SLAMdam© “Save Lives And More”. For centuries, we have been using sandbags in order to protect us from floods. But why are we still using this ancient method? With the current techniques, the job can be done a lot faster and more efficiently with the SlamDam©. The SlamDam© is an innovative flood defender, developed to handle floods in a quick and efficient and labour saving way.

Water floods requires adequacy.

- Quick installment
- Easy to fill with water
- Easy to transport
- 40-year durability
- Lightweight
- Easy to break down/put away
- Maintenance free

Contact: SlamDam B.V. | +31 (0)36 5359262| www.slamdam.nl | info@slamdam.nl

Last year research was done at the Technical University of Delft in the reliability and effectiveness of emergency measures for flood prevention, which was commissioned by the STOWA. The contribution of emergency measures for the safety of river dikes was looked at for both height problems (overflow and overtopping) and piping issues. The reliability of emergency measures is determined through three phases: Detection, where the flood defenses are inspected, Placement, where the emergency measures are placed, and Construction, when the emergency measure needs to function properly. Results show that human errors during the Detection and Placement phase largely determine the reliability of emergency measures. The research concludes that a system of emergency measures can enhance the safety of river dikes. Challenges for the future consist of a better, more effective use of emergency measures by raising the level of knowledge of organizations involved and increasing the speed with which emergency measures are placed. Innovative products such as those tested here at Flood Proof Holland can play an important role. Here, students can compare theoretical models with the practical results.

Contact: Delft University of Technology | www.tudelft.nl | k.t.lendering@tudelft.nl

The Tube Barrier is the newest innovation for flood protection. The Tube Barrier is a flexible tube that acts as a flexible dam. The flexible tube is segmented in chambers and can be made as long as desired.

The product:

- is low-tech;
- is easy to install and store;
- can be re-used;
- the innovation itself is flexible in shape, length and height.
- is user-friendly;
- has a quick response time;
- adapts to the rise and fall of the water level;

In short it is adaptable to local context. The Tube barrier is for protecting land, industries, houses and people against floods.

Contact: Tube Barrier | +31 6 11421049 | www.tubebarrier.com | info@tubebarrier.com

The Grassblock, developed by Hillblock BV, is a composite revetment consisting of a porous concrete base covered by earth with a top layer of grass. This creates a surface with a green look which still offers extra durability against hydraulic forces such as wave attack and overtopping. Grassblock makes it possible to give a more appealing green appearance to parts of a dike which under extreme conditions are too vulnerable to wave attack and overtopping for a conventional clay covering with turf. It has a wide range of applications including being highly suited for use on all dikes and embankments along rivers, lakes and the sea. For more flood defence products and engineering go to our website.

Contact: Dorian Hill | +31 (0) 10 205 27 70 | www.hillblock.com | info@hillblock.com

Flood Proof Holland

Every year, worldwide, severe flooding causes human suffering and great financial damage. Usually the involved authorities use the traditional sandbag constructed as temporary dams to protect us from the water. However, the sandbag has its disadvantages.

Test facility

Flood Proof Holland (FPH) is a unique test facility for innovative temporary flood defenses that can be attractive alternatives for the traditional sandbags. The FPH site allows entrepreneurs to test and use their innovations in a real life environment. It is created in close cooperation with the Delft University of Technology.

The testing and demonstrating of innovative flood defenses provides several advantages. First is that it will lead to a better product. Second is that the site makes it possible to show and demonstrate the products to the public. It gives policy staff, future customers and others interested the opportunity to get to know the products. Third is that the test facility allows students to combine their theoretical lectures with practical on-site research.

VPdelta

Climate Change, global population growth and increasing urbanization calls for creative innovations and solutions for deltatechnological issues. The VPdelta program was set up by the Dutch region of South-West Holland to increase entrepreneurship and innovative solutions for the challenge of remaining safe in delta areas.

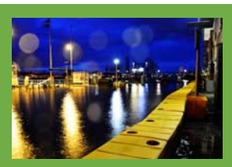
Knowledge institutes, companies and governmental organizations collaborate in VPdelta.
VPdelta offers SMEs and startups from the strong Deltatechnology cluster in the South of Holland, various locations and facilities for testing and showcasing their innovations. In these testing facilities we bring together entrepreneurs, students, researchers and educational projects. Further VPdelta offers entrepreneurs support in various aspects of their R&D and market introduction of innovative solutions for effective Urban, Safe or Smart watermanagement. VPdelta operates and cooperates on development and implementation of innovations for the delta of tomorrow.

For more information, please contact Marjan Kreijns:
info@vpdelta.nl

Investing in your future
This project has been partially financed by the European Regional Development Fund of the European Union

BoxBarrier

The BoxBarrier is a very effective temporary flood defence system, which can be used to temporarily heighten the crest of a dike, or to make a temporary dam on flat terrain. This increased crest height prevents flooding of the areas behind the dike. The concept of the BoxBarrier is characterised by easiness, because it makes use of its opponent: it retains water with water.



