The Green City That Has a Brain

By Helen Knight

An eco-city in Portugal that its makers are aiming to build by 2015 takes its cues from the nervous system

The planned city of PlanIT Valley, on the outskirts of Paredes in northern Portugal (see map), is aiming to be an environmentally sustainable city. And, just like an organism, it will have a brain: a central computer that regulates everything from its water use to energy consumption. Various eco-cities are in the pipeline, but this could be the first to be fully built - by 2015 - and could open its doors as early as next year. While Masdar City in Abu Dhabi welcomed its first inhabitants this month, it will not be completed until at least 2020. And the development of Dongtan near Shanghai in China has not even got off the ground yet, following financial and political difficulties.

The central computer of PlanIT Valley will act like a brain, regulating water use and energy consumption. Credit: New Scientist

Like other sustainable cities, PlanIT Valley will treat its own water and tap renewable energy. Buildings will also have plant-covered roofs, which will reduce local temperature through evapotranspiration, as well as absorbing rainwater and pollutants.

Yet that is where the similarities with other eco-cities end, according to its makers Living PlanIT based in Paredes. For a start, PlanIT Valley will be built closer to existing transport links than the likes of Masdar. More significantly, its "brain" will use data collected from a network of sensors akin to a nervous system to control the city’s power generation, water
and waste treatment (see "Brains and nervous system"). It's a kind of "urban metabolism", says Steven Lewis, chief executive of Living PlanIT.

While this network of sensors sounds expensive, the cost of installing it will be offset by using more efficient building techniques. "Because we have reduced the cost of the building, we can spend a bit more on the technology," says Lewis. For example, software used to design cars and aircraft was used to create the architectural plans.

What's more, the buildings are being prefabricated so that when construction begins at the end of 2010 it should be cheaper and quicker. The hexagonal shape of the buildings was chosen to make efficient use of space.

The city's technologies could be retrofitted to existing towns. This would be a good idea, says Simon Joss of the University of Westminster in London. Still, he adds that the 2015 completion date may be optimistic, and that the project's success cannot be determined until people move in. "It's about developing a community," he says.

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