

Wastewater: Synopsis

Wastewater treatment has been around for centuries. The planning of a treatment works cannot be overemphasised. Both short-term and long-term planning needs must be taken into consideration. One cannot over-design a works as it is quite costly to run a treatment plant at a fraction of its capacity, and on the flip side it would be disastrous to under-design, as the works would be overloaded. The latter phenomenon is essentially the problem at the majority of the treatment works in the Cape Metropolitan area. Some plants were erected in the early part of the last century, and it was obviously difficult to foresee how the City of Cape Town would develop and expand to what it is today. The frightening aspect is that we probably did not experience the full extent of the growth yet.

Planning is thus a vital component when looking at treatment processes. It is not by sheer coincidence that wastewater treatment plants are located near or adjacent to landfill sites. The by-product of a landfill, viz landfill leachate can be treated at a wastewater treatment works, and the by-product(s) of wastewater, viz screened and grit materials, as well as certain classes of sludges, can be disposed of at a landfill site. The transport costs would obviously play a major role when determining the location of both activities.

Wastewater treatment plants runs on two basic principles. Separate the liquid fraction from the solid fraction as the two would be treated aerobically and anaerobically respectively. Although the aerobic process is a lot faster than the anaerobic process, it would be very costly to let the solids content go through an aerobic process.

The treatment process must comply with legislative and environmental standards at all times, and it is important to note that changes in legislation may affect the economic and scientific considerations that may have been taken into account. One needs only to think of a huge investment that were made in setting up a plant in pelletising sewage sludge, only for legislation to change preventing the use of the said pellets.