SUURPADOT - SUOMEN OSASTO ry
FINNISH COMMITTEE ON LARGE DAMS

FINCOLD

Eija Isomäki 19.1.2016

European Working group: Dam Incident Management

Getting closer to safe management

Date 25-26 November 2015

Place Glo Hotel Art, meeting room Fresco
Lönnrotinkatu 29, 00180 HELSINKI, Finland
http://glohotels.fi/en/hotels/glo-hotel-art

Participants

Czech Committee
- Jan Jandora (JJ)
- Miroslav Spano (MS)

French Committee
- Patrick Le Delliou (PLD) (26.11.2015)
- Michel Poupart (MP)

Swedish Committee
- Anna Engström Meyer (AEM)

Finnish Committee
- Eija Isomäki (EI)
- Timo Maijala (TM) (26.11.2015)
- Heli Nurmi (HN)
- Timo Regina (TR) (25.11.2015)
- Juha Laasonen (JL)

25th of November 2015

Introduction
Juha Laasonen introduced the idea of the working group. One of the main issue is the difficulty to understand when you have to react? Is there an incident that has to be managed?

Objectives and Results of the Questionnaire (JL)
Juha Laasonen described shortly the contents of the questionnaire and the replies. Legislative basics were greatly similar in all countries. But for example if the design and construction of the dam was included in the legislation there was not description which way it was included. Biggest difference between countries was with the leading quarter of the accident. This also varied according to the type of the accident.

Overview of country practices

Czech Comttee

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According to the law dams are “defined water structures” that are higher than 1 m and bigger than 1000 m^3. Technical standards for e.g. design flood. Military zones that are totally separate to others.

French Committee
There are 500 dams of which 2/3 are for hydropower. No license nor legislation for dams that are for irrigation. Most of the dams are more than 60 years old. Decree on the safety of dams specifies the general requirements for owners but does not set detailed technical rules.

Swedish Committee
New legislation is under implementation. There are 10 000 dams and 500 classified dams.

Finnish Committee (EI)
441 dams that has been classified according to the Dam Safety Act 2009. 120 of these classified dams are tailings dams or waste lagoons. The Dam Safety Information system includes information of all classified dams in Finland.

Discussion on the Contents of the report and Terminology (JL)
The aim is to write down good practices for handling dam incidents. This includes organizational management & plans, training and legislation.

Good Practices

Czech Committee
Emergency plans include 3 danger levels. Surveillance bases on measurements: alert limits and critical limits.

French Committee – to be presented on Thursday

Swedish Committee
Guidance under preparation concerning training for incidents. Other guidance already exist e.g. flood calculations. Information system under preparation.

Finnish Committee (TR)
Information system for all dam safety issues including incidents. All classified dams have monitoring programs. Hydrological dimensioning depends on the dam class. Class 1 dam must have the dam break hazard analysis and emergency action. Water balance of the mines has been checked.

Presentation of selected dam incident

Czech Committee
There are three dams that have failed. Mlynice dam confronted overtopping for 50 cm in 2010. The flood was 100 years design flood or even bigger. The dam was more than 100 years old.

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Floods are growing? Other problem with the old ponds because there is no idea how they have been built.

French Committee (MP)
Incident detection “by chance”: leakage and piezometry measurements periodicity not adapted. Founding was a 12 meters long crack.

Swedish Committee
Cranö dam confronted failure 5 m^3/s which lead into lot of erosion.

Finnish Committee (HN)
Tailings dam accident in Talvivaara mining area. A leak in gypsum pond 2012. Second leak appeared in 2013.

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Legislation and Role of authorities especially in incidents

Czech Committee
Building Act and Water Act guide. Lots of Acts (fire, crisis, protection…)
In Czech flooding is really quick. Reaction must be in few minutes.

French Committee (PLD)
Consultants must be certified. Classification according to the height and volume, but authority can change the class if there are important targets under the dam. Review of the dam.

Swedish Committee
Risk (hazard) analysis creates the classification. Country administrative boards supervise dam safety. In crisis municipalities (rescue authority) have bigger role.

Finnish Committee (TM)
Dam Safety Act (2009), Dam Safety Decree (2010) and Dam Safety Guide (2012). Legislation is quite comprehensive. Revising is not current. In case of an emergency, rescue authority take the lead.

Emergency Action Plan and Training of the emergency situations

Czech Committee
Flash flood is the real problem at the moment. Training for floods is important.

French Committee (PLD)

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For dams that are higher than 20 m and volume bigger than 15 000 000 m^3. Periodical tests and updating.

Swedish Committee
There are regional plans for dam failures (because there are many hydropower plans along rivers). Dam owners exercise – testing their own emergency action plans. County administrative boards exercise as well.

Finnish Committee (EI)
EAP for all class 1 dams. Training not in legislation.

Measures to control adverse situations (success stories)

Czech Committee
Many success stories: improvement of the core permeability, reduction and uplift, enhancement of reliability of appurtenant works, enhancement of spillway capacity…

French Committee (PLD + MP) (Incident case + good practices)
Written instructions for normal operation and in case of flood must exist for all dams.
Improvement of user's information: standard signs, specialized signs, surveillance, personal information.

Swedish Committee
Main problem is food which is controlled by design calculations, water regulation, flood warnings and mapping flood prone areas.

Finnish Committee (JL)
The most common incident types are water above normal high level, power failure and internal erosion. With tailings dams the most common incident types are internal erosion, uncontrolled seepage flow and damage on dam structure. Internal erosion has created quite a few close calls. Repair works has been made to prevent the accident.

Findings of the work meeting (good practices) and next steps
(In separate paper)