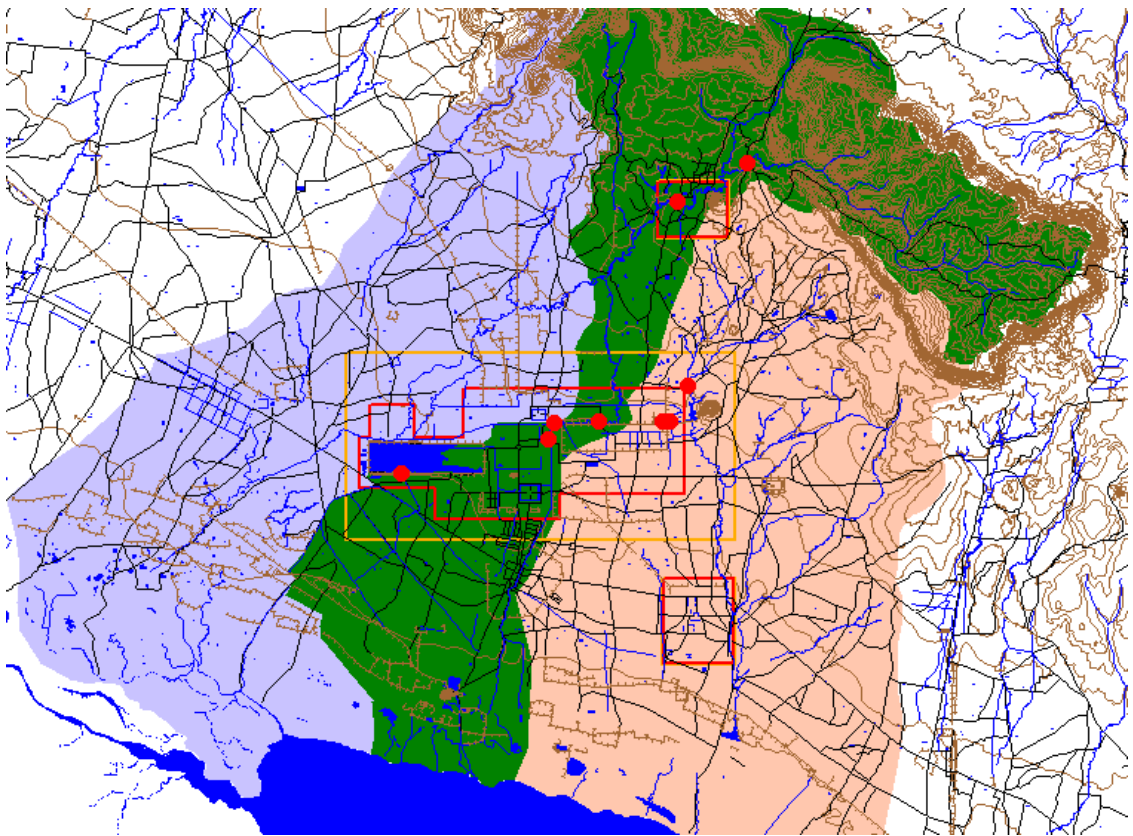
*Srah Srang (The Royal pond)*

Measuring 785 x 380 metres, the Royal Pond of Srah Srang dried up in April 2004, an exceptionally dry year. Srah Srang is filled only by rainfall and underground water. The ANA decided to set up a new supply network in order to flood the Royal Pond of Srah Srang and to prevent any future disaster. The Authority is actively searching for water resources to supply it. The standing water resource during the dry season is the Siem Reap River, but this requires the installation of a pumping station in order to direct the source water, as the maximum level of water of the Siem Reap River is very low in relation to the ground level of the canal. The ANA's general policy is, if possible, to avoid the use of machinery inside the Angkor Park in order to keep pollution levels low. This is the reason the new water supply system for Srah Srang was built at the Phnom Bok reservoir (in the watershed catchment basin of the Roluos River). The system was not only conceived for the Royal Pond of Srah Srang but also to benefit the local populations through irrigating their paddy fields.





*Figure.2.3.: Srah Srang and its supply network from Phnom Bok reservoir*



*Figure.2.4: Automatic measuring station of the water level*

### **III.3. THE FOREST**

#### **III.3.1. Statistics:**

According to the ANA's existing data, the area of the forest covers 4,574 hectares or 11.4 per cent of the overall area of 40,119 hectares of land of the Angkor area (zone 1 and 2). The forest has a close relationship with the cultural landscape and the safety of the temples for the following reasons: the forest's shade and roots consolidate the constitutive stones of the temples, thereby prolonging their life spans. Therefore, downsizing the forest in the Angkor area would certainly reduce the life expectancy of the temples.

#### **III.3.2. Protection, management and conservation of the forest**

The Department of Forests, Cultural landscapes and Environment Management was initiated by sub-decree N° 50 ANK/BK, dated 9 May 2008, with the goal of protecting, conserving and efficiently managing the Angkorian forest.

Within a year of its inception, the ANA succeeded in the following:

1. the construction of 11 strips of fire wall, total length of 9,148 metres (area of 38,632m<sup>2</sup>), out of a planned length of 60,960 metres.
2. In order to prevent any forestry offences in the Angkor area, 130 forest rangers have been hired. They are tasked with the monitoring of the forest and deployed over 14 check points.
3. An awareness campaign and outreach programme to the locals living in the Angkor area to make them aware of the role of the usefulness of the forest and of the regulations.
4. Nine cases of land grabbing and illegal dredging of sand were acted upon in cooperation with the local authorities and the relevant police forces.
5. Treatment of sick trees by cutting their branches and painting them to prevent contagion of the disease to other areas. A study on the biological properties of the trees has been planned as part of the continuity of the treatment and to extend the life of these trees in order to preserve the historical landscape of the Angkor area.
6. Setting up of a plan to inventory trees in and out of the temple enclosures with a view to efficiently managing the forest inside the Angkor area.
7. Studies and researches on deforested land for prospective reforestation and care of the wild/forest seedlings. Simultaneously, the ANA distributed 31,832 seedlings to different schools and local authorities. The nursery presently contains 57,826 seedlings with planting and distribution activities continuing.
8. The programme to protect the environment has been applied, with the contribution of all departments managed by the ANA in order to obtain the International ISO 14001 Standard delivered by the Japanese Quality Assurance Organisation (JQA). This was granted on 17 March 2009 and is valid until 16 March 2012.



*Symbiosis between nature and the stone*

### III.3.3 Management

#### **a. Human resources:**

A total of 292 civil servants, staff and workers are employed by the Department of Forests, Cultural Landscape and Environment, of which 5 are managers, 30 technicians and 257 workers. Within their first year of operation the staff of the Department have improved their comprehension thanks to experiences accumulated on site, their technical knowledge and relationships with international bodies. Organic growth of the human resources of the Department shall gradually take place.

#### **b. Implementation of the action plan**

1. To secure maintenance of the built firewall strips.
2. To maintain the health of the forest by rehabilitating the devastated forest and to replace dead seedlings.
3. To raise awareness on the usefulness of the forest, to prevent forest fires, to protect the environment and to improve the cultural landscapes of the Angkor area.
4. To gather data linked with forest development.
5. To continue supplying seedlings to be planted at schools, public institutions and private homes.
6. To be always on the watch out for any misdemeanours in cooperation with the local authorities and competent police forces.
7. To develop the Spice Garden to turn it into an exhibition of aromatic Khmer plants for national and international tourists.

