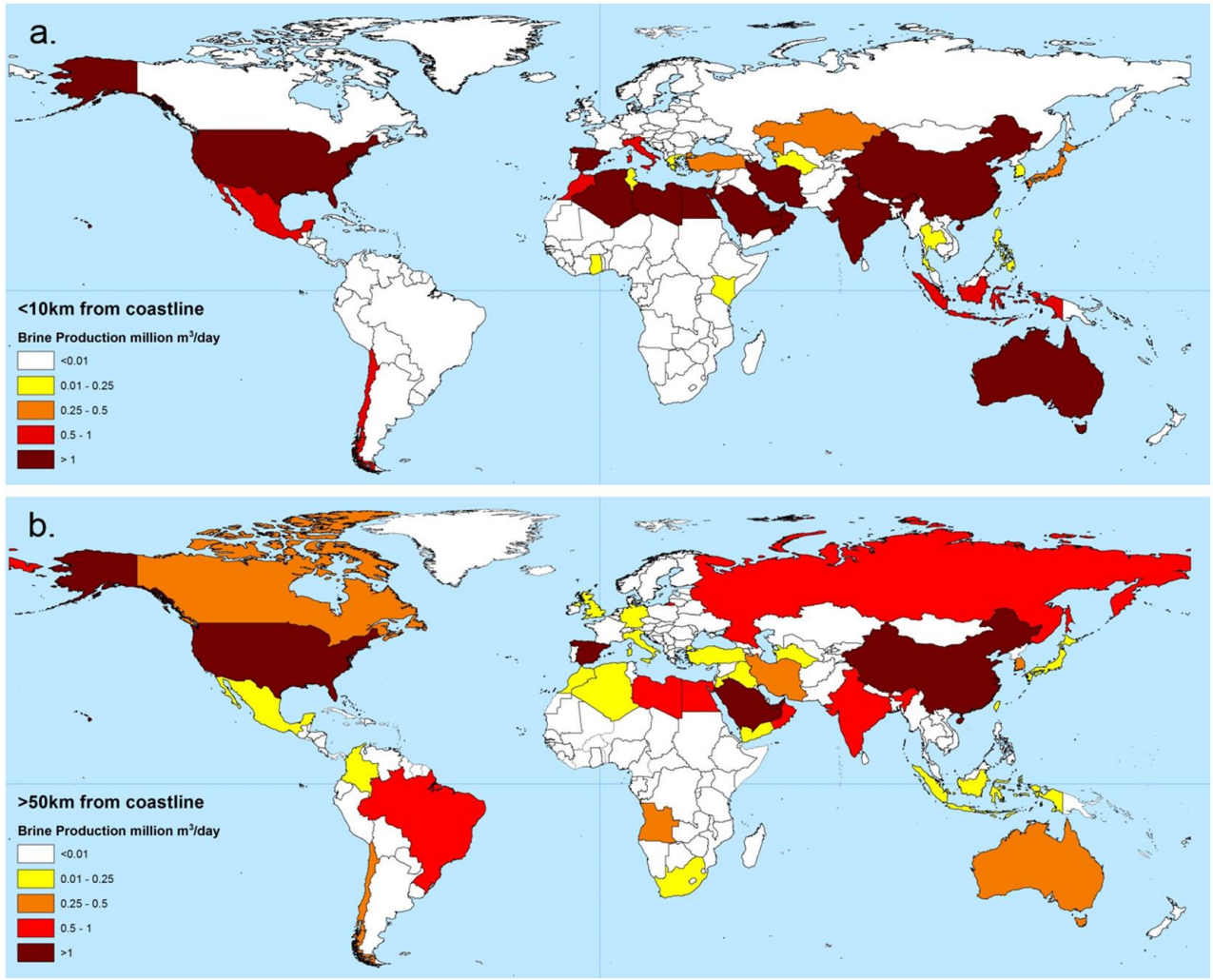
Making desalination sustainable

NOBRINER

Problem

- Freshwater is in dangerously low supply around the world
- By 2025 two-thirds of the global population may face water shortages
- Seawater desalination has provided a solution (but ignored the ecological costs of brine discharge)
- The UN warns of dangerous levels of toxic brine discharged daily (142 million cubic meters)
- Currently, for every litre of fresh water, 1.5L brine is also created
- Brine is a show-stopper in remote areas with no water supply



The solution

- NoBriner's low-tech solution of utilizing spray evaporation enables the company to convert toxic brine into salt without charging for it
- Salt is then harvested using local workforce and sold as a commodity product, or is converted into other products

By spraying brine in the air we allow the leftover moisture to evaporate mid-air, resulting in salt falling down onto our collector unit

Our vision

NO BRINER

Conversion of brine yields several environmental, economic and societal benefits regardless of the location. However, inland and coastal benefits can differ fundamentally

