

# Next Level of Water Re-use

*« New challenges demanding new solutions »*

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# Krüger - Veolia



**KRÜGER VEOLIA**

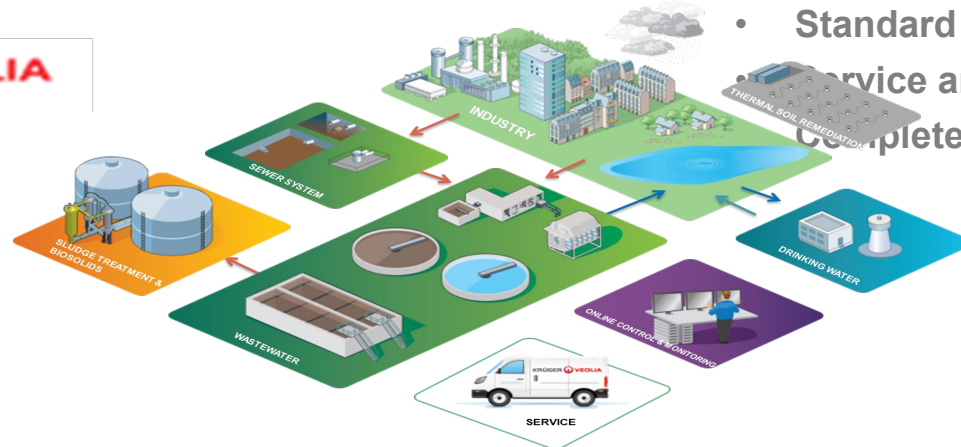
## *Water treatment from A to Z*

### We act as

- Consultants
- Contractors
- Suppliers

### We provide

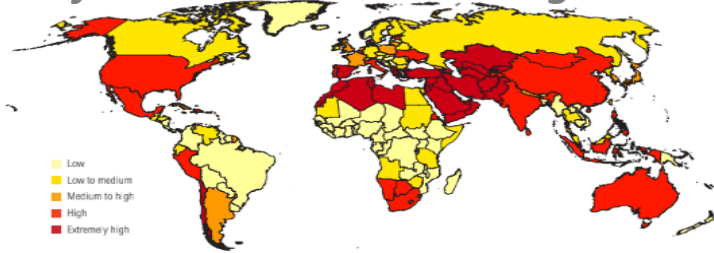
- Design
- Processes
- Technologies
- Standard Components
- Service and operation
- Complete solutions



# Water Re-use

## Water Scarcity

Lack of access to clean drinking water



➔ New challenges call for new solutions

## Water Mapping:

- Reduce, Reuse, Recycle, Reclaim
- Water resources
- Water Fit for Purpose

### WIIX

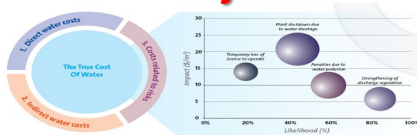
A new metric for assessing water impacts.



### Mapping



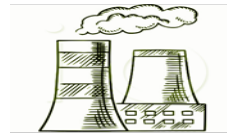
### True Cost of Water



**Production**  
(raw material station, cleaning, packing, CIP, filling...)



**Domestic**  
(lab, canteen, irrigation, admin building..)



**Utilities**  
(cooling towers, chillers, boiler..)

### Water resources

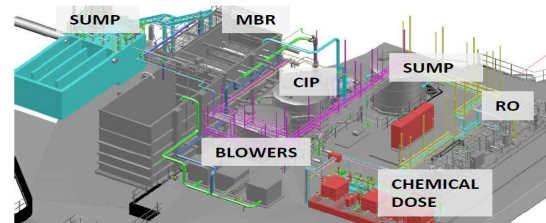
- Tap Water
- Waste water
- Cow Water
- Rain water
- Others

# Nestlé, Lagos de Moreno, Mexico

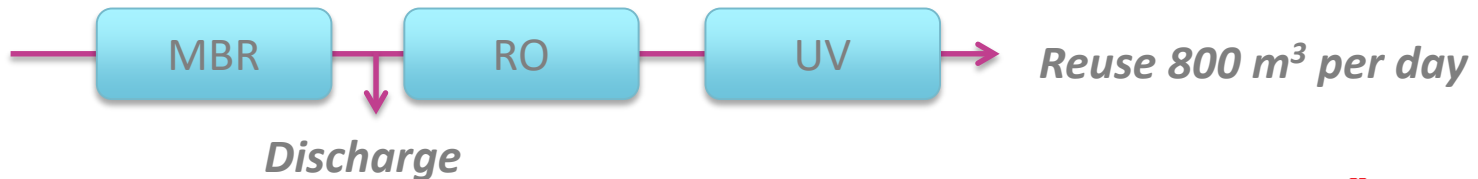
2013

## Challenge

- Reduce the Water Impact in the local area
- Company goal of reducing water consumption per ton of product by 40%,
- Nestlé's objective was to create the company's first "zero-water" dairy manufacturing site in the world.
- Requires 1.6 million liters of water a day - the average daily consumption of 6,400 people in Mexico.



