

An integrated path to Africa's water future

During a webinar hosted by SRK Consulting during Water Week, principal scientist, Avril Owens, highlighted how SRK navigates the complex web of global, regional and national goals, policies and laws that influence water management planning, and the advantages of adopting an integrated approach.

Avril Owens, SRK Consulting's principal scientist, opened her presentation with some sobering statistics: Africa has 16% of the World's population but only 9% of its fresh water resources; 1 in 3 African people have no access to clean or safe water; and in sub-Saharan Africa, 115 people die every hour from diseases caused by poor sanitation, hygiene or contaminated water.

In addition, drought and climate change are leading to crop failures; while landslides and flooding are becoming more frequent. On the management side, she said losses due to leaks are huge, citing Kenya, where 39 to 40% of the treated water is lost to leaks, with South Africa not far behind at 37%. Pollution and poor storm water management exacerbate the problem and, collectively, all these issues place a huge strain on the fragile economies of African nations.

In response, she highlighted the value of adopting an integrated approach based on understanding strategic linkages and applying systemic planning. SRK's experience around Africa has given it valuable insights into how best to plan and implement successful water-related interventions.

"A vital first step is to take a strategic perspective, which helps to achieve water management goals regardless of the scale at which you are operating," said Owens. "This applies as much for high-level trans-boundary catchment issues as for project-specific levels."

She outlined how SRK Consulting navigates the complex web of global, regional

and national goals, policies and laws that influence water management planning. At continental level, for instance, is the African Water Vision 2025 of the African Union (AU), while the United Nation's Sustainable Development Goals apply at global level.

"Along with international treaties, conventions and agreements, these frameworks provide guidance for any water management plan," she said. "The international legal obligations also inform national water laws, and guide each country's regulatory authorities on how to apply their laws and regulations, through licencing and permits, for example."

She highlighted the AU Agenda 2063's intention to harmonise sustainability efforts across Africa, while the African Water Vision focuses on improved water management – including achieving access to safe and adequate water supply and sanitation.

"The AU Agenda is Africa taking control of its own destiny, by informing a framework of action that has milestones to be achieved by adequate planning and funding," said Owens. "The framework and milestones are implemented by a range of structures including national ministries, institutes and local authorities, which are tasked with generating policies and strategic plans."

This provides the foundation for projects to pursue the involvement of financial institutions such as the World Bank and African Development Bank; funders such as the Global Environment Facility and the Southern African Development Community



Water Fund; and development agencies: the United National Development Programme and the New Partnership for Africa's Development, for example. To access funds from these institutions, however, it is imperative that project implementers adhere to their standards, guidelines codes and principles, she advised.

"An integrated approach to water management ensures the project design is well-rooted in the strategic framework, so that it links firmly with the aims of funders," she said, adding that SRK is particularly adept at navigating through these strategic considerations, paving the way for developing actions and targets based on modelling, data analysis and results, with responsibilities and timeframes clearly assigned.

"When planning at strategic level, SRK's integrated planning approach includes co-ordination and alignment of policy; the project tasks; the resources needed, including human and financial resources; as well as stakeholder engagements," she said.

Owens emphasised the importance of a diverse and multi-disciplinary team. "The team must provide insights on the various challenges facing any water project, addressing these with its respective expertise," she said. "This will include social scientists, natural scientists, engineers and planners – to cover all the bases for a robust, practical and successful plan. Our approach is informed by a classical environmental management system with a continual improvement focus and component integration," she continued.

Owens highlighted a few of the elements involved in this process, starting with baseline investigations. Once the scope has been identified – which can be at the systemic level such as a national level catchment, or focused on project level such as a specific aquifer – SRK will then begin the very important task of assembling the multidisciplinary and highly integrated technical team.

Data gathering, research and comparable case studies follow, to identify gaps in information that will need to be filled by on-site investigations. The team will generate the

necessary methodology, undertaking studies such as a hydro-census, an aquatic ecological assessment, a hydrological or hydrogeological investigation or community surveys.

