IUCN Conservation Outlook Assessment 2014 **(archived)**
Finalised on 13 May 2014

Please note: this is an archived Conservation Outlook Assessment for Hierapolis-Pamukkale. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Hierapolis-Pamukkale

SITE INFORMATION

Country:
Turkey
Inscribed in: 1988
Criteria:
(iii) (iv) (vii)

Site description:
Deriving from springs in a cliff almost 200 m high overlooking the plain, calcite-laden waters have created at Pamukkale (Cotton Palace) an unreal landscape, made up of mineral forests, petrified waterfalls and a series of terraced basins. At the end of the 2nd century B.C. the dynasty of the Attalids, the kings of Pergamon, established the thermal spa of Hierapolis. The ruins of the baths, temples and other Greek monuments can be seen at the site. © UNESCO

SUMMARY

2014 Conservation Outlook

Good with some concerns

The natural values of Hieropolis-Pamukkale, as well as its cultural attributes, caused a flood of tourists to visit the site which in turn stimulated the rapid growth of a tourist infrastructure. The diversion of spring water to feed hotel pools, pollution by sewage, mechanical damage to the stone and constant tourist bathing and littering in the pools diminished them and began to turn the travertine grey. Moreover, the thermal water flow that feed travertine has decreased compared to previous times. The encroaching hotel development was therefore pushed back and the commercial use of water came under control. As a consequence the quality of the travertine deposit is returning. However, high tourist numbers are still an issue which requires careful management for which the current level of staffing is insufficient.

Current state and trend of VALUES

Low Concern
Trend: Data Deficient

The natural values of Hieropolis-Pamukkale are confined to the beauty of the calcite-laden waters which over millennia have created a snow-white landscape of petrified waterfalls. The problem of over-use of this site by tourists was noted already at the time of inscription of the site. The diversion of spring water to feed hotel pools, pollution by sewage, mechanical damage to the stone and constant tourist bathing and littering in the pools diminished them and began to turn the travertine grey. Moreover, the thermal water flow that feed travertine has decreased as compared to previous times. If flow rate of water decreases further due to natural or human factors (illegal drilling, etc.) the future of travertine would be in danger just as in past years. The encroaching hotel development was therefore pushed back from the edges of the natural formations and the commercial use of water came under control. Bathing in the pools was prohibited and access limited to certain paths by unshod visitors only. As a consequence

the quality of the travertine deposit is returning.

Overall THREATS

High Threat

The main current threat to the site’s integrity is from tourism infrastructure development and high tourist numbers, as well as diversion of spring water, and domestic sewage. Earthquakes are the only potential threat to the site currently.

Overall PROTECTION and MANAGEMENT

Some Concern

Since the inscription of the site in 1988 the main results are the management plan for protection of the landscape and environment and the demolition of hotels built near the archaeological area. The site is under the supervision of a steering group since 2000 but there is no site manager/coordinator. Overall protection and management of the site are effective. However, there are some concerns with regard to management structure, levels of staffing, staff training and development, education and interpretation programs and particularly tourism management. Both the archaeological and cascade areas have many thousand visitors each year but there are too few guards and enforcement of regulations is weak.

FULL ASSESSMENT

Description of values

Values

World Heritage values

- **Visually stunning landscape of calcite deposits forming white travertine terraces**
  Criterion:(vii)

  Calcite-laden waters from hot springs, emerging from a cliff almost 200 metres high overlooking the plain, have created a visually stunning landscape at Pamukkale. These mineralized waters have generated a series of petrified waterfalls, stalactites and pools with step-like terraces, some of which are less than a meter in height while others are as high as six meters. Fresh deposits of calcium carbonate give these formations a dazzling white coating. The Turkish name Pamukkale, meaning “cotton castle”, is derived from this striking landscape (SoOUV, 2013)

Assessment information

Threats

Current Threats

High Threat

The main current threat to the site’s integrity is from tourism infrastructure development and high tourist numbers, as well as diversion of spring water,

and domestic sewage.

► Water Pollution

Low Threat
Inside site
Outside site

Pollution from sewage and constant tourist bathing in natural pools. (IUCN Advisory Body Evaluation, 1988)

► Tourism/ visitors/ recreation

High Threat
Inside site
Outside site

More than one million tourists every year constitute a very big problem and danger for the conservation of the site. (SOC 2006, Periodic Reporting Cycle 1)

► Tourism/ Recreation Areas

High Threat
Outside site

Tourism infrastructure has been built by both the municipality of Denizli and by private enterprise and includes hotels, motels and swimming pools. (UNEP-WCMC Fact Sheet, 2011).

► Dams/ Water Management or Use

Low Threat
Outside site

Diversion of spring water to feed hotel pools. (IUCN Advisory Body Evaluation 1988)

Potential Threats

Low Threat

Earthquakes are the only potential threat to the site currently.

