



# BLUE ECONOMY

Challenges and Opportunities

## Opportunities for Curaçao

DEEP SEAWATER INDUSTRY (DSI)

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# OUR STARTING POINT

- As a result of growing world population, climate change and the use of unsustainable energy sources, it is expected that if we don't change course, more arid areas and longer periods of drought will emerge, creating food, water and energy security challenges.
- Curaçao currently imports most of its products, as such to become more resilient we need to develop our own food and energy sources.
- The sea is filled with potential..... Technology and innovation will help us to sustainably better exploit the marine potential and create jobs in the marine-related sectors like fisheries, energy production, aquaculture tourism, etc.
- In addition to the fact that there are already several good examples in the world, an experiences from which we can benefit, our low availability of skilled and knowledgeable personnel, research capacity, appropriate facilities and funds, dictates collaboration in this field.





# COLLABORATION PARTNERS

- As an Island we are in the best position to advise and share best practices with other islands.
- The Government of Curacao has engaged into an Island 2 Island cooperation strategy through which it shares and receives information, solutions and collaborates with and supports other islands.
  - Through its participation in the UN Local 2030 Island Network
  - Through its participation in the Virtual Island Summit and Network elaborating on island solutions in the fields of technology and sustainability.
  - Through the OCTA “Blue economy Roadmap”
  - Through the WAIT Institute





# COLLABORATION PARTNERS

- Through the Waitt Institute program for the sustainable conservation of our ocean, we are also part of the Blue Halo Initiative which supports island nations in the conservation of their oceans by assisting with data gathering, policy development, strategies for the conservation of life below water, sustainable fishing, healthy coral reefs and by eradicating land-based pollution.
- Through the Partnership with the Waitt Institute, Curacao has been able to develop and implement several strategies to maintain one of the best visibility and spectacular coral reefs in the Caribbean.





# AREAS OF ATTENTION IN CURACAO

Regulation and Protection

Resilient circular Blue Economy

Effects of Climate change

Energy and DSI

Local and International Fishery

Tourism

Harbors and Maritime transport

Drinking water

R & D

Aquaculture

Proteus

The Ocean has served as a source of income for Curacao through Trade and Maritime Transport, Coastal and Maritime Tourism, Fisheries and Aquaculture, and as a source of (sustainable) energy production, water desalination and research.





# FLAGSHIP PROJECTS

Regulation and Protection

Resilient circular Blue Economy

Effects of Climate change

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Local and International Fishery

Tourism

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Drinking water

R & D

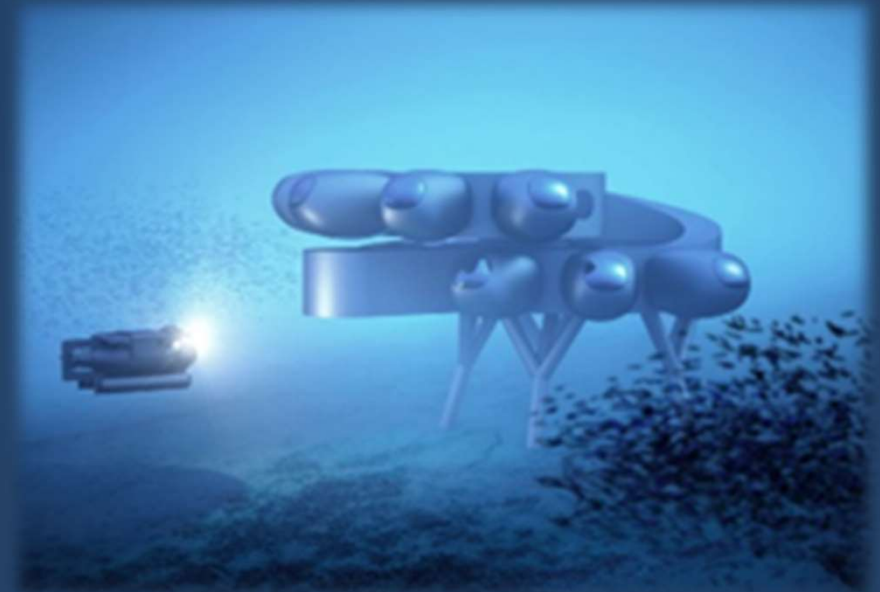
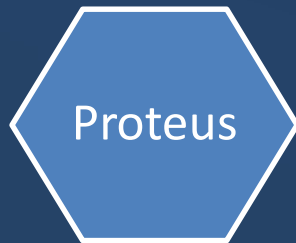
Aquaculture

Proteus





- Proteus is an envisioned underwater international research lab, by Fabien Cousteau, the grandson of the late Jacques Cousteau.
- The “underwater version” of the International Space Station is projected to be build off the coast of Curaçao at a depth of 60 feet.
- It will be powered by hybrid energy sources including wind, solar and ocean thermal energy.
- Proteus will further support knowledge of the sea, coral and is also expected to change the way humans live onshore.



