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GIVING BACK TO NATURE

SUSTAINABLE INDUSTRY AND AGRICULTURE
WITH FUTURE FARMING TECHNOLOGIES

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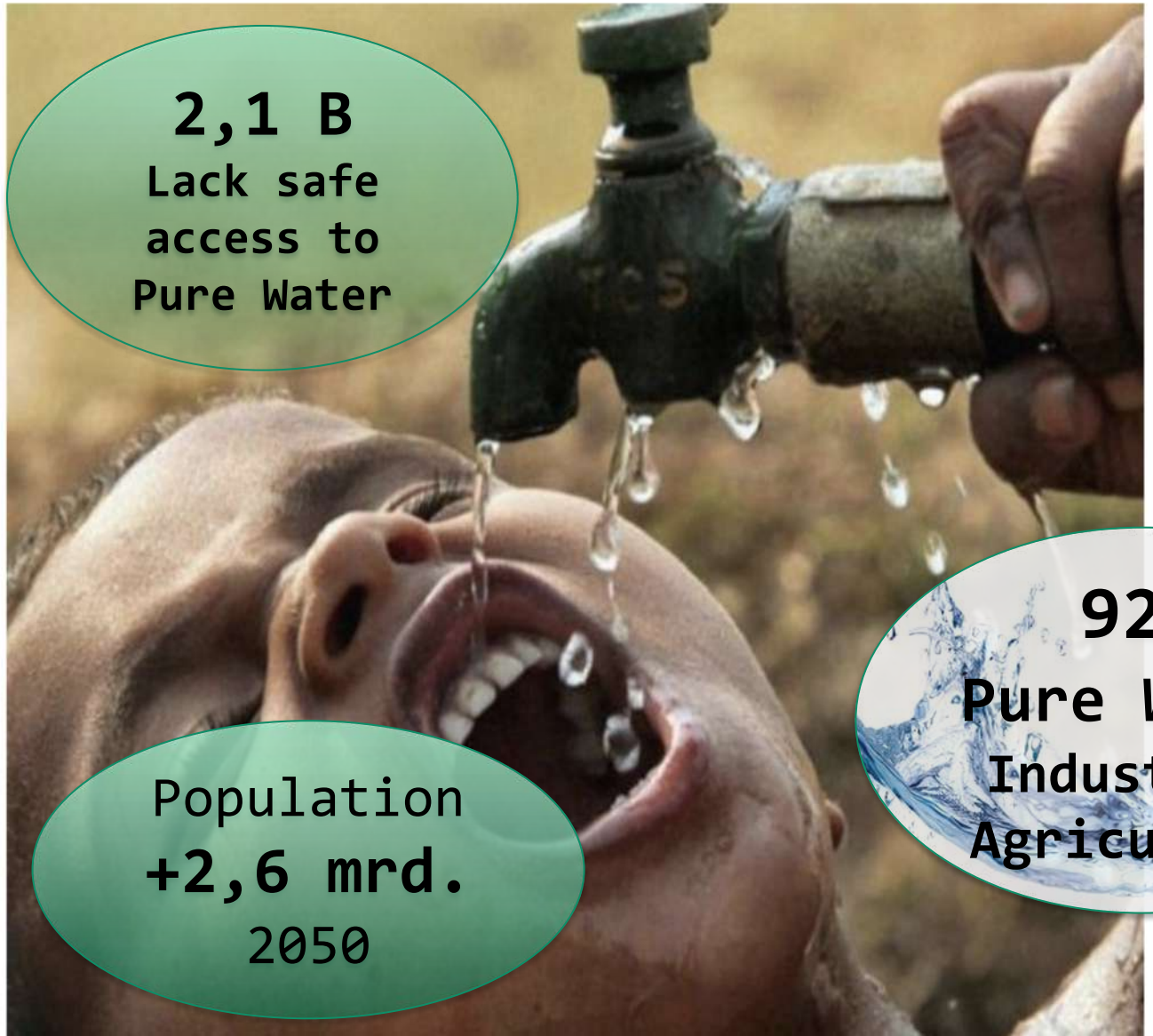
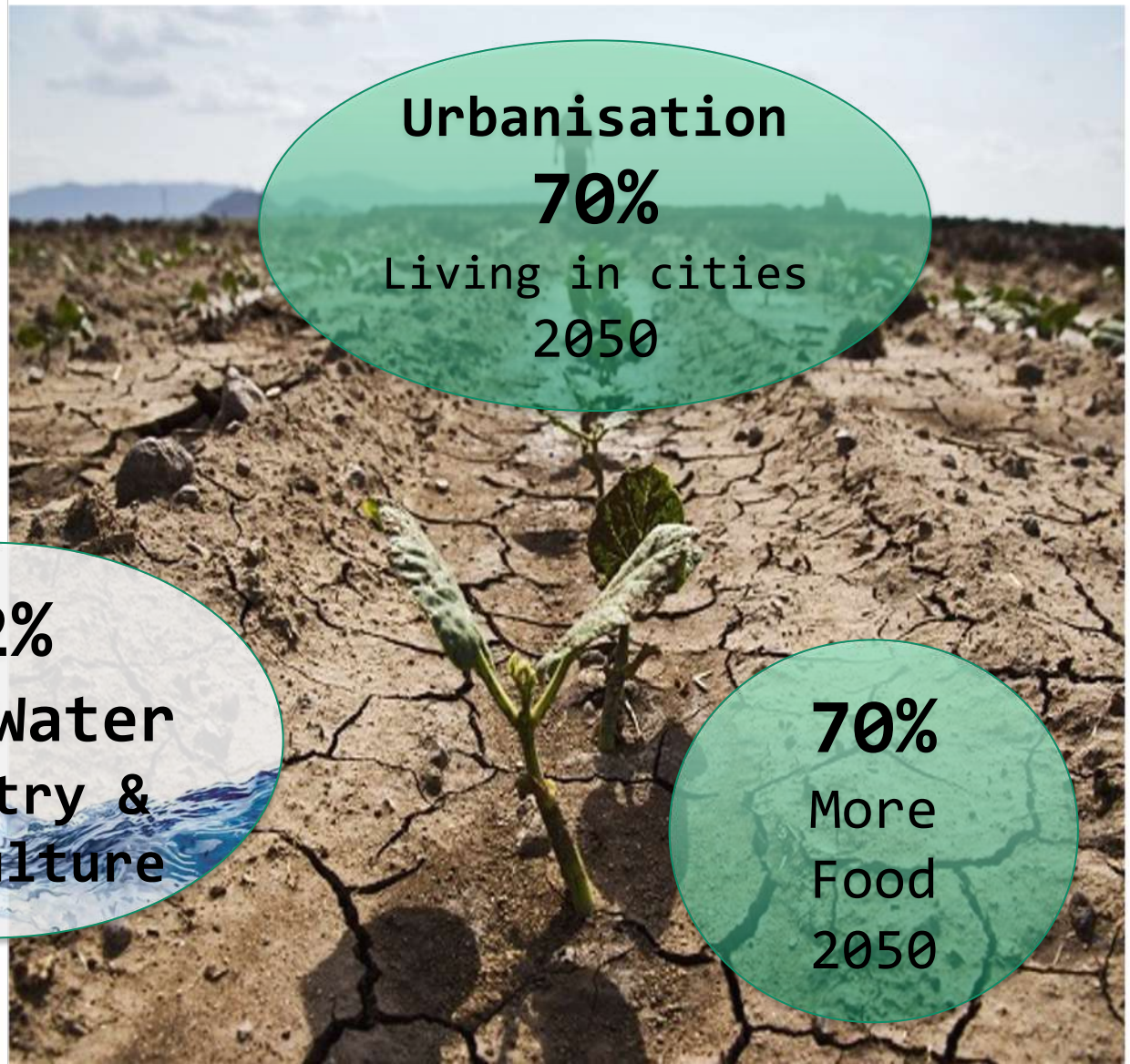
GLOBAL CHALLENGES



