



Brewery Effluent Water Reuse at AB Inbev

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Content

- Intro AB Inbev, Azulatis
- Legal framework in Belgium
- Water reuse at AB Inbev
- Lessons learned



Who We Are

Anheuser-Busch InBev

We are the world's leading brewer, based in Leuven, Belgium. As a company, we dream big to create a future with more cheers. We are always looking to serve up new ways to meet life's moments, move our industry forward and make a meaningful impact in the world.

We are committed to building great brands that stand the test of time and to brewing the best beers using the finest ingredients.



Our diverse portfolio

of well over 500 beer brands includes global brands:

Budweiser®, Corona® and Stella Artois®; multi-country brands Beck's®, Hoegaarden®, Leffe® and Michelob ULTRA®; and local champions such as Aguila®, Antarctica®, Bud Light®, Brahma®, Cass®, Castle®, Castle Lite®, Cristal®, Harbin®, Jupiler®, Modelo Especial®, Quilmes®, Victoria®, Sedrin®, and Skol®. Our brewing heritage dates back more than 600 years, spanning continents and generations.





OUR PURPOSE

We dream big to
create a future with
more cheers

Click [here](#) to watch our leaders and colleagues share
what our Purpose means to them.

Where we operate

We have a diverse geographic footprint spanning nearly 50 countries worldwide. Our portfolio of more than 500 iconic global and local brands represents one in every four beers sold.

