

PREFACE

SHARING WATER: MULTI-PURPOSE OF RESERVOIRS AND INNOVATIONS

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In May-June 2022, the French Committee for Dams and Reservoirs (CFBR) will host the 27th Congress and the 89th annual meeting of the International Commission on Large Dams (ICOLD-CIGB) in Marseille.

As part of this global event, the CFBR will be organizing a symposium on the role of dams and particularly on the multi-use of water that these dams make possible. This theme has been particularly important for at least two decades and continues to focus the attention of more and more leaders around the world.

The theme of the 8th World Water Forum held in March 2018 in Brasilia, was "Sharing Water". Loïc Fauchon, President of the World Water Council, emphasized the pressing need for all to join what he calls the "House of Water" in his inaugural address. He introduced an approach of hydro-diplomacy: "Global Water Security is today an integral part of the national security and the foreign policy of every country. We must therefore establish a real hydro-diplomacy that is the art of building the country around this vital resource. Hydro-diplomacy in climate negotiations, hydro-diplomacy to explore and safeguard many "Hydrospots" and diplomacy to refinance the hydro-debts of the poorest countries and cities".

The dam profession is deeply involved in the question of the multiple use of water. In 2016, the European Club for Large Dams (EurCold) launched a Manifesto, a declaration to promote an honest and transparent public debate that will facilitate actions to promote the emergence of a European policy to support the role of reservoirs and dams in water supply, irrigation and energy generation, providing an effective contribution to climate change adaptation, preserving the environment and considering the increasing social resistance.

ICOLD also attaches great importance to this theme, which was the subject of a specific question at the Stavanger Congress (Q96) and a technical bulletin (B171: Multi-Purpose Water Storage, Essential Elements and Emerging Trends). The methods and experiences of the ICOLD member countries described in the articles and in the bulletin are an enrichment for the community of the dams' professionals but also for developers. This use of dams and reservoirs for multiple purposes is in full development.

During the last COP26 in Glasgow, for the first time, there was a multimedia pavilion dedicated to Water for Climate, which aimed at mobilizing the whole water community. It hosted several round tables with the objectives of sharing solutions and supporting ambitious, science-based global climate actions. Some of these events were linked with the theme of the multi-purpose use of hydro projects like, for example, "Meeting renewable energy targets while maintaining the resilience of rivers and communities" or "Water-wise, nature-based solutions to turn climate risks into opportunities for action".

The French Committee of Dams and Reservoirs is therefore seizing the opportunity of the 27th ICOLD Congress in France in 2022 to organize a Symposium on this topic, with the wish to involve all the relevant stakeholders. Both technical and societal, its theme “*Sharing Water: Multi-Purpose of Reservoirs and Innovations*” fundamentally touches on the role of dams in our societies in their traditional functions, such as water supply to populations, irrigation and electricity generation, but also as protection against floods, support of low water levels and more recreational uses. We will talk about our experiences on multi-purpose reservoirs and their adaptation to today’s new challenges, such as the water resource, energy storage, climate change and environment. All these topics will be discussed and detailed during this Symposium.

The Symposium is organized around 4 themes and several sub-themes:

Theme 1: Territorial and Water Multi-purpose Issues

- **1A.** Evaluation of current and future resources and needs
- **1B.** Evaluation of socio-environmental and biodiversity benefits and impacts, positive and negative externalities
- **1C.** Analysis of resilience and adaptability of projects to respond to climate change and changing uses. Decision-making methods for choosing a solution, cost-benefit analysis on a regional scale
- **1D.** Lessons learnt from recent water resource crises (drought, floods...)

Theme 2: Governance and Funding

- **2A.** Institutional aspects, stakeholder commitments and inter-relationships
- **2B.** Financial aspects, project funding
- **2C.** Participatory approaches, stakeholder involvement
- **2D.** Special cases of cross-border assets

Theme 3: Innovative solutions in reservoir uses

- **3A.** Multi-purpose hydraulic projects: energy storage, hydropower, hybrid solutions with other intermittent renewable energy sources, irrigation, navigable waterways, water supply, flood mitigation, protection against marine submersion...
- **3B.** Combining structural and non-structural solutions
- **3C.** Integrating a project into a territory with multiple reservoirs
- **3D.** Complementarities and synergies with intermittent renewable energy, related issues

Theme 4: Operating Multi-purpose facilities

- **4A.** Hydrology for resource management in the short and medium term
- **4B.** Tools for operation-related decision making, including risk management
- **4C.** Short, medium and long-term operation simulation and modelling
- **4D.** Water sharing criteria, trade-off between uses, operational compatibility of additional uses
- **4E.** Performance evaluation of asset management methods

In preparation since 2019, the Symposium is now publishing about 100 articles selected by the International Scientific Committee, from 19 countries. It constitutes a complete state of the art of the question of the multiple-purpose of reservoirs in the world in connection with territorial issues, their governance and their financing. It shows the best innovative technological and management solutions in this field, in the service of better water sharing.

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Co-chairpersons

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- Joël GAILHARD – EDF - France

Theme 2:

- Juha LAASONEN – FORTUM - Finland
- Catherine CASTEIGTS – Société du Canal de Provence (SCP) – France

Theme 3:

- Aries FIRMAN – INACOLD - Indonesia
- Laurence DUCHESNE – Compagnie Nationale du Rhône (CNR) – France

Theme 4:

- Henriette ANDERSON – Verve Civil Eng - South Africa
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