

A waterharmonica to close loops and to enhance availability of fresh water and environmental values

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Introduction

Due to climate change, the demand for fresh water is a growing issue worldwide. To forestall a shortage of clean water and to simultaneously adapt to climate change, the Delfland Water Authority has set goals to minimize water pollution and close loops for energy, raw materials and water in order to minimize both negative impacts on the (local) environment and (increased) dependency on outside sources.



Due to lack of fresh water, canals are temporarily closed for traffic.



Currently fresh water from the wastewater treatment plant is discharged into the sea.



Lack of input of fresh water promotes stagnant water and is favorable to toxic algae like the cyanobacteria.

Methodology

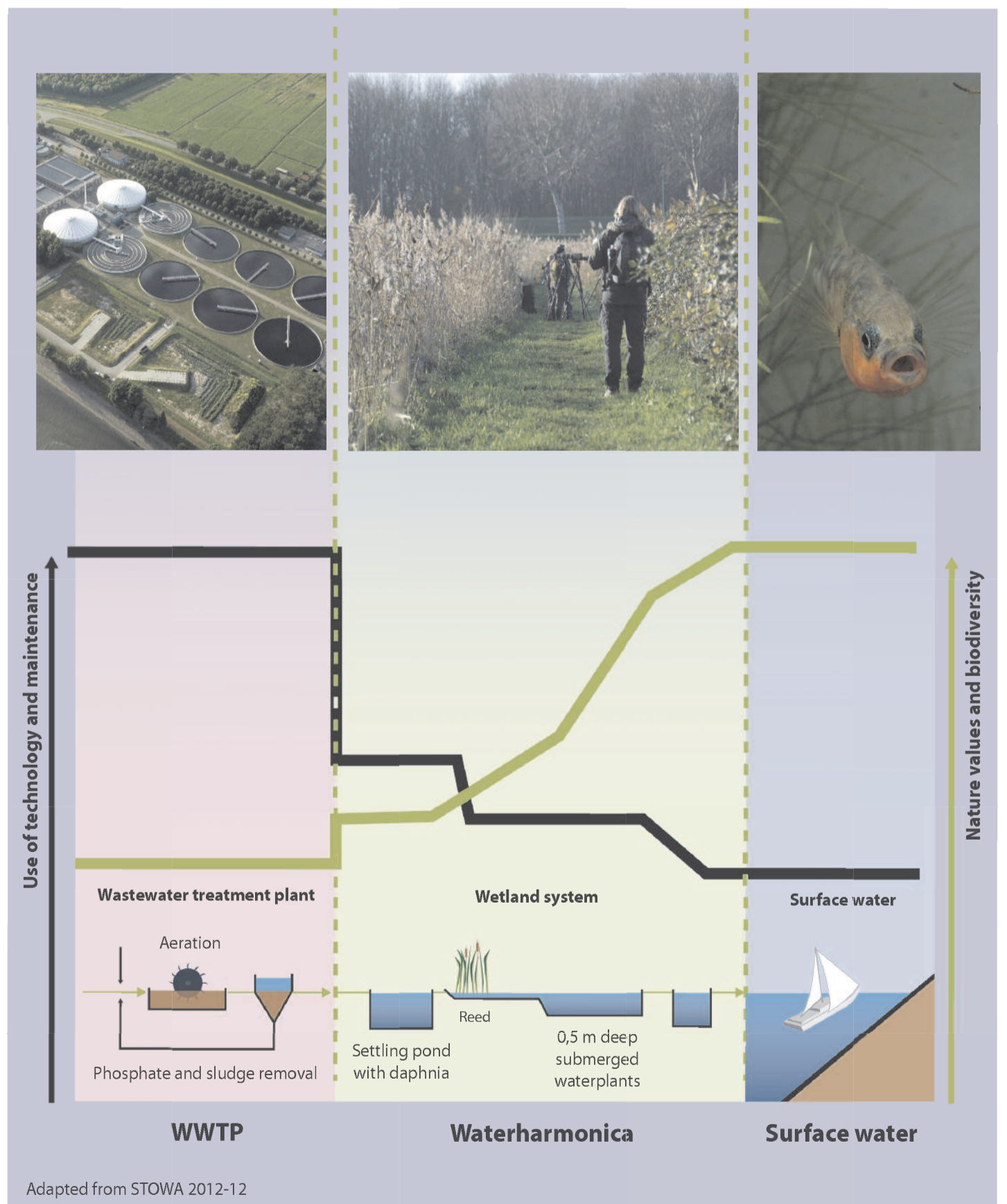
The waterharmonica offers a great opportunity to close the water loop and mitigate impacts created by shortness of precipitation. The waterharmonica is an ecologically engineered 'linkage-system' between a wastewater treatment plant and surface water, which aims to improve the water quality in nearby recreational waters.

Findings

In furtherance of achieving the goals – decreased dependency on water imports, water quality improvement, close loops and enhancement of recreational and environmental values - transparency and unconditional acceptance of set goals by all stakeholders was needed. Often goals are not transparent and organizations are hesitating to share goals because of economic and/or political motives, lack of interest, or the effort it takes to share and recognize external goals.

Significance for practical solutions

It has shown that this novel multi-purpose ecological water system (the waterharmonica) has the potential to bring stakeholders together to combine goals leading to value creation. Moreover, the waterharmonica is versatile and aligns very well with other goals that relate to sustainable development and climate change adaptation.



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