North America

18%
of global AB InBev volume

31%
of AB InBev revenue

30%
of Normalized EBITDA

Middle America

24%
of global AB InBev volume

24%
of AB InBev revenue

30%
of Normalized EBITDA

South America

27%
of global AB InBev volume

18%
of AB InBev revenue

15%
of Normalized EBITDA

EMEA

15%
of global AB InBev volume

15%
of AB InBev revenue

13%
of Normalized EBITDA

APAC

15%
of global AB InBev volume

13%
of AB InBev revenue

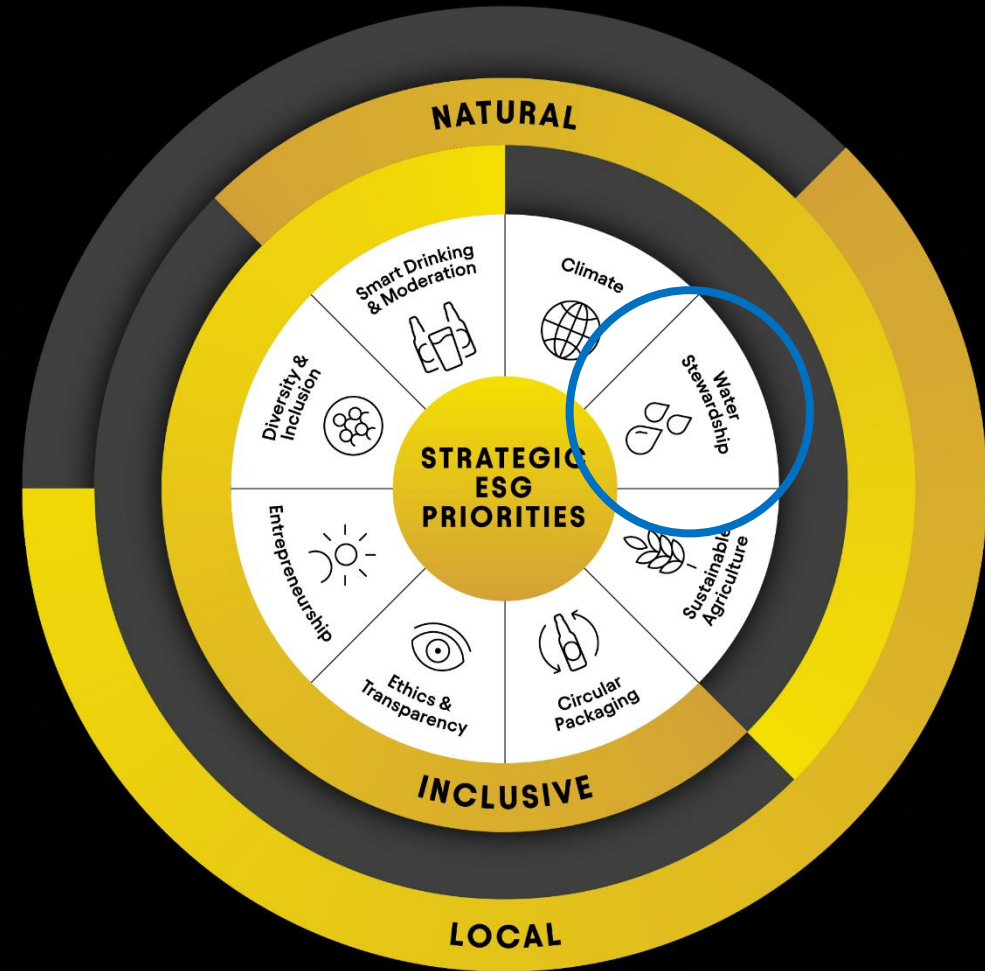
11%
of Normalized EBITDA



ESG Strategy

Enable a sustainable and inclusive future

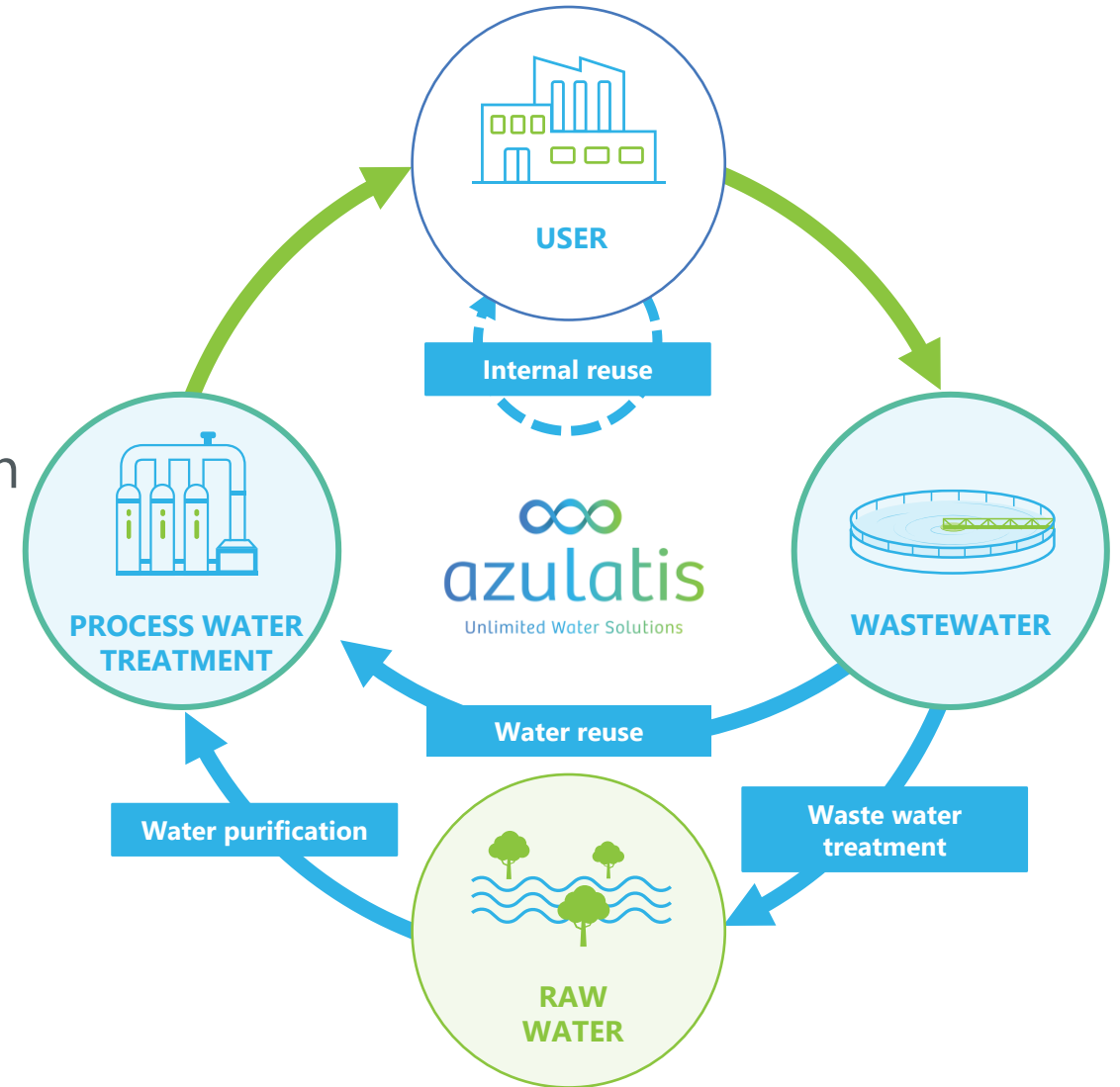
To us, a future with more cheers is shared prosperity, for our communities, for the planet and for our company. It is growth that is inclusive, value that is shared, and “wins” for the world that are truly worth celebrating. Sustainability is good business and is a foundational part of our company.



