

## Qingcheng/Dujiangyan (China)

No 1001

### Identification

<i>Nomination</i>	Mount Qingcheng and the Dujiangyan Irrigation System
<i>Location</i>	Dujiangyan City, Sichuan Province
<i>State Party</i>	People's Republic of China
<i>Date</i>	20 July 1999

### Justification by State Party

The centuries-old Dujiangyan irrigation system is unique. Noteworthy for its system operating without the use of dams, it is a masterpiece of Chinese water-conservation engineering. It exploits the geomorphology of the region, in which the land slopes down from the north-west to the south-east, to the full, along with the local topography, the water table, and the potential of the river. Its constructors developed the technology of water diversion without dams and automatic irrigation. The system of integrated embankment, diversion, flood discharge, scouring, and flood control plays an effective role in flood prevention, agricultural irrigation, water transport, and water consumption. It has played this role for 2250 years and continues to do so today. The Dujiangyan irrigation system is based on the principle of not damaging the natural resources but making full use of them in the service of humankind. It is one of the greatest applications of ecological engineering in the world.

Located to the south of the Dujiangyan system, Mount Qingcheng is of great historical as well as scenic importance. At its foot to the east are the Mangcheng ruins, rare remains of the Neolithic in China, dating back 4500 years and providing important evidence about the Shu Kingdom. As early as the Qin Dynasty (221-206 BCE) Mount Qingcheng was recognized as one of the eighteen sacred mountains and rivers used for sacrificial purposes, and it witnessed the birth of Chinese Taoism.

**Cultural criteria ii, iii, and iv**

[**Note** This property is nominated as a mixed site, under the natural and cultural criteria. The present evaluation will concentrate on the cultural aspects; IUCN will provide a complementary evaluation of the natural qualities.]

### Category of property

In terms of the categories of cultural property set out in Article 1 of the 1972 World Heritage Convention, this is a *site*.

### History and Description

#### History

- The Dujiangyan irrigation system

In 256 BCE Li Bing, Shu Kingdom magistrate of the Qin Dynasty, selected the mountain outlet of the Minjiang river, with its abundant water flow, as the site for an irrigation system. This involved cutting the Lidui platform, digging canals to avoid the risk of flooding, and opening up a navigation route; at the same time the neighbouring farmland would be irrigated, creating an "Land of Abundance." These works were extended in 141 BCE by the magistrate Wen Weng.

During the Tang Dynasty (618-907) large-scale water-conservancy and irrigation projects were carried out, including the Baizhang, Mizao, and Tongji embankments and the Wansui pool, providing the Chengdu plain with a network of weirs and canals.

The system was rationalized during the Song Dynasty (960-1279) into three main water-courses, three canals, and fourteen branches, with a coordinated programme of maintenance and water control. The system was extended and additional works were carried out (the Sili and Shabo embankments), providing irrigation to twelve counties.

Important experimental work took place during the Yuan Dynasty (1206-1368): in particular the embankments were reinforced with iron bars. Additional construction projects were also carried out, and this process continued throughout the Ming Dynasty (1368-1644), together with the introduction of a new control regime.

Incessant warfare at the end of the Ming Dynasty and the early years of the Qing Dynasty (1644-1913) resulted in the system falling into disrepair, but this was eventually set to rights. The local people were involved in major rehabilitation and repair projects and the irrigated area was extended to cover some 180,000ha. Since that time the system has been carefully maintained and progressively extended, so that it now covers 668,700ha in 34 counties. The original system has been preserved, but modern building materials and technology have been utilized to enable this ancient system to conform with the requirements of the present day.

- Mount Qingcheng

In 142 CE the philosopher Zhang Ling founded the doctrine of Taoism on Mount Qingcheng, and in the following year he took up permanent residence in what became known as the Celestial Cave of the Tianshi (the name given to the spiritual head of the Taoist religion). During the Jin Dynasty (265-420) a number of Taoist temples were built on the mountain, and it became the centre from which the teachings of Taoism were disseminated widely throughout China. During the Tang Dynasty the works of Du Guangting, one of the most important figures in Chinese thought and science, were collected together there as what came to be known as the "Taoist Scriptures."