8. To continue cutting dead trees in and along the roads of the Angkor site.



*Forest rangers, and acting against a fire*

**c. Specificities of the cultural landscapes**

Angkor is an outstanding World Heritage Site among others inscribed on the World Heritage List as it is a living site. The *Spoung and Choeu Teal* species of trees often grow on or beside the temples and their enclosures. This highlights the symbiosis between nature and culture. Although these trees need to be preserved, their impact on the temples needs to be monitored. Pursuant to the responsibilities endowed to the ANA to highlight the traditional Khmer historical cultural and natural landscapes, studies were carried out to select 38 temples to be protected, with eight prioritised. One more feature of this living site is the abundance of rivers, ponds, pools and forest canopies underneath which a population attends to its daily life, practising the customs and traditions of the Angkorian area.



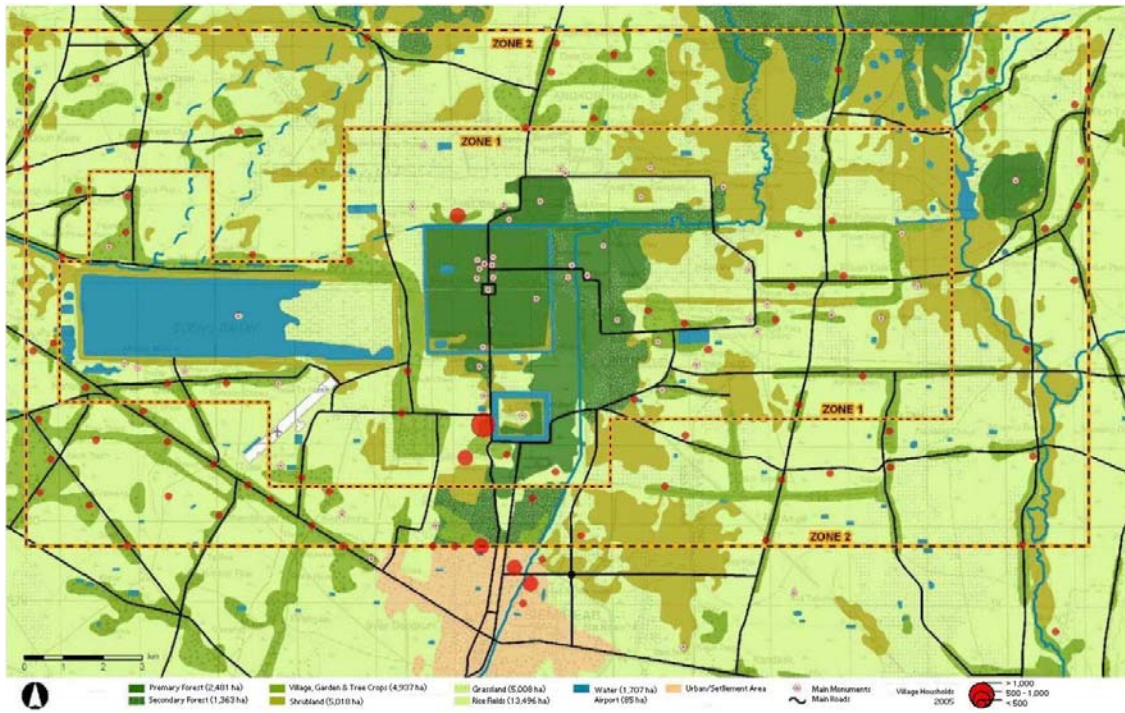
*The Angkor Park*

### **II.3.4 The future**

***Activity plan for 2010-2012***



1. To complete, in 2010, eleven firewalls for a total length of 17,000 metres, reaching 60,960 metres in 2012.
2. To improve the health of 91.5 hectares of forest in 2010.
3. To plant 110,000 seedlings.
4. To plant 15,000 seedlings and to distribute 95,000 seedlings to schools, pagodas, public institutions and local populations.
5. Biological study of the trees with a view to curing them.
6. To expand outreach and awareness programmes on the usefulness of the forest and the environment to the Angkor villages as a whole.
7. To prevent any environmental and forestry offences and in particular to put to a complete end activities endangering the integrity of the forest.



*Vegetal canopy of the living Angkor Park*

### **III.4. CULTURE AND HERITAGE**



#### **III.4.1. Angkorian cultural heritage:**

The good name of the excellence of the Angkorian tangible heritage does not need further promotion. The prestigious monuments testify to the glory of one of the greatest world civilizations at its peak, but now what is left of it in daily life? Does contemporaneous Khmer culture reflect its ancestral legacy?

The living feature of the Angkor Park endows to the site its specificity. The very strong cultural character, especially with respect to religion, is still felt. Although the social fabric is fragile and contemporaneous culture tends to trivialise heritage, which in the long run overlooks former traditions depicted on the bas-reliefs, in some of the Park villages and even in the whole Siem Reap province ancestral customs are still practiced.

Another asset of Angkor is its cultural landscapes are an integral part of the cultural heritage, whether on the monumental side or on the vegetal environment engulfing the temples and draping them with mystery—giant trees rival the majestic towers of the monuments.

The scientific objectives of research have at the same time yielded findings on the history of the site, on its development and inhabitants which make for an outstanding wealth of intangible heritage—anthropological studies, rural lifestyle and socio-economic conditions. The rural populations of Siem Reap are famous for marinating ancestral traditions, and archaic rituals endure.

The intrinsic value of nature cannot be replaced. To recognise heritage as being received and to be conveyed, the individual and common co-responsibility in the management of the natural and cultural landscape and the solidarity between the past, present and future generations must be a rule for preservation.

Uncertainties and difficulties are due to the sheer size of the site, the diversity of cases to be dealt with, the population living in the protected zones which need to be educated and to the training of qualified staff. Three priorities were identified:

- To study alternative itineraries inside monuments;
- to develop the *parvis* of the major monuments;
- better signage.

### **III.4.2. Culture and sustainable development**

Faced with likely acculturation, the ANA developed a research programme and projects to showcase intangible heritage (villages, pagodas, traditions and lifestyle). The aim is to associate intangible culture with the showcasing of the monuments in order to raise awareness among the local population of the importance of their protection and the need to preserve them.

Several projects contribute to these objectives:

#### **1. The NZAID project**

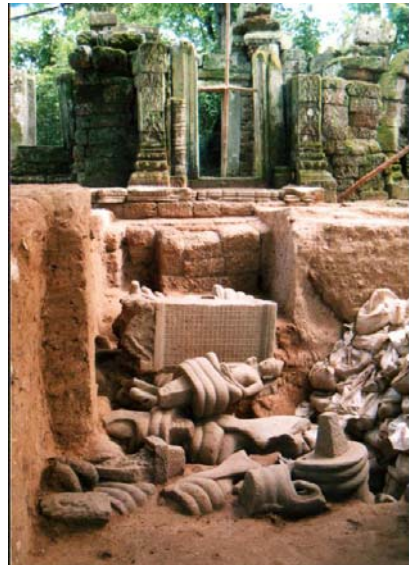
The community participation programme set up with the assistance of New Zealand aims at engaging the underprivileged populations of the Angkor Park within the development process of a tourism economy in order to redistribute more fairly the generated revenues. It also aims at developing local resources and economic diversity. A training programme on indirect jobs linked with cultural tourism will be dispensed to the populations: handicrafts, farming, etc. To reduce the number of middlemen between the producer and the consumer will direct tourism revenues to the poorest.