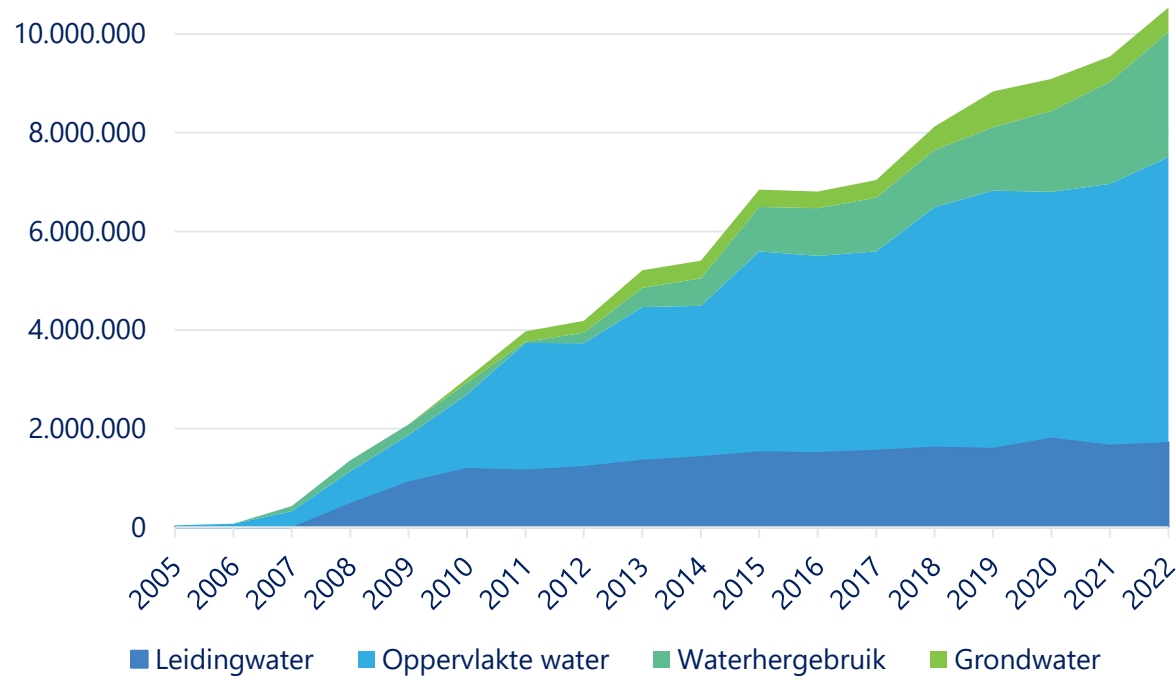
Azulatis

Unlimited Water Solutions

- Subsidiary of drinking water company "De Watergroep"
- Serves drinking water to 3,4M people
- Original purpose help large water consumers in Belgium towards using alternative water sources.
- Grown into Waterpartner with focus on operation and maintenance.
- Private since January 2023
- 15 years of experience with water solutions
- ~50 self-managed installations