► Earthquakes/ Tsunamis

Low Threat
Inside site

Earthquakes are the only natural threats to travertine terraces. (IUCN Advisory Body Evaluation, 1988)

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

The Turkey Community Development and Heritage Project (2000) encompassed a socio-economic assessment, the resettlement of squatters on the site, and an association of local stakeholders all to be coordinated by the University of Pamukkale (IUCN, 2002). (IUCN/WCMC, May 2011).

► Legal framework and enforcement

Mostly Effective

The site was declared a “First Degree Archaeological Site”. In 1990 the site and the related protected zone were approved as a “Special Environment Protection Area.” according to the Environment Law. The Pamukkale Conservation Plan was approved and is carried out since 1992. Protection arrangements are considered highly effective. (SOC 2006 Periodic Report Cycle 1).
Recent changes in the legislation (Nature and Biodiversity Conservation Draft Law, change in the directive concerning the identification and registration of protected sites, changes in Coastal Law bylaws, EIA Bylaw change, etc,.) all are regulations that would weaken the protected sites and open them up for usage. (Confidential consultation, 2013).

► Integration into regional and national planning systems

Data Deficient

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► Management system

Some Concern

Hierapolis-Pamukkale is legally protected through national conservation legislation, but there is no specific planning legislation to protect World Heritage properties. The responsibility for managing and conserving the property is shared by the national Government (the Ministry of Culture and Tourism and the Ministry of Environment and Urbanization), local administration (Denizli Provincial Special Administration) and several State institutions. The approval of the Regional Conservation Council and Provincial Directorate for Environment and Urbanism has to be obtained for physical interventions and functional changes in the site (SoOUV, 2013).

► Management effectiveness

Mostly Effective

Since the inscription of the site in 1988 the main results are the management plan for protection of the landscape and environment and the demolition of hotels built near the archaeological area.
No site manager/coordinator currently.
The current management system is sufficiently effective. (Periodic Reporting Cycle 1).

► Implementation of Committee decisions and recommendations

Some Concern

IUCN has drawn the attention of the Bureau, at its fourteenth session, to the problem of over-use of this site by tourists. Subsequently the Ministry of Culture of Turkey organized an international workshop from 1-3 July 1991 to discuss the “Preservation and Management Plan” for the site. (SOC 1991).

► Boundaries

Mostly Effective

Status of boundaries of the site considered adequate. No buffer zone has

been defined. (Periodic Reporting Cycle 1).

▶ Sustainable finance

Mostly Effective

Major funding comes from entrance fees, Authority of Protected Special Areas, Italian Archaeological Mission for excavation, UNDP, and WB. Funding for management is insufficient, whereas funding for protection and conservation is adequate. (Periodic Reporting Cycle 1).

▶ Staff training and development

Some Concern

The 1992 Pamukkale Management plan proposed a staff consisting of a superintendent, administrative officer, chief of visitor services and chief of maintenance. (Periodic Reporting Cycle 1).

▶ Sustainable use

Data Deficient

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▶ Education and interpretation programs

Some Concern

Interpretation of the site is not adequate as are guiding, information panels, and orientation. Communications and health facilities are totally lacking. (Periodic Reporting Cycle 1).

▶ Tourism and interpretation

Some Concern

Substantial resistance from interest groups linked to the tourist industry against the implementation of the “Preservation and Management Plan” of 1991 that recommends removal of tourist facilities to locations outside the WH site, closure of road crossing WH site, restriction on visitor use of travertine pools, and car parks outside the northern entrance of the site. (SOC 1991).

▶ Monitoring

Some Concern

No formal monitoring programme.
(SOC 2006 Periodic Reporting Cycle 1).

▶ Research

Mostly Effective

Recent Turkish investigations have proved the role of cynobacteria in the precipitation of the travertine (Zedef et al., 2003; IUCN/WCMC Data Sheets April, May 2011).

Overall assessment of protection and management

Some Concern

Since the inscription of the site in 1988 the main results are the management plan for protection of the landscape and environment and the demolition of hotels built near the archaeological area. The site is under the supervision of a steering group since 2000 but there is no site manager/coordinator. Overall protection and management of the site are effective. However, there are some concerns with regard to management structure, levels of staffing, staff training and development, education and interpretation programs and particularly tourism management. Both the archaeological and cascade areas have many thousand visitors each year but there are too few guards and enforcement of regulations is weak.