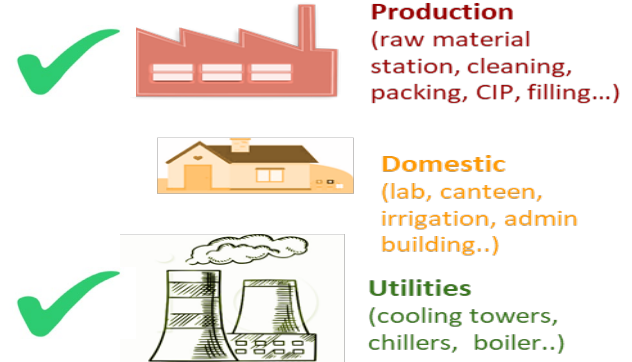
## Waste Water Treatment



# Nestlé, Lagos de Moreno, Mexico

## Benefits

- **Maximising productive uptime**
- **Increased production**
  - mitigate risk of production disruption due to insufficient water access
- **Ensure access to sustainable resources**
  - Ensure license to grow thanks to a reliable water feed and decrease dependency on freshwater in a water stress region
- **Delivering CSR objectives**
  - Enhance brand image and reputation



## A new metric for assessing water impacts.



# COOPERL, France

Slaughterhouse with processing and by-product production

2002

# Cooperl



5000 employees  
2700 members



1 400 000 T  
of feed produced



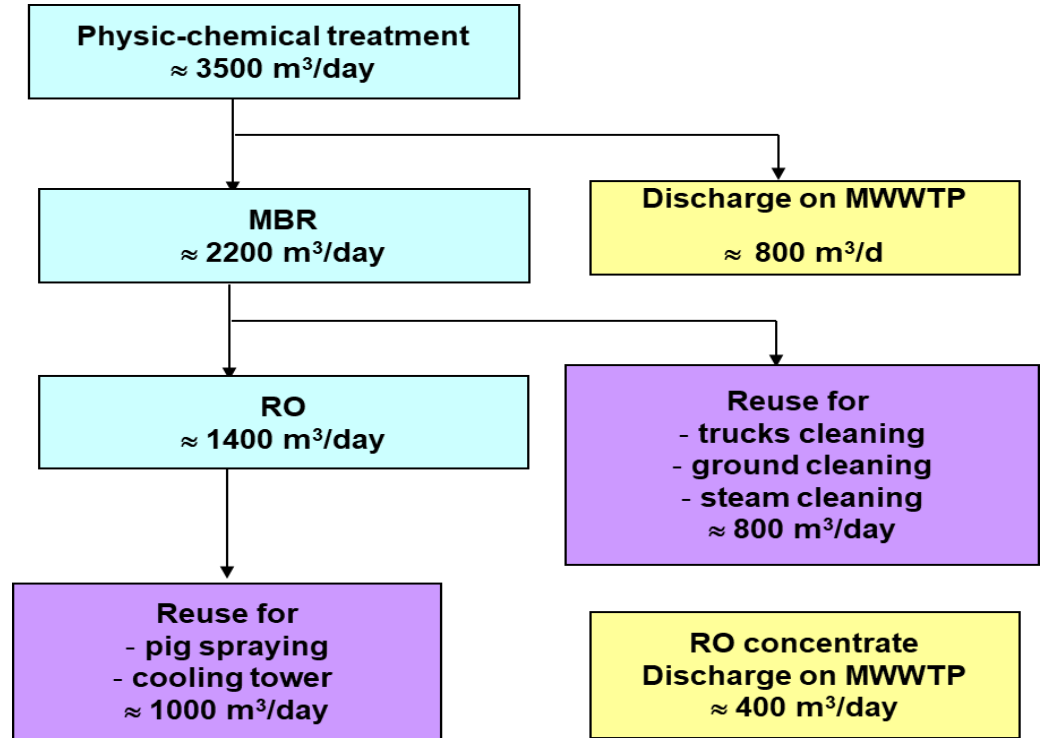
5 550 000  
porks produced



2 billion €  
turnover

## Challenge

- Cooperl water needs:
  - 20 000 m<sup>3</sup>/week,  $\approx$  4 000 m<sup>3</sup>/day (5 days)
- Limited water supply
- Limited Discharge to MWWTP





# COOPERL, France

Slaughterhouse with processing and by-product production

## Benefits

### • Reuse

- 10.000 m<sup>3</sup>/week
- 50% Cooperl water needs



### **Production**

(raw material station, cleaning, packing, CIP, filling...)



