



July 2024

MARGINPAR INNOVATIVE WASTE WATER TREATMENT

EXEO Capital's Funds I and II have been invested in the Marginpar Group since 2018. Marginpar produces 300 million stems a year, on 460 hectares of production land. Production is divided over 17 flower farms, in Kenya and Ethiopia, with three primary supplier farms each in Zimbabwe and Tanzania. In Kenya, production of flowers (stems) rose by 100% over the last 10 years without adding a single hectare of land to the company's farms. This is due, among other factors, to implementing a range of best practice agricultural learnings, subscribing to and attaining a wide range of international certifications and adopting innovative resource efficiency measures, such as the treatment of waste water for reuse, as reported in this article.

Marginpar using nature to treat waste water for reuse

All Marginpar farms in Kenya and Ethiopia now implement waste water treatment through specially constructed wetlands (see photos). Waste water from packhouses, central spray units, fertigation units, canteens, laundries, and tractor/car wash areas is channelled to the wetland systems. There, the waste water undergoes treatment in a series of deactivation tanks before being routed to the wetlands for further purification.

At the wetlands, the effluent goes through a vertical flow bed, a gravel bed hydroponics system, and is then released into the surface cells (open ponds). Aquatic plants in and around the gravel beds, along with floating species in the ponds, take up the nutrients from the water. Ponds are treated with bentonite to prevent underground seepage, while supporting the growth of macrophytes.

Daily monitoring of water quality takes place in the wetland system before the water is pumped to the final irrigation dam. If the water quality is not sufficient, it is pumped back to undergo another round in the wetland system.

An indication of the quality of water in the wetland ponds and irrigation dam is the presence of frogs and fish. Tilapia fish in the irrigation dams help reduce algae by eating it. When the dam reaches its maximum fish capacity, the fish are used for daily staff meals.



Stormwater and irrigation run-off to the wetland treatment system by way of lined canals.



Wetland treatment starts with a holding tank, then a vertical flow bed and a horizontal gravel bed.



The second step is to construct the ponds and plant wetland vegetation in and around each pond – here on Carzan ST farm, Nakuru.



A newly constructed wetland pond on Kariki Naivasha farm. The maintenance hole offers a bypass from one pond to another (e.g. from 1 to 3 when pond 2 is undergoing routine maintenance).



A good view of the series of newly constructed and planted wetland ponds on Kariki KR farm (Thika).



The dam in the front receives all stormwater and treated waste water from the wetlands. Once solids have settled, clear water is pumped to the irrigation dam at the back.

South Africa: +27 (0) 21 913 8950 | **Kenya:** +254 (0) 732 188 600 office@exeocapital.com | www.exeocapital.com

EXEO Fund Advisors (Pty) Ltd is a financial service provider authorised by the Financial Sector Conduct Authority in South Africa (Licence no. 46251), which provides investment advisory services to the Fund Manager and the General Partner. EXEO Capital (the “Promoters”) manages its two funds, Agri-Vie Fund I and Agri-Vie Fund II, through Agri-Vie Investment Advisors (Pty) Ltd (Licence no. 33826) and EXEO Fund Advisors (Pty) Ltd (Licence no. 46251), respectively.



About EXEO Capital:

EXEO has invested across 8 countries and 15 sectors, and completed 27 transactions since 2008.