The modular flood defence consists of box elements, which are connected by joint elements. The box elements are covered by lids. The box elements are filled by a pump and then the BoxBarrier is ready for all types of floods!

Contact: BAM Infraconsult | +31 182 59 06 24 | www.boxbarrier.com| info@boxbarrier.com

TU Delft Delft University of Technology

The past two years Flood Proof Holland (FPH) has served SME's with a low key means of qualitatively assessing the functionality of their developed products. To quantify the effectiveness of their products and to stimulate further product development, detailed measurements are required. Moreover aims the section of Hydraulic Engineering of the TU Delft to gain more insights into the residual strength of embankments under overflow conditions, and the effects of spatial variability on the geotechnical stability of embankments. These tests require a larger and deep test basin. To facilitate this, FPH will be extended with a large basin of 24m long, 11m wide, and 2.3m deep. Sensors will be placed in the embankment surrounding the basin to verify the effectiveness of newly developed sensors

Contact: Myron van Damme www.tudelft.nl m.vandamme@tudelft.nl

MOBIELE DIJKEN NEDERLAND BV

The "Mobiele Dijk" or mobile dyke is an innovative temporary flood protection system. Setting up a Mobiele Dijk is very quick and easy and the dyke is reusable. When setting up a Mobiele Dijk, it is filled with water, in this way you use the problem, water, to fix the problem. The Mobiele Dijk is usable on almost every surface. The different dyke modules are connected to each other to form a stable chain. The Mobiele Dijk system consists three material layers to provide a very high safety reserve, the Mobiele Dijk is stable, even to the point of overflowing. This makes the system unique. The Mobiele Dijk is available in different heights from 45 up to 260 centimeters and has proven itself many times, mostly in Germany.

Contact: Bart Burggraaf | +31 (6) 22584685 | www.mobieledijken.nl| info@mobieledijken.nl

TU Delft Delft University of Technology

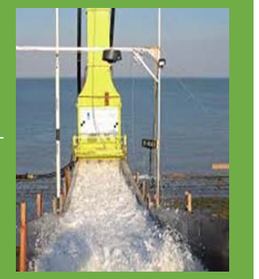
Soil Distributed Temperature Sensing (DTS) is an innovative technique to monitor soil moisture at a high resolution in time and space over large areas. This is essential for the validation of remote sensing products. Soil moisture is measured at every meter by analyzing the backscattered signal of laser pulses send trough fiber optic cables buried at different depths.

The present set-up is the third in the world, but the first at which the ground water level, the temperature of the soil and soil moisture can be artificially influenced.

Contact: TU Delft| +31 15 278 1377 | www.tudelft.nl | s.c.steele-dunne@tudelft.nl

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

The Wave Impact Generator. This machine was build to simulate impact loading on a slope caused by WAVE IMPACT during storm conditions. This machine is part of a series of machines each one simulating a different type of hydraulic load. The erosion process caused by this particular impact load can be monitored closely to learn more about the specific phenomenon and the strength of turf on levees.



Contact: Rijkswaterstaat WVL | +31 (0)800 8002 | www.rijkswaterstaat.nl

Green Soil Bag

Green Soil Bag is a full service provider as for flood protection and repairs on embankments. We got a focus on costs, biodegradable and speed. For example you save all the costs of removing sandbags after the emergency if you would use Green Soil Bags and for repairing dunes we recommend our jute/ burlap Trapbags. As for speed we got global strategic stock, ways to move it and simple instructions to deploy our products. We offer a variety of barriers but also the tools for placing them as automated sandbag filling machines and filling frames for working on site. We are also used working with International emergency managers and defense. Beside that we like to think with you towards a durable, cost saving solution for your water problem, including dredging and urban water.

Contact: Green Soil Bag | www.greensoilbag.com| info@greensoilbag.com

Mobile Water Management

Mobile Water Management (MWM) is the only monitoring method registering water levels by taking a picture with a mobile device. This ensures fast and inexpensive deployment of monitoring networks. MWM hosts a cloud platform to which smartphones connect. Users simply take a picture with their mobile. Image-processing algorithms read water levels from the photos. We can measure water levels, groundwater levels, gate openings and water quality. Everyone can participate by taking photos with their smart phone. MWM measurements are easy to take and reliable.

Contact: Mobile Water Management | +31 15 700 97 27| www.mobilewatermanagement.com| info@mobilewatermanagement.com

NETICS THE INNOVATION ENGINEERS

NETICS is testing here together with TNO its newest patented invention the GEOWALL®. This is a retaining wall made of compressed locally sourced sediment. This wall will be used worldwide as a temporary or permanent flood barrier or for creating structures like retention basins and irrigation channels. In the Netherlands the GEOWALL is also a highly suitable alternative for wooden stockpile revetments. In response to the increasing demand for low-priced and rapidly deployable flood defenses, the GEOWALL is an inexpensive, eco-friendly and lifesaving structure. As resources are becoming scarcer and water levels continue to rise as a result of climate change, the GEOWALL will make the difference. NETICS is proud to be the worldwide expert in developing new climate adaptive marine structures with our innovations based on Building with and Inspired by Nature.

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