

Shango – a front-runner in the field of African geology

Although it tends to fly under the radar and undertakes no active marketing, Johannesburg-based Shango Solutions has emerged as one of the pre-eminent geological consultancies in Africa since being founded in 2004 and is particularly noted for its 'mine finding' capabilities. **Modern Mining's** Arthur Tassell recently visited the Northcliff premises of Shango to meet its staff – who collectively can boast over 200 years of African geological experience – and talk to its founder, Jochen Schweitzer.

Born and educated in Germany (he has an MSc in Geology from the University of Mainz), Schweitzer arrived in South Africa – which he now regards as his home – in the 1980s. "I came to the country to undertake further study, as I was fortunate enough to have been awarded a bursary by the University of Pretoria," he recalls. "After completing my PhD at Pretoria, I joined what was then the Chamber of Mines Research Organisation (COMRO) in Johannesburg in 1987 and stayed with the organisation – which merged with the CSIR in the 1990s – for 17 years.

"Over this period, I progressively became more and more of a manager and less and less of a geologist and ultimately I had about 60



people in my area of responsibility. I decided that I wanted to return to pure geology and I resigned to pursue this goal. The result was that in April 2004, in partnership with two of my colleagues, Dr Richard Stewart and Peter Kramers, I founded Shango. The name, incidentally, derives from the Venda name for 'earth'.

"Richard subsequently moved on and is today a senior executive with Sibanye but his contribution in those early days was vital," Schweitzer continues. "Our timing in founding Shango was perfect, as the resources boom was just starting. Growth was almost immediate and has never stopped since. We negotiated the big downturn of 2008 and 2009 with ease and we've also managed to keep busy through the current recession in mining."

Today Shango has 26 permanent employees, almost all of them professionals as the company has only a tiny administrative 'tail'. The minimum qualification is a BSc Hons but many of the staffers have Masters degrees and doctorates. They include Dr Sharad Master, Shango's Technical Director, who Schweitzer describes as a "walking encyclopedia on African geology", Dr Terence McCarthy, Professor Emeritus in the School of Geosciences at the University of Witwatersrand, who is the author or co-author of three books on geology and countless articles and papers, Dr Sybrand de Waal, Professor Emeritus of the University of Pretoria, who ran the Department of Geology at the University for 13 years, and Dave Kershaw and Manie Swart who have been Chief Geologists at several mines.

"Our philosophy is simple," says Schweitzer.



Shango's Mark Watts in Senegal investigating a laterite-hosted gold deposit.

Centre: Shango's Rinus van der Sluis in Bauba Platinum's LG6 opencast mine in the north-eastern Bushveld Complex. Shango conducts grade control at the mine.

Below: Members of the Shango team pictured at the company's premises in Northcliff, Johannesburg (photo: Arthur Tassell).





The 'Treasure Chest' team with Jochen Schweitzer at the centre back of the photo and Natalie Brand, the team leader, on the right. Part of the huge archive of geological records can be seen (photo: Arthur Tassell).

Dr Tania Marshall, who is a renowned expert in this field. We also have close links with mining engineers such as Professor Jim Porter of Jim Porter Mining Consulting and Jim Pooley of Bara Consulting."

The company makes a point of nurturing and mentoring young geological talent, having supported around 300 vocational students over the years, many of them from disadvantaged backgrounds. Some have gone on to full-time careers with Shango.

Shango offers the normal range of services one would expect from a geological consultancy. In what it calls the 'resource value chain', it undertakes target generation, tenement maintenance, exploration, geological modelling and resource estimation. Its activities also extend to the 'reserve value chain', where it contributes its geotechnical, metallurgical and mining engineering expertise. Technical reporting and studies also form an important part of the business and Shango's staff complement includes

Professor Terence McCarthy inspecting acid mine water decanting, Tweelopiespruit, West Rand goldfield.



no less than nine 'Competent Persons'.

The company makes extensive use of the latest geological software and has five Leapfrog and five Datamine licences, representing a combined investment in the region of R4 million.

Although it derives the bulk of its workload from Southern Africa, Shango has worked on projects in most of the mining regions of Africa, including Mali, Senegal and Burkina Faso in West Africa, Kenya, Tanzania and Burundi in East Africa, and, of course, the DRC in Central

Africa. Its expertise covers all commodities although, in practice, there is a relatively heavy slant towards gold, platinum, copper, diamonds and base metals. Since founding, it has been involved with more than 700 projects on the continent.

Commenting on Shango's client base, Schweitzer says it is a mix of major, mid-tier and junior companies. "We've been particularly successful in assisting Australian and Canadian-based juniors to take their projects up the value chain. Typical of these is White Rivers Exploration (WRE), which is majority-owned by renowned Australian-based mining entrepreneur and prospector, Mark Creasy. The company has a huge portfolio of properties in South Africa, mostly in the Witwatersrand Basin, and its projects include a joint venture with Harmony in the Free State – covering ground adjacent to the Target mine – which could potentially develop into a major gold mine."