▶ Assessment of the effectiveness of protection and management in addressing threats outside the site

Data Deficient

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State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ Visually stunning landscape of calcite deposits forming white travertine terraces

Low Concern
Trend:Stable

Both the archaeological and cascade areas have many thousand visitors each year but there have been too few guards and too little enforcement of regulations. In 1990 the degradation was obvious during the evaluation mission. The diversion of spring water to feed hotel pools, pollution by sewage, mechanical damage to the stone and constant tourist bathing and littering in the pools diminished them and began to turn the travertine grey (Dilsiz, 2002).
Moreover, the thermal water flow that feed travertine has decreased compared to previous times. If flow rate of water decreases further due to natural or human factors (illegal drilling, etc.) the future of travertine would be in danger just as in past years. (Somuncu, Yiğit and Yoldaş, 2008).
The encroaching hotel development was therefore pushed back from the edges of the natural formations and the commercial use of water came under control. Bathing in the pools was prohibited and access limited to certain paths by unshod visitors only. As a consequence the quality of the travertine deposit is returning.
(IUCN/WCMC, May 2011)

Summary of the Values

▶ Assessment of the current state and trend of World Heritage values

Low Concern

Trend: Data Deficient

The natural values of Hieropolis-Pamukkale are confined to the beauty of the calcite-laden waters which over millennia have created a snow-white landscape of petrified waterfalls. The problem of over-use of this site by

tourists was noted already at the time of inscription of the site. The diversion of spring water to feed hotel pools, pollution by sewage, mechanical damage to the stone and constant tourist bathing and littering in the pools diminished them and began to turn the travertine grey. Moreover, the thermal water flow that feed travertine has decreased as compared to previous times. If flow rate of water decreases further due to natural or human factors (illegal drilling, etc.) the future of travertine would be in danger just as in past years. The encroaching hotel development was therefore pushed back from the edges of the natural formations and the commercial use of water came under control. Bathing in the pools was prohibited and access limited to certain paths by unshod visitors only. As a consequence the quality of the travertine deposit is returning.

Additional information

Key conservation issues

▶ Landscape of travertine deposits turning grey

National

The diversion of spring water to feed hotel pools, pollution by sewage, mechanical damage to the stone and constant tourist bathing and littering in the pools diminished the beauty of the landscape and began to turn the travertine a dingy grey. (Dilsiz, 2002).

▶ High tourists numbers

National

More than one million tourists every year constitute a very big problem and danger for the conservation of the site. (SOC 2006; Periodic Reporting Cycle 1)

▶ Management system

Local

No site manager/coordinator. The 1992 Pamukkale Management plan proposed a staff consisting of a superintendent, administrative officer, chief of visitor

services and chief of maintenance. (SOC 2006 Periodic Reporting Cycle 1).

► Water flow

Local

One of the most striking problems of the area is absence of management plan related to water from travertine. The thermal water flow that feed travertine has decreased as compared to previous times. Flow of thermal water that feeds the travertine has decreased from 360 lt /sec to 273 lt/sec. If flow rate of water decreases further due to natural or human factors (illegal drilling, etc.) the future of travertine would be in danger just as in past years. (Somuncu, Yiğit and Yoldaş, 2008).

Benefits

Understanding Benefits

► Wilderness and iconic features

This site is exceptional because of its calcite-laden waters that have created a snow-white landscape of petrified waterfalls, step-terraced pools and stalactites on a hillside cliff almost 200 m high above a plain. (IUCN/WCMC Data Sheets, May 2011).

► Outdoor recreation and tourism

More than one million tourists visit Hierapolis-Pamukkale every year and provide an important source of income for communities in and around the site as well as the global tourism industry. In response to the inflow of visitors, tourist infrastructure has been built by both the municipality of Denizli and by private enterprise and includes hotels, motels and swimming pools.

Summary of benefits

By conserving the superlative natural landscape of Hierapolis-Pamukkale the communities in and around the site as well as the global tourism industry

benefit from the income provided by over one million tourists a year.

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Ministry of Environment and Urbanization General Directorate for Protection of Natural Assets		Management of Special Environment Protection Area

REFERENCES

№	References
1	Confidential consultation, 2013
2	Culcuoglu, G., Erkan, Y. and Karakul, O. UNESCO World Heritage Turkey, UNESCO Turkey National Commission, 2013
3	Dilsiz, C. , 2002, Environmental Issues Concerning Natural Resources at Pamukkale Protected Site, Southwest Turkey, Environmental Geology 41(7):776– 784.
4	IUCN/WCMC Data Sheets April 1988 (updated 4-2005, May 2011).
5	International Union for Conservation of Nature (IUCN) Advisory Body Evaluation 1988
6	Nature Law Watch Initiative Members, Ankara, June 2010
7	Somuncu, M. (editor), 2009. Türkiye’nin Dünya Miras Alanları Koruma ve Yönetimde Güncel Durum (in Turkish) (Turkey’s World Heritage Sites - Current Status of Protection and Management), UNESCO Turkey National Commission, Ankara.
8	State of Conservation (SOC), UNESCO, 1991
9	State of Conservation (SOC), UNESCO, 2006 (Periodic Reporting Cycle 1)
10	The Nature Law Watch Initiative, Ankara, 2013, (http://www.change.org/tabiatkanunu)
11	World Conservation Monitoring Centre (WCMC), Infobase, Jan 1992.
12	World Heritage Centre, UNESCO (whc.unesco.org/en/list/485)