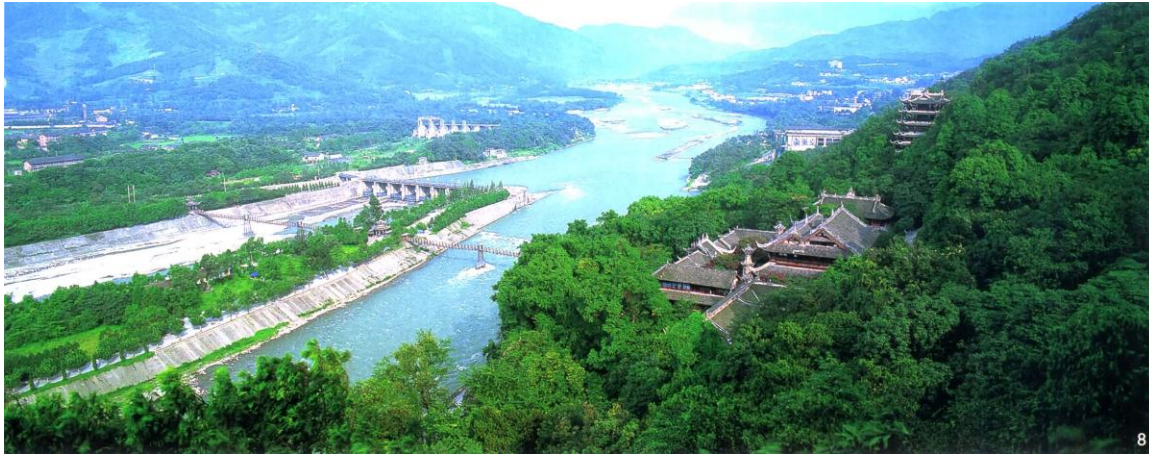


Dujiangyan, Dujiangyan City



Dujiangyan is the oldest and only surviving non-dam irrigation system in the world, and a wonder in the development of Chinese science. Built over 2,200 years ago in what is now Sichuan province in Southwest China, this incredible feat of engineering is still in use today to irrigate over 668,700 hectares of farmland, drain floodwater, and provide water resources for more than 50 cities in the province. Dujiangyan is now undergoing its largest renovation in over a decade.

More than two millennia ago, the region in which Dujiangyan now stands was threatened by the frequent floods caused by flooding of the Minjiang River (a tributary of the Yangtze River). Li Bing, a local official of Sichuan Province at that time, together with his son, discovered that the river was swelled by fast flowing spring melt-water from the local mountains that burst the banks when it reached the slow moving and heavily silted stretch below. One solution would have been to build a dam but Li Bing had also been charged with keeping the waterway open for military vessels to supply troops on the frontier, so instead he proposed to construct an artificial levee to redirect a portion of the river's flow and then to cut a channel through Mount Yulei to discharge the excess water upon the dry Chengdu Plain beyond.

Li Bing received funding for the project from King Zhao of Qin and set to work with a team said to number tens of thousands. The levee was constructed from long sausage-shaped baskets of woven bamboo filled with stones known as Zhulong and held in place by wooden tripods known as Macha. The system uses natural topographic and hydrological features to solve problems of diverting water for irrigation, draining sediment, flood control, and flow control without the use of dams.

Cutting the channel through Mount Yulei was a remarkable accomplishment considering that this project was undertaken long before the invention of gunpowder and explosives, which would have enabled the builders to penetrate the hard rock of the mountain. But Li Bing found another solution. He used a combination of fire and water to heat and cool the rocks until they cracked and could be removed. After eight years of work a 20 metre wide channel had been gouged through the mountain.

After the system was finished, no more floods occurred. The irrigation made Sichuan the most productive agricultural place in China and the people have been living peacefully and affluently ever since. Now, the project is honoured as the 'Treasure of Sichuan'.

Dujiangyan, now a UNESCO World Heritage Site, is admired by scientists from around the world, because of one feature. Unlike contemporary dams where the water is blocked with a huge wall, Dujiangyan still lets water go through naturally, enabling ecosystems and fish populations to exist in harmony.