

RAAK-PRO PROJECT BUILDING WITH LIVING NATURE NEWSLETTER

NOVEMBER 2011

Toegepast onderzoek op het grensvlak van ecologie, civiele techniek en watermanagement ten behoeve van de ontwikkeling van duurzame multifunctionele oplossingen waarbij waterveiligheid in Delta regio's gewaarborgd is

Building with Living Nature

Applied research on the interface between ecology, civil engineering and water management for sustainable development of multipurpose solutions to assure safety in Delta regions

Welcome

This is the first newsletter of the project RAAK-PRO Building with living nature. You are receiving this newsletter because you are in any way involved in the project, through your organization, as participants in any activity, or as a student.

With this newsletter we will keep you informed of developments in the project and the activities under way.

Introduction

The main idea of RAAK-PRO project Building with living Nature is to disclose, to professionals, the available knowledge on building with nature. The project is conducted in collaboration with multiple parties such as Project Sea Defenses, Deltares, Ecoshape, Rijkswaterstaat Zeeland and Hogeschool Zeeland.

Since the start of the project in September 2010, several researches and activities, such as the Coastal Zone Management course, have been carried out. With this newsletter we want to keep you informed about the most important results and developments in the project. You can find more information on the website of the Delta Academy www.deltaacademy.nl, research group Building with Living Nature.

Organization of the project

At Hogeschool Zeeland within the Delta Academy, a new research group has been formed. This group consists of 2 part time lecturer/researchers (Carla Pesch, Ruud de Boer), a full time junior researcher (João Salvador de Paiva, since august 2011) and Mindert de Vries as part time Lector.

Within the project cooperation with the following partners is established

- Deltares
- Rijkswaterstaat
- Projectbureau Zeeweringen
- Ecoshape
- Waterschap Scheldestromen

An overview of activities since project kick-off in September 2010

Work package 1 Concepts

The work package 1(WP1) is about concepts. The starting point for this work package is resilience, and how to reinforce and maintain the mechanisms for resilience, by strengthening ecosystem services and functional groups, in this case in the Oosterschelde, in relation to BWN solutions. It focuses also on how ecosystem management can simultaneously contribute to safety and to improve several other services.

Work package 2 Protocols

The Work package 2(WP2) is focused on identifying the safety criteria, desires, recommendations and specifications of professionals (executives, managers, developers) with regard to non-standard dike designs, designed according to building with nature principles, to develop engineering solutions. At the same time the WP2 is also focused on creating a useful framework, based on the previous requirements, for building with nature concepts, plans and specifications. the final outcome of WP2 is going to be contribution/extension to existing protocols and processes that are normally applied to traditional dike designs.

Work package 3 Experiments

The Work package 3 is focused on field research activities that are useful to strengthen the output generated in Work packages 1 (BWN Concepts) and 2 (Guidelines and protocols). hereinafter we present the first experiments in the field of rich revetments.

Setup of field experiments facility at Ouwerkerk

Near the Watersnoodmuseum at Ouwerkerk, Waterschap Zeeuwse Stromen has placed 9 "bath tubs" (2x4m) near the dike, on the intertidal zone. during flood, the bath tubs will fill with water from the Oosterschelde. The bath tubs are ideally set up to execute experiments to investigate the Rich Revetment (Rijke Dijk) concepts. In autumn of 2010 each bath tub has been filled with a selection of materials used for dike protection, such as concrete, basalt, granite and limestone. SETL plates have been added. The goal of the experiment is to analyze the influence of material type and sorting on biodiversity and species abundance.



Heavy equipment of Scheldestromen, on a dike section close to the Watersnoodmuseum



Students preparing the experimental setup, on a dike section close to the Watersnoodmuseum

Work package 4 Tools

In spring 2011 first activities have been initiated. In cooperation with Deltares and Ecoshape. HZ ICT Lector Hans de Bruin cooperated to establish an outline for a first product, a downloadable "app" that will function as entry point of a knowledge base of Building with Nature applications. In addition a "white paper" on building of oyster reefs for coastal safety will be written, based on analysis a series of artificial oyster reefs created worldwide.