15 years of experience with tailor-made water production



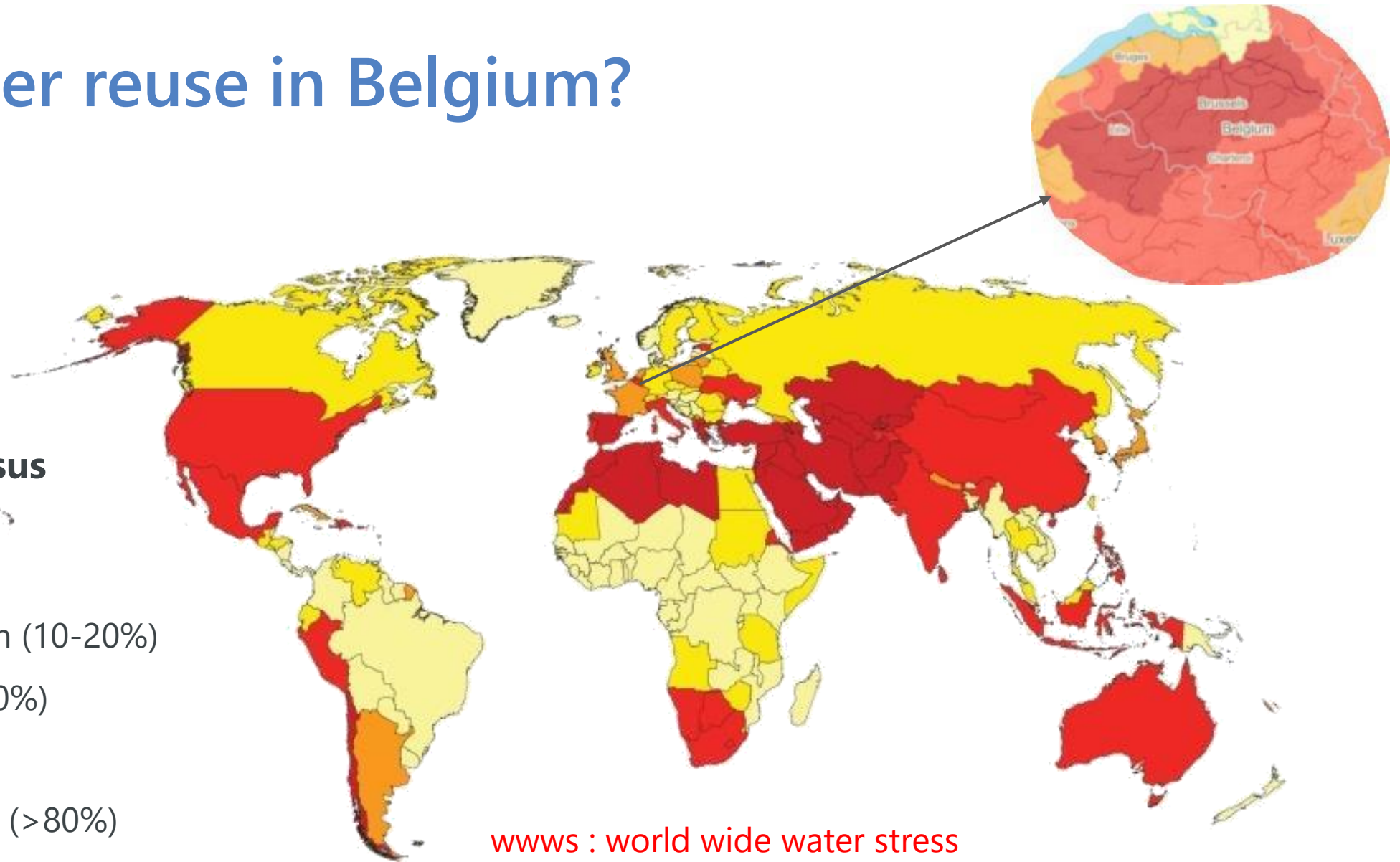
- Marketleader in Flanders
- DBFMO contracts
- DBMO: Design Build Maintenance & Operation
 - Highly automated and robust design
 - Experienced project leaders
 - Technicians, 24/7 on-call service
- F: Finance
 - Certain return on investment, often too long for industry
 - Business plan: immediately accomplish cost-savings and sustainability goals for clients



Why water reuse in Belgium?

Water usage versus availability ratio

- Low (<10%)
- Low to medium (10-20%)
- Medium (20-40%)
- High (40-80%)
- Extremely high (>80%)



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No distinction based on source for water quality in industry (incl. food and beverage)

- Most stringent industrial water quality regulation: Food industry
 - Royal Decree of 14 January 2002
 - Required quality + control and monitoring program
 - No distinction based on type of source

- Wide range of sources

- Ground water,
- River water,
- Factory effluent,
- Milk condensate,
- Milk whey..

