Tourism is a commodity supporting a vast industry. Indeed it is claimed to be the biggest industry in the world, employing more people than any other activity. But for many people, it is more than this, “it’s about hope, it’s the prospect of cross-cultural communication and exploration of self and other” (New Internationalist 1993:1).

As a commodity, tourism is a luxury enjoyed primarily by those living in the North or the “developed” nations. Despite this, many people who may not be travelers become involved in tourism. It is important for these people to understand the ways it affects their lives. The people living around Angkor in northern Cambodia are one such people, and they are discussed here as a case study in the social and environmental ecology of tourism.

Within the travel industry emphasis is increasingly being placed on a range of pursuits that bring...
removal from urban areas. Ecotourism involves four
distinct components: the natural environment, ecologi-
cal and cultural sustainability, education and interpreta-
tion, and a provision for local and regional benefits. In
the main it caters to small groups, but some large group
activities could be included in ecotourism.

Ecotourism is managed to avoid or minimize
negative impacts and to confer benefits on host commu-
nities and environments for future generations. It
requires that all those participating take an active envi-
ronmental role. But concern has arisen over the misuse
of the term, since expectations of an ecotour vary
throughout the world. For many tourists, the term
implies only minimum standards of environmental qual-
ity and awareness. Related to this is the issue of whether
it may be necessary
to limit the number of tourists
who visit cultural and natural sites if they damage...these sites.

activities or destinations presented in promotional
materials can be delivered on a long-term basis.

Environmentally friendly tourism should not be
restricted to ecotourism. Many argue that most sec-
tions of the tourist industry are unsustainable. That is,
they degrade the environment, adversely affect the local
community, or fail to return worthwhile economic ben-
efits. There should be more development that, in the
words of the World Commission on Environment and
Development, "meets the needs of the present without
compromising the ability of future generations to meet
their own needs."

Over time, it may be necessary to limit
the number of tourists who visit cultural and natural sites if they
damage, or are thought to damage, these sites.
Approaches that may be taken to keep visitor impacts to a
sustainable level include restriction of access, use of
permits or entry systems, or variable pricing mecha-
nisms. One solution could be to provide quality tourism
experiences to a high-spending clientele. It is argued
that high quality and high prices will provide the same
returns as mass tourism but with less impact. However,
such approaches have elitist dimensions and raise con-
cerns about whether money should be the sole determi-
nant of who is permitted to visit and who isn't.

There is an important function to be played by
regulatory authorities such as governments and tourism
bureaus in managing resources. These authorities need
to ensure that all forms of tourism to sensitive sites are
sympathetic to the environmental and cultural settings
and are sustainable.

At environmental concerns increase, many sec-
tions of the tourism industry have voluntarily become
more responsible. Codes of behavior and industry stan-
dards also help. National accreditation schemes will
provide a basis for industry self-regulation, as well as
offering consumers useful information with which to
assess different tourism enterprises and activities, both
locally and globally.

The World Tourism Organization is develop-
ing a set of internationally acceptable environmental
indicators to strengthen planners and managers' under-
standing of the principal factors influencing the tourism
industry's long-term sustainability and prosperity
(Hawkes and Williams 1991).

Some goals of sustainable tourism are:
 — development that does not degrade the
   resources upon which it depends
 — achievement of maximum cultural, eco-
   nomic, and ecological diversity
 — maximization of the uniqueness and authen-
   ticity of the resource or site
 — use of the cultural and natural environment
to stimulate sustainable economic growth
 — use of local resources and people.

WHO BENEFITS FROM TOURISM?

Tourism confers many advantages on the
national economies of the world. It can be especially
beneficial for a developing economy when the industry employs
large numbers of people and earns for-
eign exchange. It provides opportuni-
ties for people to discover other
cultures and foster goodwill. Tourists see, hear, taste, buy prod-
ucts, and experience in many other ways aspects of the host culture.

On the other hand, there are
many disadvantages. Sectors of the
the tourist industry are often controlled by multi-
tional tourism operators, hotel chains, restaurant groups,
and airlines who profit from holiday traffic and local
operators. In many instances the local jobs generated are
unskilled and seasonal. Much of the profits from tourism go offshore,
leaving little behind for locals.

In some countries, development projects for
foreign tourists are undertaken at the expense of the
local people. Economic activity generated by eco-
tourism should directly benefit the local or host
community and environment. While there are many direct
economic benefits from ecotourism, there are other

benefits associated with the conservation of an area.
These include protection of watershed and erosion con-
trol, as well as biodiversity protection. Protecting an
area also maintains the option to develop it in the
future.

ANGKOR: CULTURAL HERITAGE
IN A NATURAL SETTING

The cultural monuments of Angkor are signifi-
cant not only to Cambodian and foreign tourists (Fig. 2). With
more than 1,000 identified archaeological sites, it is one of the
most recognized tourist destinations in all Indochina. While tourism
has been limited during the past decades of civil war, Angkor could
rapidly re-establish its importance as a tourist destination for both
its cultural and natural features.