Additional activities

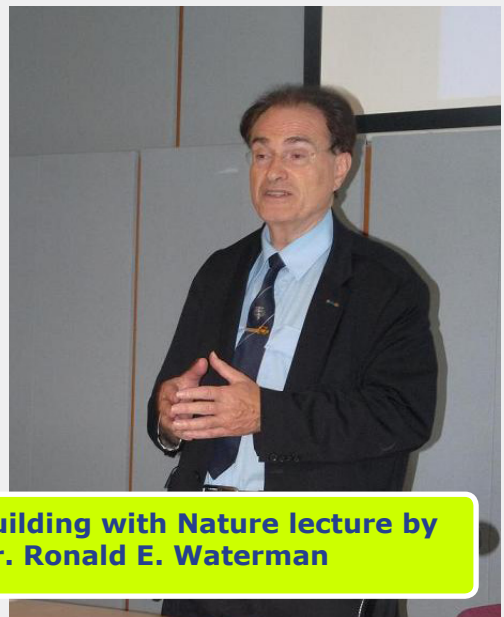
Coastal Zone Management / Building with Nature course

A group of 30 4th year Delta Academy students have been trained in the concepts and applications of Building with Nature in the context of Coastal Zone Management. In this course guest lecturers of all partner organizations have contributed. The aim of the course was to provide insight in the state of the art of BWN on international, national and regional scale, from the perspective of governance, engineering and construction and science. Within the course students have visited Provinciehuis of Zuid Holland to learn of the political process and Maasvlakte 2 to experience BWN at work in the context of the harbor extension.

The possibility of setup of a practical BWN training course for professionals has been discussed with Ecoshape, linked to the HZ programs that are aimed at implementing lifelong learning.



**Building with Nature lecture by
Dr. Ronald E. Waterman**





Internships and minors

During 2010-2011 period several students worked on building with nature concepts. The list below presents the students who were involved in these activities.

Minor Water Research

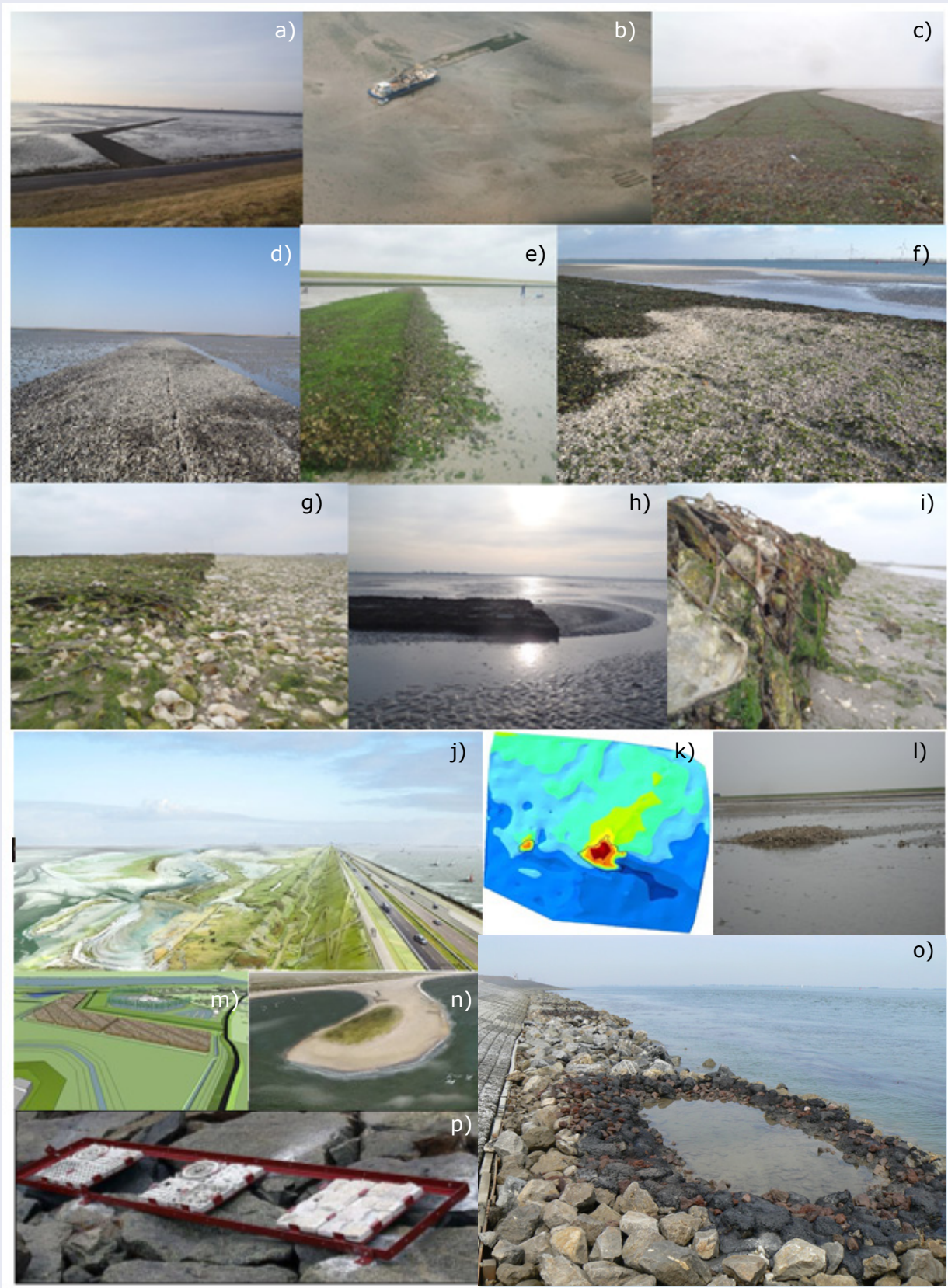
- 2010 - 2011, Tao Hong, Building with Nature concepts, client HZ-BwLN/Deltares; supervised by Mindert de Vries and Myra v.d Meulen (Deltares), supervising lecturer Bram Verkruyze and Carla Pesch.
- 2010 - 2011, Aaron Gudiel Samayoa and Aline Mulder, Eco Elastocoast structures; supervised by Yvo Provoost(Bureau Zeeweringen), Mindert de Vries and Carla Pesch (HZ-BwLN), supervising lecturer Bram Verkruyze (Semester 1) / Jenny v.d Welle (semester 2).
- 2011, Mark Kloosterboer, Netherlands-Singapore Eco structures; supervised by Claire Itching (ecoshape) and Ruud de Boer (HZ-BwLN), supervising lecturer Jenny v.d Welle.

