

ue to climate change, rainfall in Morocco is predicted to decline by as much as fifty percent by the year 2050, increasing the risk of droughts, but despite the rarity and vulnerability of water resources, the country currently meets the fundamental needs of its population.

Over the past fifteen years, Morocco has seen substantial improvements with regards to accessibility to



the water supply and improvements in sanitation, partly thanks to foreign aid supporting water resource management through introducing modern technology to help improve productivity

in agriculture and other areas, but also through the preservation of early hydraulic systems and ancestral knowledge.

The Mohammed VI Museum of Water Civilization. the first of its kind dedicated to Moroccan, Arabic and Muslim's hydraulic heritage, is a mix of archaeological museum that demonstrates the importance of water in the Kingdom, its necessity to human life, cultural significance and spirituality, and an interpretation centre/science gallery that brings to life the scientific and innovation background to this life-sustaining force by way of video, information panels, models and diorama. It is also an acknowledgement to the contribution of the late King Hassan II and the hydraulic policy of HM King Mohammed VI in their combined efforts, noted by the fact that today 83 percent of Moroccans have access to improved drinking water, and 72 percent have access to improved sanitation.

In what might seem a curious top-to-bottom progression the tour begins on the first floor, although you realise the significance of this when you lean over the lower inner wall and overlook a large, circular 3D map showing water distribution from the High Atlas Mountains to the surrounding areas three floors below.

The first section summarises the fact that water is a global challenge; the specific science of water, its molecular structure, water as a living organism, are outlined by way of information panels and models. The next section begins the story of Morocco and its lands, from desert to mountains, explaining the creation of eco systems and current challenges linked to water, illustrated with 3D panels, videos and displays. (Signage is in Berber and Arabic, with some in French and English.) The tour continues through the history of Morocco's legacy; traditional water systems, the ecological, social, spiritual and cultural dimensions.

Moving down one floor, to the ground floor, the theme continues, beginning with water in sub-Saharan and Saharan oases, with an explanation of the skilled way that oasis dwellers would create water catchment systems, especially the khettaras, a gently sloping underground channel to transport water



from a well to surface for irrigation and drinking, often travelling long distances. This is an old system of water supply from a deep well with a series of vertical access shafts. Their use is governed by the jemaa, an assembly that designates a person to take charge of the khettara, and who is responsible for ensuring equal distribution of the life-giving resource. In the Tafilalt basin alone, (near the modern town of Rissani on the edge of the Sahara Desert, a 300km network of khettara irrigation channels was excavated, beginning in the late 14th century. More than seventy-five of these provided a continual water supply, many continuing to function for much of the northern oasis until the early 1970s,

Three dimensional models show water distribution, water gathering in various regions, agriculture, land and water rights, how oasis dwellers divide the plots and dictate water shares. This floor ends with a description of water rituals and festivities, displays of clothing and implements associated with water collection and transportation.

The final level, the basement, explains the water distribution in urban areas, including the gardens and orchards of Marrakech and the traditional systems of Fez and Tetouan. The tour ends with a circular, multi-colour illuminated 3D map illustrating the waterways, structures, techniques and distribution of water from the High Atlas Mountains to the lands around Marrakech.

As you exit the museum a model shows the future plans, including an oval garden, pavilions and an amphitheatre.

Click *HERE* to watch a promotional video about the museum.

For a fascinating look at the ancient water systems of Fez visit Hidden Waters: Water and Life in the Ancient Medina of Fez. Produced by Joe Lukawski. (Note: This video was produced in 2011, since which time an enormous amount of work has been done to restore the river and the area around the Tanneries.)









