



VIDA

value-added innovation
in food chains

**Water reuse in the food sector:
demonstrating cloth filtration as a viable and economic
pre-treatment process for R/O membrane filtration**

Paving the way towards multiple water reuse schemes



Co-funded by the Horizon 2020 Framework Programme of the European Union under grant agreement n° 777795. This document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.



Contents

01.

Introduction

02.

Water reuse

03.

**Cloth
filtration**

04.

**Project set-
up**



Contents

01.

Introduction

02.

Water reuse

03.

**Cloth
Filtration**

04.

**Project set-
up**



Introduction

Our consortium:

- **Brightwork BV** www.brightwork.nl
 - Technology development and strategic consultancy in (waste)water, sludge and resource recovery
 - Achievements in technology development:
 - New filter design for large capacities
 - Cellulose assisted dewatering of sludge
 - Sand-Cycle monitoring and control
- **Nedaq VOF**
 - Technical consultant in water and waste water treatment
- **Nordic Water Benelux BV**
 - Premium supplier in the Benelux of Nordic Water products, e.g. DynaSand filtration





Contents

01.

Introduction

02.

Water reuse

03.

Cloth
filtration

04.

Project set-
up



Water reuse

Big issue in the food industry due to:

- Decreasing availability of good process water
- Increasing costs of production and treatment of process (waste) water
- Growing emphasize on sustainability and resource recovery
- Risk mitigation

Increasing European demand for robust and economic technologies in water reuse schemes



Dutch food industry annual water consumption exceeds 270 million m³ (CBS, 2016)¹

¹ <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/82883NED/table?fromstatweb>



Contents

01.

Introduction

02.

Water reuse

03.

**Cloth
filtration**

04.

Project set-
up

Cloth filtration technology

Applications

- Surface water treatment
- Extensive phosphate removal

References

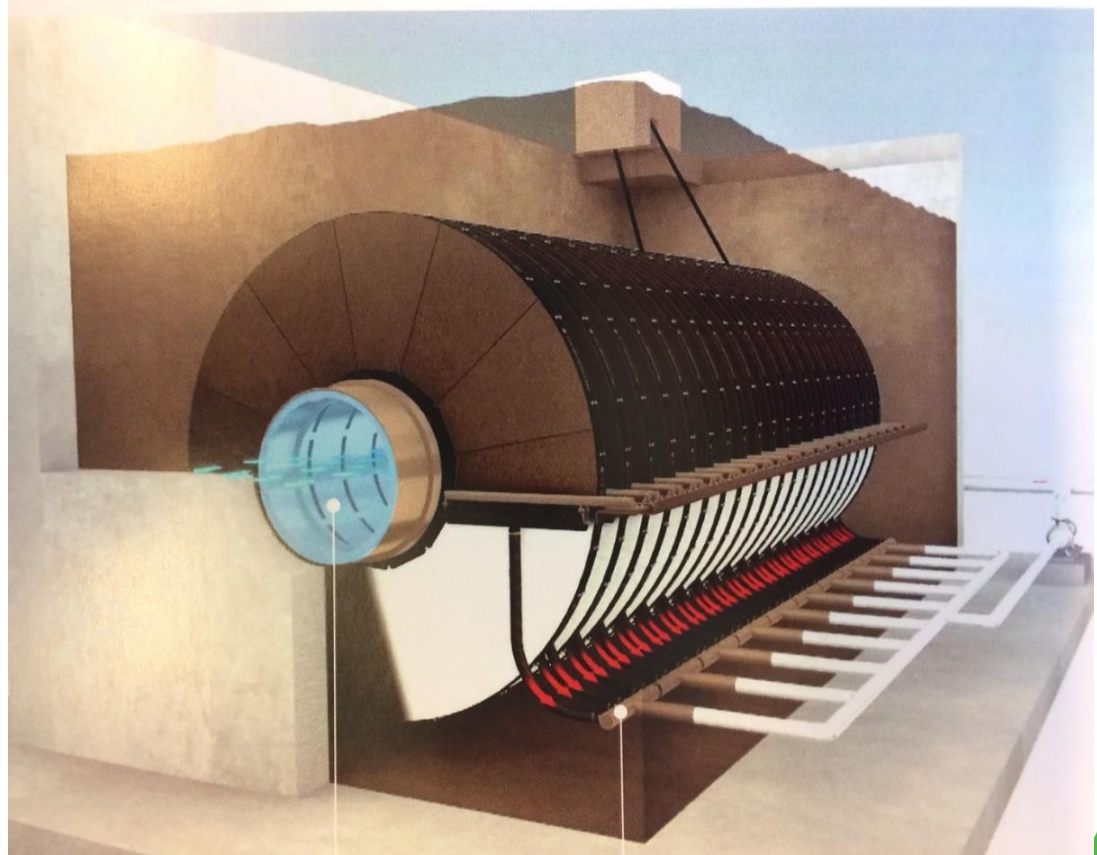
- Steel industry:
 - Pre-treatment before RO water reuse system
 - Inorganic wastewater
 - Chemical coagulation (PAC + Polymer) & cloth filtration
 - NTU & SS removal