# DEEP SEAWATER INDUSTRY (DSI)

- We see Deep Seawater Industry as a flagship project for the island with great potential in different areas.
- DSI is not new and is already proven in locations such as NELHA Hawaii, Japan, Korea, Taiwan, India and BoraBora.
- In our flagship project we plan to combine district cooling, via the Zakito district cooling project, with Deep Seawater Industry such as Agriculture and Aquaculture.
- Realization of the Zakito District Cooling project opens the opportunity to start a Deep Seawater Industry at relatively low costs.
- To move forward a Public Private Partnership platform (task-force) led by the Ministry of Economic Development, is set-up in order to work-out and implement the Deep Seawater Industry strategy not only for this project but also for future expansions.







# WHY DEEP SEAWATER

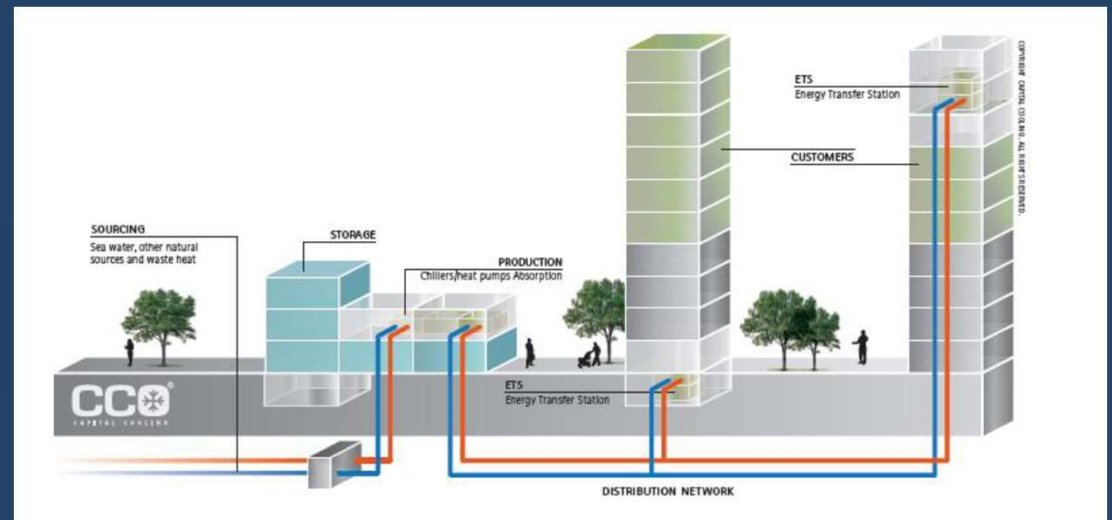
- The deep seawater (ca 850m) has been analyzed on its chemical, and biological characteristics. Beside being very cold (between 5-6C) the water is very pure, rich in minerals and high in nutrients.
- Contrary to surface water, deep sea water temperature remains fairly constant between 5-6 Celsius.
- Because the sun light does not reach the depths of the ocean, photosynthesis does not take place, leaving nutrient rich water ideal for aquaculture.
- Presence of bacteria and organic matter is also considerably lower than that in the surface water, making it thus very sterile and interesting for high quality produce.
- These unique properties open the possibilities for various business opportunities, which can create value from the water of the deep Caribbean sea.





# Zakito District Cooling

The goal of Zakito DC project is to connect all the suitable centralized cooled buildings in “the Zakito Area” (\*) to a District Cooling system and thus provide all the customers with a stable, sustainable, reliable and cost-effective means for cooling their buildings.



