Minutes



Date minutes
29 November 2017

Our reference 11200537-002-ZWS-0010 Project 11200537-002 Made by Ulrich Förster

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Meeting

2nd Dutch-German Workshop "Coming from flood forecasts to effective emergency response measures" at Stadtentwässerungsbetriebe Cologne

Present

Eric Sprokkereef (RWS-WMCN), Wout de Vries (RWS-WVL), Bärbel Koppe (UAS Bremen), Niels Robbememont (WB Hollandse Delta), Wijnand Evers (WB Drents Overijsselse Delta), Georg Johann (Emschergenossenschaft/HKC), Peter Fröhle (TU Hamburg), Daniel Bachmann (Deltares), Marlene Willkomm (StEB), Jasper Stamm (RWS-WMCN), Andreas Meuser (LfU RP), Maarten Smoorenburg (Deltares), Volker Lüdicke (StEB), Ruud Weijs (WB De Stichtse Rijnlanden), Christopher Massolle (UAS Bremen), Ulrich Förster (Deltares)

Some people will arrived later or have cancelled last minute. The programme was changed to accommodate for this.

Introductions and presentations

The following presentations were given:

- Marlene Willkomm (StEB): Opening and introduction
- Wout de Vries (Rijkswaterstaat): Setting the scene From forecast to response

Forecasting

- Andreas Meuser (LfU Rhineland-Palatinate): Hochwasservorhersage für den Rhein vom Bodensee bis Emmerich
- Eric Sprokkereef (Rijkswaterstaat-WMCN): Flood forecasting in the Netherlands

Emergency Measures and Crisis Management

- Peter Fröhle (TU Hamburg-Harburg): Mobile flood protection systems
- Daniel Bachmann (Deltares): Impact-based flood forecasting and critical infrastructure

Education, Training and Practical Exercises

- Wijnand Evers (Water board Drents Overijsselse Delta): Lessons learned from exercise Swell & Breach
- Volker Lüdicke (StEB Köln): Exercise 2017 Mobile flood protection in Cologne

All presentations are provided via the Wiki website www.wiki-noodmaatregelen.nl.



29 November 2017

Remarks and Discussions

The presentations provided a sound basis for discussion. In the following some remarks and discussion points are given:

Our reference

11200537-002-ZWS-0010

Sub b)

Date

A new EU-wide programme FLOODSECURE is in proposal: Develop knowledge resources and exchange for flood response practitioners.

Sub c)

Forecasting centers with regional expertise give best forecasts to each other in downstream direction. Lake Constance (Bodensee) outflow forecast is given out as one value determined by Vorarlberg, BAFU and LUBW. Wasserstraßen- und Schifffahrtsverwaltung (WSV) makes forecast, LfU RP is responsible for the publishing.

13 retention measures between Basel and Mainz (including France) compensate for the faster flows caused by the Rhine basin development. 2013 experience: retention reduced 34 cm reduction in Maxau, but also about a day more reduced shipping.

Pusblishing and communication: the Dutch gauging data will be added to the Rhine wide data publishing (and in Meine Pegel app), and coupled tot catastrophic event app KATWARN Marlene Willkomm adds that NINA is free app with similar function.

Sub d)

In GREEN situations: WMCN produces daily forecasts with 4 day lead time for Lobith and 2 day lead time for St Pieter. And extra reports for low flows if needed during the low flow seasons (starting in March).

In YELLOW situations: 1 extended report per day

In ORANGE/RED situations: a flood is happening/coming. Reports 2 times a day, detailed and with information from national and regional services.

Forecasts are made with statistical model for 2 day lead time and normal conditions. For floods, and longer lead times a combination of HBV and SOBEK models is used within the operational FEWS system to produce probabilistic forecasts.

Next to the Rhine and Meuse forecasts, the RWS Rivers team also forecasts for EFAS framework for Western European floods.

The forecasters have nothing to say in decision making, such that forecasts do their job as good (objective) as possible.

RWS moved to probabilistic forecasting to estimate uncertainty and separate forecasting responsibility from decision making responsibility.

Sub e)

EU Project SMARTest (2010-2013): focus on urban areas with dry-floodproofing measures like closing building openings, mobile flood walls, and sealing technologies, resulting in good cataloging of concepts, put together in the TUHH database.

Model tests in hydraulic labs, working on standardized test procedure (short term, hydrostatic and hydrodynamic tests, also with impulse loads using different logs and drift velocities). Not really looking at overflow because the extra pumping capacity is expensive. Measure leakage,



deformation, and flow velocity, crash tests with debris/flotsam). The certifications consist of fixed standards, but of course specific tests can be added.

Our reference

VdS (Verbandes der Sachversicherer) sees that university uses the right standards to certify (VdS does not test); the VdS label would probably be accepted abroad, like the FM and British certification is accepted in Germany.

Focus is on proof of quality and functionality. The transport of the mobile flood protection systems to the site is not tested. The objective is a comparison of performances under the same conditions. In case of TUHH this is a plane concrete underlay in contrast to UAS Bremen where tests are done on grassland.

Current contacts with other EU partners are very loose (project finished in 2013).