The troubled period at the end of the Ming Dynasty and the beginning of the Qing Dynasty, in the 17th century, saw Taoist scholars and disciples converging on Qingcheng from all over China. Thereafter the sacred mountain resumed its role as the intellectual and spiritual centre of Taoism, which it has retained to the present day.

### Description

The nominated property is situated on the western edge of the Chengdu plains, at the junction between the Sichuan basin and the Qinghai-Tibet plateau.

- The Dujiangyan irrigation system

The irrigation system consists of two principal components, the Weir Works and the irrigated area.

The Weir Works, located at an altitude of 726m, the highest point of the Chengdu plain, 1km from Dujiangyan City, form the heart of the system. It receives water from the upper valley of the Minjiang river. There are three main elements: the Yuzui Bypass Dike, the Feishayan Floodgate, and the Baopingkou Diversion Passage.

The *Yuzui Bypass Dike* is located at the outfall of the Minjiang river. Water from the upper valley is diverted into the Outer and Inner Canals: the former follows the course of the Minjiang river and the latter flows to the Chengdu plain through the Baopingkou Diversion Passage. It is 1070m from the Diversion Passage, 880m from the embankment of the Outer Canal, and 710m from that of the Inner Canal.

The Dike is 5-8m higher than the river bed, 30m wide at the top and 140m at the base. It serves the essential function of bypassing the considerable amount of silt brought down by the river. It makes full use of the bend, directing surface water with low concentrations of silt into the Inner Canal and the heavily silted deeper water into the Outer Canal.

The *Feiyashan Floodgate*, 240m long and 2m high, is situated between the lower end of the Yuzui Bypass Dike and the V-Shaped Dike. Its upper end is 710m from the Bypass Dike and 120m from the Baopingkou Diversion Passage.

The principal function of the Floodgate is to transfer overflow, together with silt and pebbles, from the Inner to the Outer Canal. In periods of heavy flooding the flow of water at the Floodgate is three times that of the Diversion Passage. When water flow in the Inner Canal is low, the Floodgate ceases its draining function and transfers water into the Weir Works to ensure the supply of irrigation water to the Chengdu Plains.

The *Baopingkou Diversion Passage* lies between the Lidui Platform south of Dujiangyan City and the cliff facing it, an enormous engineering project that dates back to the beginning of the Irrigation System in the 3rd century BCE. The Passage, the name of which means "Treasure Bottle Neck," derived from its shape, is 36m long, 28.9m wide, and 18.8m deep. It is able to control and maintain the water flow to the Chengdu irrigated plains automatically, even in periods of drought or flooding.

There is a number of ancillary works worthy of mention. The *Baizhang Dike* lies upstream of Yuzui and to one side of the Inner Canal. The original construction of bamboo gabions filled with stones was damaged during heavy floods in 1964 and so the Dike was rebuilt in stone and concrete. Its function is to straighten out the natural watercourse and protect the embankment on that side.

The *Erwang Temple Watercourse* has a similar straightening dike. Its original structure, identical with that

of Baizhang, was also severely damaged in 1964 and replaced in stone and concrete. The Dike was built to straighten the watercourse and reduce potential damage to the Feishayan Embankment.

The *V-Shaped Dike* was originally built using bamboo gabions and stones in 1933, but it has subsequently been reconstructed in modern materials. Its principal function is in flood discharging.

- Mount Qingcheng

The mountain dominates the Chengdu plains and rises to a height of 2434m. It is a landscape of tranquil beauty, which has been long known throughout China for its "Secluded Elegance."

There are eleven temples on Mount Qingcheng of special significance in the field of Taoist architecture; unlike the Taoist temples of Mount Wudang, they do not reproduce the features of Imperial courts, but rather that of the traditional architecture of western Sichuan. Among them are those listed below.