- Wide range of final applications

- Food-contact
- Boiler
- Rinsing
- ...

→ We can always guarantee drinking water quality

Possible to receive discharge permit exceptions for water reuse

- Common problem with re-use = discharge of concentrated RO brine
- Water reuse does not *produce* pollutants
- Pollutant load discharged/day remains the same

- Regulatory agencies in Belgium allow for exceptions based on daily load instead of concentration
 - One condition: discharge will not deteriorate quality of surface water
 - Wezer study

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AB Inbev Leuven (2018) and Jupille (2019) Belgium

Sector
Brewery



Water production capacity
500.000 m³/yr

Raw water source
Biologically treated brewery
effluent



Technology

- Ultra Filtration
- Reverse Osmosis

Water quality produced
Drinking water



Type of contract
Design. Build. Finance &
Operate

Ultrafiltration



Reverse Osmosis



Water Reuse Building



Chemicals



Pumping group



Proceswater storage

1st construction phase at  ABInBev Jupille, 2019



Reverse Osmosis

Ultrafiltration

ABInBev Leuven

Coarse filtration



Low voltage room

Pumping group

Proceswater storage

Water Reuse Building



Azulatis manages operations & guaranties quality and volumes

- Highly automated and robust design
- Remote control
- In-line sensors
- Critical control points based on HACCP:
 - replicate sensors
 - NTU, pH, chlorine, conductivity, ..
- Lab analyses
 - Weekly, monthly, yearly sets of parameters
- 24/7 on-call service



Main drivers for water reuse at AB Inbev

Water is a key ingredient in our products, and a critical resource for the health and well-being of every community around the world. As the world's leading brewer, we aim to make a positive contribution to watershed health across our operations and value chain.

Why is water reuse important for ABI at our Leuven brewery?

- One of our 4 sustainability goals is water stewardship
- Improve water availability and quality
- Water scarcity risk in Flanders.

Why did ABI choose to collaborate with an external water partner?

- Expertise of a drinking water expert company.
- Guaranteed quality of the drinking water

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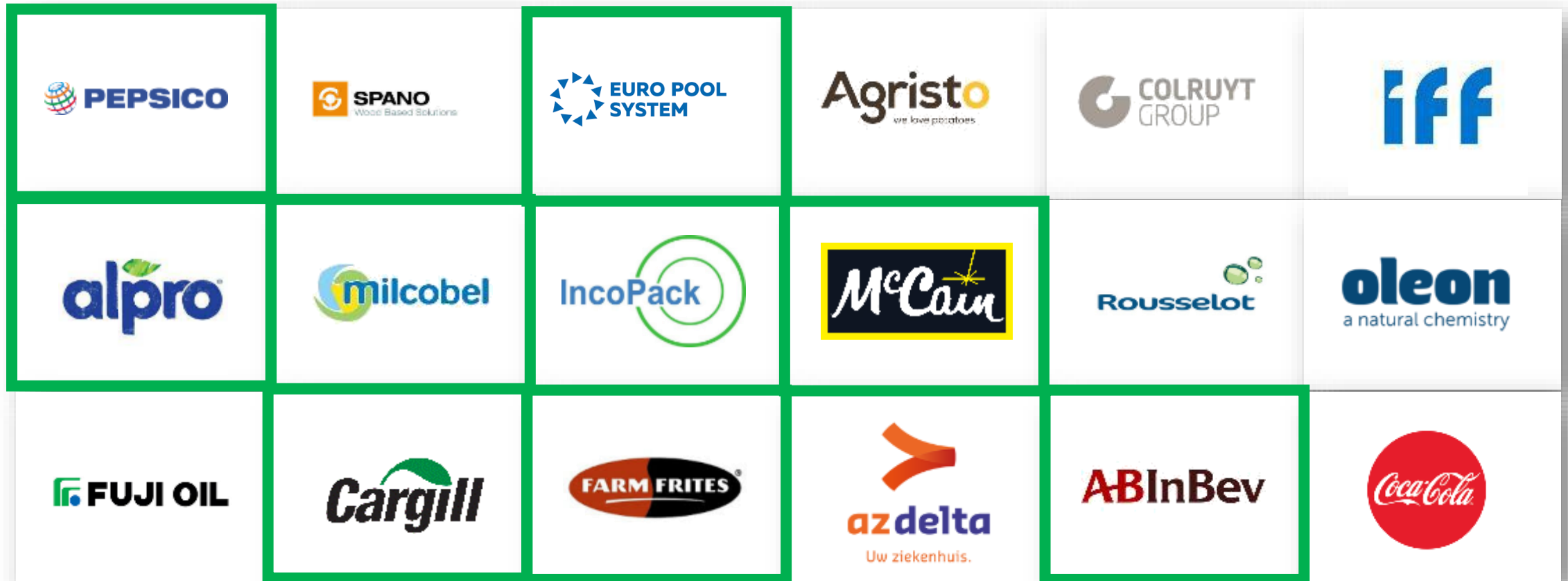


