WORLD HERITAGE LIST **N° 66** **ANGKOR**

IDENTIFICATION

Nomination : The archaeological parks of Angkor, Roluos, and Banteay Srei

Location : Province of Siem Reap

State Party : Cambodia

Date : 22 September 1992

DESCRIPTION AND HISTORY

At the beginning of the 9th century AD the two states that covered the territory of modern Cambodia were united by Jayavarman II, who laid the foundations of the Khmer Empire, which was the major power in south-east Asia for nearly five centuries. One of the sites where his court resided for some years was in central Cambodia, to the north of Tonle Sap (The Great Lake), where half a century later Jayavarman's son, Yashovarman, was to establish Yashodapura, the permanent capital of the Khmer Empire until the 15th century. It was later given the name Angkor (from the Sanskrit "nagara", meaning city or capital).

The first capital was at latter-day Roluos, itself a pre-Angkorian capital, Hariharalaya. This conformed with the classic form of Khmer capital. This comprised certain fundamental elements: a defensive bank and ditch with a state temple at its centre built in brick or stone, and a wooden palace. Leading dignitaries would also build temples, both inside and outside the enceinte, which were dedicated, like the state temple, to Hindu divinities, notably Shiva. There would also have been many secular buildings, constructed almost entirely of wood, in and around the enceinte. The state temple at Roluos, the Bakong, and the temple built in memory of the royal ancestors, Preah Ko, were erected around 880. Another essential feature of a Khmer capital, a large reservoir, was added a decade later, with in its centre a third temple, Lolei.

Yashodapura was built to the north-west of Roluos, around the hill of Phnom Bakeng. The enclosure was square, each side measuring 4km, and it was equipped with a vast reservoir (baray) measuring 7km by 1.8km, now known as the Eastern Baray. The state temple was built at the summit of Phnom Bakeng around 900.

Following a short period when the Khmer capital was transferred to Koh Ker, some 60km north-east of Angkor, the second capital at Angkor proper was built by Rajendravarman in the 960s, the state temple being situated at Pre Rup. He also constructed a temple, the Eastern Mebon, on an artificial island in the centre of the Eastern Baray. During his reign Rajendravarman's guru built the exquisite temple of Banteay Srei, some 25 km north-east of Angkor.

Rajendravarman's son, Jayavarman V, abandoned the Pre Rup site in favour of a new location, with its state temple at Ta Kev, which was consecrated around 1000. Shortly afterwards he was overthrown by Suryavarman I, who was responsible for the formidable fortifications around his Royal Palace and state temple, the Phimeanakas, and also for the construction of the great Western Baray, extending over an area of 8x2.5km. In 1050 his successor created a new and more impressive state temple, the Baphuon, to the north of the temple.

The succeeding rulers left little traces in the form of monumental buildings, and it was not until the accession of Suryavarman II in 1113 that the next great phase of building began. It was he who was responsible for the greatest of all Khmer monuments, Angkor Vat, set within an extensive enclosure and dedicated to Vishnu. Among other important monuments dating from this period are Thommanon and Chau Say Tevoda.

The death of Suryavarman II around 1150 was followed by a period of internal strife and external pressure, culminating in 1177 with the sack of Angkor by the Chams. The situation was restored by Jayavarman VII, who celebrated his military success by creating yet another capital at Angkor Thom and launching an unprecedented building campaign. His state temple was the towering Bayon (dedicated to Buddha); among the many other monuments of Jayavarman VII's reign are Ta Prohm, Preah Khan, Ta Som, and Banteay Prei.

Such was the grandeur of this capital that none of Jayavarman VII's successors saw fit to replace it. Nor were there any major monumental additions between his death around 1200 and the end of the Khmer Empire in the first half of the 15th century.