2,1 B
Lack safe access to Pure Water

Population
+2,6 mrd.
2050

92%
Pure Water
Industry & Agriculture



Urbanisation
70%
Living in cities
2050

70%
More Food
2050

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8 GOALS TO TRANSFORM OUR WORLD

SUSTAINABLE DEVELOPMENT GOALS

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SOLUTIONS FOR SUSTAINABLE INDUSTRY AND AGRICULTURE WITH URBAN FARMING TECHNOLOGIES

BIOFEED
FROM INDUSTRIAL SIDESTREAMS TO
ORGANIC LIQUID FERTILIZERS

HYDROHUMALA
INDOOR HYDROPONIC FARM
FOR GROWING FRESH HOPS

URBAN CROP SOLUTIONS

URBAN FARMING
TURNKEY SOLUTIONS
FOR INDOOR VERTICAL FARMING

Varicon aqua

BIOALGAE
MICROALGAE PRODUCTION, CO2-UTILIZATION AND
BIOTECHNOLOGICAL WATER TREATMENT SOLUTIONS

WHY HYDROPONIC FARMING?

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	Traditional	Greenhouse	HYDROPONIC FARM
Growth cycle	70 days	40-50 days	21 days
Water consumption per crop	35 L	15 L	1.5 L
Number of crops per square meter	18	25	250-300
Crop cycles	Seasonal	Seasonal	Year-round
Pesticides/Herbicides	Often	Less often	None
Location	Open field	Open field	Anywhere
Post-harvest handling	High	Medium	Low

POSSIBILITIES
SUSTAINABLE INDUSTRIES
WITH FUTURE FARMING TECHNOLOGIES

Aquaculture

Breweries

Biofuels industries

Side-streams

CO_2

Purified Water

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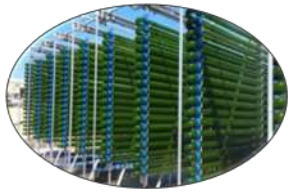
BioFeed

Production of Organic Fertilizers from industrial sidestreams

BioAlgae

Microalgae cultivation and water purification



Vertical Farms

Indoor Hydroponic Farms for cultivating plants

HydroHops

Hydroponic farms for cultivating hops

BioFeed (fertilizers)

Traditional Farmers

Microalgae (animal-feed)

Animal and Fish farmers

Organic Food

Restaurant & Local food shops

Hops

Breweries

WHY BREWERIES?

Water Footprint

It takes roughly **75 liters** of water to make a pint of beer.

Carbon Footprint

Approximately **500g** of CO_2-emissions is produced for a pint of beer.

Wastewaters

Average brewery produces roughly **3 pints of wastewater** for every pint of beer.

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SUSTAINABLE BREWERY

BIOFEED PILOT

Production of Liquid Fertilizers.
Capacity 4.000 m3/year.

Module size: 20’ sea container (length 6 m).
Fully automated and controllable system.
Can be powered by solar energy.
Suitable for industries such as breweries, fish farms, bioethanol plants, biogas plants and other organic industries.

Redono’s patent pending method for the BioFeed-unit can be used to produce liquid fertilizers from industrial sidestreams, such as from breweries, biofuels industries and agricultural sidestreams.

In the BioFeed unit the industrial sidestreams are first pretreated to ensure high quality production of liquid fertilizers.

The pretreatment process contains electrocoagulation, removal of solids, nitrification with biofilter and UV-disinfection.

After the pretreatment we have a nutrient rich water solution, from where we can further optimize and control the desired recipe for either plant fertilizer or microalgae growth medium.

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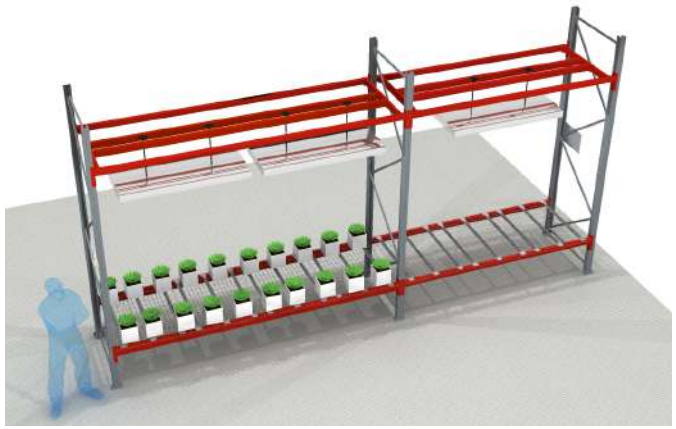
HydroHumala PILOT 2019



HydroHumala PILOT was executed 2019.
Capacity of 20 hops plants.
First harvest of Cascade hops November 2019.
Production ~2 kg/hops plant.
Can produce up to 3 harvests/year.