#### **2. The contribution of museums with the recent creation of a Museum Unit.**

Museum activity is new to the ANA. The Department of Cultural Development, Museums, and Heritage Standards was tasked with the design of museums and their operation, in application of the UNESCO and ICOM (International Council of Museums) standards and by securing the assistance of international highly qualified experts. The following activities were carried out:

**a.** *The Preah Norodom Sihanouk-Angkor Museum:*

In 2001, a team of Khmer and Japanese archaeologists from the SOPHIA University undertook excavations inside the enclosure of Banteay Kdei temple and discovered a total of 274 artefacts including Buddhist statues, stone sculptures of Buddha and fragments of sculptures from the monumental décor. In 2003, the Director of the AEON 1% Club company decided to allocate US\$1 million for the construction of a museum in Siem Reap to exhibit these Buddhist statues.



*Buddha statues unearthed at Banteay Kdei*

The ANA contributed to its construction by supplying land of 16,200m<sup>2</sup> located in the Cultural and Tourism City.

The *Preah Norodom Sihanouk Angkor* Museum was inaugurated in November 2007 by His Majesty King Norodom Sihamoni and opened to the public in early 2008. A team of technicians in charge of the exhibition, and artefacts manages the Museum.

To raise awareness among the public of heritage values is one of the programmes of the Museum.



*Inauguration of the Museum by His Majesty the King Norodom Sihamoni*



*The Preah Norodom Sihanouk-Angkor Museum*

**b.** *The Ceramic Museum of the Tani site:*

The idea behind the creation of a ceramic museum dates back to 1995 and the discovery of ancient kilns located on the Tani site. Lack of adequate funding at the time led to protection of the discovered kilns rather than any public exposure. Ten years later, in 2007, the Japanese Embassy in Cambodia granted some US\$39,000 in order to start the construction of a museum on site, to exhibit the unearthed ceramics. The ANA contributed to the completion of the works.

The Deputy General Director, head of the Department of Land Planning and Habitat Management in the Angkor Park and his team carried out the conception and construction of the Museum.

The Department of Cultural Development of Museums and Heritage Standards is in charge of the Museum's management and application of international standards. This new cultural complex will include an archaeological garden and the ceramic Museum of the Tani site. Gardens will be developed for visitors to relax in (strolls, picnics, children's playgrounds, etc.) whilst visiting the ceramic kilns and the on site museum.

The Nara Institute of Japan technically assisted the setting up of the exhibition. The Museum will open to the public during the course of 2010.



*The Tani kiln site Ceramic Museum*

### **III.4.3. Safeguarding Angkorian heritage**

The protection and safeguarding of tangible heritage is now largely under control, but unbridled tourism management may endanger the most visited monuments.

Realising the need to secure the sustainability of the tourism economy, the ANA manages the Park based on the principles and recommendations leading to sustainable development.

Flow management is paramount inside the monuments. Therefore, new itineraries have been designed with the goal of relieving overcrowded areas in order to preserve the quality of both the visit and the carvings. Alternative itineraries inside the monuments have been set up in the temples of Ta Prohm and Banteay Srei.

**a.** *Itineraries of the monuments visit:*

*At Ta Prohm:*

A comprehensive study was carried out with the ASI (Archaeological Survey of India), the Indian team, aiming at improving the itinerary at Ta Prohm, one of the must-see monuments included in all travel agency and tourist itineraries. The walkways are narrow and highly frequented; moreover, the present restoration activities at the monument do not facilitate the protection of carvings or visitor movement. Since the ASI team has cleared the fallen stones and created new access walkways (after approval of the *ad hoc* experts), the

monument's inner circulation has improved at peak times. In addition, platforms protecting the carvings have been laid and the most-photographed areas cordoned off to prevent visitors from climbing on the stones.



*Wooden protections at Ta Prohm*



The measures, as presented on the plan submitted by the ASI expert and the corresponding itinerary experienced during the visit—favouring a picturesque route to discover this monument rather in ruins, secured thanks to discreet arrangements (footbridges, boards, platforms, guard-rails)—meet the guidelines and recommendations formulated during former ICC *ad hoc* experts' visits for Angkor, bringing together in harmony conservation needs with those of tourism.

#### *At Banteay Srei:*

The BSCP (Banteay Srei Conservation Project) team, after having studied the monument's frequentation, set up adequate structures to prevent any overcrowding in the most frequented locations. Despite some improvement, the growing number of visitors required additional measures. A more comprehensive study on possible distribution of flows was carried out.

The proposed itineraries are based on the available time for each visit, from 35 minutes to 160 minutes. The routes differ at the entrance to prevent people from crossing at overcrowded locations. This also implies the active contribution of guides and tourism operators, provided the structures to welcome and make visitors wait are in place.

The Banteay Srei temple visit itineraries were finalised and approved by the ICC during the 2006 Technical Committee; they have been updated in order to be integrated with the *Parvis* being developed.

**b. Development of the Banteay Srei parvis**

The ANA aspires to improve the hosting infrastructures with a view to providing better services to visitors and to showcasing the prestigious monuments of the Angkor site. The development of *parvis* opposite the major and most visited monuments has then been prioritised.



*Parking area opposite Banteay Srei before development*



*Shops in front of Banteay Srei before development*



*Parking area after development*



*Shops after development*

The temple of Banteay Srei is famous worldwide for its unique architecture and the magnificence of its décor. However, its small size in comparison to other Angkorian monuments and the finesse of the carvings, which have been exposed to direct contact with increasing number of visitors over recent years have weakened the temple. It was, therefore, necessary to build hosting infrastructures of the correct standard for a World Heritage Site.

The APSARA National Authority planned a *parvis* respecting the environment to a high degree. The newly developed area respects the authenticity of the place; buildings of vernacular style are integrated and the selected vegetation comes exclusively from Cambodia and the surrounding region.

The local population has not been forgotten, with areas dedicated for the sale of local products.

The Banteay Srei *parvis* has been designed to showcase the monument in its natural environment and to allow visitors to enjoy the green environment while benefiting from visitor facilities, as soon as they arrive on site. To this aim, a bypass road was firstly built in order to reroute heavy vehicles heading to the northeast which previously had to drive right by the temple entrance. Further on, the showcasing of the monument and of its environment were studied, allowing visitors to better grasp the spirit of the place and of Khmer culture.



*Inauguration of the Banteay Srei parvis by the Deputy Prime Minister H.E. Sok An*



*General view of the Banteay Srei parvis*



*Visitor centre and annexes*



*Interpretation centre*

### III.4.4. SHOWCASING ANGKORIAN HERITAGE

Although the tangible Cambodian cultural heritage is naturally tenacious, several traditions are presently threatened and undermined by a potential acculturation, subsequent to the arrival of tourism. The “cultural specificities” sold to tourists represent a threat to the cultural identity of a population which remains poor, vulnerable and traumatised by years of violence. The aim is to associate intangible culture with the showcasing of the monuments



in order to raise awareness among the local population of the importance of their protection and the need to preserve them.