Figure 1 – Cloth filtration plant with chemical coagulation at Hyundai Steel (Dang-jin, South-Korea).
Below from left to right: raw water, treated water and backwash water.

Cloth filtration operating principle

- Outside in filtration
- Pile cloth fibre media in cassettes
- Mounted in partly or fully submerged drumfilter
- Accumulation of pollutants
- Automatically backwash (vacuum cleaner principle)





Contents

01.

Introduction

02.

Water reuse

03.

Cloth
filtration

04.

Project set-
up

Project set-up

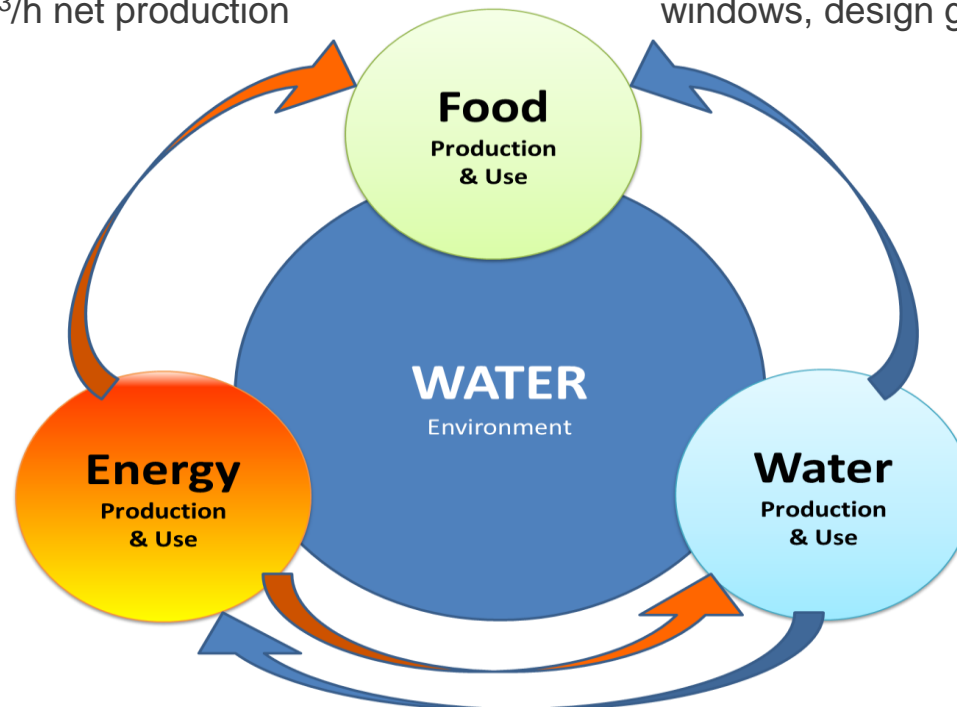
Aim: demonstrating cloth filtration as a viable and economic RO pretreatment step

Phase 1

- Functional testing at Leeuwarden demosite
- Getting familiar with operational parameters
- Capacity 5 m³/h net production

Phase 2

- Performance testing in the food sector
- Stability performance under varying operating windows, design guidelines, CAPEX, OPEX





Thank you! Any questions?



clúster aragonés de
alimentación



wateralliance



nanoprogress
THE NANOTECHNOLOGY CLUSTER