(\*) - between Renaissance and Hilton, including the WTCC, New Hospital) and in the future perhaps the Sambil Mall,



# Zakito District Cooling

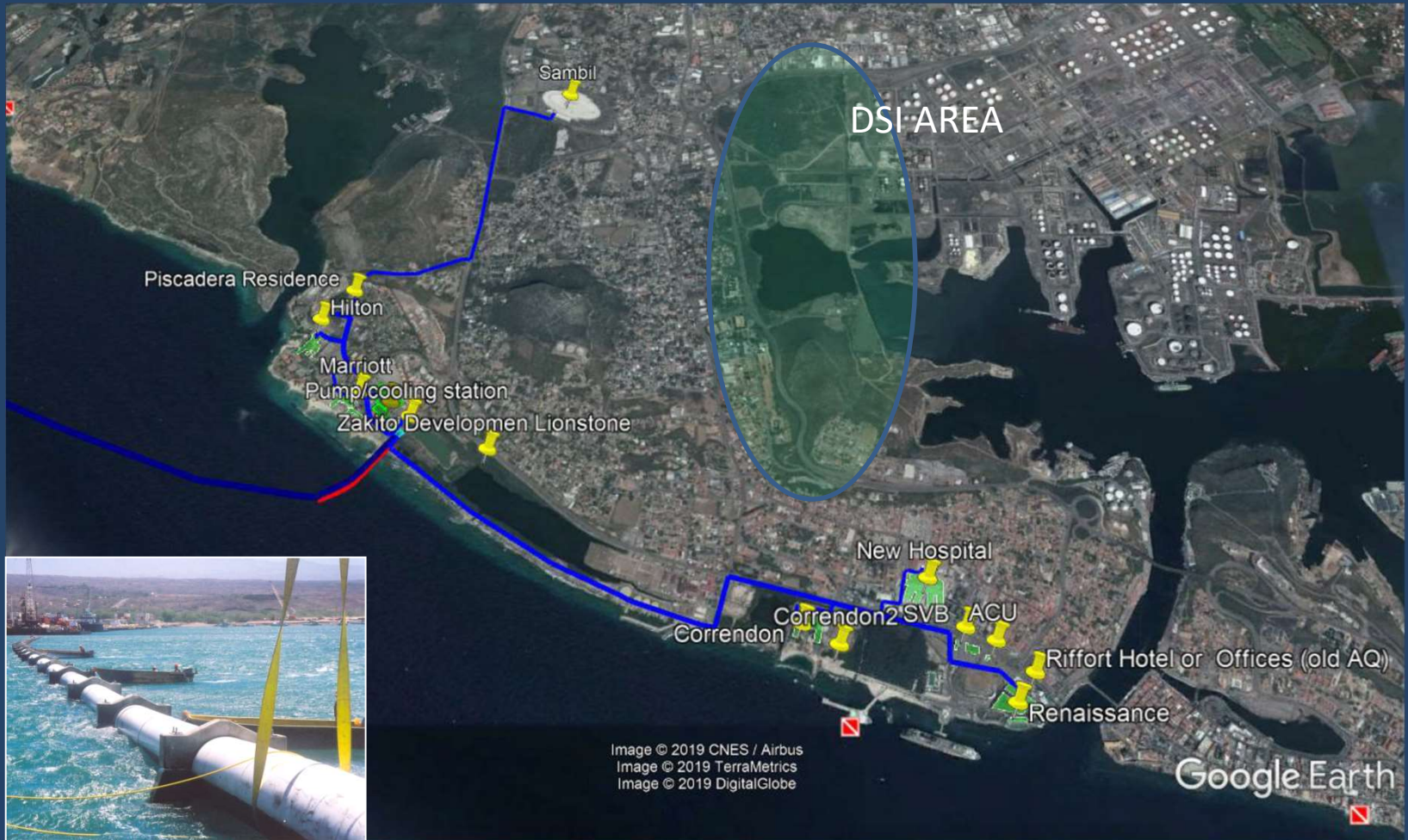


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# DSI POTENTIAL

- Agriculture: Greenhouses, Aquaponics / Hydroponics for vegetables, fruits, flowers.
- Aquaculture: lobster-, fish-and shrimp farms.
- Pearl Culture
- Algae/seaweed production, Biodiesel



# DSI POTENTIAL

- Water bottling and export,
- Liquor (beer)
- Pharmaceutical: minerals and proteins production,
- Medicinal baths and “SPA”,
- Beauty products (cosmetics, perfume, soap) Specialty salts (food, spa),
- Effluent cooling of large cooling houses
- Health tonics,
- Research & Development Campus (Deep seawater biology, Global warming etc.)

Oyster



Cosmetics



Agriculture



Sea Grape



Research



Drinking Water



Prawn





# Q & A

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