

Desert dome creates garden time capsule

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By Robin McKie

On barren desert in Saudi Arabia, British engineers and scientists are to build a stately pleasure dome.

The vast, covered "garden of ages" will recreate the 400-million-year-old history of Earth's plants, trees and flowers.

The dome - near Riyadh, the capital - will cover almost 10ha and become the world's largest indoor garden.

Plants from key botanical epochs will be grown and displayed in seven sections inside two interlocking, crescent-shaped enclosures.

The project - run on renewable energy and using a minimum of water - is intended to revitalise tourism.

"Visitors will journey through time, from the Devonian period 410 million years ago, through eras like the Carboniferous to the Pliocene and the present day," said dome designer Nick Sweet, of the British architects Barton Willmore.

"There will even be a Jurassic Park, but without dinosaurs.

"Essentially, we are going to take a single piece of land and show how it has been transformed as plants have evolved and diversified throughout Earth's history. And some of those changes have been dramatic.

"This part of Saudi Arabia may be parched and burning hot today - the temperature was 54C last week - but there were times when rivers flowed and cool forests flourished here. Visitors will be able to experience all of that."

A key aim of the King Abdullah International Gardens is to give Riyadh a sense of cultural gravitas, say backers.

Although one of the world's principal cities, Riyadh lacks museums and other centres. It is well supplied with shops for the lavishly rich and little else.

But designing such an ambitious venture has not been easy. Keeping the gardens' various eco-systems cool in the blistering Saudi summer heat has been a major headache.

"We cannot just stick in a huge air conditioner to pump in vast amounts of cold air," Sweet said. "The running costs would be huge and it would send out the wrong ecological message.

"Instead we have built especially high domes. At some points, they will reach more than 36m. Hot air will rise to the top and trap cool air at the bottom.

"We will then need relatively modest amounts of air-conditioning to cool the gardens at ground level." Each of the seven environments inside the £100 million (\$260 million) building, which will be the world's largest Teflon construction, will be powered by renewable sources, mainly solar and wind. Water will be stored in underground reservoirs under the domes.

"Visitors will start their floral timewalk at the Devonian period 410 million years ago," said Dr Paul Kenrick, a paleobotanist at the Natural History Museum, London, and the project's scientific adviser.

"In those days, no plants grew above knee height. So we will use mosses and lichens and grow them on rocks round huge artificial geysers."

Visitors will then experience the Carboniferous period, the Jurassic Park consisting of light woods of coniferous trees; the Cretaceous era, when the first flowers flourished; the Cenozoic age when the first grasses appeared; and finally the Pliocene epoch, with riverbeds and light woodland.

In the last section, Kenrick said, "visitors will see how our planet might end up, burned and scorched or cool and moist, depending on the way we respond to the challenge of climate change".

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