For data analytics, SRK's dedicated team uses the latest software such as FEFLOW or MODFLOW, for example, along with several others. "Our specialists conduct modelling and interpretation, which feeds into the integrated efforts of the project team. This data and the associated results allow plans to be practically formulated, efficiently implemented and carefully monitored for any possible improvements," Owens noted.

"Monitoring and evaluation, in our experience, is often underdeveloped and undervalued," she suggested, yet it is critical for success. "It is very valuable to have both internal and external audits to overcome this, along

with simple checklists to help ensure that all aspects of auditing and checking are being covered. "If things do not get done diligently, money and time will be wasted, which will have a knock on effect on the whole water management plan," she warned.

There are several obstacles to implementing sound water management plans for Africa, including: insufficient or outdated policy direction; financial and funding constraints; water resource restrictions; human resource limitations, including lack of awareness, training and skills; and an absence of collaborative water stewardship. SRK's team is familiar with these obstacles and can proactively address them in the planning process of projects.

"Integration paves the way for successful water management planning, bringing all key elements together: checking alignment

to policy visions and strategic objectives; involving a multidisciplinary team to deliver holistic solutions; good and continual communication and effective collaboration between specialists and stakeholders; taking account of the existing capacity, structures and mechanisms of implementation; and, lastly, sourcing and securing the funding required, without which, the water management cycle cannot be completed.

"The dire water situation in Africa needs to be addressed a lot more vigorously and, from SRK's perspective, sound water management is the first step," said Owens. "Robust water plans can help us to move towards sustainability and equitable distribution so we can all have water for the future," she concluded.

www.srk.co.za

Jukskei river clean-up project

Starting at its source, exciting efforts to clean up the Jukskei River in downtown Johannesburg are gathering momentum assisted by a range of organisations including SRK Consulting. The public-private initiative is being driven by NGO Water for the Future (waterforthefuture.co.za), which SRK Consulting is supporting with specialised technical expertise on the gathering of data and the assessment of water sources, flow and quality.

"SRK has played an invaluable role in this project from early on, generously contributing its time and experience," says Water for the Future co-founder, Romy Stander.

Dr Simon Lorentz, principal hydrologist at SRK Consulting, has spearheaded the company's involvement, focusing on data gathering for future decision-making. "There has been a small but significant start made to collecting time series data from the water discharge in the Jukskei headwater channel," says Lorentz. "A monitoring station has been installed, which includes meteorological instrumentation donated and supported by Campbell Scientific Africa, and an automatic water quality sampling device with integrated flow measurement instrumentation."

This will allow automated data collection on rainfall, wind and temperature variables relative to the flow characteristics of the river and the quality of the water. Bureau Veritas has also partnered with the project to analyse the water

quality of the automatically collected samples.

"The scientific data, together with associated stable isotopes of water, will provide a vital foundation for understanding the sources and possible pathways of the discharge and water quality species," says Lorentz. "It will also be valuable for broader research efforts at universities and elsewhere to address similar urban water challenges around the country."

Water for the Future – supported by seed-funding from Nando's and Victoria Yards – is working with the City of Johannesburg to improve conditions for communities along the Jukskei.

Romy Stander notes that Johannesburg is also a sub-continental polluter, as the Jukskei carries the city's pollution north into the Crocodile River, Hartbeespoort Dam and the Limpopo River. "The project's impact is therefore likely to be felt far beyond Gauteng," she concludes.

www.srk.co.za



As part of the Jukskei river clean-up project, SRK's Simon Lorentz, Mickey Maphosa and Sindiso Ndllovu install instrumentation in the Jukskei channel.



There is considerable scope for the sub-Saharan region to improve its performance in meeting the water needs of African people.



GLOBAL
REACH

MINING | WATER | INFRASTRUCTURE | ENERGY | ESG

www.srk.co.za