## **1. The new itineraries**

A reassessment of the visitors' circuit was carried out once it was considered that the traditional "small and great circuits", which include the visit of the major monuments based on the duration of the stay, was actually obsolete. To reduce overcrowding in some monuments at specific times of the day and to extend the visitors' stay while showcasing the unknown aspect of the site, studies with a view to create new discovery, chronological or thematic itineraries meeting tourists' expectations are being worked on. This major conceptual and organisational task is to be carried out together with public and private stakeholders, by training guides and informing visitors.

### ***a. The circuit of the pagodas located along the Siem Reap River***

Researches led by Professor Vittorio Roveda, an expert in the wall paintings of Siem Reap pagodas, added to the studies, and together with the Department of Cultural Development of Museums and Heritage Standards they have looked into setting up itineraries by providing the necessary cultural information and maps.

Noteworthy was the help provided by the Department of Land Planning and Habitat Management in the Angkor Park. Developments to be carried out by the Department of Development of Siem Reap Urban Heritage, in particular the enhancement of the River banks and of access roads to pagodas, will benefit the itinerary.

### ***b. Heritage tracks itineraries***

Studies have been done in collaboration with the Department of Water Management to set up heritage tracks at the Northern baray and promenades and sunset itineraries at the Western baray. These itineraries require structural development in order to make them attractive and accessible. The Department is working in that direction.

## **2. Dissemination of heritage awareness**

The Department of Cultural Development of Museums and Heritage Standards must also imagine new understandings of heritage.

To this matter a "Heritage in the hands of youth" kit has been prepared with a view to equipping the ANA with documentation tailored to a larger audience and to carry out awareness campaigns to improve the understanding and protection of tangible and intangible heritage.

To publish this kit, UNESCO will draft a text adapted to the Cambodian context.



### 3. Standards applied and international cooperation

The ANA has compiled several benchmark texts, to be used as a working base for the implementation of the sustainable development policy of the Angkor site. These texts include: UNESCO conventions and charters and those of other international bodies such as ICOMOS and ICOM, and recommendations submitted by the ICC for Angkor *ad hoc* groups of experts in conservation and sustainable development. The most referred to documents when initiating projects are the following:

- The Convention concerning the Protection of World Cultural and Natural Heritage;
- The Convention for the Safeguarding of Intangible Cultural Heritage;
- The Convention on the Protection and Promotion of the Diversity of Cultural Expressions;
- The Charter for Sustainable Tourism of Lanzarote, Canary islands, Spain 1995;
- The International Cultural Tourism Charter adopted by ICOMOS.

The favourite partners for implementing heritage activities are UNESCO, ICOMOS, ICOM, ICCROM, UNESCAP, GMS, etc.

*Thomanon temple*



### III.V. TOURISM



#### III.5.1. Introduction

There are, within the Angkor site, approximately one hundred villages and pagodas scattered in the Park inhabited by several tens of thousands of often poor people who are not involved with tourism development. Although they are the first to be impacted by tourism growth, they are shunned by stakeholders, although their presence and the still practised ancestral customs are constitutive of the site's intangible heritage and render its living features.

The emergency five-year plan set up in 1993 planned to associate these populations with the safeguarding of their cultural and natural environment. This was reasserted in 1994 when Siem Reap Province was listed as an area of socio-economic and cultural development.

#### III.5.2. Culture and Tourism

Long the main attraction of the country, Angkor attracts not only tourists, but pilgrims or simple visitors. Angkor is an outstanding cultural and heritage asset for the economic and social development of the country.

Tourism in Cambodia must be first and foremost cultural and this asset shall be taken advantage of, to heighten the level of services on offer, ultimately leading to an extension of visitor stays. A policy which is difficult to implement, as how can one refuse mass tourism, seen as most likely to bring short term revenues to one of the weakest populations in the world, traumatised by war, and one which cannot resist the attraction of earning easy money, even though this does not secure sustainable development for the prestigious heritage of Angkor?

The cultural tourism policy set up by Cambodia has set goals with a view to prevent any drift into commercial tourism which would facilitate unbridled and uncontrolled development in the region.

How to accommodate tourism and heritage protection?

This is the issue:

1. Tourism is a field of development which is necessary, although its dynamism must be channelled by understanding its mechanisms and the complexity of its relationship with culture.
2. How to develop and modernise whilst promoting the human condition, with the need to take into account the socio-cultural specificities that enrich our world. To sustain cultural identity is also an economic asset when carrying out development policy.



*Kao Chourk ceremony*

The challenge faced by the ANA is to set up tourism policies which respect societies, cultures and nature whilst contributing to development.

To strengthen the intrinsic cultural value of the Angkor site to improve the quality of tourism can be to safeguard tourism.

### **III.5.3. Sociological observations**

By deciding to preserve the living features of the site when it was inscribed on the World Heritage List, the Cambodian authorities, with the support of UNESCO, were aware of the obstacles they may be met with when maintaining an authentic site, untouched by the necessary, but very difficult to curb, development of the country.

The protected areas are those of the monuments, of archaeological remnants not yet properly excavated due to lack of funding but mostly due to the priority given to the safeguarding of monuments—still ongoing for some—and to the strong and authentic cultural features of the territory.

Faced with the threats of a still increasing growth of tourism, it is necessary to diversify visitor activities, which at present are mostly limited to monuments and sightseeing trips on the Tonle Sap Lake.



*The Phnom Bakheng Temple at sunset*



*Crowd at the Angkor Thom South Gate*



*Overcrowding at Banteay Srei*

The huge Park, within which lives a population that still practises ancestral customs, has been largely overlooked by visitors. The acculturation of a non-guided tourism threatens the younger generation, which is tempted by rapid windfalls gained from selling small items to tourists. This is an easy but unsustainable approach.

To diversify tourism, it is planned to extend it to the heritage of Siem Reap, to the vicinity of the Park (Kbal Spean and Kulen) and to the outside sites (Beng Mealea and Koh Ker).



*The thousand lingas River at Kbal Spean*

### III.5.4. Programmes

**a. Visit management**

To offer a quality experience, the ANA Department of Tourism Development developed the following resources:

- Some 253 officers survey the Angkor Park to facilitate the tourists' experience;
- implementation of the in force texts and regulations;
- protection of the image and name rights of the Angkor Park site;
- any other standards.

**b. Flow management**

To minimise the negative consequences of the most-visited monuments and to uphold the quality of the experience, the Department sees to the application of inner alternative itineraries at the following monuments:

- Angkor Wat,
- Banteay Srei,
- Ta Prohm,
- Phnom Bakheng.



***Phnom Bakheng Temple***

## III.6. COMMUNITY DEVELOPMENT: AGRICULTURE WITHIN THE FRAMEWORK OF SUSTAINABLE DEVELOPMENT

### III.6.1. Assignments of the Department of Agriculture and Community Development

#### 1. Justifications

Out of the 40,117 hectares of the Angkor Park, rice fields occupy 13,496 hectares, circa 39 per cent of the total area. These paddy fields have always been a feature of the Angkorian landscape.

The intergovernmental meeting held in Paris in November 2003 entrusted the APSARA National Authority (ANA) with a new goal: to secure the **sustainable development** of the Siem Reap/Angkor region.

Sustainable agricultural development is included in this scope. As:

- Sustainable development would not be possible if Siem Reap's crops were polluted with fertiliser and pesticide wastes, as the health of local people and tourists health would be affected.
- With the location of Siem Reap upstream from the great Lake Tonle Sap, the agro-input chemical wastes drained by the water would accumulate in this reservoir by then polluting the fish, the staple food of Cambodians.

