

## **Visionary Innovation Award Water Treatment South Africa, 2013**

### **Frost & Sullivan's Global Research Platform**

Frost & Sullivan is in its 50th year in business with a global research organization of 1,800 analysts and consultants who monitor more than 300 industries and 250,000 companies. The company's research philosophy originates with the CEO's 360-Degree Perspective™, which serves as the foundation of its TEAM Research™ methodology. This unique approach enables us to determine how best-in-class companies worldwide manage growth, innovation and leadership. Based on the findings of this Best Practices research, Frost & Sullivan is proud to present the 2013 South African Visionary Innovation Award in Water Treatment to Sustainable Engineering Solutions (SES) and Organic Water Solutions (OWS).

### **Frost & Sullivan's Visionary Innovation Research Group**

Visionary Innovation is the ability to innovate today in the light of perceived changes and opportunities that will arise from Mega Trends in the future. It is the ability to scout and detect unmet (and as yet undefined) needs and proactively address them with disruptive solutions to cater to new and unique consumers, lifestyles, technologies and markets in the future. At the heart of visionary innovation is a deep understanding of the future implications and global ramifications of mega trends, in order to correctly identify and capture niche and white space market opportunities in the future.

The Visionary Innovation Research group of Frost & Sullivan conducts cutting-edge visionary research by tracking the most important global Mega Trends, potential scenarios of specific trends in 2020 and beyond, and the macro to micro implications of these new Mega Trends. The unique feature of this research, compared to other predictive programs out there, lies in its ability to not only identify and evaluate emerging Mega Trends, but to also help clients translate those opportunities to everyday business and personal life – using the macro to micro approach.

#### Infrastructure: Power, Water and Transport Mega Trend

Increasing water stress and concerns on water management cycles will lead to sustainable water & wastewater treatment solutions in 2020. The value chain of the water industry will soon witness a strong integration between engineering procurement and construction companies, water & wastewater treatment system assemblers and original equipment manufacturers thereby leading to innovations in chemical free water & wastewater treatment solutions, bio-gas generation from wastewater treatment and recovery of material resources. Additionally trends such as Smart Water Grids and Water Trading are set to capitalise on the overall sustainable drive and become the mainstream by 2020.

## Significance of the Mega Trends Visionary Innovation Award

### Key Industry Challenges Addressed by the Recipient

Water shortages affect many parts of the world and it is estimated that by 2025, almost 2 billion people will be affected by water scarcity and two-thirds of the world's population will be living under water-stressed conditions. Water is thus a resource that must be managed and monitored and wastage should be eliminated.

### Environment and Water

South Africa has very few water sources that are in a natural state. Water in South Africa is scarce and is also unevenly distributed throughout the country. Thus water resources require protection. In South Africa water is managed through the National Water Act which purpose is "to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors: promoting equitable access to water; redressing the results of past racial and gender discrimination; promoting the efficient, sustainable and beneficial use of water in the public interest; facilitating social and economic development; protecting aquatic and associated ecosystems and their biological diversity; meeting international obligations" - National Water Act (No. 36 of 1998).

The aim of protecting water resources is to ensure that water is available for current and future human use which entails maintaining the overall ecological functioning of rivers, wetlands, groundwater and estuaries to ensure quantity and quality (overall health) of the country's water resources. Pollution prevention is part of the National Water Act particularly where a water resource may become polluted or has become polluted because of activities on land. Specifications exist for the standard of water that can be released into the environment and application sectors releasing water into the environment, such as mining, agriculture etc. must ensure the quality of water released to prevent pollution of South Africa's natural water supply.

### Key Benchmarking Criteria for Mega Trends Visionary Innovation Award

For the Mega Trends Visionary Innovation Award, the following criteria were used to benchmark OWS/SES's performance against key competitors:

- Understanding and Leverage of Mega Trends
- Vision Integration Into Strategy Excellence
- Efficacy of Innovation Process
- Degree of Impact on Business and Society

**Criterion 1: Understanding and Leverage of Mega Trends**

SES/OWS has recognised the global and domestic trend toward conserving water in a sustainable way. They have acknowledged that South Africa, as with the rest of Africa, faces a “water management crisis.” They are especially concerned about the impact of poor water quality on health resulting in deaths from waterborne diseases in Africa, which are in excess of 2 million per annum. OWS/SES believes that the supply of adequate quality of water is imperative and as such has developed truly economical, efficient and environmentally friendly technologies and products to combat treatment of waste water for release into the environment. OWS/SES treatment plants are designed to be run organically or “chemical free” and to this end they have obtained the rights to sell digestive organisms for their anaerobic digesters which make their water treatment plants completely organic solutions.

Competitor 1 sees itself purely as an engineering company that provides turnkey solutions to potable water and effluent water plants. Competitor 1 design philosophy is based on the utilization of appropriate technology, ease of operation and cost efficiency and is less concerned with the impact and environmental gains of its product offering. Its system uses naturally occurring organisms, as well as chemicals where deemed necessary. Competitor 2 offers a much broader range of water treatment offerings, however, it is a small operation focusing on smaller volumes of water and is also not environmentally focused in terms of the type of water treatment chemicals offered, including the use of chlorine for water sterilization.

**Criterion 2: Vision Integration into Strategy Excellence**

The SES/OWS product provides a number of benefits to users that are not provided by competitor products.