Lessons learned

- Local policy and regulations are essential to allow for water reuse
 - Policy: link financial consequences to wasting water
 - Price of tapwater
 - Strict regulations for water availability in periods of drought
 - Regulations: no source-distinction and discharge exceptions
 - Communication between water reuse operators and brewery is essential
 - Wrt quality and quantity of water
 - Available brewery water infrastructure
 - Mature technology and experience
- => Consistent high quality of re-used water is possible
- => Reused 2.85M m³ of water at 14 sites in 2022

Clients in food, beverage, chemical & health sector

Reused 2.85M m³ of water at 14 sites in 2022



Team Azulatis





Questions?

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Unlimited Water Solutions



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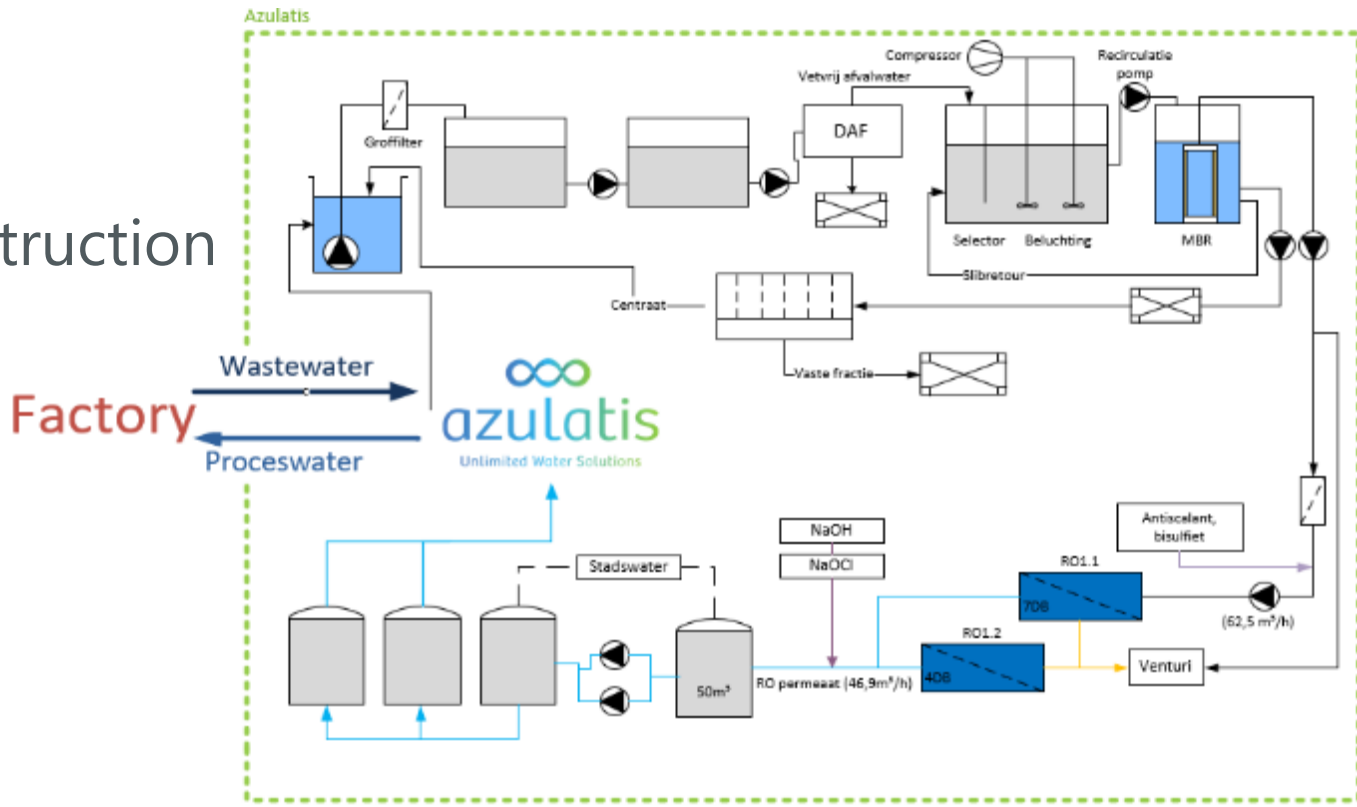
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Step 2