Therefore organic farming seemed to be the sole alternative for the ANA.

The Siem Reap population is known as one of the poorest of the country; therefore fighting the poverty of these local peoples is one of the assignments of the ANA, in the knowledge that 80 per cent of them are farmers. The Department is to find the means to increase the crop yield, thus expanding revenues.

So the question is: how to improve crop yields without using any chemical agro-input?

Experiences drawn from developed countries prove that organic farming is confronted with a decrease of the yield. No one solution for all the technical issues has yet been found. Therefore the Department faces a huge challenge: to set up new technologies tailored to the country in order to increase agricultural yield without impacting on the environment.

The people of Angkor, the guardians of its culture and of its millennia of traditions, are intangible heritage that needs to be protected on the same par as the temples. One of the main tasks of the ANA is to improve this population's standard of living.

The main stakeholder of development is the community of farmers. To empower the farmers with the decision making process is the only efficient approach to reaching a sustainable agricultural development.

## 2. Agronomical research

No intensive research on organic farming has ever been carried out in Cambodia. The Ministry of Agriculture of Cambodia does not have the human or financial resources to carry out such a task and therefore can only support researches undertaken by the Department and to allocate land in the agricultural station of Tuk Vil.

The Minister of Agriculture came in February 2009 to listen to the Department presentation on organic farming researches.

The main topics of agronomical research are the following:

- compost,
- KEM (Khmer Effective Micro-organisms),
- use of Tonle Sap silts,
- SRI (System of Rice Intensification by natural means),
- organic fertilisers (botanical pesticides).



*KEM experimental Centre on lettuces in Tuk Vil*

### a. Compost

The use of compost is the base for any organic farming.

The Department studied the correct sizes of a compost heap, the nature of the raw materials, the composting acceleration process and improvement of the quality of the final product.

The outcomes were the following:

- heap measurements: 1.5 x 2.0 x 5 metres,
- Raw materials: 50% of dry matter + 50% of fresh material + poultry droppings (cow dungs) + lime,
- composting acceleration and improvement of quality: Use of KEM.
- 





**b. KEM (Khmer Effective Micro-organisms)**

A natural stimulant, EMs is known throughout Asia and in the USA.

The Department has made its own EMs using Cambodian raw materials, hence the name Khmer Effective Micro-organisms.

The agronomical experiment, carried out both under controlled conditions and in the field, proved the efficiency of KEM on vegetables and rice.

Very good results were also obtained on cultivated mushrooms, poultry and fish.

Again, the transition from traditional agricultural (using chemical inputs) to organic farming leads to a yield decrease. By using a combination of compost and KEM this downward trend can be cushioned and after four to five campaigns the yield is almost back to its chemical agriculture level but with all the pros from organic farming. Using organic methods means that the soil always improves and so does the yield, whereas the process is reversed with chemical farming which, year after year pollutes both soil and water.

**c. Tonle Sap silts**

The use of compost is not sufficient for improving the damaged sandy soils of Siem Reap. Tonle Sap silts add great agronomical value. Not containing any heavy metals, they are rich in clay and phosphorus. Experimentation in the field proved that adding 10t/ha of Tonle Sap silts may increase the paddy yield by 50 per cent over Siem Reap's sandy soil.

Nevertheless, using this additional ingredient incurs economic viability issues: extracting the silts, storing them and distributing them to farmers is expensive. Therefore, there is a need to lower the cost of transportation and distribution. Also, an environmental impact study must be carried out before extracting the silts.



*SRI (System of Rice Intensification) planting in Tuk Vil*

**d. SRI (System of Rice Intensification by natural means)**

Invented in Madagascar, this technique was popularised in Cambodia by an NGO called CEDAC.

The aim is to adapt this technique to the soils and climate of Siem Reap.

Without using any chemical input, this method doubled rice yields for farmers.

**e. Natural pesticides**

Using organic farming decreases parasitism but in some occurrences action is the only solution.

Natural pesticides known to farmers have been documented in CEDAC and the publications of the Royal University of Agronomy: these two institutions based their findings on farmer testimony regarding the efficiency of the pesticides.

The Department decided to produce around thirty of them and submitted them to laboratory and field tests.

The outcome revealed low efficiency; most of them have a repulsive effect. The larvicidal effect remained limited.

The only natural insecticide with a real, tested efficiency is a decoction of water made from tobacco, but its scope is limited to aphids and it is inefficient after seven days. Fortunately, further research extended its action to several months. Against insect larvae, some repellent products were easier to make than the traditional processes, but their efficiency remained negligible.

Repulsive plants are being experimented with, such as *Tagetes erecta*, *Oximum sanctum*, *Cymbopogon nardus* and *Neem (Azadirachta)*, which has been well known for years in India.

**3. Raising awareness**

As soon as a new technique is scientifically recognised as viable, the Department informs the population.

To this aim 17 Development Officers are tasked with informing 27 out of the 112 villages of the Angkor Park.

At the onset model farmers had been selected (reaching 79 from 2005 to 2008) to disseminate new techniques such as making compost, SRI, and KEM (poultry breeding).

Presently, the training is aimed at farmers' associations based on the CEDAC model.



*Dissemination of new techniques to the population*

The following steps need to be taken:

1. formation of savings groups,
2. training this core of groups to train sub technical groups to: SRI, compost, poultry and vegetables, etc.

3. By empowering the villager community, 30 savings groups were created. The total amount of savings was of 42,722,400 riel, US\$10,680.6; total members reached 400. This capital allowed for setting up a new micro-credit mechanism, which interest for farmer communities has been previously demonstrated.
4. To this date the following have been formed:
  - 25 “KEM poultry breeding” sub-groups (336 members),
  - 27 “organic vegetable” sub-groups (231 members),
  - 10 “System of Rice Intensification” sub-groups (60 members),
  - 7 “compost” sub-groups (59 members).

From now on, all the trained sub-groups will disseminate these new techniques instead of the training-officers, who will be appointed to new duties, such as grouping these new structures into farmers’ associations (farmer communities), training of new savings groups and organising agricultural production to meet market demand.



