

Constructed wetlands

Constructed wetlands are man-made water systems, which main purpose is to capture nutrients, improve water quality and increase biodiversity. Wetland functions are based on residence of water and the biological processes of plants, animals and microorganisms.

Similar terms: wetlands, agricultural wetlands

Constructed wetlands retains in coming water flow and nutrient load. Water quality is improved by plant nutrient uptake, sedimentation and denitrification. Wetland plants use nutrients for growth and microorganisms release nitrogen into the atmosphere by denitrification.

Water flow is slow through the wetland allowing time for the particles to settle in to the bottom, hence removing particle bound phosphorus from the water body. Constructed wetlands increases biodiversity by creating variant habitat in to the agricultural landscape.

Application

The most restrictive aspect of making a wetland is dimensioning. Preferred size is 1-2% of the drainage basin and the drainage basin should consist minimum 30% of agricultural fields.²⁾

The most suitable locations for constructed wetlands are areas where excavating isn't needed and the soil has low concentration of phosphorus. Wetland water bodies can be constructed by raising water level with dams or by creating the wetland area by excavating.

Maintenance

- Sludge removal and checking the condition of the dams
- Mowing in case of overgrowth

Economics

- Financial support is offered in some countries e.g Finland, Sweden and special areas in Denmark
- Costs vary depending on the wetland size and building method



Picture: Turku University of Applied Sciences

Further information:

[Baltic Deal - Wetlands, drainage and irrigation](#)

Sources: 1) Davis, L. A hand book of constructed wetlands. Searched 5.3.2018. ([Link](#))

2) Pakkanen, Tuuli & Jaakkola, Mikko. 2003. Maatalous ja Saaristolaismeri, p.33-35 (FI).