The Angkor group, including Roluos and Banteay Srei, has to be treated as an ensemble which steadily grew over some three centuries. Masterpieces such as the Bayon and Angkor Vat have to be seen in their contexts and integrated with the temples and other constructions, particularly the great reservoirs. It is also essential to take into consideration that the areas of jungle between the brick and stone monuments constitute a reserve of buried archaeological remains of immense importance in the study and interpretation of Khmer culture. Another significant element of the Angkor complex is the irrigation system of the

region based on the great reservoirs, which provided the economic infrastructure for the successive Khmer capitals and their rulers.

AUTHENTICITY

The authenticity of the monuments is not in doubt. However, some comments on conservation and restoration interventions made since 1907, when the monuments came under the supervision of the Ecole Française de l'Extrême Orient (EFEO), are relevant in this context.

In the first phase of EFEO intervention (1907-31), most of the work was confined to the erection of supporting structures for those buildings most at risk (in addition, of course, to the removal of vegetation and its subsequent control). The initial wooden shoring was found to offer little resistance to humidity and termite attack, and so it was replaced with reinforced concrete, which was also used for replacing missing structural elements such as lintels. Steel bars, plates, and bands were also introduced for bracing and strengthening purposes.

A visit by Henri Marchal, then Conservateur d'Angkor, to Java in 1931 led to the adoption of the principle of anastylosis, which was being employed very effectively by the Dutch authorities. This was extended to the complete dismantling and rebuilding of certain structures, combined with the internal use of reinforced concrete. Structural deficiencies were also made good using reworked original stone from the immense stock of such material in the area. This regime continued until the political upheavals of 1972.

From then until 1989 no conservation work was carried out at Angkor. The monuments suffered from drastic vegetational invasion, and there was some damage from military operations, largely confined to bullet holes. In 1989 the Archaeological Survey of India began a three-year campaign at Angkor Vat. This consisted of removing vegetation (with the use of fire), reconstruction, and stone cleaning by abrasion with stiff bamboo brushes and water. Some work has also been carried out by the Polish conservation body PKZ, and a clearance and recording project on the temple of Preah Kahn sponsored by the World Monuments Fund and carried out under the supervision of British experts began in November 1992.

These successive interventions have had no significant impact on the overall authenticity of the monuments that make up the Angkor complex. They are discreet and do not obtrude upon the impression gained from individual monuments. It can be stated with ample justification that their effect is considerably less

substantial than those carried out on many other monuments that are already on the World Heritage List.

MANAGEMENT AND PROTECTION

Legislation and administration

The main obstacle to the inscription of the Angkor monumental ensemble on the World Heritage List lies in the current political situation in Cambodia. The Paris Accord of 23 October 1991 has brought the four factions together as members of the Supreme National Council (SNC), with HRH Prince Norodom Sihanouk as Head of State. The existing authorities are being assisted at the present time by UNTAC (United Nations Transitional Authority for Cambodia) in preparing for full democratic government.

Responsibility for monuments protection lies with the Ministry of Culture, of which the Conservation d'Angkor forms part. However, the uncertain political situation at the present time and the difficulties of communication between Phnom Penh and Siem Reap, coupled with the extreme scarcity of trained personnel of all grades, means that management of the Angkor monuments is minimal.

The situation is exacerbated by the absence of any antiquities legislation in Cambodia or of a properly constituted professional heritage protection authority or agency. A draft Resolution on the Protection of Cultural Property has been prepared by M. Ridha Fraou, an international lawyer, at the request of UNESCO. This covers basic elements such as the protection, registration, and classification of monumental cultural property, trade in cultural property, chance discoveries, and the regulation of archaeological excavations. It also establishes the National Heritage Protection Authority (NHPAC) as the competent authority for the implementation of the Resolution. The Resolution is currently (November 1992) being considered by the SNC ; however, it is unlikely to be promulgated until early 1993.

Once the NHPAC has been established, it will still be at a disadvantage owing to the lack of Cambodian professional personnel. Degree courses in archaeology and architecture are currently being taught at the Université des Beaux Arts in Phnom Penh, but the Faculty of Archaeology is grossly under-staffed and under-resourced. Short field training courses in excavation and conservation methods are provided regularly at Angkor by Sophia University (Tokyo), but the first group of graduates will inevitably be of only limited value in their initial years. It is essential therefore that international collaboration in training and field operations, as well as infrastructural projects (inventory, general administration, procurement, logistics)

should be made available to the NHPAC in its early years through multilateral and bilateral agreements.

