



DEME | CREATING LAND FOR THE FUTURE

▼
Opportunities and challenges for marine scientists in the dredging world

Dr. Thibaud Mascart
OORL alumni conference – UGent, December 6th 2018



DEME

Dredging, Environmental
& Marine Engineering

WHO are we?



WHO are we? | Solution provider for global challenges



- ▶ Dredging and land reclamation
- ▶ Marine and off shore energy solutions
- ▶ Waterway contractor
- ▶ Environmental pioneering approach
- ▶ Front runner in innovation and technology



Creating land
for the future



WHO are we? | Solution provider for global challenges

It's all about a multicultural environment, ambition, passion, challenges, trail-blazing,...

Entrepreneur of the Year®
Onderneming van het Jaar® 2015



DEME is not a **'multinational'**

... but ...

DEME is a **cluster** of many 'SMBE's' (small, medium & big enterprises) and high-tech projects managed by **'intrapreneurs'** and **motivated teams**



SUSTAINABILITY | a way of life



SUSTAINABILITY | a way of life



Signing of Belgian SDG Charter
(Oct. 2016)

U.N. Sustainable Development Goals



CLEAN WATER AND SANITATION



RESPONSIBLE CONSUMPTION



GLOBAL GOALS
Sustainable Development



Solutions | for global challenges

What about the rising sea level?

What about the scarcity of mineral resources?

What about the ever growing population in coastal areas?

What about the growing CO2 emissions?

What about soil & water pollution?



What about the ever growing population in coastal areas?



DEME | Thinking out of the box



Singapore

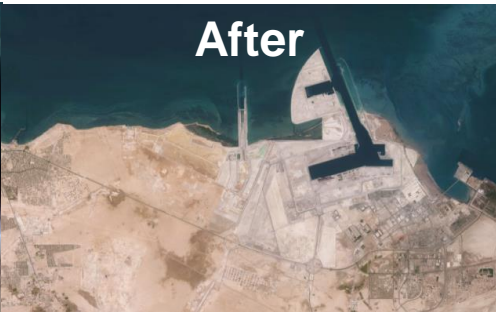
TTP1



Before

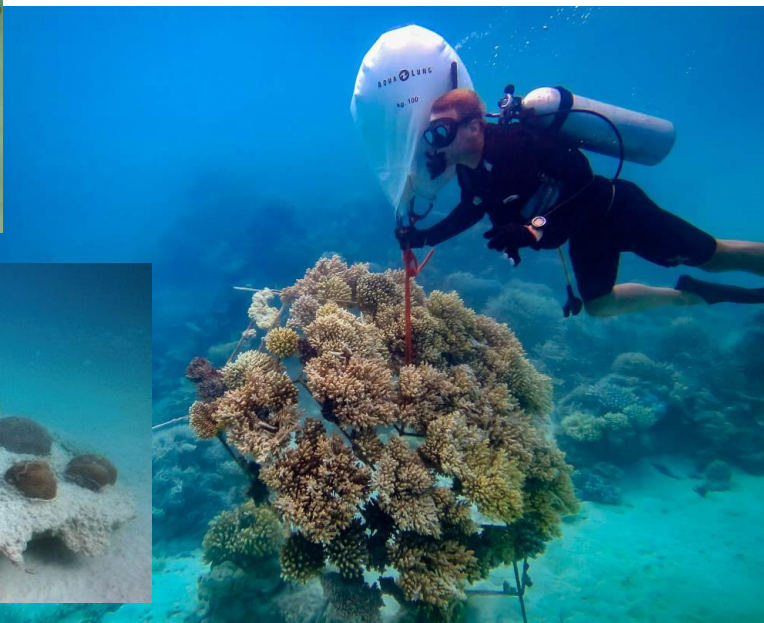


After



Qatar

*Doha Port
Mangrove,
Seagrass and
coral
restoration*



What about scarcity of mineral resources?



