

Sewage treatment; A walk in the park

Introducing the problem

= 4,550 people

= 20 °C

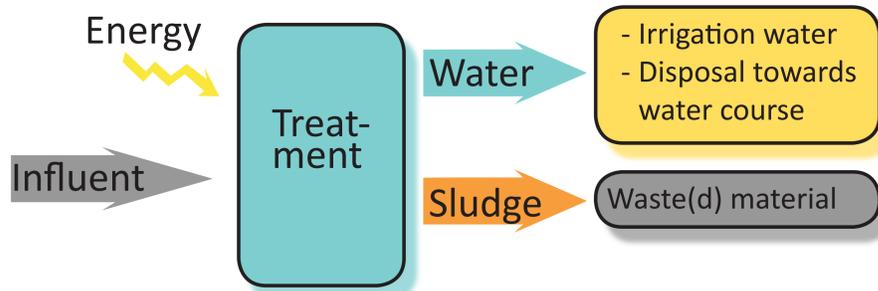
= 330 mm/year

COD = 455 kg/day

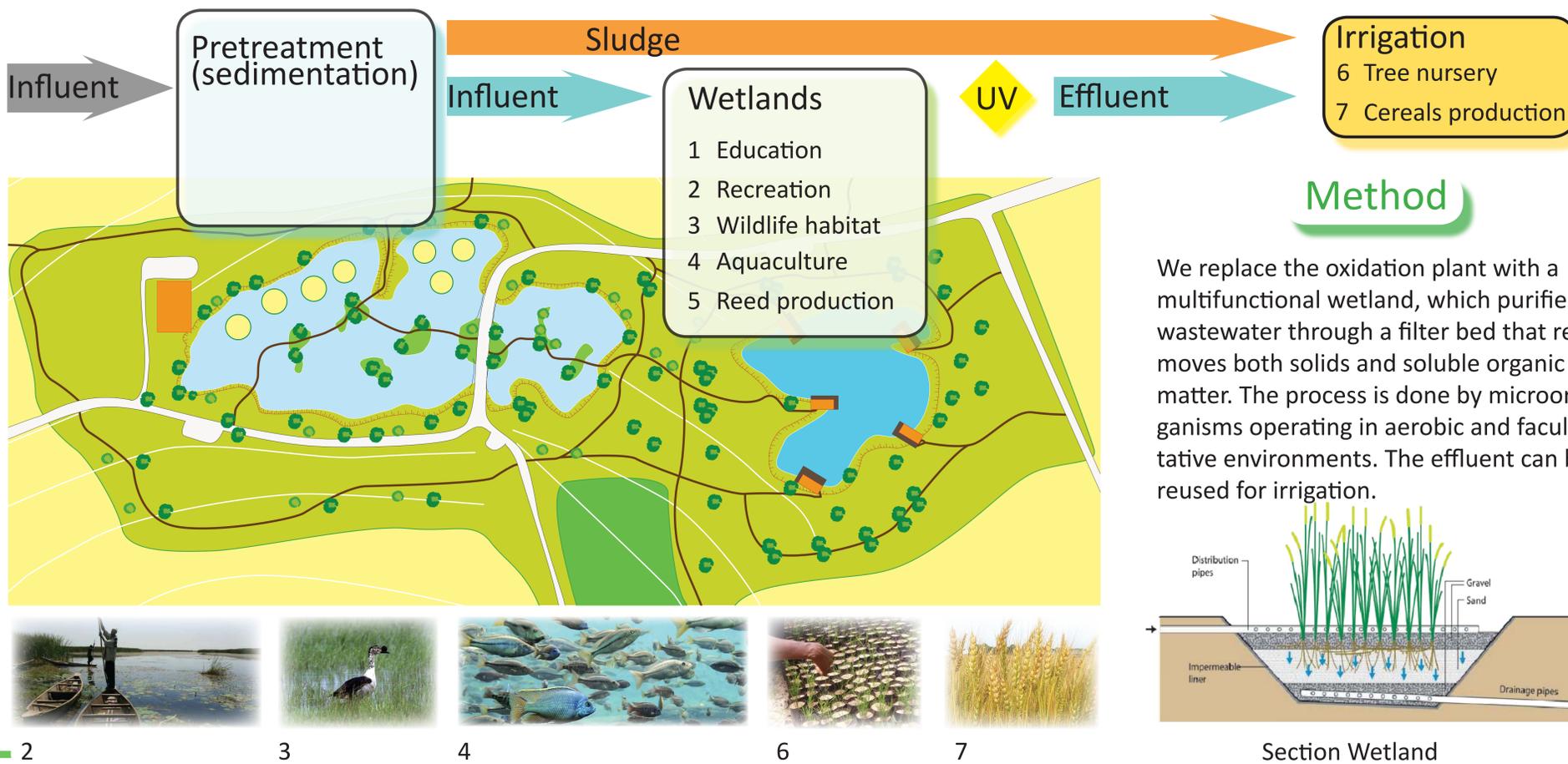
TKN = 54,6 kg/day

The village Barrydale is part of the Swellendam municipality. It is a semiarid area characterized by low levels of agricultural and industrial development. The municipal waste water treatment plant (WWTP) is currently processing 4.5 times more than capacity. Due to the poor performance of the plant, the effluent does not meet the water quality standards neither for irrigational uses or disposal to water courses. Hence there is an urgent need for upgrading the treatment plant. This provides a unique opportunity to come up with a sustainable and integrated vision on how to turn waste water into a valuable resource.

Current WWTP



HOW to improve the WWTP ?



Water quality

Our system meets irrigation and discharge water quality standards!

The capital investment and operating costs have long term benefits. The estimated capital cost for the wetland is R400/m², dependant mainly on the cost of sand and the macrophyte plants.

Parameter (mg/l)	General limits		Water quality	
	Disposal	irrigation	Current system	Constructed wetland
COD	75	400	800 - 1200	80 - 120
Nitrogen	6 - 15	5 - 30	40 - 60	28
Suspended Solids	25	50	ND	20

Benefits

- Adequate water quality for irrigation proposes
- Saves a lot of energy
- Retains key nutrients for agriculture
- No odour
- Stimulates local economy
- Reuse of effluent → drought-proof water supply for agriculture

Constructed wetlands can recycle wastewater and turn it into irrigation water, while simultaneously enhancing the local ecological and economic value. It is a low cost and energy efficient solution, which can be designed as both a productive and recreational area. We believe this is the best way to upgrade the WWTP of Barrydale.

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