Protection

The Angkor group of monuments that form the subject of this nomination fall within the much wider UNDP-funded Zoning and Environmental Management Plan (ZEMP) for the region; there is also funding in this project from the governments of Hungary and Sweden. ZEMP is intended to produce an integrated environmental and site management plan for the 300 sq. km. for the Angkor Archaeological Park, including the formulation of long-term, sustainable, and environmentally sound management strategies for the Park's natural resources (water, land, flora, fauna), the establishment of a realistic framework incorporating the Angkor Archaeological Park into the development strategy for the Siem Reap region (taking into account tourist impact, employment creation, and land-use zoning), and the creation of a legal framework and implementation guidelines.

Pending the implementation of this project (by June 1993), no buffer zones have been proposed for Angkor, Roluos, or Banteay Srei. In the case of Angkor, the boundaries of the nominated World Heritage Site are essentially those of the existing Archaeological Park, whilst those proposed for the other two sites were proposed by the Cambodian representatives at the 2nd Round Table on the Protection of the Monuments of Cambodia, held in Paris in September 1991.

These can be seen as no more than <u>minimum</u> areas. Ground and aerial survey suggest that a much larger area may be considered to be archaeologically sensitive. The secular buildings of the Khmer capitals were constructed almost entirely in wood, which has now disappeared. Prospection and excavation would without any doubt provide abundant information about town planning and domestic architecture of the period, which is at present almost entirely unknown. It would also provide much more detail about the economically vital and technologically innovative irrigation system introduced by the Khmer rulers.

Conservation

The monuments of the Angkor ensemble present a combination of conservation problems.

The most fundamental is probably the hydrology of the area. The remarkable irrigation system created by the builders of the Angkor capital ensured hydrological stability in the whole region. Its falling into disuse and disrepair in the 14th century led to destabilization, and the subsoil was exposed to the regular impact of monsoon rainfall, causing violent fluctuations in the water table. This has seriously weakened the sandy clay subsoil, particularly beneath the larger monuments such as the Bayon

and Angkor Vat. One of the most urgent tasks of the ZEMP is to carry out a study of the hydrology of the area and its geological and soil structures, with the objective of restoring something resembling the ancient system.

Associated with this is the problem of water penetration of the structures by capillary action. This, combined with thermal shock and the growth of lichens and mosses, is prejudicial to the survival of the masonry, especially the fine-grained red sandstone used as the main construction material on some of the more important monuments, such as Angkor Vat and the Bayon. The result is widespread "stone disease" caused by the concentration of deleterious salts inside the stone following evaporation of rising groundwater. The laterite and Grauwacke, as well as brick, used elsewhere, are less severely impacted.

It has to be added in this context that the impact of more recent cleaning and restoration work, especially at Angkor Vat, involving the use of stiff brushes with abundant water, has had an adverse effect on some structures, or parts of them.

The type of construction at Angkor, using double-faced walls with sand filling, becomes vulnerable once facing or capping elements disappear by collapse or removal. Rainwater percolating into sand cores causes leaching and resultant instability, especially through blockage of the original, effective, drainage system.

The structures are also affected by vegetational growth. The drystone construction method allows easy root penetration (and in many cases this has been facilitated by structural damage or the use of reinforced concrete, which hinders evacuation of water from masonry joints). Mature trees cause severe physical damage (as dramatically illustrated at Ta Prohm and Preah Khan), both from root growth and wind-rock when the trees are alive and decay after death.

Other structural problems are caused by the use of roughly cubic blocks of stone with inadequate bonding. This has led in places to the propagation of very large vertical cracks, which in their turn encourage water penetration, core leaching, and vegetational growth.