## III.7. THE CONTRIBUTION OF THE SIEM REAP MANAGEMENT PLAN TO THE PROTECTION OF ANGKOR

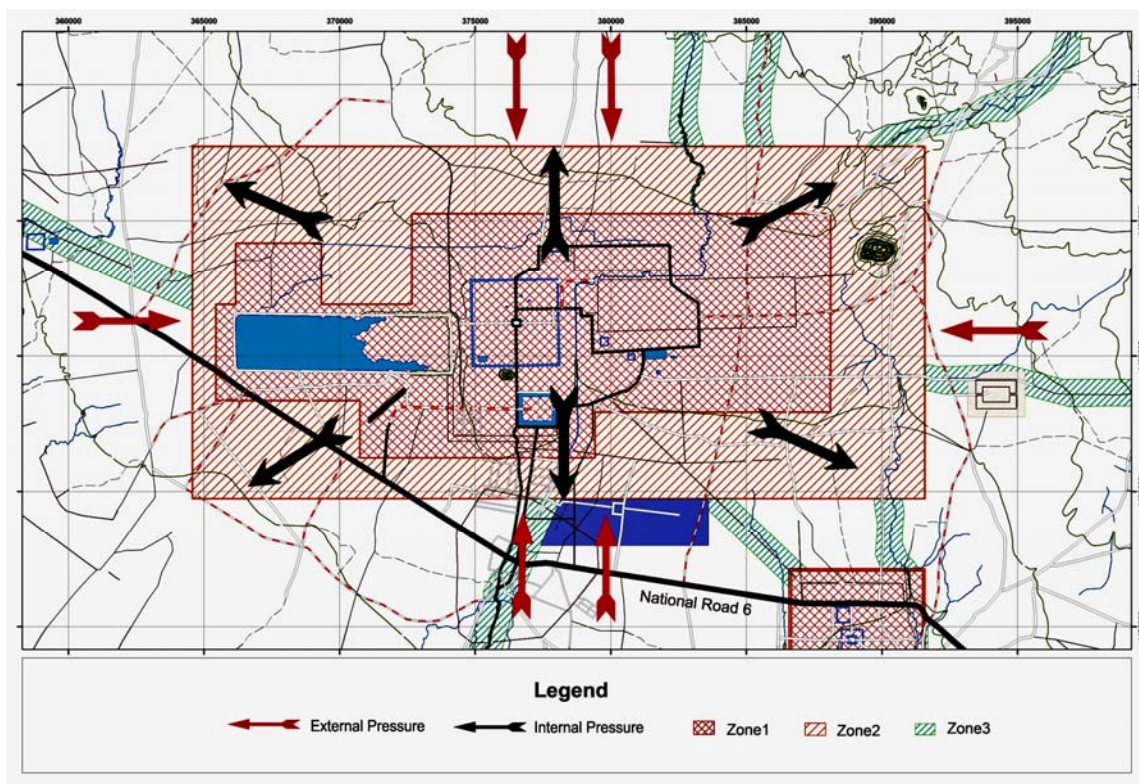
### III.7.1. Background

The city of Siem Reap acts as a logistical platform to host the constantly increasing numbers of domestic and international visitors.

This rapid development of the population impacts substantially on the environment, the hydraulic system, infrastructures and the city's identity.

Besides, this growth may also cause demographic pressure in the Archaeological and eco-historical Park of Angkor.

Since the 2008 reshuffle, the local authorities supported by relevant ministries, the ANA and the international cooperation, have begun implemented concrete actions to solve these issues in the mid and long-term.



### III.7.2. Protection

1. An Office of Urban Planning was set up and tasked with a strict urban planning management and the implementation of the Master Plan conceived in 2005, in full

respect of the zoning guidelines. As early as 2008, JICA outsourced an expert in urban planning to the Province of Siem Reap Office.

2. The urbanism Observatory was created—a collaboration with the *École Nationale d'Architecture de Paris-Belleville*—with a view to acquiring a scientific outlook on urban, architectural and landscape mutation.
3. The infrastructures were repaired (road, sanitation and drainage networks, rubbish collection) and visitor infrastructure was developed to facilitate the best conditions possible and to anchor to the urban environment new populations attracted by economic development, and to prevent them from settling in the Park.



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*Downtown Siem Reap River*



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*Siem Reap River upstream from the City*

4. The irrigation canals project financed by the *Association Internationale des Maires Francophones* (AIMF, International Association of French Speaking Mayors), supported by JICA. The aim is to protect the agricultural potential within peri-urban areas. These projects allow for the preservation of farmland and farming activities and reducing level of migration of farmers to the city.
5. The Green Belt Project, the purpose of which is to maintain and develop the agricultural areas around the archaeological Park by guiding the farmers and identifying an output market to sell their productions. The creation of jobs prevents migration of this population to the Angkor Park. This large-scale project is financed by Germany.

6. The local policy for preservation and showcasing of urban heritage was recently defined with the establishment of the Department of Urban heritage at the ANA. This policy advocates a tourism stay in the urban environment and to turn the cultural and natural heritage of the city of Siem Reap into a tourism product, a driving force for local development.



*Siem Reap town centre*

*Vernacular and climatic architecture*



This will contribute to the deconcentration of tourism on Angkor.

# APPENDIX I

## THE TWO ICC *AD HOC* GROUPS OF EXPERTS

The *ad hoc* experts are presently key standard references regarding scientific, technical and cultural activities on the World Heritage site.

It is unanimously admitted that the ICC has contributed notably to the safeguarding and management of Angkor. And this is mostly due to the quality of the interventions of the *ad hoc* groups of experts. The latter turned the ICC into a worldwide forum on the ethic and practise of conservation and heritage development. Concomitantly they are dedicated and comprehensively address—with the support of Khmer and foreign experts working in Angkor—the theoretical and practical issues raised by the site inscribed on the UNESCO World Heritage List, whilst taking part in the implementation of concrete, diverse and at times complex works.

### THE *AD HOC* EXPERTS



**Mounir Bouchenaki** holds a PhD in archaeology and ancient history. He was elected Director-General of ICCROM (International Centre for the Study of the Preservation and Restoration of Cultural Property) in November 2005. He has a long career record with UNESCO, between 1982 and 2005, where he was Director of the Division of Cultural Heritage, Director of the World Heritage Centre and Assistant Director-General for Culture.

From 1974 to 1982, he was also Director of Fine Arts, Monuments and Sites under the Algerian Ministry of Information and Culture.

In 2002, Mr Bouchenaki was promoted to the rank of Commander of the Order of Cultural Merit by the President of the Republic of Italy and in April 2006, he was awarded the title of *Chevalier de la Légion d'Honneur* by the President of France. In November 2007, he received the Gold Medal of Cultural Merit of Algeria from the Algerian Minister of Culture. Since 2005, he has been a member of the ICC for Angkor *ad hoc* group of experts for conservation.



**Gorgio Croci** is a professor of structural engineering at La Sapienza University in Rome, where he graduated with a degree in civil engineering in 1960. He has been a member of the UNESCO *ad hoc* group of experts for the preservation of the temples of Angkor since 1994. As a coordinator of an international group of experts, he prepared a document entitled *Recommendations for the Conservation and Preservation of Angkor Monuments*. He is also a UNESCO international expert for such sites as the Pyramid Plateau, Leaning Tower of Pisa, Axum, etc.

From 1995 to 2005 he was chairman of the International Scientific Committee for Analysis and Restoration of Structures of Architectural Heritage at ICOMOS (International Council of Monuments and Sites). At present, he is its honorary chairman.



**Pierre-André Lablaude** is a government architect. He received his degree at the *Centre d'études supérieures d'histoire et de conservation des monuments anciens*. He is chief architect and inspector general of historical monuments. Over the years, Pierre-André Lablaude has developed a rare heritage specificity focusing on the conservation and restoration of historic gardens and landscapes.

In this capacity, since 1990, he has been in charge of the gardens and parks of the National Domain of Versailles and their annexes (Orange Grove, Petit Trianon, etc.). Since that date, his work for the Versailles Public Institution has included oversight of replanting and restoration research and operations, including green spaces, water works, decorative and built-up elements, on the basis of clearly identified and documented historical records.

As a member of the National Commission for Historic Monuments, he has authored a number of publications, including *Les jardins de Versailles*, (Éditions Scala 1995, republished in 1998 and 2005) and *L'Art du Treillage* (Éditions Spiralinthe 2007, contributor), while holding specialized heritage teaching posts in France and abroad. Since 1995, he has also performed a number of expert missions for the Ministry of Foreign Affairs and UNESCO and is regularly involved in this capacity at the international level on various World Heritage monuments and sites.



