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The missing link

Taking on aid projects in third world countries can often mean biting off more than you can chew; but as Alan Swaby learns, enlisting the help of local engineers can help avoid the pitfalls

There's something about working in under-developed countries that brings out the resourcefulness in people. Sure, it's attractive being at the cutting edge of industry and being able to call on all the backup a multinational organisation can provide, but as Danny Holmes can testify, it's not nearly as fulfilling as pitting your wits against the trials and tribulations of working in a county like Zambia.



“Outside of Lusaka,” he says, “the infrastructure is patchy as best. The M25 might have its problems but falling into a chasm while crossing a rickety, hand-made wooden bridge isn’t one of them.”

Holmes should know. Born and educated in Lusaka, he went to the UK’s University of Manchester Institute of Science and Technology (UMIST) to complete a degree in mechanical engineering. Rather than return immediately he worked for a further three years in the UK before returning home to work for various engineering consultancy firms and BP, and then striking out alone.

“The contracting scene is competitive enough here,” he says, “but nothing compared to the way economic cycles caused engineering companies in the UK to wax and wane, swallowing up others or in turn being swallowed themselves. In Zambia, I saw the opportunity to be my own master and be in control of my own future.”


The result is DH Engineering Consultants, providers of design, project management and commissioning services for electrical, mechanical and water related projects throughout Zambia. Just under half of the time, the group works with architects designing, project managing and then commissioning building services: air-conditioning, water, drainage and the like. A similar amount of time is spent supervising the building of service stations for a couple of the major oil companies.

“Zambia is woefully short of engineering skills,” says Holmes, “so close supervision of any type of work is absolutely essential and quite frankly, takes up most of our time on site.”

Fifty per cent of business comes from environmental consultancy work, where Holmes makes full use of the MSc in Environmental Technology he took at Imperial College, London. “We provide environmental impact studies,” he explains, “particularly where potential pollution may be involved; and we then provide technical solutions to mitigate against any potential damage a scheme might contain.”


Holmes has found that the overall lack of skills plays an important part in how projects should be designed. As a sizeable amount of capital expenditure in Zambia comes in the form of foreign aid, foreign contractors are often involved in the process. “If they approach projects as though they were in their own advanced Western societies,” he says, “the designs have a good chance of failure through an inability of the local infrastructure to provide long-term support.”





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Cutting edge technology and advanced systems might flourish in the West but could quickly wither in the heat and inefficiency of Zambia. Holmes quotes a major EU development project in which DH Engineering was involved in a joint venture with the Spanish company TYPASA. “The project was to rehabilitate water and sanitation services for three markets in Lusaka. TYPASA followed our advice on what would work best in this country—as a result, the equipment we installed continues to work well and is easy for the locals to manage and maintain.”





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Holmes sees this kind of collaboration as an ideal win-win situation. “If outsiders try to go it alone,” he explains, “there is a strong risk of getting things wrong by pitching the engineering at the wrong level. As well as engineering guidance, we also offer bidders a price advantage as we already have all the resources and connections in place.”

Zambia is predominantly a country of SMEs. Most businesses are owner or family run, and even local branches of major companies operate on a very lean structure. “In our capacity as suppliers of engineering support,” says Holmes, “our opposite numbers are usually only one level below the managing director. Unlike dealing with multi-layered organisations, getting decisions made is a much quicker process.”

This year, DH Engineering will celebrate its 10th anniversary. It’s still modest in size—in line with the normal Zambian profile—with just six full-time employees but this number can be doubled or trebled as projects require by calling in agency personnel. Having chosen to work predominantly in the private and donor funded sectors of the economy, it means that the vast majority of major capital projects financed directly by the government are never pursued. “Inevitably, that type of project requires a different way of working we prefer not to be involved with—not to mention the fact that they tend to be well away from urban centres and thus require a different level of resource base from that which my company can afford. Despite this, we still manage to spread our projects and work across the entire country, from crawling along in 4WD across barren floodplains to designing air conditioning systems for multi-storey buildings. That is what I love about my work and this country.”

While not getting involved with manufacturing, DH Engineering often undertakes the commissioning of the systems it designs. Over the life of the firm, it has handled more than 100 such projects, ranging in value from \$100,000 to \$10 million and found in sectors as diverse as banks and office buildings, medical facilities and educational centres.

Holmes is realistic about how the future will develop and is content with organic growth, which is currently looking pretty healthy. After a couple of decades when the Zambian economy was in a hole, prospects have brightened thanks to the £9,000-plus per ton copper is fetching and the size of Zambia’s copper reserves.

“The outlook for the country is good,” says Holmes, “but after years of brain drain and under-investment in education, it will take a long time for the skills levels of the country to get anywhere near where they need to be. In the meantime, that is going to keep life very interesting for the engineers who do live and work here.”

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