We provide jobs for the local workforce

8 DECENT WORK AND ECONOMIC GROWTH

14 LIFE BELOW WATER

Existing desalination plants can now operate without damaging the local fauna

6 CLEAN WATER AND SANITATION

Our solution enables inland desalination projects to provide water without harming the environment

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

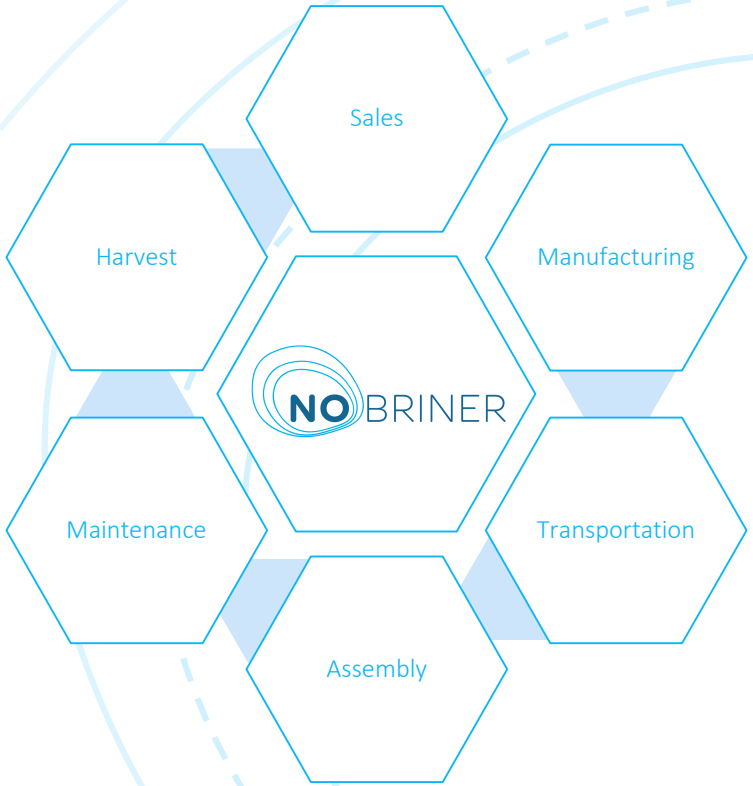
Through salt and salt-based products we introduce circularity to the local economy

17 PARTNERSHIPS FOR THE GOALS

Co-designing our final solution with local stakeholders ensures maximum impact

Business Model

NoBriner incurs all operational costs in order to burden its' partners as little as possible.



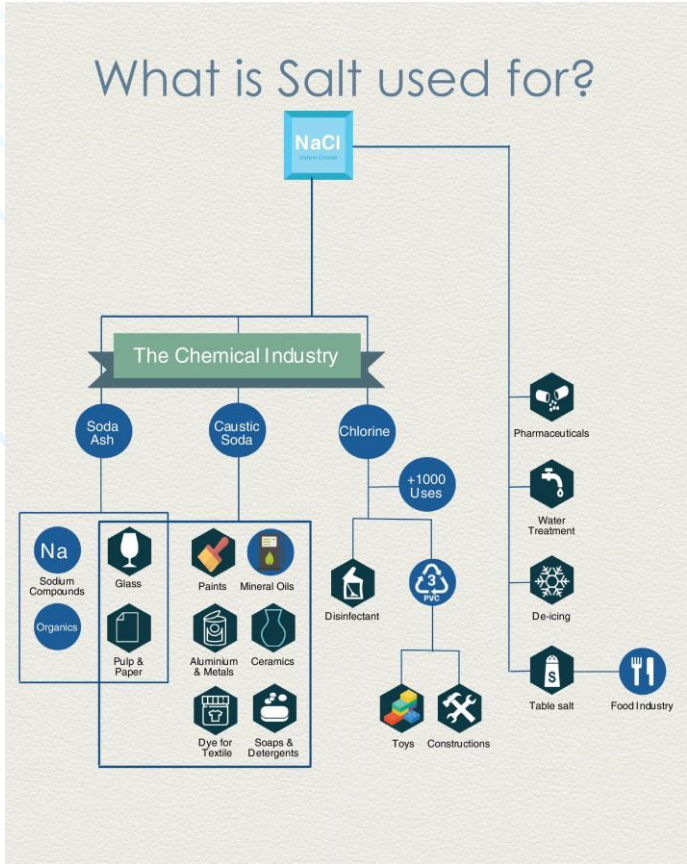
Through co-creation we ensure long-term value generation for all stakeholders involved