**Hiroyuki SUZUKI** is a professor of architecture history in the School of Cultural and Creative Studies, Aoyama Gakuin University, Japan. His recent appointment there was preceded by a 35-year career at the University of Tokyo, where he has held a professorship since in 1990. Hiroyuki Suzuki holds a PhD in architecture from the University of Tokyo and has been awarded the Japan Prize of the Society of Architecture Historians.





**Jean-Marie FURT** had a dual educational background in law and management before doing his PhD and taking an “agrég” (high-level competitive examination for teachers). He began a classic academic career while working in corporate consulting.

Desirous of sharing in the development of his home region to which he had just returned, he became involved in tourism: opening a consultancy focused on territorial development; refocusing his teaching and research activities on tourism law and tourism developmental engineering, accepting various responsibilities with a scientific component involving heritage (Corsica Museum, Bonifacio Natural Reserve).

To share his ideas and pursue his career, he recently opened “SuDunia Consulting” along with two colleagues. Meanwhile, he has been serving as an *ad hoc* sustainable development expert for ICC-Angkor since 2007.



**Tetsuji GOTO** has been on secondment to the Siem Reap provincial governor’s office as a JICA urban management advisor since May 2008. His main activity is urban planning and management capacity building for the Siem Reap provincial government.

In 1995, Mr Goto began working in the field of urban development in various countries, including the Kingdom of Bhutan, the Republic of Kenya and the Solomon Islands. He holds a master’s degree in development studies from the Nihon Fukushi University in Japan. The theme of his master’s degree thesis was “The Urban Development Plan of Centre Area in Nairobi, Kenya.” He has been an ICC-Angkor *ad hoc* expert for sustainable development since the 17<sup>th</sup> Technical Committee meeting held in 2008.

**Pierre Grard** holds a PhD in tropical botany and is a computer scientist. He works for the CIRAD in France in the fields of setting up instruments to help identifying species and to disseminate knowledge on biological diversity and sustainable development. Throughout his career, he worked on all continents implementing his research: ranging from identifying weed to assessing biological diversity and conceiving instruments to measure climate change.

A member of the French delegation at the World Summit on Sustainable Development, he presented his work during the preparatory meetings leading to the 2002 Johannesburg Summit. Following four years in South India as Head of the Ecology Department of the French Institute of Pondicherry, he is now posted in Vietnam at the Polytechnic Institute of Hanoi where his research now focuses on Southeast Asia (Cambodia, Laos, and Vietnam).

He joined the *ad hoc* sustainable development group of experts at the 18<sup>th</sup> technical Committee on June 2009.

**François HOULLIER** completed his engineering studies at the *École polytechnique* and *École nationale du génie rural, des eaux et forêts*, rounded out by a PhD in forest biometrics. He has worked variously in engineering, training, research and research management in different agencies in France and abroad (National Forest Inventory, *École nationale du génie rural, des eaux et forêts*, French Institute of Pondicherry [India], National Institute of Agricultural Research).

He has led research projects in forest ecology and plant modelling. He has held scientific responsibilities at various levels in France and elsewhere in Europe in the fields of forest ecosystems and biodiversity. Since 2005, he has been scientific director of “*Plante et produits du végétal*” with the National Institute of Agricultural Research. He has been an ICC-Angkor *ad hoc* expert for sustainable development since 2007.

## APPENDIX II



February 2007

### EXECUTIVE SUMMARY

The continued growth in tourist arrivals to Siem Reap and Angkor Park is forecast to continue past 3.5 million for 2010 and reach 4.4 million in 2012. Already the pressures on the urban environment in Siem Reap town graphically illustrate the impact that this tourism boom is having. The pressures on the World Heritage-listed temples and the surrounding environment in Angkor Park are no less intense and threaten the dual goals of the APSARA National Authority (ANA) to conserve the historic temples while progressing sustainable development of Angkor Park into a model of “living heritage”.

In 2005 a *Letter of Intention* was signed between NZAID and the ANA to work together to address these challenges. The agreement proposed a two-phased approach of a management plan followed by the design and implementation of programmes on community development and environmental management. Phase 1 was completed in early 2007 with the development and subsequent approval by the ANA and the Royal Cambodian Government of the Angkor Management Plan (AMP). The present design document represents the progression of phase 2 based on that AMP.

The design and implementation plan identifies a cyclical problem within Angkor Park which is worsening. It reinforces one of the key findings of the AMP that the ANA must not only engage with communities in the Park but must do so with all stakeholders if it is to meet the challenges of fulfilling its mandate over the Park. What is more, while the period since the AMP approval has seen an improvement in relations between the ANA and Park communities, other factors driving the cyclical problems of the Park continue unabated and worsen the overall problem. Land speculation for one has now leapfrogged the initial focus on Siem Reap town for hotel building and has speculators buying farming land from villages inside Zone 2 – intended as a buffer to precisely this type of unwanted development. The purchasing of this land at usually token value to vulnerable villagers then remains un-used awaiting the high return from the next on-selling. Meanwhile the villagers have lost their source of income and food security to seek unskilled work in the hotel construction boom in nearby Siem Reap town. They then essentially join the ranks of the other landless in migrating into the Park, placing an ever increasing burden on the natural environment of the Park and the temples.

Against this and other pressures is the ANA—with an over-arching plan (the AMP) but without a medium term Strategic or an effective Operational plan to translate the AMP into concerted action. What is more, the ANA has limited resources—especially human resources where a clear lack of capacity building over time has effectively caught up with it. The design therefore places a heavy and immediate action-oriented emphasis on capacity building on the newly proposed function of Department of Community Development & Land Management (DCDLM). The strategy of focusing on DCDLM recognizes the strategic urgency of this function as being the forward “face” and model of how ANA must engage with the Parks’ key stakeholders. It also recognizes, through the use of mini-projects, that there is precious little time for the ANA to get it right and therefore capacity building within the ANA functions and real value-adding in the Park must go hand in hand.

Therefore, a small number of carefully selected mini-projects are proposed to provide real value to the Park communities—especially the poor and the marginalised—by increasing their access to the burgeoning tourism flow through the Park via hospitality course training awards and tourism awareness workshops with a wider audience. The design also endeavours to address the growing abuse of the natural resources of the Park through a dual focus on building both the ANA’s and the community’s capacity to develop consensual land use maps which will provide the basis for the better management of those natural resources and provide some bulwark against the profiteering of land speculators.

Also in recognition of the scope of the problems facing the Park, its communities and the ANA, it is proposed to initially focus on a pilot village which is representative of the Park’s problems but to focus in a way which builds upon the work carried out to date by the villagers and other supporting organizations and so build a strong working relationship based on respect.

Finally, a recurrent and over-arching theme throughout the design is that the ANA cannot be “all things to all people” and must change its role from being a “doer” to a “strategic co-ordinator” of the skills and knowledge of others to resolve the problems besetting the Park

and achieve the sustainable development of the Park. To achieve this role, it must move over time towards building this critical capacity and so make best use of the resources it possesses as well as those in and around the Park. Clearly the communities in the Park will be its greatest ally and hence the urgency through the programme set out in this design to being to build its capacity and through that ever-stronger partnerships with Park communities.



