



Engineering

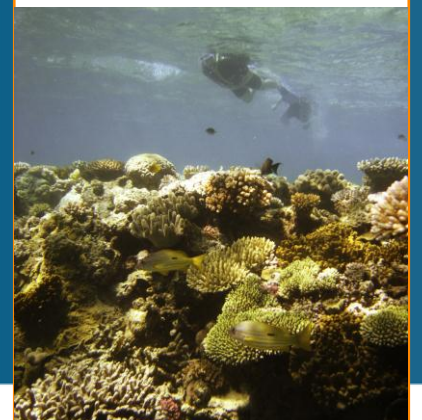
ReefGuard

The ReefGuard is an innovative mobile laboratory designed for reef rehabilitation. It has been developed by Van Oord in close collaboration with Blue Linked (a marine environmental services company) and coral experts from all over the world. The ReefGuard employs the concept of nurturing coral larvae and young coral recruits under controlled conditions, to enhance their survival rates after re-introduction in nature.

Dredging and Marine Contractors

Coral Rehabilitation Initiative

Van Oord wants to demonstrate that already proven, but generally small-scale, coral breeding techniques (fragmenting as well as sexual coral reproduction) can be scaled-up and effectively applied for mitigation of environmental impacts of very large coastal infrastructure projects.





Sexual Coral Reproduction

The lifecycle of broadcast spawning corals can be included in a breeding program, settling larvae on tiles or other substrate that afterwards may be placed back into the field. The success rate of such programs depends to a large extent on the availability of a controllable environment sufficiently close to the coral site. Van Oord brings in its expertise on logistical processes and financial means to extend knowledge and develop facilities together with specialist scientists. Van Oord's experience in organising complex logistics and its involvement in very large coastal infrastructure projects world wide, are two crucial components to make this initiative a success.

The ReefGuard

The core of Van Oord's coral rehabilitation initiative is formed by a mobile breeding facility: the ReefGuard, a set of containers that is especially equipped to serve as a standalone mobile laboratory. The availability of a controlled environment facilitates fertilisation and primary settling of the larvae on available substrates. The ability to provide controlled laboratory circumstances at any project location

in the world is a key ingredient for the up-scaling of already proven coral breeding techniques. Experts in coral breeding techniques are involved to continuously optimize the lab design and improve protocols for its application.

Phasing Coral Rehabilitation Initiative

- **Phase 1: Feasibility** Literature review, expert consultation and participation in Coral Breeding Workshop Curacao (finalised December 2011)
- **Phase 2: Lab construction** Development of protocols, detailed design and construction of Coral Rehabilitation Facility (finalized November 2013)
- **Phase 3: Application in the field** Deployment of the ReefGuard in the field (planned 2014)



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