Technical expertise

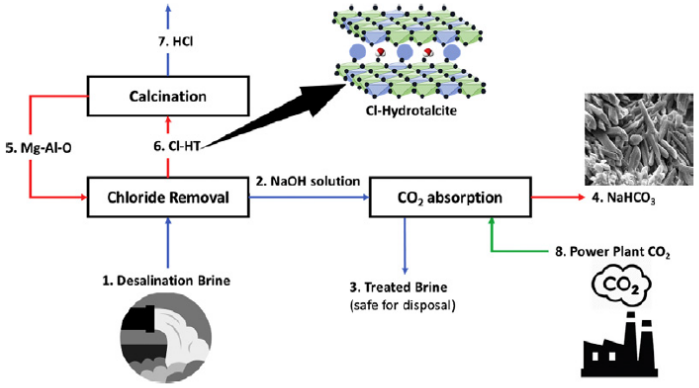
Local knowledge

Revenues from the end product are utilized to sustain business operations at NoBriner

Using case-by-case evaluation, we handpick the most suitable options



The excess salt



Dindi, A., Quang, D. V., AlNashef, I., & Abu-Zahra, M. R. (2018). A process for combined CO2 utilization and treatment of desalination reject brine. *Desalination*, *442*, 62-74.

The key to be able to sell previously mentioned quantities of salt relies on it's utilization into various products. Current solutions include:

- Salt for consumption
- Salt bricks for construction
- Potential agent to decarbonize (and create baking soda)
- Hygiene products (caustic soda)
- Energy storage

As co-creation is encoded in our DNA, the final solution will be developed together with regional stakeholders to help the local community as best as we can.

Kenya Red Cross

UNHCR The UN Refugee Agency

Traction

- Kakuma, Kenya hosts around 200,000 refugees
- Water is transported with tank trucks
- We have been tasked by Kenya Red Cross and UNHCR to solve the issue of brine so a desalination project can take place
- 120 units each at the capacity of 1m^3 brine/h has been precomissioned
- Ideal conditions for a pilot project
- Salt can be sold and utilized locally
- Based on our pilot project, we have been invited to Indonesia, and South Africa to test urban setup too

Unit economics

- Our economies of scale dictates that we can turn profit from a small project of 480 m3/day
- In order to convert 480 m3 we require an investment of 120.000 USD*
- That gives us 30 tonnes of salt daily
- Counting with 50 USD per tonne of salt we would be able to turn approx. 20.000 USD in EBITDA, meaning an ROI of 20% after year 1.

*upon request precise calculations will be provided

The team

Barney Vajda
Co-Founder/CEO

Anne-Sofie Larsen
Co-Founder/COO

Alberto Meola
Mechanical Engineer

Wafa Maalej
Chemical Engineer

Advisory Board members

Claus Helix-Nielsen
Head of DTU Environment

Jes Broeng
Head of DTU Entrepreneurship

Partners

Little Dane
GREEN ENERGY SOLUTIONS

clean
INNOVATING GREEN SOLUTIONS

UNHCR
The UN Refugee Agency

Technical University of Denmark
DTU

Copenhagen Business School
HANDELSHØJSKOLEN

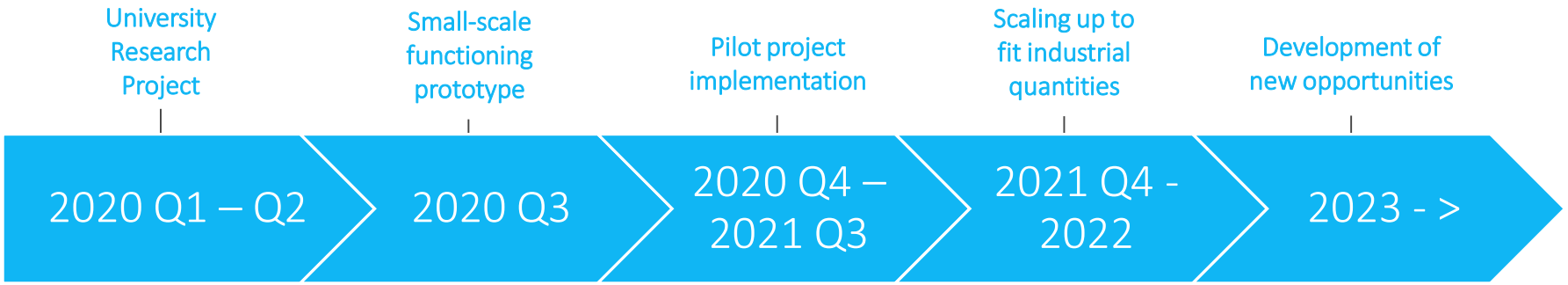
Kenya Red Cross

UNLEASH

access² innovation

Water DTU
Center for Water Activities at DTU

Our timeline and needs



In order to secure sustainability in desalination we need several things to succeed:

- Funds: without necessary funds we can't build our prototype and scale it
- Expertise: Currently our team is missing experts from the desalination world
- Access to plants: in order for us to scale properly, we need to have a solid cooperation with a desal plant (industrial scale will only be possible with cooperation on projects)

Thank you for your attention!

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