



# **EUCOLD Levees and Flood Defences Working Group**

## **Webinar on the emergency repairs of levees**

**Introduction by Rémy Tourment (INRAE, FR)**

Photo © VNICZM project  
Emergency repairs on coastal levee in Vietnam  
Photo copied from the ILH



# Welcome to the third EUCOLD LFD WG webinar



- There is an important need for levee managers and authorities in charge of the safety of people about technical and organizational measures to repair levees in emergency situations.
- The EUCOLD LFD WG is organising its third webinar on this particular topic to gather and exchange ideas.
- This topic is already covered at the international level in the International Levee Handbook (Chapter 6) and the object of an ongoing initiative "International Handbook Emergency Response Flood Defences"



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- The format :
  - Introductions by Rémy Tourment, INRAE, FR
  - 3 Technical presentations followed by a few minutes for specific questions
  - Discussion, facilitated by Patrik Peeters, Flanders Authority, Departement of Mobility and Public Works, BE
  - Gathering of ideas for topics of future WG webinars



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- Webinar practicalities :
  - Turn your microphones OFF
  - In case of bandwidth problems also turn your cameras off
  - Use the "Chat" function to send comments and
  - Use the "Raise hand" function to ask for the floor to speak



# A quick presentation of ICOLD



- The International Commission on Large Dams (ICOLD) groups National Committees (more than 100 countries)
- ICOLD leads the profession in setting standards and guidelines to ensure that dams and levees are built and operated safely, efficiently, economically, and are environmentally sustainable and socially equitable.
- ICOLD is assisting nations to prepare to meet the challenges of the 21st century in the development and management of the world's water resources and associated risks.
- Developing and sharing knowledge and good practice: Congresses, annual meetings, technical committees, publications
- <https://www.icold-cigb.org>





# A quick presentation of EUCOLD



- EUCOLD is the European Club of ICOLD
  - It associates 25 countries
  - Symposia, working groups, publications
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- <https://cnpgeb.apambiente.pt/IcoldClub/index.htm>



# Levees and flood defences in ICOLD and EUCOLD



- A European WG on Levees and Flood Defences, since 2015
- 60 members from 17 countries
- A web site <https://lfd-eurcold.inrae.fr>, a newsletter, webinars
- An international Technical Committee on Levees (ICOLD TC LE), since 2017
- 23 countries + 6 co-opted members
- Publications : a WG report, TC bulletins, ICOLD Congress question 103 Small dams and levees



# Emergency repairs on levees

## Some initial ideas



- Why, when ? Different emergency levels (in descending order) and the objectives of the repairs:
  - crisis situation: during the loading event, to prevent or stop the flooding of the protected area
  - extreme emergency: immediately after the loading event, to prevent a flooding during an event that could happen soon afterwards (days, weeks, a few months)
  - emergency: allow the levee to sustain the next important loading event (next critical season)
  - the normal situation (not an emergency): long term performance of the levee, normal engineering activities (investigations, design, control of the works)





# Emergency repairs on levees

## Some initial ideas



- Works on a levee : identification of the failure modes (mechanisms / scenario) to adapt the technical solution (need for an assessment / a failure mode an analysis). IN case of emergency, time allowing this can be based only on previously available information, or an visual inspection in addition to that previously information
- During emergency works : need to gather as much data as possible: design details (in any), information on the work themselves (notes, photos)
- After emergency works : need for an assessment of the long term performance of the repairs



# Welcome to the third EUCOLD LFD WG webinar



- 11:00 Welcome & introduction  
Rémy Tourment
- 11:15 Research perspectives on levee repairs (Chrissy Mitchell and Taye Famuditi, EA, UK)
- 11:35 Lessons learned from emergency repair of overflow levee during last flood of the Meuse (Anco van den Heuvel, RWS, NL)
- 11:55 Emergency works on the Rhône delta levees - Interventions principles and feedback on recent flood events from 1993 to 2016 (Thibaut Mallet, SYMADREM, FR)
- 12:20 Discussion: research needs on, planning/organisation of and recovering after repair measures (Patrik Peeters, Flanders Hydraulics, Belgium)
- Gathering of ideas for future webinar topics
- And afterwards : presentations on the web site + a synthetic document (depending on YOUR feedback)