



Comité Français des barrages et réservoirs¹

(French Committee on dams
and reservoirs)

Mission and History

Created in 1926 as the French Committee for Large Dams (CFGB) and statute of an associative organisation.

FRCOLD has worked on the creation of the International Commission on Large Dams (ICOLD) in 1928.

The Committee's mission is to promote progress in the design, construction, maintenance and operation of dams, including power plants when integrated in the dams. Since 2011, the CFBR has enlarged its field of intervention to dikes protecting against submersions.

The Committee fulfils its mission by exchanging information among its members. Each year, it organizes a Technical Symposium open to the entire profession and manages national working groups to develop recommendations.

Composition

The Committee is composed of more than 500 members.

The Committee is managed by an Executive Board of 29 members elected for 3 years. The Executive Board elects annually a Bureau consisting of a Chairperson, three Vice-Chairperson and a Secretary General.

The members of the Board represent each one of four main categories of the dam profession: Administration, Owners, Consulting Firms and Contractors. Two additional categories are open to teachers or researchers and individual experts.

¹ Prepared by Michel Poupart – September 2018

The resources of the Committee consist of the annual membership fees it receives from its members, either individuals or entities. EDF (Electricité de France) currently provides the Committee with the secretariat located at the EDF Hydraulic Engineering Centre.

Benefits for the dams' professionals

Technical standards and knowledge dissemination

The first benefit is, of course, the committee's contribution to the development of recommendations and the dissemination of practices and experiences among its members and, beyond that, for the international community of dams. The recommendations, listed in the appendix, are indeed published in French and translated into English to reach the widest possible audience. The organization of a technical symposium each year contributes greatly to the dissemination of experiences and practices within the profession. The themes selected for these symposia are very varied (see below the themes selected for the symposiums of the last years); they concern all aspects of the profession and concern dams but also their ancillary works and the valves of spillways, for example. Among the topics covered are: the regulation and the REX of its implementation, the theoretical and practical aspects of sizing, the safety of the dams, the methodologies of exploitation, the techniques of investigations and repairs, the projects of research and development, etc. Each symposium gives rise to the publication of a collection of articles.

It is to be noted that the symposium articles are referenced DOI (Digital Object Identifier) and that the CFBR publications are available under Creative Commons BY-NC-ND licenses.

Each year the committee holds its general assembly, followed by a symposium to which a European committee is systematically invited to make one or two presentations including a presentation of the dams in its country.

The Committee's website (<http://www.barrages-cfbr.eu/>) is organized in two sections: a "public at large" section providing information on the world of dams, the life and activities of the committee and already giving access to many downloadable documents including technical recommendations. The section reserved for the members of the committee also offers numerous documents,

including the articles of the symposia, the minutes of the meetings of the Executive Board, etc.

Gathering role

Beside these operational activities of production of standards and organizations of technical events, the committee also has an implicit but very important role: Indeed, the executive board meetings, the working groups, the organizing committees of the symposia offer meeting opportunities between professionals coming from different dam professional areas and thus allow contacts which would not take place otherwise. In operational activities these professionals can sometimes meet, but for a specific purpose, while within the committee they are led to collaborate in transverse activities and get to know each other better. This certainly helps to improve members' knowledge of activities and issues in other areas than their own. Thus, the Administration, the owners or operators of dams, engineering offices, contractors, etc. can meet outside the professional framework and exchange more freely within the Committee. This certainly facilitates relationships and sometimes helps resolve issues.

CFBR activities within ICOLD

- Participation in almost all ICOLD Technical Committees; the French representative informs an internal FRCOLD working group with the outcomes of his committee and collect among this internal group the official position of FRCOLD about topics discussed within the ICOLD committee.
- Secretariat of the meetings of the group of French Speaking Committees at each ICOLD annual meeting. One of the main task concerns the French translations of the ICOLD bulletins.
- Participation in the European Club of ICOLD

Relations with other National Committees of ICOLD

Moroccan Committee on Large Dams (CMGB)

Various technical exchanges including young Moroccan engineers stay in consultant firms in France and young French engineers stay in Morocco.

Japanese Committee on Large Dams (JCOLD)

Common work on seismic design of dams; Organization of a joint workshop on seismic modelling in October 2014 in Chambéry and in September 2016 in Saint-Malo

Swiss Committee on Dams (CSB)

Various exchanges including participation in the Swiss technical symposium in June 2014

German Dams Committee (DTK)

Invitation to the May 2016 symposium in Freiburg

Current CFBR Working Groups

- Design of spillways by incremental or differential damage (completed in 2017);
- Repair techniques for flood protection dikes;
- Arch dams justification (completed in 2018);
- Feedback on dam incidents;
- Justification of erosion resistance of embankment dams and dikes;
- Risk analysis and safety of dams.

