

## **The reality of South Africa's Wastewater Treatment Technology**

South Africa is at a “tipping point” in terms of what is required of municipalities to comply with, what needs to be achieved and what is appropriate and necessary to ensure an acceptable and reliable level of performance. This is an extract from the recently released report by the Water Research Commission (WRC) in partnership with the South African Local Government Association (SALGA) entitled: *Drivers for Wastewater Technology Selection – Assessment of the Selection of Wastewater Treatment Technology by Municipalities in Relation to the Management Capability and Legislative Requirements* by M van der Merwe-Botha and G Quilling.

Over the past decade, much attention has been devoted to the engineering, science and technological aspects of wastewater treatment in South Africa. More recently, attention has been redirected to assess the performance and compliance status of wastewater treatment facilities, and to identify the challenges and root causes that underpin poor performance – in particular by municipal institutions.

The report provides a high level assessment on the appropriateness of the technological choices in relation to the current ability of the municipality to administer such choices. 15 municipalities from across the country took part in the study.

Established in 2010 under the recommendation of the WISA Small Wastewater Treatment Works (SWWTW) division, the Small Wastewater Treatment Works Suppliers Association (SEWPACKSA) is an association of like-minded professionals in the water treatment industry aimed at providing a unified representative body of Suppliers of Package Plants in the Republic of South Africa to create a sustainable and self-regulated industry. Paul Gaydon, EXCO member of SEWPACKSA who is responsible for legislative matters, comments on behalf of SEWPACKSA on the findings of the report.

### **Inappropriate technologies**

The findings of the report indicate that 44% of the studied wastewater treatment plants may have opted for less suitable (inappropriate) technologies when considering their resource base, capacity to manage and provide effluent quality requirements. Gaydon says: “The report states that standards should not determine the treated effluent quality, but rather use the Receiving Water Quality Objects (RWQO) for the river as the point of reference. While I agree with this, the problem is that RWQO studies have not been conducted on the majority of South Africa's rivers. A full RWQO takes at least 3 years to perform, and a Rapid Desktop Study takes approximately 6 months to perform and costs the municipality around R600 000 (2009). Due to the fact that most plant upgrades or extensions are already overdue by the time the project actually commences, it forces the consultants to resort to using the Standards rather than the RWQOs. The question is, does the Department of Water Affairs have the capacity to manage RWQOs? SEWPACKSA members will generally be forced to use the Standards approach, and match the technology to these” says Gaydon.

In terms of appropriate technologies and making sustainable choices, Gaydon discusses how SEWPACKSA as an organisation ensures that their members adhere to certain standards. “SEWPACKSA members will either train staff to operate and maintain the plants, or provide this function on a contract basis. If suitable staff are available from the client to operate the plant, then a minimum of a maintenance contract is preferred. Plants are monitored on a monthly basis and improvements made where problems arise. Repairs are conducted on an urgent basis, and spares for the equipment installed are readily available” explains Gaydon.

### **Performance and compliance**

When considering performance and compliance, there are a number of challenges that underpin poor performance. According to Gaydon the main challenges are the lack of trained personnel and the awareness of the need to comply. SEWPACKSA provides training, and comprehensive plant specific operations and maintenance manuals to prevent problems. "Our clients, being in the private sector are also acutely aware of the need to comply with the Standards from both a legal and environmental point of view. All equipment is provided with duty and standby units, and these are repaired as a matter of urgency in order to ensure good quality effluent" comments Gaydon.

The overall performance of a plant spans across the planning, design and management of wastewater treatment facilities. SEWPACKSA members are intensively involved in the operations and maintenance of their plants, and as such design plants that are robust and reliable, and simple to operate. As a result of this more experienced personnel are used to design plants which ensures ease of operations and maintenance.

According to Gaydon: "Certain consultants may have little experience in wastewater treatment plant design, but are appointed on the basis of the lowest tender bid – this is a recipe for disaster, as they have to sacrifice on all aspects of the work to maintain a profitable project. Consultants should not be allowed to discount more than 2% on the Engineering Council of South Africa fees to ensure a quality job, and their experience should carry a heavy weighting in appointments. In fairness to consultants, Municipal Infrastructure Grants are often awarded on a budget price in a certain year, and may fall short during project implementation which results in certain areas of the plant having to be under-equipped. An example of this is undersized drying beds, which results in reduced wasting of sludge, and results in solids carryover, destroying effluent quality and the aquatic environment" he says.

### **Impact on the environment**

Commenting on the legislative requirements for the package plant industry and the impact on the environment if these Standards are not complied with, Gaydon says "SEWPACKSA members generally design plants to comply with the General Authorisation Limit Values, due to the fact that our plants discharge less than 2MI/d. We are acutely aware that our plants must achieve good compliance in order for us to retain a good track record and stay in business. Most of our staff are also environmental enthusiasts and thus the importance of maintaining excellent effluent quality is paramount to us".

### **SEWPACKSA in the industry**

The package plant industry has in the past had a poor reputation and SEWPACKSA has made significant progress since its inception to further strengthen this industry. SEWPACKSA has taken substantial strides to improve their reputation in terms of effluent quality, and this includes the entire lifecycle of the project from initial design to ultimate operation. The private sector is a straight talking environment and should a member be shown to have erred, the matter will be resolved as an aspect of priority.

SEWPACKSA is an organisation that represents a number of industry suppliers. How do suppliers benefit from becoming a member of SEWPACKSA? SEWPACKSA members are bound to a specific Code of Conduct and have to comply with certain guidelines which will make sure that a good reputation is maintained. As such clients are ensured of a professional service and product which would not apply to non-members. Members are assured of doing more business as a result of their affiliation.

### **Complaints procedure**

SEWPACKSA has in the past year introduced a complaints procedure for handling of complaints. Mark Ross, SEWPACKSA Chairman says one of the negative issues that historically surrounded this sector of the water industry were unsubstantiated 'wild' supplier claims that to the layman were impressive, but from a process perspective totally misleading. Also, striving for competitive edge compromised process and general engineering of treatment plants which contributed to failure with consequent damage to the environment and danger to human health. "While the Complaints Procedure has no current jurisdiction over non SEWPACKSA suppliers, it is a self regulating internal procedure to keep Association members true to our published standards of quality and integrity. The sequential procedural steps embodied in the document are fair and allow for corrective action. Only in the most severe situations of non-compliance and persistent adherence to such, will a result be sanctioned whereby the member could be expelled from the Association along with concomitant notification of such being posted on the SEWPACKSA webpage. Prior to this ultimate and final step, external and impartial professional intervention would have been sought by SEWPACKSA" says Ross.

### **About SEWPACKSA**

The main objectives of the Small Wastewater Treatment Works Suppliers Association (SEWPACKSA) are:

- To provide a unified non-governmental representative body of suppliers of package plants in the Republic of South Africa to create a sustainable and self-regulated industry.
- To create a sustainable, self-regulated package plant industry that can treat wastewater on-site in remote areas, or where authorities do not provide sewer connections, or where additional capacity to the wastewater treatment facilities of various government bodies is required, whilst complying with legislative requirements for discharged water quality.
- To enable the supply of compliant package plants and management services of such package plants on the basis of best corporate governance practice and a code of ethics as adopted by the Association.

SEWPACKSA Contact:

Debbie Besseling

[liaison@sewpacksa.co.za](mailto:liaison@sewpacksa.co.za)

[www.sewpacksa.co.za](http://www.sewpacksa.co.za)