The *Erwang Temple* lies to the west of Dujiangyan City. Originally known as the Wangdi Temple, it was moved in 494-98 by Liu Ji, Governor of Yizhou County, to Pixian County and renamed Congde Temple. It was considerably enlarged during the Song Dynasty (960-1279) and substantially reconstructed in the 17th century. It is constructed of wood and is located on a commanding point of the mountain, overlooking the river. The carvings inside the temple record the history and achievements of water control.

The *Fulong Temple* was built in the 8th century on the Lidui platform. It is composed of three halls and contains important art treasures.

The *Changdao Temple* (also known as the *Tianshi Celestial Cave*) was built in 730, but substantially reconstructed in the 16th century and again in 1920. The importance of this temple is that it is the place where Zhang Ling, the founder of Taoism, preached his doctrines during the late Eastern Han Dynasty (206 BCE- 220 CE).

Another very important Taoist monument is the *Jianfu Palace* (known until the *Zhangren Temple* until the Song Dynasty). The original building was erected in 730, but the present structure is a reconstruction of 1888.

In addition to the Taoist remains, there is an important Neolithic settlement site at *Mangcheng*, a village in Qingcheng Township. Excavations have revealed a major site surrounded by clay ramparts and covering some 120,000m<sup>2</sup>. It is dated to the 3rd millennium BCE.

The area is rich in statuary, relief sculptures, and inscriptions of all kinds, from the 2nd century CE to the 19th century.

### Management and Protection

#### Legal status

Article 22 of the Constitution of the People's Republic of China (PRC) lays down that "The state protects sites of scenic and historic interest, valuable cultural monuments and relics and other significant items of China's historical and cultural heritage." Under the provisions of the Law on Protection of Cultural Relics, the Dujiangyan Irrigation

System was listed as a key relic under state protection by the State Council of the PRC in 1982. A number of the historic buildings on Mount Qingcheng are also protected individually.

In addition, the properties are protected by a series of other statutes, stemming from the Constitution of the PRC and including the Environmental Protection Law, the Urban Planning Law, the Water Law, the Water and Soil Conservation Law, the Forestry Law, and the Penal Law. The Cultural Relics Protection Law operates through a number of sets of regulations at national level, reinforced by and interpreted through regulations issued by the Province of Sichuan and Dujiangyan City.

#### - *Management*

The entire nominated area is owned by the People's Republic of China.

The Overall Plan of the Property covers three components: the Dujiangyan Irrigation System (231.5ha), Mount Qingcheng (1522ha), and the Longxi Nature Reserve (16,138ha).

The following integrated and complementary management and other plans are currently in force:

- The Ninth Five-Year Development Plan of Relics and Museums and the Outline of the 2010 Long-Range Targets [national level];
- The Dujiangyan Overall Plan (1990-2030);
- The Overall Plan of Mount Qingcheng and the Dujiangyan Irrigation System;
- Proposal for Further Strengthening of Relics Protection in Dujiangyan City;
- Overall Plan of Dujiangyan Urban Planning;
- Provisional Measures on the Management of Scenic and Historic Interest Areas Promulgated by Dujiangyan Municipal Government.

The objectives of these plans, and of the regulations resulting from them, are to maintain the historic design and layout of the remains and to prevent natural damage to the architecture; to collect and preserve relics such as tablets, inscriptions, and carvings; and to protect the natural vegetation, rivers and streams, and animal and plant resources. There are regular monitoring programmes relating to cultural and natural heritage within the nominated area, operated by the Sichuan Provincial Construction Commission and the Dujiangyan Forestry Bureau respectively. The Sichuan Dujiangyan Irrigation System Administration takes responsibility for the Weir Works, which still operates as a major public utility. Protected monuments and other relics are monitored by the Municipal Administration of Cultural Heritage.