Explaining Shango's business philosophy, Schweitzer says the company is 'lean and mean' and thus has a highly competitive price structure. "Most companies claim this particular attribute but we really mean it," he says. "We have no HR or finance departments and we keep internal paperwork to a bare minimum. In fact, the only standard form we have is a leave form. We also avoid being top heavy. Essentially the company is managed by a Leadership Team which consists of Stefanie Weise, my co-director, myself and a further three senior staff members. Apart from this, we have no formal management structures."

He adds that Shango's commitment to its clients can be summed up as 'On Brief, On Budget and On Time'. As he says, "Clients don't need excuses. They need us to deliver exactly what they asked for within the timeframe and budget



Shango's Hendrik Pretorius inspecting artisanal mining in Western Mali.

agreed and this is what we do." He notes that Shango enjoys challenges and cites the case of one of the platinum majors who tasked the company with predicting the pothole density in the UG2 and Merensky reefs ahead of mining. "Our client did not really have much expectation that we would be successful but we were able to come up with a methodology that enabled prediction of pothole densities to be made with a confidence level of 99 %."

One of Shango's great skills is its ability to generate targets for exploration and mining companies. Its major successes include not only the WRE/Harmony JV but also the phenomenal Waterberg PGM project of Platinum Group Metals which has effectively defined a new extension to the Northern Limb of the Bushveld Complex.

"Platinum Group approached us some years ago," recounts Schweitzer. "They were looking for targets in Southern Africa, their main interest being either platinum or nickel. We assembled a team and identified 108 PGM/nickel targets, which we ranked and gave to Platinum Group. We gave them six months to select six of them, with the deal being that the intellectual property of the remaining targets would revert to Shango."

"The company made its selection and the rest is history. The Waterberg project is now regarded as one of the most significant PGM finds of recent years and Platinum Group and its partners have defined a resource which now stands at close to 30 million 4E ounces, sufficient to support a very big mine over a very long life. They, of course, must be credited as the discoverers of the deposit but we can

take the credit for pointing them to the right ground. I might add that we subsequently sold a further six targets from the 108 we identified to a nickel explorer."

Shango is currently busy with an ambitious – and probably unique – project which builds on its 'data mining' and target generation abilities and which could conceivably result in further successes on the lines of the Waterberg project. Explaining the background, Schweitzer says that Shango is busy with the management, cataloguing and analysis of all the Anglovaal exploration data accumulated over a period of approximately 90 years.

"This data, which was left untouched for years, is housed in a satellite office we have here in Johannesburg. Put simply, we are going through it – in the light of current market conditions and using modern geological knowledge – to identify promising projects which were overlooked or not pursued in the past for one reason or another," he explains.

The project represents a tripartite venture between African Rainbow Minerals (ARM), the inheritor of the Anglovaal data, Shango and Caledonian Capital Limited, a project developer and investor based in Melbourne. "We in Shango view this as a strategic initiative which could sustain the company into the future and we've already invested R1,6 million in the venture," says Schweitzer. "We're not interested in having equity in any projects that might be developed but we would benefit from the sale of data and through the provision of our professional services. Enquiries from interested parties are welcome and with this the former Anglovaal exploration data is available to other

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parties under certain strict conditions.”

Modern Mining had the opportunity to visit the ‘Treasure Chest’, as it is informally known within Shango, and view the literally thousands upon thousands of reports and maps, mostly on paper but many in digital form (on media ranging from microfiche punch cards through to CDs), covering projects and properties throughout Africa and indeed further afield. A broad range of commodities is represented in the archive although copper, gold, zinc and nickel predominate.

Shango has recruited a team of nine bright young graduates, most of them geologists, to organise and collate the data and capture it in two master databases, one for reports and one for maps. The team – whose members are all employed on contract – is led by Natalie Brand, who has been involved with the initiative since July last year. The project is now well advanced with around 74 % of the data already catalogued.

Ultimately, projects that are not already owned and are thus available will be evaluated by experts from Shango and its two partners to determine whether they are prospective or not. Those that are will then be candidates for potential development. The evaluation of projects by the experts is expected to start early next year. ARM has a first right of refusal over any project defined from the information.

Notwithstanding his enthusiasm for the initiative, Schweitzer stresses that Shango’s normal work is proceeding uninterrupted. “Our permanent staff are not involved in the ‘Treasure Chest’ project, so there is no loss of focus,” he says. “In fact, we’re probably as busy



as we’ve ever been providing the geological services on which we’ve built our operation.”

Looking ahead, he says that Shango has now reached the point where it will have to decide as to what sort of company it wants to be in the future. “We’ve grown very nicely since establishment,” he observes. “The question is ‘do we really want to grow further?’ If we do, we’re going to need to introduce a finance and HR department and depart from the lean structure that has worked so well for us in the past. Speaking personally, I tend to believe that we should stay at more or less our present size but the matter is still under discussion within Shango. Whatever happens, I’m confident that Shango will remain a leader and innovator in the geological consulting field and that its reputation will continue to grow.”

Photos (unless otherwise acknowledged) courtesy of Shango Solutions

West Wits executives and Shango representatives inspecting a Bird Reef intersection drilled on the former Durban Roodepoort Deep property.