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CORPORATE BROCHURE



A trickle-down effect

Gianni Porta, operations director for Sub-Saharan Africa at civil engineering construction firm Impregilo S.p.a., talks to Jane Bordenave about the Ingula Pumped Storage Scheme

Impregilo Group is the result of a complex operation of industrial concentration which, in successive phases, was concluded in the early 1990s with the final integration of four of Italy's leading civil engineering construction companies. The combined history of these four entities gives Impregilo a pedigree that stretches back nearly 100 years, to the beginning of the 20th century. Worldwide, the firm currently has projects in 30 countries and has been working in Africa since the Kariba Hydropower project in Zambia in the 1950s. Its current main project in South Africa is as part of a joint venture known as CMI Joint Venture, building a hydroelectric pumped storage scheme known as the Ingula Pumped Storage Scheme.

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“Our joint venture partners are CMC di Ravenna, an Italian company like ourselves, and local contractor PG Mavundla,” says Gianni Porta, operations director for the Sub-Saharan Africa division of Impregilo. “This joint venture was formed specifically to take on the Ingula project; however it was a partnership that came very naturally for us. Although we are separate companies and this is our first joint venture in South Africa, we have been co-operating with CMC di Ravenna for a number of years on other projects around the globe.”

The pumped storage scheme at Ingula is being carried out for electricity supplier Eskom and is designed to allow the scheme to cope with peaks of electricity demand that occur each day—a method that has been in use for many years in the Alps. It will also enable other power stations on the grid to run more efficiently. “Coal power stations produce the same level of power constantly. The Ingula Pumped Storage Scheme makes use of this excess power during off peak times to re-pump the water at the plant from the lower reservoir to the upper one,” Porta explains. “Thus it uses low cost energy from the coal-fired plants to produce high-cost energy at times of high demand. By doing this, the grid works more effectively.”





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Despite the fact that the finished product itself is fairly typical of pumped storage schemes, the project is not without its difficulties. "During the construction phase of the project we will be drilling and blasting tunnels totalling approximately 13 kilometres. Here the challenge is in the complexity of the structure itself, as there are a lot of interconnections and different priorities in execution of the works," says Porta. "There is a considerable underground powerhouse to be built and a large transformer cavern too. We will be facing challenges that are common when carrying out work underground, such as excavating and not always knowing what you will find in the rock in front of you." Fortunately to date there have been no major surprises, nevertheless it is something that the workers, engineers and project managers have to be aware of and prepared for.

There are also some technical challenges that have required innovative solutions from





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the company. For the excavation of the shafts, raise boring techniques have been employed, which eliminate the need to use explosives. Additionally, Impregilo has worked with equipment suppliers to design and develop its own custom machinery for use in the construction process.

The use of local subcontractors, suppliers and workforce is very important for Impregilo. “The amount of supplies and equipment we can bring in from abroad is limited to specialist equipment so broadly speaking, our supply chain is local,” says Porta. As well as benefiting the local economy, this arrangement also means that the organisation’s supply chain is easier to manage and the likelihood of any equipment or other necessary products being delayed in transit is greatly reduced.

The benefits for the local economy and population do not stop there. Effective and extensive training of its personnel has always been an important focus for Impregilo and means that the benefits received by locals who join the workforce do not end with the project. “We take a very strategic approach to training,” asserts Porta. “Worldwide, we have 20,000 employees on our payroll, many of whom have followed us from one project to another once we have provided them with the training they need. At Ingula, we have initially brought in international personnel who already have the necessary training. Gradually, as the local workforce becomes more and more skilled, the people we brought in initially to fill the knowledge gap will move onto other projects and the South Africans will take on their roles.”

This mix of nationalities on site is one of the things that makes Impregilo really unique. “We currently have 28 different nationalities working on this project and we feel that in this way we really embody



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the idea of the South African ‘Rainbow Nation’,” explains Porta. “Once we have finished the Ingula Pumped Storage Scheme, we hope that many of the workers will move with us to new projects, either in South Africa or abroad, or that they will have the transferable skills necessary to move on to another local company.”

Besides training, the firm has a number of other corporate and social responsibility initiatives in place, not least of which is its environmental focus. “The Ingula project is actually a sustainable development itself, using a closed loop system, meaning the water used to drive the turbines is the same liquid recycled over and over again. Inevitably there will be some loss through evaporation, which cannot be helped, but that is the only wastage in the whole process,” Porta explains.

The re-use of water is especially important in an arid environment like South Africa, where low

water levels and drought can present a problem. Other environmental plans put in place to ensure that the construction process has minimal impact on the area surrounding the pumped storage scheme are audited on a regular basis by Eskom. The company also uses this opportunity to monitor improvements and through this evaluation can see that there is ongoing improvement in this area.

Once the Ingula project is finished, Impregilo will be focusing on winning further unique and challenging work in South Africa. “We are working to be able to develop other projects—we want to get involved in the interesting schemes where there is a need for technical and logistical know-how. There is a lot of competition in our market, but I am confident about us being involved in other projects here and that we will be able to form further joint partnerships with South African contractors,” Porta concludes. www.impregilo.it

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