# APPENDIX III



PROJECT PROPOSAL

## HERITAGE MANAGEMENT FRAMEWORK: World Heritage site of Angkor

World Heritage Centre  
November 2007



## CONTEXT

This project proposes the development of a comprehensive framework for heritage management at Angkor, addressing community concerns and traditions as well as the conservation of monuments and archaeological sites and the surrounding cultural landscape.

Consistent with recent resolutions of the World Heritage Committee and the International Coordination Committee (ICC) for Angkor, this project will contribute to more sustainable development and poverty alleviation in Siem Reap Province, through the appropriate heritage management of Angkor. The project will also develop an exemplar methodology for the management of complex cultural sites with living communities and growing tourism. The resulting Heritage management framework may be used at other Cambodian sites, such as Preah Vihear as well as more widely at other World Heritage sites which face similar challenging management issues.

For more than a decade following the end of regional and internal conflicts in 1991 (Les Accords de Paris), the centre of Angkor, with more than 40 major monuments, along with several adjacent famous monuments such as Banteay Srei, has been a focus of UNESCO and international community interest. Despite numerous research and restoration projects over the past 10 years or so, a comprehensive and consistent policy for the conservation of the World Heritage site of Angkor has not yet been developed. In the meantime, new factors such as mass tourism, growing development pressure and environmental issues are threatening the heritage significance and integrity of this invaluable resource. Recent research has identified the extent of Angkor as a mediaeval urban complex, covering around 1000 square kilometers - many times larger than the combined core and buffer zones of the current World Heritage property. Angkor has a vast water management system, characterized by major engineering and architectural features. Many Khmer people see Angkor as a premier symbol of their continuing culture, not just as a "past" civilisation. Angkor is therefore an integral part of daily life, as well as of the future of Siem Reap Province and Cambodia itself. While the conservation and management efforts of the Cambodian Government and the continued attention of the international community have resulted in significant progress, there is currently no integrated process for governance, which addresses all of the multiple values and issues that affect Angkor

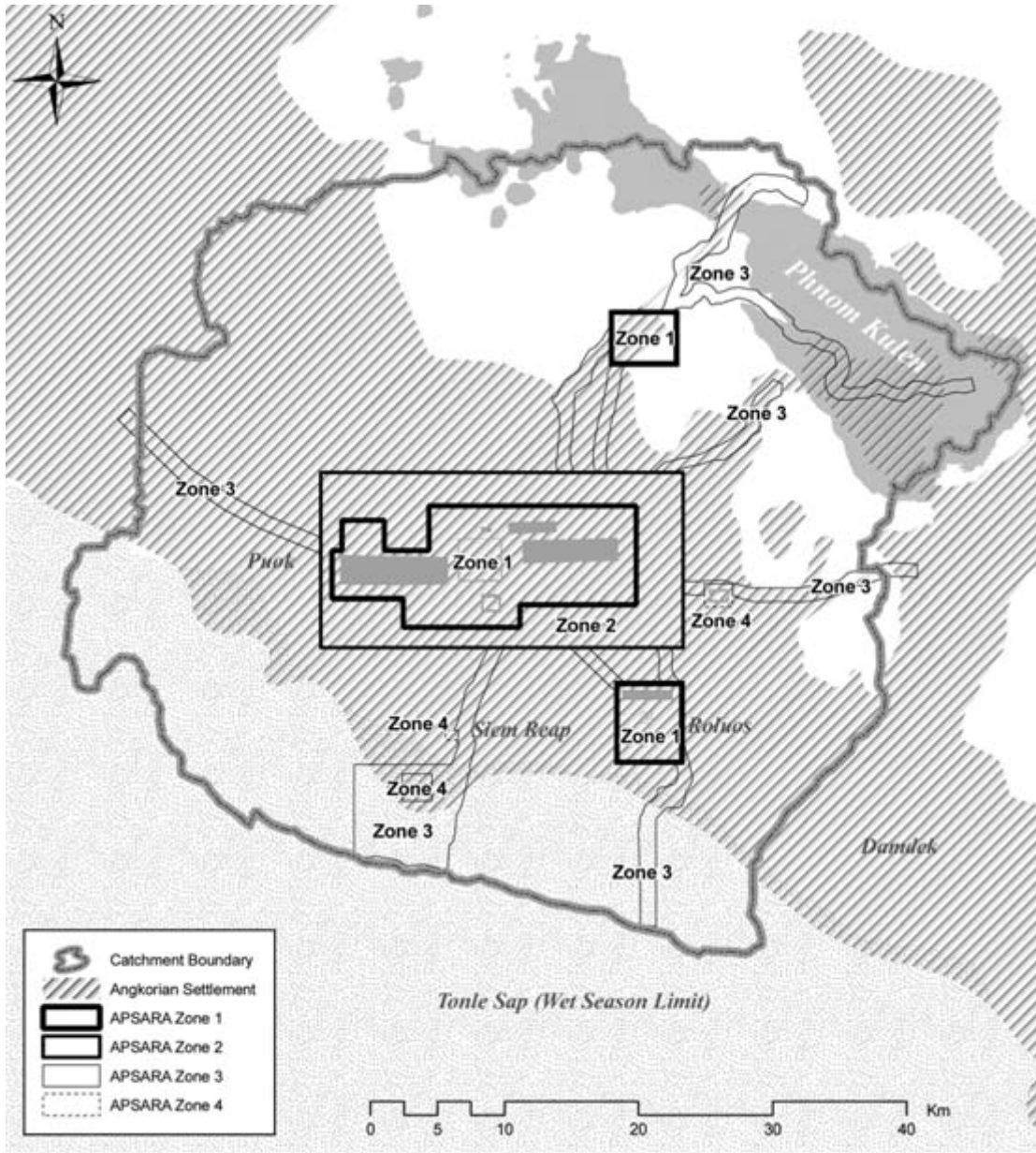
today, in its local and regional context. In view of the major changes that have taken place to the World Heritage Site and the surrounding region since the time of its inscription on the World Heritage List, and the contemporary threats posed by factors such as population growth, rural poverty, development and tourism pressure and climate change, the need for a comprehensive Heritage Management Framework has become all the more urgent.

By linking local communities with the opportunities created by an ever increasing amount of tourism and working in close consultation with the various technical teams operating on the site, the Heritage Management Framework project will develop a coherent set of policies and procedures to enable APSARA to conserve both tangible and intangible values of Angkor, to improve governance and help to alleviate rural poverty. This framework will be based on a reassessment of all the heritage attributes of Angkor - including continuing social and religious values as well as aesthetic, historic and scientific values, but must also address the complex interrelationship between heritage, tourism, development and the local community. The project process will involve training for key APSARA personnel so as to facilitate skills development and ongoing implementation of management processes and wide scale community engagement in heritage management.

The preparation of the Heritage Management Framework must be an inclusive process, under the umbrella of UNESCO and involving the ICC, APSARA, foreign missions and stakeholders, including the local community. The formal identification and recognition of the traditional connections and rights of local Khmer people, through the planning process, should facilitate their inclusion in decision-making at a local level and recognition of their need to live in, work within and prosper from Cambodia's major cultural and tourism attraction.

The Heritage Management Framework will thereby become an important and effective initiative to alleviate poverty in one of Cambodia's poorest provinces, by enabling the community to participate and share in the cultural and economic powerhouse of tourism at Angkor.





The greater Angkor site, including the Angkor World Heritage property (zones 1 and 2), showing the Zoning and Environmental Monitoring Plan (“ZEMP”) zones.



Australia