Specific activities within these objectives include scientific studies to develop and apply conservation techniques at the historic temples and other buildings, establish the Dujiangyan Irrigation System Museum, improve training for researchers and managers, develop programmes for promotion and presentation, and better manage tourism (the number of visitors in 1998 was over 600,000). An important aspect of the work has been to involve to the greatest extent

possible those farmers whose families have worked the land within the area for many generations.

### **Conservation and Authenticity**

#### *Conservation history*

Since it has been providing an essential public service for many centuries, the Dujiangyan Irrigation System has been subject to continuous conservation, restoration, and reconstruction. During some periods of warfare and civil disruption the installations have fallen into disrepair, most recently in 1950, but they have quickly been brought back into full service, for the benefit of the farmers of the Chengdu plains.

Having been in constant use since they were built, the temples of Mount Qingcheng have been regularly maintained and conserved. As protected monuments they are now subject to systematic monitoring and conservation by the responsible agencies.

#### *Authenticity*

The essential authenticity of the Dujiangyan Irrigation System lies in its conception and design. In the 3rd century BCE a brilliant engineering solution was discovered to deal with the problems of water management in the fertile Chengdu plains. Food production could be ruined by natural events such as drought or excessive rainfall. The Dujiangyan installations, consisting essentially of dikes and bypass channels linked to the river, without the need to construct large dams, resolved these problems admirably and ensured a regular supply of water to irrigate the Chengdu fields. The installations have been extended since that time, so as to increase the area of irrigation, now nearly 1 million hectares.

The Mount Qingcheng temples have preserved a substantial degree of authenticity because they have been in continuous religious use.

### **Evaluation**

#### *Action by ICOMOS*

An IUCN mission visited the nominated property in March 2000 on behalf of both Advisory Bodies. An ICOMOS expert subsequently visited the Dujiangyan Irrigation System and the Mount Qingcheng temples in August 2000.

#### *Qualities*

The Dujiangyan Irrigation System is an exceptional and outstanding example of ancient water management that has survived intact and functioning perfectly up to the present day, after more than two millennia. The temples on Mount Qingcheng are of great associative importance because of their connections with the founder of Taoism.

#### *Comparative analysis*

Sophisticated water-management systems are known to have been developed in antiquity. Irrigation is as old as agriculture, and the systems employed became more elaborate as societies became more complex. The Babylonians developed an extensive network of canals to irrigate the dry lands of Mesopotamia with the waters of the Euphrates in the 2nd millennium BCE, whilst Roman

engineers created vast systems to irrigate Rome's North African provinces.

However, none of these ancient systems has survived to the present day. Nor does there appear to be evidence that they made such subtle use of topography and the properties of water as the Chinese engineers of the 3rd century BCE.

The Taoist temples on Mount Qingcheng might be compared with those on Mount Wudang (inscribed on the World Heritage List in 1994). However, these are later (15th century) and were founded by reigning Ming Emperors, so their design was more lavish, in full Imperial style. The Qingcheng temples, by contrast, were established and endowed by humbler believers and so their style is much simpler, echoing the vernacular architecture of this region of Sichuan.

### **Brief description**

Construction of the Dujiangyan Irrigation system began in the 3rd century BCE, and it continues to control the waters of the Minjiang river and distribute it to the fertile farmland of the Chengdu plains. Mount Qingcheng was the birthplace of Taoism, which is celebrated in a series of ancient temples.

### **Recommendation**

That this property be inscribed on the World Heritage List on the basis of *cultural criteria ii, iv, and vi*:

*Criterion ii* The Dujiangyan Irrigation System, begun in the 2nd century BCE, is a major landmark in the development of water management and technology, and is still discharging its functions perfectly.

*Criterion iv* The immense advances in science and technology achieved in ancient China are graphically illustrated by the Dujiangyan Irrigation System.

*Criterion vi* The temples of Mount Qingcheng are closely associated with the foundation of Taoism, one of the most influential religions of East Asia over a long period of history.

ICOMOS, September 2000