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VERTICAL FARMING SOLUTIONS

URBAN CROP SOLUTIONS

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Urban Farming as a Service

Lettuce

Herbs

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Microgreens

Berries

Own recipes for
Over 200 crop varieties

Sustainable Pure Local food production.
Turn-key solutions with operational services for
high quality and year round food production.
From feasibility study to urban farming services.

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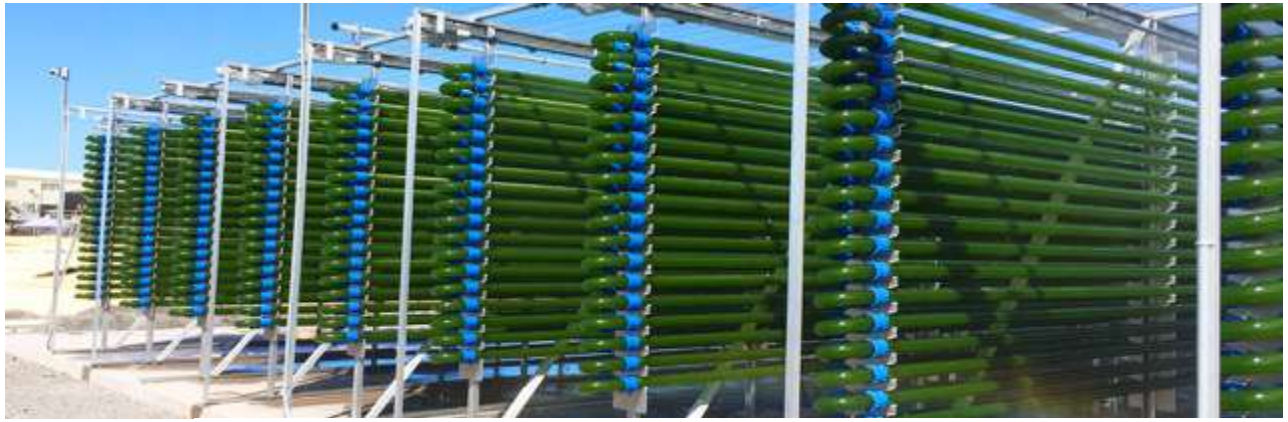
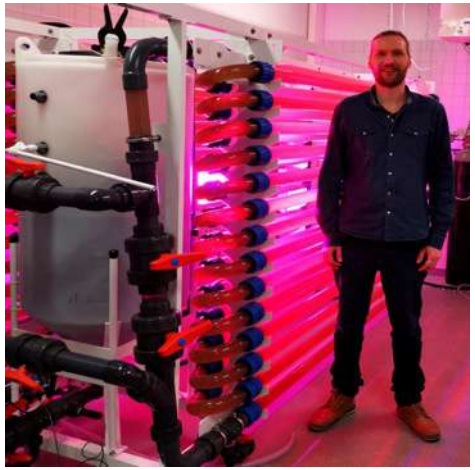
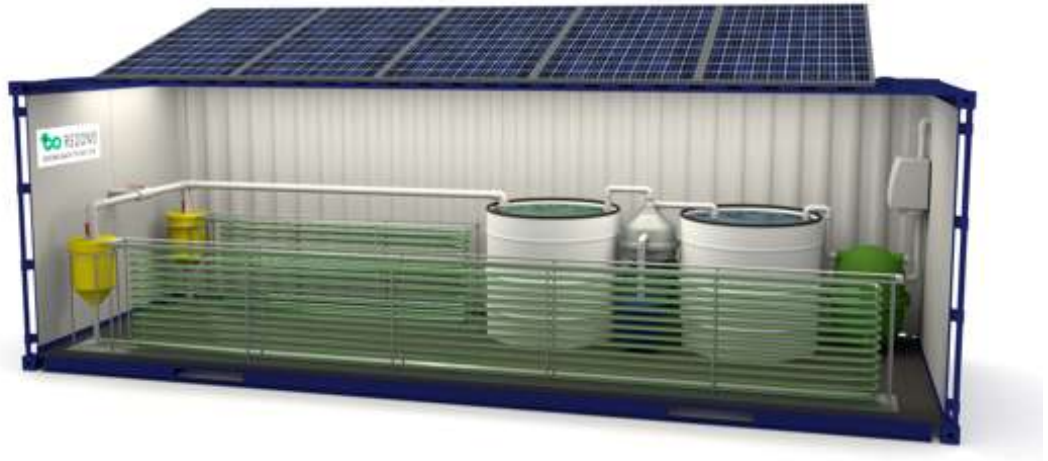
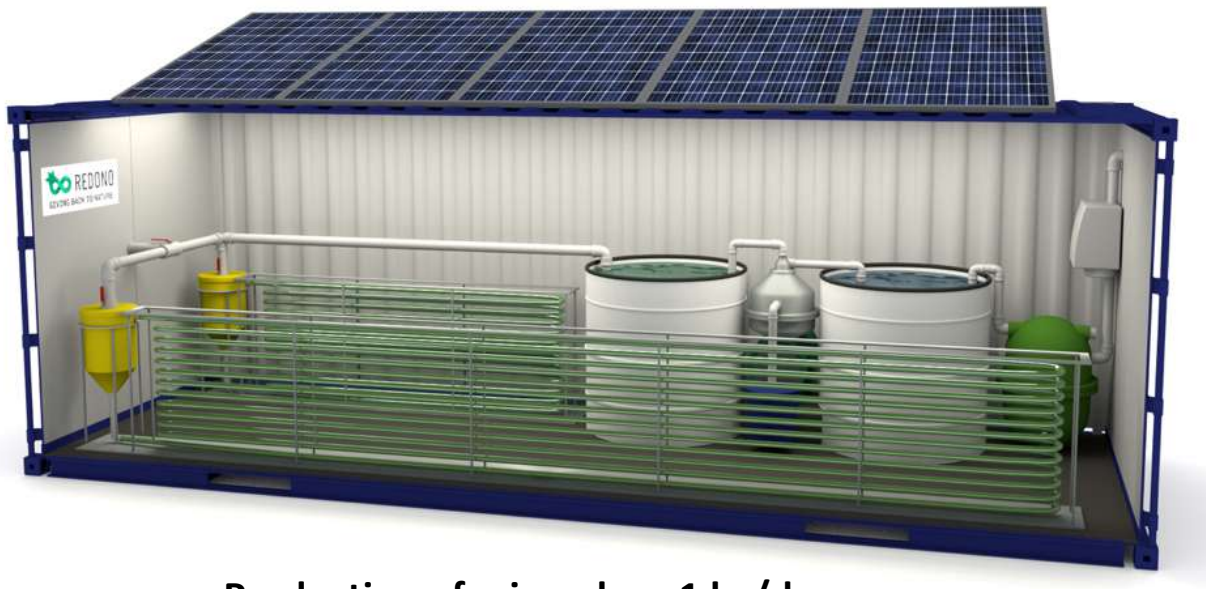
MICROALGAE PRODUCTION TECHNOLOGY







BIOALGAE PILOT



Production of microalgae 1 kg/day.
Water purification capacity 1m³/day.
Utilization of CO_2-emmissions 2 kg/day.

Module size: 40’ sea container (length 12 m).
Fully automated and controllable system.
Can be powered by solar energy.

BioAlgae unit is for cultivating microalgaes in the Varicon Aqua Phyco-Flow tubular photobioreactors (PBR), combined with high-tech LED-growlights. The produced microalgae can be harvested and the **effluent waters can be purified.**

BioAlgae unit can produce microalgae species, that contains high value in nutrition and other great health benefits. Algae can eventually be used in **new high-value products.**

The nitrogen and phosphorus in the recycled waters are used for the growth of microalgae together with the **CO2-utilization.** The recycled waters are eventually purified.

The BioAlgae unit can also work as a stand-alone microalgae production demo unit for our customers.

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IN COLLABORATION

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