

## Dredged Materials in DiKE Construction

Implementation in the South Baltic Region using Geosynthetics and Soil Improvement

### Editorial

This is the second newsletter of the DredgDikes project. Since the last issue a variety of activities have been performed. The planning of the test dikes in Rostock and Gdansk has been finalized, the constructions built, a large number of laboratory experiments performed and some field tests started. The planning documents for the pilot dike have been produced and submitted for environmental authorisation. Two project meetings and workshops have been realised, in Rostock and Gdansk respectively. The test dikes in Germany and Poland have been officially opened with the media reporting benevolently about the project. Detailed information about all activities can be found on the project web site [www.dredgdikes.eu](http://www.dredgdikes.eu).



### Partner Meetings in Rostock and Gdansk

The 2<sup>nd</sup> DredgDikes Monitoring Group Meeting took place in Rostock, 24 April 2012. All project partners and five of the 15 associated organisations took part in the successful event. Both the German and Polish project progress was presented and intensively discussed. Particularly questions about the planning and procurement of the pilot dike at the Körkwitzer Bach as well as issues with respect to its instrumentation, necessary site investigations and monitoring measures were looked into. In the afternoon an excursion to the Rostock test dike was organised. Since the test dike was still under construction the participants got deep insight in different construction stages.

Main topic of the 3<sup>rd</sup> Steering Group Meetings on April 25 was the development of a sub-project to implement the planned handbook about the application of dredged materials in dike construction (Com-

ponent 5). Based on an aims analysis the project structure and the most important chapters and contents were defined.

The 4<sup>th</sup> DredgDikes Workshop including the official Steering Group Meeting was held at Gdansk University of Technology, 27-28 November 2012. The workshop on the first day was a great success. Associated partners and project stakeholders from Poland and Germany showed great interest in the presentations and discussions about the project progress. During the afternoon excursion the Polish test dike was visited. On the second day the 4<sup>th</sup> Steering Group Meeting was held, in which the partners discussed further project steps and possibilities of project prolongation.



## The German Test Dike - Update

In Summer 2011 the construction works had to be postponed due to the heavy rains. In April 2012 the works were resumed after a dry period of several weeks. The test dike was completed on June 1, 2012. The contractor (UTL Dienstleistungs GmbH) did good work under strict supervision of the University of Rostock's researchers. During the very dry summer 2012 the grass could not establish well, however, as soon as the temperatures fell and there was more precipitation in September, a good turf development followed. The greening of the dike surface on the sections that will be used for overflowing experiments is of particular importance. Between August and Oktober the test dike was instrumented. More than 60 tensiometers, 45 soil moisture probes, 30 piezometers as well as three data loggers with connection to a central computer with internet connection have been installed.



German test dike during construction - Mai 2012

On October 19 the test dike was opened officially in the frame of an open day. In this context one of the polders was filled to gain first measurement results for the development of data evaluation routines. A current master's thesis, supervised jointly by researchers from Rostock and Gdansk, deals with this topic. Up to now, seven bachelor's and master's theses have been completed within the framework of the project. The best of these theses was awarded the BWK Environmental Award M-V (Mecklenburg - West Pomerania) on November 30, 2012. BWK stands for a German association of environmental engineers. The thesis of Stephan Lesch was selected as the best master's thesis in the field of Environmental Engineering of the year 2012. It can be downloaded from the project website.





## The Polish Test Dike - Update

The three meters high test dike at the Dead Vistula about 25 km East of Gdansk was completed in Summer 2012. In the future different load scenarios will be simulated in the sheet pile box in the middle of the test construction to investigate both seepage phenomena and erosion stability against overflowing. The greening was realised with rolled sod and now the sods need to connect by root penetration before overflowing experiments can be performed. In the dike core, built from a mixture of 70 % fly ash and 30 % dredged sand (taken from the Dead Vistula), 24 soil moisture probes have been installed to measure the seepage line. The dense sensor raster allows the comparison with numerical simulations. Four piezometers are used to verify the sensor data. For the dike top layer two different materials have been used: A clay on the one side and a mixture of dredged sand and Tefra, a special fluid ash mixture, on the other side, both in 50 cm layer thickness.



Polish test dike after completion

Already twice has the test construction been filled with water to generate data with respect to the infiltration of water into the dike core. After interpretation the data will be used for the planning of the next field tests in Spring 2013.

On October 28 the Polish test dike was officially opened, with public media present. This resulted in several press articles as well as radio and TV broadcasts. Links to the media pages can be found on the project web site.



## The Pilot Dike - Update

The planning for the pilot dike at the Körkwither Bach near Ribnitz-Damgarten, 30 km North-East of Rostock, was finalised in Spring 2012 and submitted to an environmental authority in August 2012. It is now in the process of authorisation. Both procurement and construction are planned for the first half of 2013. Soil samples have been taken from the peaty subsoil to be investigated in the University of Rostock's geotechnical laboratory. Based on the experimental results, the university partners will perform simulations and calculations for the design and controlling of the dike construction. The basic geotechnical analysis for the dredged materials to be used in the pilot dike has already been finished in early 2012. Further experiments will be performed to gain high quality parameters for future simulations.

## Communication and Dissemination Activities

In 2012 the project was presented on several national and international conferences: 12<sup>th</sup> Baltic Sea Geotechnical Conference in Rostock, WASCON 2012 in Gothenburg (8<sup>th</sup> international conference on sustainable management of waste and recycled materials in construction), 7<sup>th</sup> Dredged Materials Seminar in Rostock, 58<sup>th</sup> Conference of the Committee of Civil Engineering Sciences - Krynica, Great Public Spaces Forum in Toruń, 40<sup>th</sup> Annual Conference on Foundations in Brno. The official excursion of the Dredged Materials Seminar included a visit at the Rostock test dike. Several radio and TV broadcasts as well as print and online articles reported about the project. We are happy about the positive public interest in the DredgDikes topics. From Spring 2013 regular excursions to the test dikes will be organised. Detailed information and possibilities for application will be posted on the project web site in due time.



## Imprint

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