Finally, there is damage resulting from human interventions. Mercifully, the monuments suffered little during the wars that have wracked Cambodia for decades. More damage has been caused inadvertently by the use of certain restoration techniques, especially the introduction of reinforced concrete and over-abrasive water cleaning. Finally, there has been serious damage in some places to reliefs and other decorative elements by looters, who have torn saleable material from its setting for the international art market. This attrition is continuing, owing to the inadequate security measures in place.

None of these threats is insuperable, but they require the systematic and prioritized application of modern conservation techniques by a properly organized antiquities service.

EVALUATION

Qualities

There can be no doubt regarding the eligibility of the Angkor complex of monuments for inclusion on the World Heritage List. It has, indeed, been argued, with justification, that their absence devalues the List.

The importance of the Khmer religious architecture in the subsequent development of temple-building techniques and styles is great. It is to be seen all over south-east Asia, notably in Thailand and Laos. The Angkor monuments also graphically illustrate the Khmer Empire at the height of its powers.

The complex is also of great importance in social and economic terms. The layouts of the successive capitals bear witness to high level of social order within the Khmer Empire, a factor that is reinforced by the evidence of the elaborate irrigation system.

Additional comments

One of the most serious potential threats to the Angkor monuments is the probability that, once the political problems have been resolved, tourism will become a major source of revenue for Cambodia. the impact of increased tourist facilities (hotels, restaurants, shops, an extended airport, car parks, etc) around the monuments could be catastrophic if they are allowed to encroach too closely. This factor must be given the highest priority in defining eventual buffer zones and the constraints that apply within them, so as to avoid irreparable damage to the setting of the monuments. Already a restaurant has been built into the south bank of the Eastern Baray, whilst houses are remorselessly creeping northwards from Siem Reap towards the monuments.

Much of the conservation work carried out at Angkor since 1931 does not accord fully with ICOMOS doctrine, as set out in the Venice Charter and subsequent documents. It is essential that any future work should rigidly eschew the extensive use of concrete and that stone-cleaning treatments should take into account the special characteristics of both the stone itself and the environmental conditions. A vital prerequisite in drawing up the conservation policy for the Angkor complex is the establishment of standards and approved methodologies.

ICOMOS RECOMMENDATION

That the procedure for the inclusion of the nominated cultural properties on the World Heritage List be commenced, on the basis of criteria i, ii, iii, and iv.

- **Criterion i** : The Angkor complex represents the entire range of Khmer art from the 9th to the 14th centuries, and includes a number of indisputable artistic masterpieces (eg Angkor Vat, the Bayon, Banteay Srei).

- **Criterion ii** : The influence of Khmer art, as developed at Angkor, was a profound one over much of south-east Asia and played a fundamental role in its distinctive evolution.

- **Criterion iii** : The Khmer Empire of the 9th-14th centuries encompassed much of south-east Asia and played a formative role in the political and cultural development of the region. All that remains of that civilization is its rich heritage of cult structures in brick and stone.

- **Criterion iv** : Khmer architecture evolved largely from that of the Indian sub-continent, from which it soon became clearly distinct as it developed its own special characteristics, some independently evolved and others acquired from neighbouring cultural traditions. The result was a new artistic horizon in oriental art and architecture.

It is further recommended that final inscription be completed once the Committee has been satisfied on the following points:

a. a comprehensive and effective monuments law is in force in Cambodia;

b. an adequate monuments protection agency has been established, is properly staffed and resourced, and is carrying out its work competently;

c. the boundaries of the World Heritage Site are reconsidered in the light of the results of the UNDP Zoning and Environmental Management project;

d. meaningful buffer zones which can be effectively managed are defined (also in the light of the ZEMP);

e. an effective mechanism has been set up to monitor and coordinate existing and projected international conservation and exploration projects in the Angkor area.

Following the production and acceptance of the UNDP Project report, an ICOMOS mission should visit Cambodia to evaluate the extent to which the above conditions have been met at an appropriate time in the future.

ICOMOS, 16 November 1992