First internship

- 2011, Babette Bookelaar, Oyster bed research; supervised by Brenda Walles and Tom Ysebaert (Imares), supervising lecturer Michael Michels.
- 2011, Bart van Meegen, Sustainability and BwLN concepts; supervised by Arjan Kroot (Boskalis) and Mindert de Vries (Deltares), supervising lecturer Paul Vader.

Final Internship

- 2011, Anne Brodauf, BWN ideas in the Delta area; supervised by Erik van Eekelen (van Oord), supervising lecturer Carla Pesch.
- 2011, João Salvador dePaiva, Oyster reef research, Brenda Walles and Tom Ysebaert (Imares), supervising lecturer Henk Massink.
- 2011, Jan Schaap, now works with RWS (dual program) and goes to Imares, supervised by Jenny v.d Welle.
- 2011, Julia Model, Sustainable Marina of the future(including adjustment and input from HZ-BwLN),supervised by Paul Vader(Docent for Sustainability), supervising lecturer Carla Pesch.



a - i) Artificial oyster reefs in the Oosterschelde
 j,m, n) Building with Nature Solutions
 k, l) The effect of an oyster reef on the intertidal environment
 o) Rich revetment solution with a pool in a dike
 p) Rich revetment research in Singapore

WORKSHOP RAAK-PRO PROJECT Building with Living Nature: Basis for Work plan for 2011-2012, (6th July 2011)

Workshop participants: Leo Adriaanse(RWS), Bert Kortsmid (Bureau Zeeweringen), Carla Pesch(HZ), Mindert de Vries (Deltares), Ruud de Boer(HZ), Hans de Bruin(HZ), Hans Filius(HZ), Tom Ysebaert(IMARES), Henk Massink(HZ), Guido Wolters(Deltares), Myra van der Meulen(Deltares).

The workshop was divided into two parts, a plenary session to present the project and parallel sessions for each work package.

The plenary session was opened by Mindert de Vries with a short presentation, on the principles of BwLN and an overview of the main and subsidiary questions of RAAK Pro project. The parallel sessions were organized into three sessions for the work packages 1, 2 and 4 and the aim was to receive feedback on the approaches chosen and on the project plans for the coming year.

We concluded that the workshop made a clear contribution to the project as it explored how each entity fit in the project and what is the most promising focus of each work package.

As an overall direction for the coming year, it was concluded that a link of each work package to the upcoming BWN Oesterdam project would be sensible, in order to guarantee output that has practical value and to enable partners to create synergy with the work that needs to be done for this new BWN project anyway.

Concerning WP1:

The upcoming activities of WP1 are a kick-off workshop about the Oesterdam and the activities that can be performed in the Oesterdam project. Moreover, students will start working on this work package in the study project, the minor Water Research, and in work placements.

Concerning WP2:

The two main guidelines in work Package 2 are safety and ecology. The focus of WP2 will be on testing safety requirements of BWN dike designs and to provide information on the ecological values of BWN dike designs. The students will start working on this work package in a study project and in a minor related to rich revetments.

Concerning WP4:

The work package 4 (WP4) main subject is to provide simple tools/structures/processes to make BWN dike designing attractive and practicable. WP4 will use output of WP 1, 2 and 3 and within WP4 a connection will be made with the "kennis management" project that is starting as a cooperation between HZ and Zeeweringen. Output will be related to the Oesterdam project.

The consequences for setup of experiments in WP3 will be dealt with in a next workshop session.