Design water production plant and start permitting process

- Perform Wezer study
 - Support environmental permits for RO concentrate discharge
- Conduct pilot-scale tests
- Finalize conceptual design
 - Support civil permits wrt construction

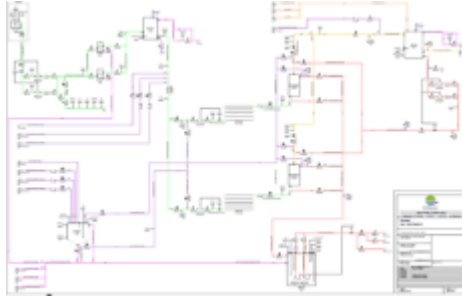


Step 3



Project execution

P&ID



Prefab skids



Functional analysis and programming



Lay-outs +
3D-design



Hydraulic and electric
assembly on site



IO testing,
quality control,
start up

Step 3



Project execution

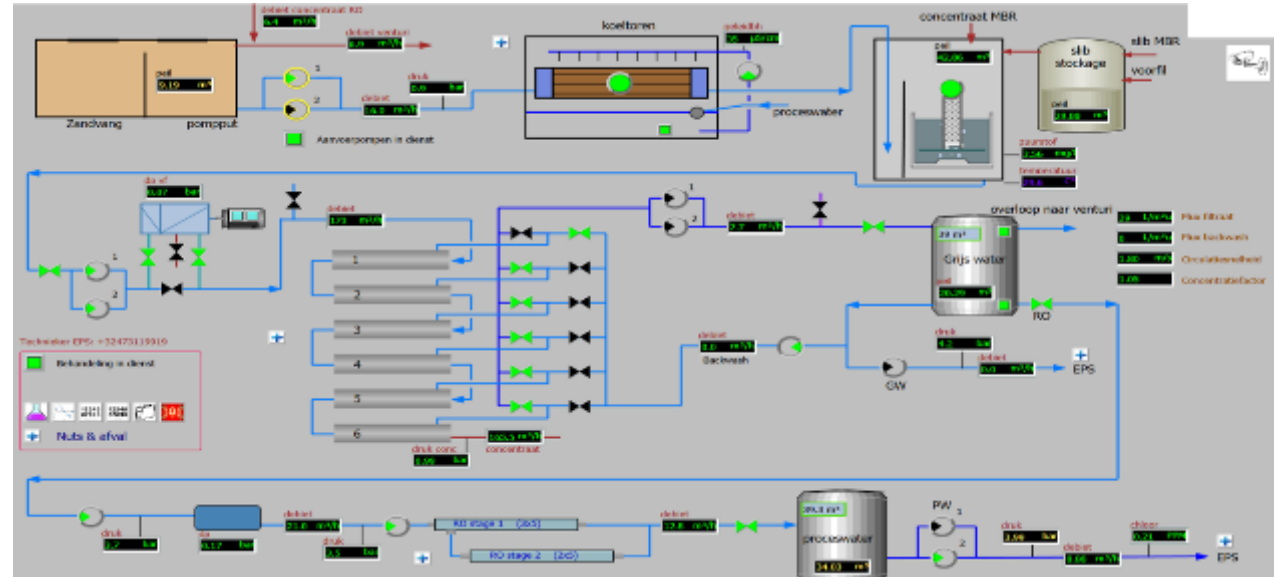


Step 4



Azulatis manages operations & guarantees quality and volumes

- Highly automated and robust design
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