### **Domestic**

(lab, canteen, irrigation, admin building..)



### **Utilities**

(cooling towers, chillers, boiler..)

Year	Plant capacity	Plant capacity
2002	7,300 m <sup>3</sup> /week	14 t COD/week
2004	9,500 m <sup>3</sup> :week	18 t COD/ week
2006	16,000 m <sup>3</sup> /week	30 t COD/week

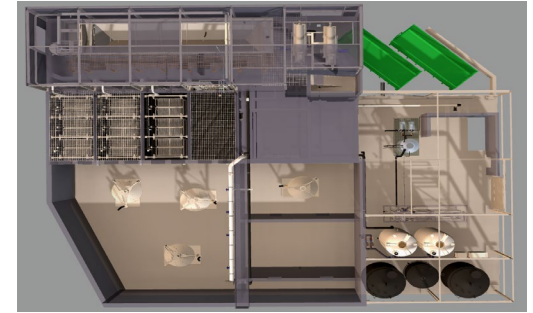


# FreislandCampina, Alter BE

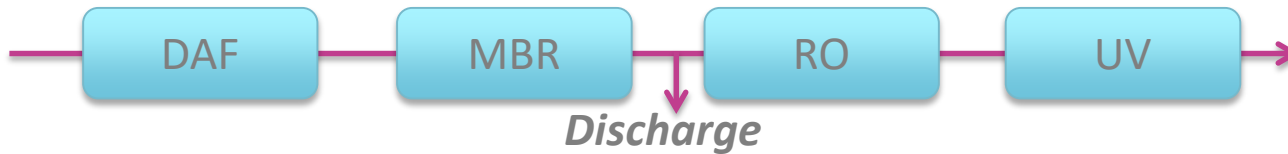
2014

## Challenge

- Sustainable growth, Water reduction per amount of product (- 20%)
- Extension production -> extra drinking water usage and waste water
- Economic reasons
  - Increase drinking water cost, Increase local taxes (doubled last 10 years)
- Limitation:
  - groundwater extraction, Limitation existing pre-treatment, Limitation municipal WWTP



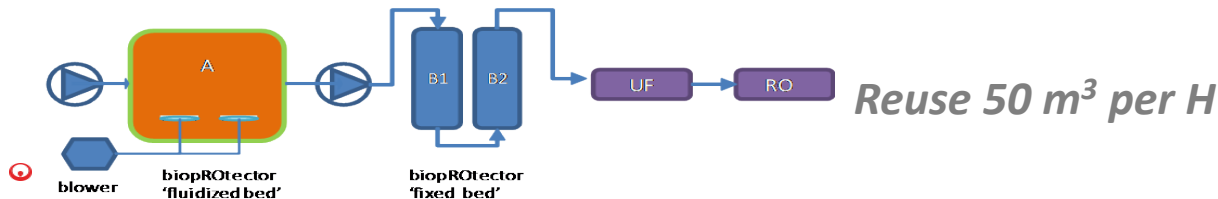
## Waste Water Treatment



Reuse 100 m<sup>3</sup> per H



## Cow Water Treatment



**KRÜGER**



# FreislandCampina, Alter BE

## Benefits

**Reduced operating costs:** Estimated 2M€ savings per year; Incentives to reduce costs

**Maximising productive uptime:** Support plant expansion and guaranteed asset uptime to support production

**Health & Safety:** Reduced risk relative to water withdrawal

**Environmental footprint:** Showcase for sustainability; Water footprint reduction incentives



**Production**  
(raw material station, cleaning, packing, CIP, filling...)



**Domestic**  
(lab, canteen, irrigation, admin building..)



**Utilities**  
(cooling towers, chillers, boiler..)



HACCP PRE-ETUDE  
VEOLIA WATER TECHNOLOGIES BELGIUM NV/SA

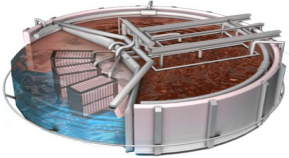


.be Federal Agency for the Safety of the Food Chain

# Technologies for Water Reuse



Pre-Treatment



Membrane Bio Reactor



Reverse Osmoses



Disinfection



*More than 50 references from food process companies all over the world including more than 10 companies in Europe*



# Presentation title / Chapter title

KRÜGER  VEOLIA

*Thanks for your attention*

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**WATER TECHNOLOGIES**