

**Inspiring Initiative:** Conserving the Sunken Fruit Gardens of Southern Iran

**Land:** Iran

**Land degradation:** Soil degradation by water erosion, losses to urban development

**Initiative by:** CENESTA



# *A Living Example of Traditional Knowledge*



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### **SETTING THE INITIATIVE**

Bushire, a province in southern Iran, has an extremely hot and arid climate where temperatures can reach more than 50 degrees. Rainfall is very low (between 200 and 250mm per year) and usually occurs in flash floods with most of the water running off. Despite these harsh conditions the area has been settled for more than 5,000 years. There is some agriculture, though its spread is limited to within close proximity of wells, often 20-30m deep, from which water is still raised using animal traction.

Despite its harshness this environment has given rise to ingenious techniques for harvesting precious rainwater and using it to grow high-value fruit crops. One method, of building sunken fruit gardens, dates back 4,000 years. It appears very simple, yet it shows a deep understanding of the climate and geology of the area. These methods have endured for generations, with the garden pits and the knowledge needed to manage them being passed on from father to son. One local farmer recounts: “In the past grape vines were widespread here. In our village there used to be some 150 underground gardens. I used to have seven myself! My forefather Gholam Reza planted them five generations ago.”

Whereas there were once several thousand sunken fruit gardens in the province, their continued existence has come under threat. Urban development and the construction of a military complex in the heart of the area where these sunken gardens have existed for generations have reduced the number to less than ten. Following a lobbying campaign from the Iranian NGO CENESTA the government has decided to declare these few remaining gardens as sites of cultural heritage. It is hoped that the traditional knowledge embodied in these gardens can also be brought back to life.

### **MAKING THE DIFFERENCE**

This traditional method of harvesting rainwater from flash floods involves digging a pit some 2-3 metres wide and 5-6 metres deep until a layer of greasy soil, locally known as *shol* is reached. The pits are dug in slightly lower areas of land where the flash flood water is most likely to gather, and the surrounding areas are landscaped to maximise the flow of water. The pits also provide a moist and cool environment. The bottom of the chamber is then lined with branches and the chamber half filled with top soil and young vines or fruit tree saplings are planted in them. For the first year the saplings require watering by hand, but afterward the sunken gardens are recharged with water from underground sources.

Above the ground the pits are protected from grazing animals by fences which are surrounded by thorn bushes. As the fruit trees grow they are trained out over a series of stone stands or pillars (see photo) that provide a lattice framework. This keeps the fruit off of the ground and makes harvesting easier. The sunken gardens are known to produce yields of up to two tons of fruit each year, providing high-value cash crops for local farmers. This method produces plants that are not only highly productive but also very long-lasting: some vines are thought to be more than five hundred years old. Despite the harsh climate, the region has much agro-biological diversity. Seven distinct varieties of grapes were found in these sunken gardens, all adapted to this climate. Now that the conservation of the garden beds and methods has been achieved, the task is to conserve these fruit varieties and to keep alive the knowledge that made this remarkable regeneration possible.