Sub f)

Date

29 November 2017

First part: Impact-based forecasting

The idea of model-based flood impact forecasting is to provide forecasted information beyond water levels / discharges about: (a) the dike strength during the event, (b) the flood spreading in case of an overflow or a dike failure and (c) the resulting impacts. Therefore, traditional forecasting systems are extended by e.g. hydrodynamic flood spreading models and damage models. A prototype application is presented from the Dumfries-region in Scotland. The traditional forecasting system from SEPA (based on a Delft-FEWS-system) is extended by a flood spreading model (RFSM from HR Wallingford) and a damage model (Delft-FIAT) to forecast also flood impacts.

Second part: Critical Infrastructures and their cascading effects

Impacts to critical infrastructure (e.g. energy, electricity, telecommunication etc.) are in general not restricted to the flooded area. Cascading effects causes failure also beyond the flooded area, e.g. power outage in areas which are not flooded. The CIRCLE approach tries to collect data about critical infrastructure and their connection with each other in a specific region and to model the cascading failures.

A final vision was presented: including the failure of critical infrastructure and the cascading effects into an impact-based forecasting system.

Sub g)

Joint exercise 5 water boards, 4 safety regions, water management center, Dutch army: in total more than 1000 people involved. Testing technical things, as well as organizational functioning.

Evaluation for the exercise is not finished, but are already some statements:

- Most things go wrong in the communications
- Work with dashboards was not well practiced
- Capacity is an issue -
- Too little knowledge a-priori and lack of manuals
- More education of dike guards is needed.

ITAF (Dutch inspection team for averting floods); just started to build up the network. Some collaborations within EU, and share information on wiki platform.

Page 4/5

Date 29 November 2017

Sub h)

StEB is responsible for flood management: forecast, coordination, advise and decision making. Each mobile element must be demonstrated to work well each 7 year, which is tested on a rotation basis. Practices started in 2013. StEB is satisfied with the construction, but wants to improve it by new tests.

In 2017 focus on logistics, capacity for a new challenging section, more challenges in the building up by asking for extra work and a shorter lead time.

Our reference

11200537-002-ZWS-0010

Many lessons learned about how to instruct people, prepare exercises, see weaknesses in education/training.

At StEB developed together with RWTH Aachen an internet-based learning portal for training as certified dike defender. During exercises there is a mentor programme in which each participant is given his own experienced protagonist.

Bärbel Koppe informs about a manual for emergency measures that will be provided by THW in February 2018. THW organises five-day courses with technical and practical aspects.

Plenary discussion

This exchange is aimed at inspiring each other, identifying actions aimed at sharing common areas of interest and at achieving a long term agenda for future –co-operation. Some questions for discussions were prepared. Results are put as post-it notes on flipover with much response.

Is there already a German Community of Practice?

A sort of Community of Practice in Germany are for example LAWA (Bund/Länder-Arbeitsgemeinschaft Wasser) and DWA (Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall). DWA organises the DeichTage (12/13 September 2018 in Bremen) and the HochwasserTag.

What do you expect from such a community of practice?

- Make friends
- See and learn from others ideas and projects
- Exchange of knowledge and experience and sharing research results
- Building a research and development agenda and programme of activities
- Cooperation in research projects and supporting projects with open questions
- Making things better, creating new ideas for future developments and discussing these ideas
- Working towards standards concerning protection and flood forecast methods and forecast quality verification
- Jointly formulate questions to politicians, managers (higher in organizations), service providers (like KNMI, ECMWF) researchers and public.

What kind of activities would you like the working group to employ?

- A table of addresses of specialist with their experience
- Getting to know each other, who to contact and ask in case of questions
- A table of contact persons for exchange of personnel and assistance during calamities
- Helping each other is crises
- Organize network meetings to define topics



• Organize expert meetings on specific topics of mutual interest

Our reference

- Organize field visits with workshops
- Linking of different groups (practitioners & researchers)
- Send invitations to attend exercises & trainings of the others and act together at exercises
- Use Wiki platform to exchange plans, procedures and standards
- Share information about training, workshops, new tools (e-learning, serious gaming)
- Transfer of research results & experiences in training emergency cases

11200537-002-ZWS-0010

- Exchange experience in inspection of levees and actions when damages are stated
- Review of exercises / practice
- Share your problems

Date

29 November 2017

• Share information concerning validation and certification of measures.

Overview of short-term actions:

Based on the previous, the following actions were suggested by the participants:

Volker Lüdicke will provide Ulrich Förster with a login name for the StEB e-learning portal.

Peter Fröhle will provide the test results concerning the stability of the tested reference sandbag constructions.

Bärbel Koppe will share some manuals and information about courses that Dutch people can join.

Ulrich Förster will make a table with contact data of all participants of this and the former workshop including info concerning their expertise.

Ulrich Förster will provide a glossary of terms on the wiki website as part of a forthcoming Dutch manual of practice being under way.

Final remarks

The participants appreciate the size of the meeting. In such a setting everybody is getting an opportunity to play a part in the discussion.

Both sides are enthusiastic to do yearly follow-up meetings. The next Dutch-German workshop could focus on discussing progress and additional related topics.

The German side is asked to make suggestions for inviting other German parties and suitable topics for the next meeting in 2018.

We would also like to remind all participants to inform us about comparable events/meetings/symposia in the Germany so that Dutch interested parties can attend.

Output from actions will be provided via the Wiki site.

The organising team would like to thank all participants for their input in the fruitful discussion.