In recognition of the unique cultural and nat-
ural environment of Angkor, the area was declared a
national park in 1929. Named the Parc d'Angkor, it was
almost 11,000 hectares in size and was the first national
park established in Southeast Asia. Before the civil war
the park was administered by Conservación d'Angkor.
This organization was responsible for the restoration of the
ancient monuments, as well as the protection and
conservation of the park. In addition, there were some
attempts to manage the forest and animals of the park.
During this time Angkor was only accessible to a few

When listed as a UNESCO World Heritage Site
in 1993, Angkor was in a unique situation as Cambodia
had been placed under the temporary
administration of the United
Nations Since the Cambodian gov-
ernment was in a period of transi-
tion, UNESCO was asked to assist the
Cambodian authorities in this
task, and it subsequently drew up a
Zoning and Environment Management Plan (ZEMP) for
the Angkor area. In order to guarantee
protection of the site, UNESCO requested a special inde-
depth study. This involved:

 — setting up protective legislation
 — establishing an adequately staffed national pro-
tective agency
 — establishing permanent boundaries
 — defining buffer zones
 — monitoring and coordinating the international
  conservation effort (Fig. 3a-c).

In addition to defining protected/restricted
areas and surrounding buffer zones, ZEMP developed zoning
regulations and management guidelines not only

FIG. 2. Tourists gather at the East Gate of the walled city of
Angkor Thom. Angkor is a vast complex of more than
1000 known archaeological sites. Although access has fre-
quently been difficult or impossible, the site is nevertheless
one of the primary tourist attractions in all Indochina.

Photo by author

visitors closer to local inhabitants (Fig. 1). Tourism that
involves heightened cultural and natural interaction is
developing as a niche market. More tourists want to
learn about the specific cultures of others. This includes
seeing the culture firsthand as a natural state as pos-
sible. Not all such contact should be considered good,
however. Some warn that this alternative tourism could be
more destructive than mass tourism since it brings
tourists into direct contact with people in remote loca-
tions, thus intensifying settlement and its attendant
effects (Chayant Pholpake in Eber 1992).

ENVIRONMENTALLY FRIENDLY TOURISM

The term "ecotourism" is being used increas-
ingly to describe the new form of alternative travel cen-
tered on nature. However, ecotourism programs don't
necessarily have to be in pristine environments far

32 EXPEDITION Volume 37, No. 3 (1995)
for the World Heritage Site, but also for the larger surrounding area wherein development activities might have adverse effects on conservation of the Angkor site itself.

Tourism could earn an additional $150 million for the Cambodian economy (UNESCO 1995), money which could be used to fund archaeological conservation and support other industries. Tourism could also assist in providing jobs for Cambodians. However, it could also threaten Angkor with uncontrolled development, leading to loss of or damage to archaeological sites. There is evidence this is already occurring. A site like Angkor requires legislation and management practices that will maximize the use of the resource without threatening its long-term sustainability.

Sites such as Angkor, where both significant cultural and natural features occur together, face increasing pressures. As the population grows, more local people will depend upon the limited natural resources around Angkor for their survival. There will be pressure to increase production in agriculture, forestry, and fisheries. This will involve using more

land, adding to the already existing problem of population settlement around the monuments.

Additional problems arise as more tourists want to visit the cultural monuments. It is not only the physical number of tourists, but the services these people require, both in getting to the monuments and while there. More tourists mean that new hotels must be erected, additional plane services provided, extra wastes removed, and so on. Managers of the cultural and natural resources of Cambodia will have to look at how much pressure these resources can withstand before they are degraded.

In planning for the future use of Angkor it will be necessary to allocate certain areas for development, areas that are kept well away from the monuments so as not to disturb the natural environment or the historic visual impact of the site. Zoning should provide protection to the cultural and natural resources while encouraging appropriate development. UNESCO has already identified three distinct zones around the monuments: the central archeological zone, the Phnom Kulen hinterland, and the Tonle Sap (Great Lake) region.
THE CENTRAL ARCHAEOLOGY ZONE AND BEYOND

The site around Angkor is a special archaeological situation in that it is still used by the local people. Not only does it have religious significance for them, but the land, waterways, and forests around it provide them with their livelihood. To prohibit their activities would have a serious impact upon not only the local population, but also on people from Phnom Kulen to the Tonle Sap.

The natural resources around Angkor have been modified over the past several thousand years. The ancient Angkor kingdoms endeavored to control environmental resources for their own benefit and changed the hydrological cycle in the Siem Reap area to develop an extensive irrigation system. These historical activities have significant implications for the present pattern of land use. Current agricultural practices on the Siem Reap floodplain still rely heavily on the former hydrological system. However, damage and degradation of this system have limited current agricultural productivity (Fig. 4). Much of the former Parc d'Angkor was forested before the civil war, and maintaining what remains around the major monuments is another concern. Local people rely heavily upon the forest, collecting fuelwood, vines, and resin from the large dipterocarp trees (Fig. 5). Villagers have also been taking rattan from the forests for centuries (Fig. 6). It is used for many purposes, including construction of fish traps on the Tonle Sap. Over-harvesting the rattan would ultimately affect the fishing industry.