Last years' symposiums

Symposium 2013: Modernization of dams (≈ 300 participants)

- The definition of the program of the operation;
- The role of investigations in defining the work;
- Studies of work completion alternatives;
- The realization of the works.

Symposium 2015: Dam Foundation (≈ 330 participants)

- The geology and the nature of the foundations: investigations, interpretation and materials characterization, definition of the works' planning;
- The criteria for design and justification of foundations: modelling and calculations, role of investigations in the works' definition;

- Excavations and preparation of foundations: treatments and reinforcements, studies of alternative construction works;
- Monitoring and surveillance of foundations: medium and long-term behaviour.



Symposium 2015: Dams' gates and control system (≈ 320 participants)

- Importance of gates in dam risk assessments, safety reviews and in-depth technical visits, comprehensive technical reviews;
- Renovations, maintenance of gates;
- Replacements and evolution of gates;
- Renovations and replacement of control systems, transmission systems and electrical installations of dams;
- Feed back of the incidents and malfunctions of the gated spillways.



Symposium 2016: Dam Safety and Issues (≈ 320 participants)

- Safety assessment methods;
- Case studies;
- consequences assessment;
- Risk assessment during normal operation and flooding;
- Feedback, Training.

Symposium 2017: Hydraulics of dams and dikes

- Spillways design and design loads;
- hydraulic modelling;
- erosion and scour;
- Wrap up statements, feedback and perspectives.



Symposium 2018: Innovative methods and techniques in the rehabilitation and maintenance of dams (27 and 28 November 2018)

Symposium 2019: Dams stability assessment - state of the art

Dam visit and presentations for civil engineering students

Every year the CFBR organizes a technical day for students starting their last school year in civil engineering.

The aim of this technical day is to introduce future civil engineers to the world of dams and hydraulics in general, to seek to attract vocations and future talents to our various professions.



Very valuable day in exchanges between professionals of the different dam domains and students of the main French civil engineering schools: Centrale Paris, Centrale Lyon, Ecole des Ponts et Chaussées, INSA, ENSE3, N7, ENGREF, ENSG, Ecole des Mines, etc.

This is an opportunity to make contacts for future internships or hiring.

The day is divided into two stages:

- Morning: technical presentations and exchanges with students;
- Meals taken together on site;
- Afternoon: accompanied dam visit in small groups.

Appendix – CFBR Recommendations

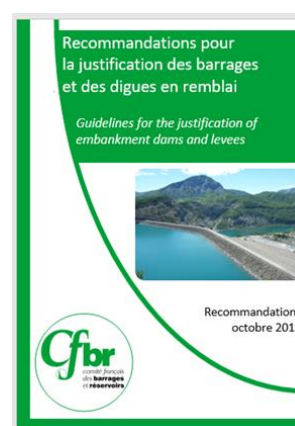
Design of spillways by incremental or differential damage: Interim recommendations for the implementation of a method applicable to dams in France - 2017

The recommendations come from the work of a Working Group (WG) of the French Committee of Dams and Reservoirs (CFBR), conducted from September 2013 to December 2016 to develop a methodology for the design of spillways by incremental damage. The October 2017 version of the guide constitutes interim CFBR recommendations. The CFBR provides, within a few years (usually 3-5 years), and on the basis of feedback and practice from the profession, to transform this guide into final recommendations of the CFBR. *In French.*

Recommendations for Justification of Stability of Embankment Dams and Dykes - 2015

Guidelines for the justification of embankment dams and levees

A CFBR working group has developed recommendations for justifying the stability of embankment dams and dikes. *The document includes the text in French and its translation into English.*



Guide to dam risk assessment – 2015

This document is the English translation of a reading guide for the local regulators in charge of the analysis of the content of the risk assessment sent to the prefects by the HPP managers in application of the French regulations. *In English.*

Technical reference sheet sea and river dykes - 2015

This document was written at the request of the Ministry of Ecology, Sustainable Development and Energy, technical service of electrical energy, large dams and hydraulics by a working group that led this task over the period from March 2011 to August 2013. This first version of the standard is intended to be enriched by complementary elements that are not addressed in this first edition. *In French.*

Guide on seismic risk and safety of hydraulic structures – 2014

This document, developed under the auspices of the Ministry with the active participation of the CFBR, aims to unify practices for the verification of safety against the seismic risk of hydraulic structures, dams and dikes, located in France. *In French.*

Recommendations for Justification of Stability of Gravity Dams – 2012

Guidelines for the justification of the stability of gravity dams

A working group of the CFBR has developed recommendations to homogenize the practices of consulting firms for the justification of the stability of gravity dams. The justification framework is inspired by Eurocodes. *The document includes the text in French and its translation into English.*

Small Dams - Recommendations for Design, Justification and Monitoring – 2002

The CFGB (former name of the CFBR) developed in 2002 in a working group a document of recommendations applied to small dams. *In English.*