DEME | Thinking out of the box



Gravel
trailers
'Charlemagne'
& 'Victor Horta'

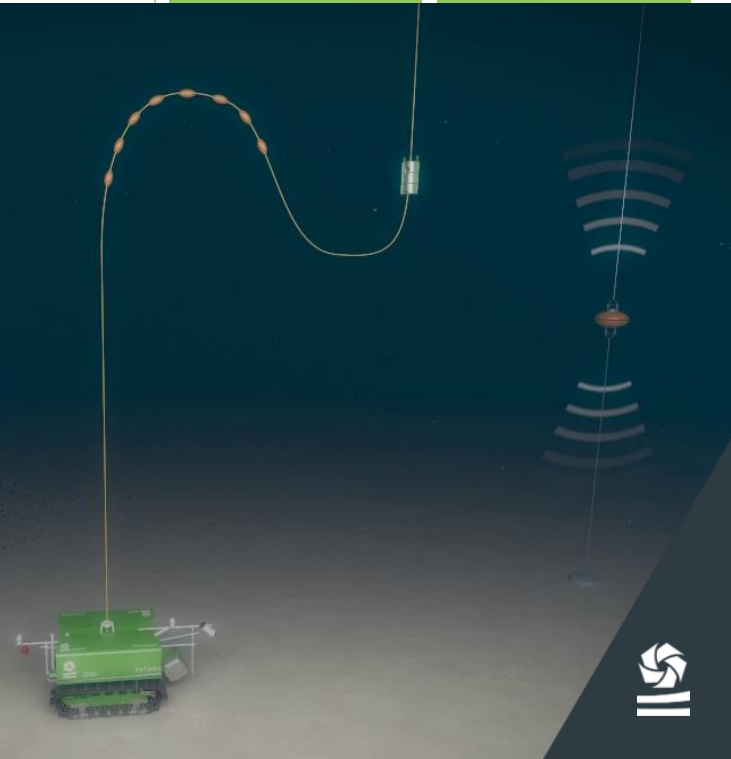
Specifically
equipped
for gravel
winning and
dry shore
delivery



DEME | Thinking out of the box



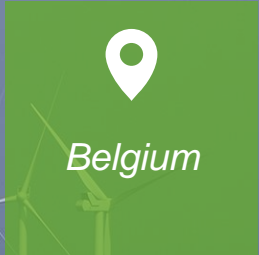
Prototype to check if mining if possible is a sustainable way



What about the growing CO2 emissions?



DEME | Thinking out of the box



DEME | Thinking out of the box




Scotland &
N. Ireland

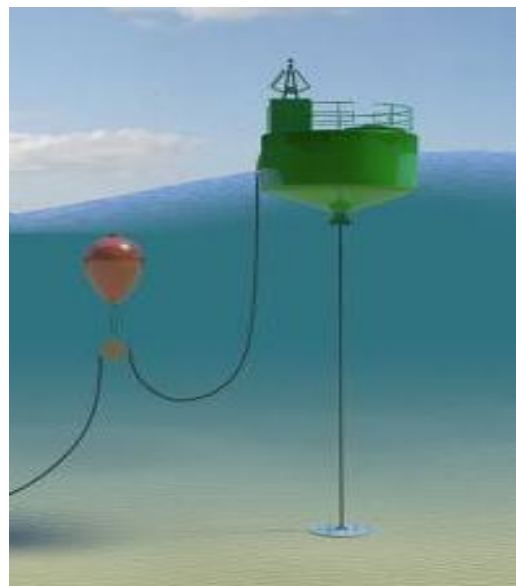
Generation
of tidal
energy



DEME | Thinking out of the box



*FlanSea
project:
generating
wave energy*



DEME | Thinking out of the box



Belgium

Terranova
Zelzate

Former gypsum storage site
turned into an energy field



What about soil & water pollution?