People outside the central Angkor area also rely on the park's natural resources. Harvesting in Angkor's forests has implications for activities located many kilometres away. An enormous volume of bamboo, wooden poles, and vines is required to construct and maintain commercial fish traps on the Tonle Sap (Fig. 7). The construction of these traps is a major economic activity involving collection, transportation, and distribution networks that extend as far away as the Kulen hills.

Over-exploitation of natural resources and the possible attendant deforestation will have ramifications beyond those affecting the livelihood of the forest harvesters. Deforestation will be detrimental to the river...
**Fig. 7.** A fishing trap on the Tonle Sap. The materials for these traps came from forests as far away as the Kulen Mountains, to the northeast of Angkor.

*Photo by author*

**Fig. 8.** Kampong Chhnang, a settlement at the south end of the Tonle Sap.

*Photo by author*

**Fig. 9.** Making fish sauce at Phnom Krom. Fish and fish products account for more than 60 percent of the Cambodian people's protein intake. The Tonle Sap is one of the world's most productive freshwater fishing grounds.

*Photo by author*
catchment due to silting in the Siem Reap River and the Tonle Sap (see below), erosion, loss of water quality for domestic use, and reduced fish catches. Maintaining the forests has obvious importance for the local people and the aesthetic and social environment of the park. It is reasonable to assume that, with proper management, most human activities can be conducted in a sustainable manner.

THE TONLE SAP

The Tonle Sap to the south is part of the wider region in the Angkor environment (Fig. 8). It provides Cambodian people with much of their fish and, hence, protein intake. More than 60 percent of the population’s protein intake comes from this great lake (Figs. 9, 10). It is one of the most productive freshwater fishing grounds in the world, with a yearly fish production estimated by the Fisheries Department at 59,000 metric tons (UNESCO 1993). The lake is directly linked to the greater Angkor area because of the rivers that flow into it. The rise and fall of the Mekong River, with its headwaters far to the north in Tibet, has a significant impact upon the lake and the activities occurring on and around it.

The largest freshwater lake in Southeast Asia, the Tonle Sap preserves extensive stretches of inundated forests along its shores, making it an ecosystem of outstanding significance (Figs. 11, 12). The lake itself is an important breeding ground for hundreds of fish species and many species of birds, both migratory and endemic. The forest is a valuable windbreak that protects the agricultural floodplain from the strong winds that cross the lake during the wet season. The trees in the forest also trap nutrients washing from the land. These nutrients are consumed by fish in the lake. The ongoing ecological and hydrological processes, influencing water dynamics between the lake and the Mekong River, are also crucially important to the continued existence of the area’s plant and animal communities.

The Tonle Sap also has scenic and aesthetic values that make it potentially important for recreation and tourism. Tourism in the Siem Reap area has so far focused on the monuments of Angkor, yet the lake could present a unique experience for foreign and probably local tourists. Recognizing its importance, the Cambodian government is seeking special protection by nominating part of the lake as a World Heritage Site (Haywood 1994).

The Tonle Sap already suffers from environmental degradation. In the past, the inundated forest covered approximately 1 million hectares, but it has been reduced to just over 600,000 hectares. Such large-scale deforestation could lead to changes in fish species composition and fish yields, but little research on this has been conducted.

Furthermore, accumulating silt from the hinterland of Angkor and Phnom Kulen is becoming an increasing problem, made worse by the clearing of the inundated forest. Deposits of silt in the main channels affect navigation on the Tonle Sap, but are now also thought to affect the migration of fish. Increased siltation in the lake causes localized shallowing of its waters. It is thought that in these shallow waters the water heats rapidly, leading to fish deaths.

The availability of food in and around the Tonle Sap is not very secure. Local fishing people struggle to feed themselves, and their monthly income is very low. Most farmers have only one crop per year (rainfed rice), and droughts can lead to substantially reduced crops. There is only a limited possibility for irrigation during the dry season. This means that for approximately six months of the year there is little farm work. In order to supplement their income, many farmers exploit the inundated forest for fuelwood. It is against this social and environmental background that the development of tourism must be understood.

CONCLUSION

It is easy to kill the goose that lays the golden egg. It is essential that the tourism industry preserves the attractions and uniqueness that draw people to an area. By linking environmental education with simple and minimal travel needs, ecotourism can help protect the environment and give economic incentives to local people to preserve tourism resources. For this to happen tourism should be low impact; it should use local guides and products so that much of the money stays in the local community.

Cambodia is at a threshold where lessons can be learned from the mistakes of others. Management should ensure that Angkor does not become isolated blocks of monuments, cut off from their natural environment or from the urban realities of nearby Siem Reap town. Sustainable resource use of the forests, land, and lake around Angkor is as important as tourism plans which preserve the archaeological sites.
**Bibliography**

**Boo, Elizabeth**

**Bowden, David**

**Commonwealth Department of Tourism**

**Eber, Shirley, ed.**

**Hawkes, S., and P. Williams, eds.**

**Haywood, Denise**

**New Internationalist**

**UNESCO**

**Wight, D., and P. Wight**

**World Commission on Environment and Development**

**Young, Marguerite**