Constructed wetlands need management

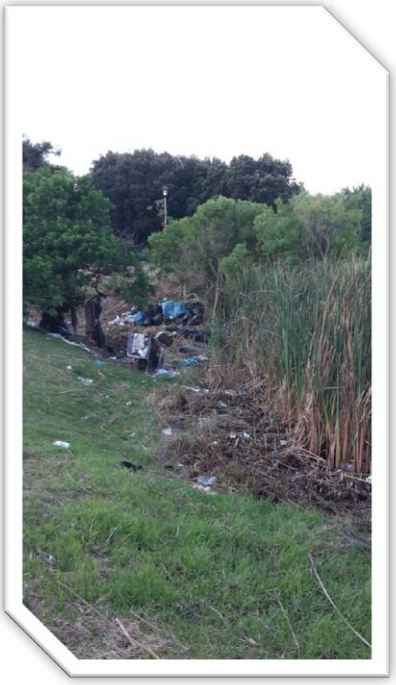
Constructed wetlands come in many shapes and forms, and are designed for different purposes. They are not natural systems, and most often they don't work or at least as well as their makers would like especially if they are not managed. The problem is that we expect biological systems to operate according to our demands, but nature doesn't run on a human clock. So, for example, plants don't grow we need them to absorb and treat dirty water which typically happens during the winter time when rainfall carries polluted surface water to waterways, natural wetlands and ultimately to the oceans. This doesn't mean that we shouldn't try to build wetlands, to learn from our mistakes and also treat these kinds of systems as a way of contributing to public education. However, constructed wetlands need to be managed or else they will fail, and often badly.

When the wetland on the western bank of the Liesbeek River in Mowbray, opposite Rhodes Office Park, was built in 1997, the intention was to provide an aesthetically pleasing public environment and perhaps a secondary thought was to intercept and treat urban stormwater runoff. This development was funded by Rhodes Office Park complex as a contribution to the environment. I understand that the developers agreed to maintain the wetland for the first two years, thereafter it would revert to a City's Parks and Recreation department.

What the wetland looked like soon after construction (Photo: Douglas Metcalfe)

Sadly the difficulty in maintaining the wetland caught everyone on the backfoot. Initially the wetland looked wonderful. It was beautifully landscaped and planted out with indigenous plants. In 1997, one of the Friends of the Liesbeek wrote in their local newsletter at the time, *"The wetland is going ahead and while it looks good on paper, it is an experiment which may well be inappropriate for this section of the river. I hope that we will be able to comment more favourably on this issue in the years to come."* Problems began a year or two after it was completed. The inlet pipe became clogged resulting in poor throughflow of water from the river through the wetland. The Friends of the Liesbeek tried on several occasions to keep the inlet free, but it soon became a losing battle. Then soils in wetland began receiving excess nutrients from stormwater runoff and all the ingredients were then in place to change the once

pretty wetland, perhaps forever. At this point phragmites reeds took over the wetland – an indication that they were thriving on the nutrients and actually doing a great job in absorbing pollutants. The public were not pleased. The familiar sight of a bunch of common reeds is hardly an attractive environment. They are even more displeased when these overgrown areas become the refuge for the homeless and excessive litter that accompanies living in these conditions.



Unpleasant consequences of a poorly managed sustainable urban drainage project. Removing the reeds reveals the problem of litter, blockages and accumulation of biomass. Photo: Kevin Winter 25 October 2014)

Fortunately we also live in a society of good citizens who do care for the river and are willing to take up a challenge. Many people have given up a Saturday morning to clean this and other parts of the Liesbeek. The City Department has also put in effort to clear the reeds, in fact no more than 12 months ago undertook a major clearing operation that left the wetland almost in a similar state to 10 years earlier. But in these circumstances, nature bounces back fast especially when the nature balances are all wrong.

This brings us to the point we find ourselves right now: what do we do next. Should the wetland be covered over? If it was filled in with an aggregate of stone and topped with a planted landscape, it could still do the job of receiving stormwater without the difficulties of trying to manage a complex, small body of water. While the jury is out on what to do next, what does need to happen is to shift the focus. The priority is to attend to treating stormwater on the land before it enters the Liesbeek because this contributes to poor water quality further downstream. A secondary goal should be that of creating a beautiful, safe and clean environment and public space. At the moment none of the original intentions are working.

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