DEME | Thinking out of the box



Sweden

Remediation
of the
Valdemarsvik
fjord



DEME | Thinking out of the box



DEC
Environmental Solutions



Ecoterres
Solutions Environnementales

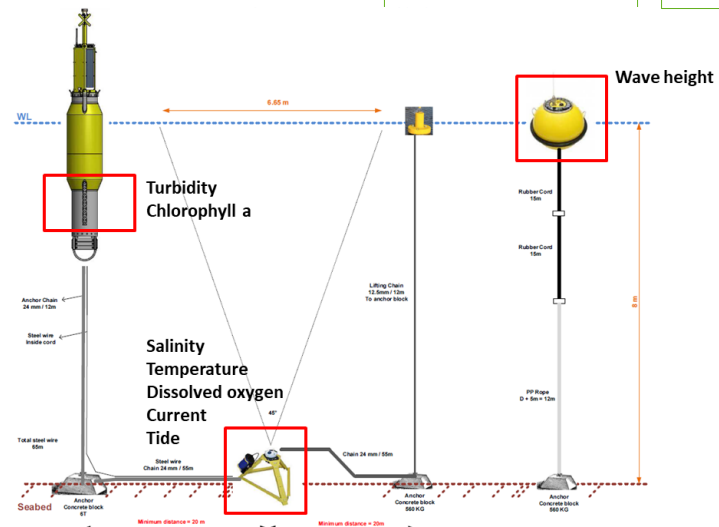


United Kingdom

Decontamination of the 500 ha site of London Olympics 2012



DEME | Thinking out of the box



► Oil spill response and recovery

► Real-time turbidity monitoring



What about sea level rise?



DEME | Coastal protection

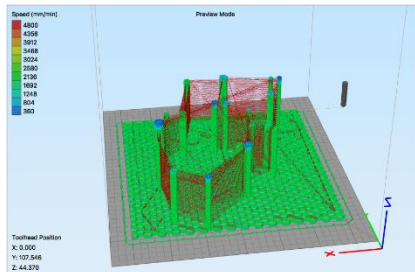


Emboodhoo,
Maldives

*Need for land
reclamation
due to rising
sea level*



DEME | Thinking out of the box



A sea level rise of 0.65m is expected to raise coastal defense costs up to **US\$9.6 trillion**.

The location of the test is the 'Testzone for Coastal Defense' near De Panne, Flanders.

Natural disasters by cause

- Meteorological:** Storms
- Hydrological:** Floods, landslides and avalanches
- Climatological:** Extreme temperatures, droughts, forest fires

There are **6 times more** hydrological events now than in 1980.

BIVALVE REEF
shellfish type mussels and oysters

FLORA REEF
seagrass and seaweeds (algae)

BIOBUILDERS EXAMPLES:
tidal marshes, mangroves, dunes, coral reefs and also, as in the case of Coastbusters, shellfish reefs, flora reefs and sand mason worm reefs.

LANICE REEF
sand mason worms or tube building worms

hard shoreline structures like bulkheads prevent natural marsh migration and may create seaward erosion.

FLOOD PLAINS AND STORM SURGES ARE EXPECTED TO KEEP RISING



Are there opportunities for marine scientists in the dredging world?



YES! Dredging is not a purely civil engineering playfield anymore!

Therefore, **Dredging, Environmental & Marine Engineering**
welcomes future change agents

Come and join us to shift
from “**Thinking** out of the box”
to “**Acting** out of the box”



RESTORATION
BIOBUILDERS

WATER QUALITY

HYDRAULIC ENGINEERING

LAND SUBSIDENCE

BIODIVERSITY

NATURE CONSERVATION

INNOVATION

STABILISATION

ECOSYSTEM

STORM

BIODEGRADABLE

EROSION

CLIMATE CHANGE

ENVIRONMENT

FORCES OF NATURE

COASTAL DEFENSE

SEA LEVEL RISE

RECREATIONAL SPACE

NATURE BASED SOLUTIONS

CARBON SEQUESTRATION

SOCIETY

WAVE ATTENUATION

ECONOMY



Thank you for your attention



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