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FROM MIRAGE TO REALITY



Pushing the realm of the logically rational, the Botswana Information Hub is what dreams are made of and it may revive the impending desert that is Botswana.

It might strike you as one of the strangest places in Africa to build what is pegged to be Southern Africa's largest science and technology hub, let alone a sustainably green one. When one thinks of Botswana, you think three 'Ds' – delta, desert and diamonds – none of which conjure up fertile, green pastures. However, a sustainable innovation hub may be exactly what Botswana needs.



Consider that Botswana's main economic driver, diamond mining, has just 30-odd years left in terms of the deposits that have allowed the country to enjoy one of the faster growth rates in per capita income in the world. Consider too that it faces two major environmental problems: drought and desertification. There are also reports that the Okavango Delta is rying up. The degradation of the delta is caused largely by climate change and the over-grazing of

livestock that provide an income for 90 percent of the population. Looking ahead 50 years, is the prospect of an almost inhospitable landscape that would require vast technological support if Botswana is to survive the arid takeover of nature.

When it was suggested in 2005, the proposal by the Botswana Technology Centre for a technology park might have appeared a far reach, but once the Ministry of Finance and Development Planning



had completed its feasibility study two years later, the idea of the Botswana Innovation Hub (BIH) no longer seemed outrageous. In fact, what the government saw was the possibility of a fresh injection of foreign direct investment and a way of identifying new niche industries for local and global markets – something that would serve the country well in terms of diversifying its economy.

And why not Botswana? It is ideally located in the heart of the southern part of the continent, hosts the headquarters for the Southern African Development Community, and has been chosen to host the fibre optic data-link that will serve the entire SADC region.

In taking the concept forward, the Botswana were in agreement that there were some aspects they would not compromise on. The BIH has to be a sustainable infrastructure and, like its name, has to reflect qualities of innovation while harnessing

advanced technologies. It also needs to be leveraged to academic institutions and host only viable operations, while focussing on four key industries: mining technologies, information and communication (ICT) and ICT-enabled services, bio-technology, and energy and the environment.

An area of 57 hectares was identified as the ideal site on the outskirts of Gaborone. It is just three kilometres from the international airport and is in close proximity to hospitals, universities and service facilities. This location should allow BIH tenants to interact and integrate with private sector, academia and industry within the city of Gaborone and its environs.

Overseeing the project, and reporting to the Ministry of Infrastructure, Science and Technology, is a specially-appointed team of project leaders that includes local and international experts. Dr Budzanani Tacheba is the acting co-ordinator for the BIH.



He makes it quite clear that from the start there was no doubt that the BIH would be a green undertaking.

“Modern-day building trends dictate that right from conception, consideration must be given to an infrastructure’s footprint. As a science and technology park it had to capture elements that address issues like energy and green methodologies. We want the structure to catapult us into a mindset that Botswana is committed to a clean environment.”

Botswana needed to do its homework and it did so with gusto. Structures like the United Nations environmental headquarters in Kenya were used as a benchmark for the BIH. The planned city of Masdar in the United Arab Emirates (UAE) and high-tech developments in the USA were also considered as model developments for simulation. Such learning was invaluable when the time came to consider the brief that would be presented to a design company.

“We wanted a building that would adhere to international standards to ensure that the BIH was sustainable and that its energy consumption was inline with global protocols,” says Tacheba. “Specifically we wanted to peg onto the US LEED code because of its international accreditation. We noted that the South African Green Star building standard is generally only more accepted in Australia and some African countries. LEED has a wider range of accreditation categories. We were interested in the LEED standards that take into consideration the long-term effects of what it is that you put into the building process and the materials used in construction.”

Of course it is architects that transform a vision into plans for actual structures, and Botswana wanted a company that could translate the ideas for the BIH into a trendy, upmarket building that would address sustainability within the context of science and technology. In a competition that attracted entries from Europe, Africa, South Africa and the USA, one particular architectural studio captured exactly the essence of the solution being sought.

The winning company, ShoP Architects, being based in Manhattan, has appointed a local architectural firm, Nuttall Smith Architects, to serve as its ‘eyes and ears’ locally. It also helps that several of SHoP’s

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architects are LEED-certified professionals with considerable experience in sustainable design.

“SHoP designed a structure that we feel truly represents us as a nation,” says Dr Tacheba, “by incorporating key elements of Botswana – the delta and the desert – in 82 296 m² of office and laboratory space, housing the flagship ‘Icon Building’, as it is now termed, surrounded by 400 sites for private development.”

“There were some particular site issues that presented opportunities in the development of the design,” says Jode Anderson, Nuttall Smith’s senior associate architect. “Firstly, the fact that the Icon Building lies on the flight path to Sir Seretse Khama Airport meant that the project’s roofscape would play a significant role in its design aesthetic. Secondly, the number of well-developed trees in the area – especially the Marula, African Wattle and

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R620 000 000

The cost of the project.

African Seringa – if integrated into the design, would help to anchor the Icon Building to its context. And of course the centrality of the Icon Building site within the 57-hectare BIH campus.”

The final design presents a series of four long slender buildings that reach out into the open land, reminiscent of sand dunes, but there’s more to that concept than just looking good ... the buildings serve a very important purpose in terms of energy collection and saving. The multi-layered overhanging storeys are covered with a concept that SHoP calls the ‘Energy Blanket’ roofscape, designed to shade the building’s interior while hosting photovoltaic power generation that will support mains power.

The Okavango Delta will be reflected in a number of green areas within the BIH. The roof will do most of the work, hosting a large xeriscaped garden planted with a number of indigenous species and rainwater collection systems. “Physically the Icon Building will blend into its environment precisely because of the green roofs which cover the four

building bars and the bridges that connect them, as well as the roof of the parking structure. Groups of trees and exclusively indigenous plants have been incorporated into Amenity Gardens that lie between the bars,” says Anderson.

“Landscape harmony has been achieved through the scaling of the volumes and by forming the topography of the site to help merge the Icon Building into its specific place.”

Other sustainable systems selected by the engineers says Anderson include active-chilled beams for air conditioning. The material selection during construction will make use of cement mixed with fly-ash, a locally-blended product that uses waste ash from the Morupule Power Station near Palapye; and post-consumer content (or recycled steel) for concrete reinforcement and structural steel.

Anderson says: “One may well argue that there is nothing original in any architectural design. However, the BIH is original in the manner in which it addresses sustainability. SHoP Architects’ use of texture is virtually unique and for the Icon Building project, will provide people with a rich visual and tactile experience when using the facility.”

Building starts early in 2012 with the Icon Building hopefully completed within two years. This year activity concentrates on road and service infrastructure, with landscape architects closely monitoring road alignment to ensure the safety of existing trees, and undertaking remedial work to larger trees.

So who will be attracted to the abundance of meeting spaces, the auditorium, restaurant and fitness centre, among other desirable features? “The emphasis of our marketing is focused on private companies, telecommunications, laboratory-focused technology, and international and global players who are keen to host a facility in Africa,” says Tacheba.

“It’s early days, considering that the entire project will only be completed in 2016. What we are assured of from our studies is that the benchmarking of LEED seems to attract more tenants than less sustainable buildings, so we will leverage that aspect when we start marketing.”

At a project cost of 600-million Pula (± R620 million), what does Tacheba say to sceptics who suggest that the BIH will become a white elephant? “I would advise them to visit Smart Village Egypt in Cairo. It is less than 10 years old and already booming – which is remarkable, given that Egypt is not the most stable of economies.”

It seems that part of the dry Botswana landscape is on the brink of becoming a major, sustainable asset. ●

Botswana Innovation Hub www.bih.co.bw