1. OWS are able to provide a high level of quality and confidence because of the patented, organic technology they utilise and also because SES design experience is excellent and always designed to be, thus SES treatment plants are guaranteed to achieve discharge water that is fully within general limits water quality standards of the National Water Act which their competitor products cannot provide.
2. The SES containerised systems is extremely cost competitive, coming in at 25% less than the nearest competitors and yet having the same or better water-treatment capacity as similar, more expensive systems.
3. A further benefit to both customers and the environment is that the system works on gravity so there is no requirement for pumps and there is minimal electricity consumption.
4. The SES designed and constructed WWTP system can be manufactured from steel as well as masonry which provide the benefits of:

4. A) being modular and movable, meeting customer requirements should they not obtain approval from the department of Water Affairs for a water license (which process can take up to 4 years) or acting as a replacement while immovable plants are being repaired.

4. B) they can be pre-constructed in the Western Cape and easily transported or shipped to rest of Africa or abroad for export purposes.

Competitor 1 treatment plants try to create ideal conditions for natural organisms to eliminate dissolved compounds; however, they also use chemicals to speed up the process. They do not guarantee the standard of the discharge water arising from their systems. Additionally, Competitor 1 plants are not gravity fed and utilise electricity, adding to the cost of their systems compared to SES. Competitor 2 also relies on natural organisms for water treatment and also utilise more simplistic systems, as it deals with smaller volumes of water in very specific applications where the water being treated is essentially raw water and is not heavily contaminated with effluent / waste of any kind.

### **Criterion 3: Efficacy of Innovation Process**

Due to the success of its technology, pricing and environmental approach and strategy, SES is considered to be extremely competitive in terms of tenders, and has already been selected for a number of large projects in South Africa, Africa and has started to export its treatment plants to Europe:

1. 50% of business in Africa – Shoprite, schools, hotels, factories and farms
  - a. Projects completed in: Nigeria, Angola, Rwanda, Zambia, Seychelles
2. A Larger WWTP unit treating 450, 000 l per day has being installed for a domestic development.
3. First two containerized treatment plants exported to Ireland

Competitor 1 and 2 are focused on a specific industry (wine farms) and are purely locally based, having not expanded beyond the borders of South Africa as yet.

### **Criterion 4: Degree of Impact on Business and Society**

#### **Business**

SES has been in existence for 7 years and its partner company OWS for 4 years. Between 2011 and 2012 the company doubled its turnover, and it is projecting to double again between 2012 and 2013. It is currently at the beginning of a rapid growth trajectory which it hopes will be sustainable into the future. SES/OWS believes that their future competitors will be Veolia Water Systems and Aveng, although at present they compare themselves to companies that focus on Western Cape and South Africa. SES/OWS has

established themselves in Africa as a leading water and sanitation contractor expanding well beyond the borders of South Africa as opposed to these direct competitors.

## **Society**

Society benefits from the environmental impact that is created by releasing high quality of water back into the natural resources. This environmental impact extends to direct impact on potable water as well as long term conservation of natural water resources and biodiversity.

## **Conclusion**

Organic Water Solutions and Sustainable Engineering Solutions are 2 South African companies that have partnered together to develop turnkey, organic water treatment plants and unique biological digestive processes. The patented organic water treatment formulations, designed to restore the ecological balance in water and the substrate of water by controlling and enhancing the environment in which nature can “do its work” were developed in South Africa. The consulting arm of the partnership has developed expertise in water treatment plant design across application sectors. Together, the companies have developed water treatment solutions that are low cost, dependable and which are guaranteed to discharge water of acceptable standard. Their environmental and chemical free approach to water treatment is in line with the mega trends that have been identified for water treatment by 2020.

Organic Water Solutions has the patented formula for their unique micro digestive organisms and this innovative technology is revolutionary in the following fields: remediation of polluted rivers, dams, effluent streams, and soil profiles, flushing and cleaning of irrigation systems, increasing efficiency of waste water treatment plants, remediation of crude oil spills and fats and oils digestion.

## **Critical Importance of TEAM Research**

Frost & Sullivan’s TEAM Research methodology represents the analytical rigor of our research process. It offers a 360-degree view of industry challenges, trends, and issues by integrating all seven of Frost & Sullivan's research methodologies. Our experience has shown over the years that companies too often make important growth decisions based on a narrow understanding of their environment, leading to errors of both omission and commission. Frost & Sullivan contends that successful growth strategies are founded on a thorough understanding of market, technical, economic, financial, customer, best practices, and demographic analyses. In that vein, the letters T, E, A and M reflect our core technical, economic, applied (financial and best practices) and market analyses. The integration of these research disciplines into the TEAM Research methodology provides an

evaluation platform for benchmarking industry players and for creating high-potential growth strategies for our clients.

**Chart 1: Benchmarking Performance with TEAM Research**



### **About Frost & Sullivan**

Frost & Sullivan, the Growth Partnership Company, enables clients to accelerate growth and achieve best-in-class positions in growth, innovation and leadership. The company's Growth Partnership Service provides the CEO and the CEO's Growth Team with disciplined research and best-practice models to drive the generation, evaluation and implementation of powerful growth strategies. Frost & Sullivan leverages 50 years of experience in partnering with Global 1000 companies, emerging businesses and the investment community from more than 40 offices on six continents. To join our Growth Partnership, please visit <http://www.frost.com>.