



ICOLD Communication Policy 1999-2019 : An Evolution From a World of Engineers to Communication around Dams issues

Emmanuel Grenier
ICOLD Communication Officer

October 10, 2019



ICOLD : One century of Discussions !



- Professional Organization
- Created in 1928
- 102 Member Countries (80 in 2000)



10 000 Individual Members : Engineering Companies, Operators, Scientists, Engineers, University Professors, Governments, Financial Institutions, Construction Firms, Associations...



ICOLD : One century of Innovations!

For a century, ICOLD is supporting, validating and disseminating innovations in dams and reservoirs.



- Innovations are presented during its Congresses and Annual Meetings.
- They are discussed and validated with the support of thousands of experts.



Innovation for cost reductions



Through Mechanization



Innovation for cost reductions



Jinping Dam

With material-savings (Arch- and Buttress-Dams)



Innovation for cost reductions



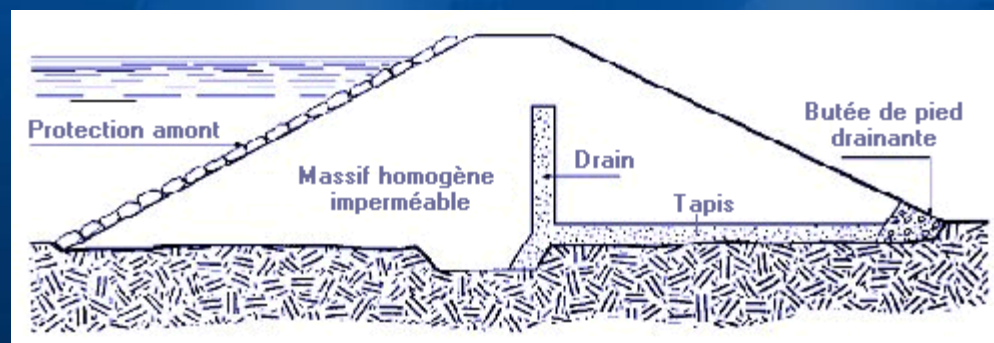
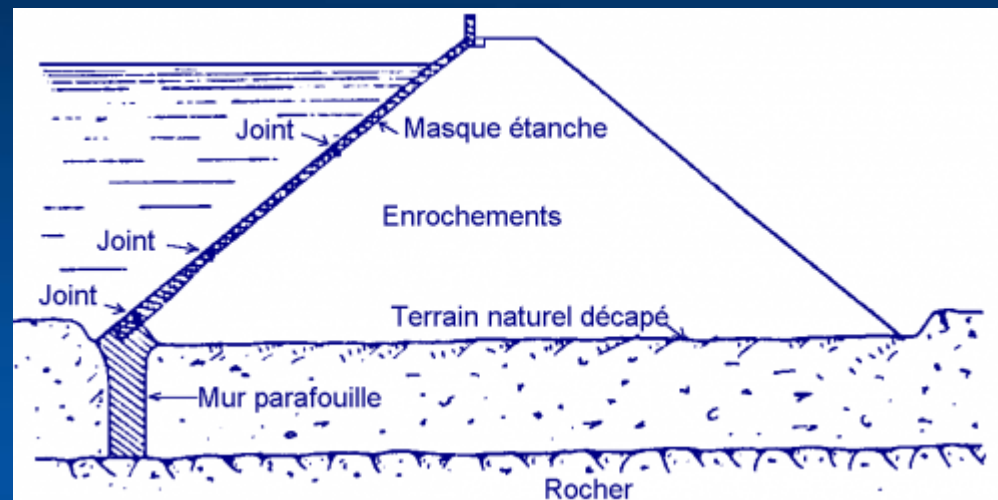
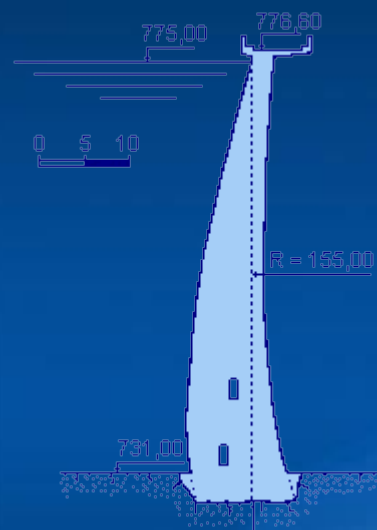
Longtan Dam (China)

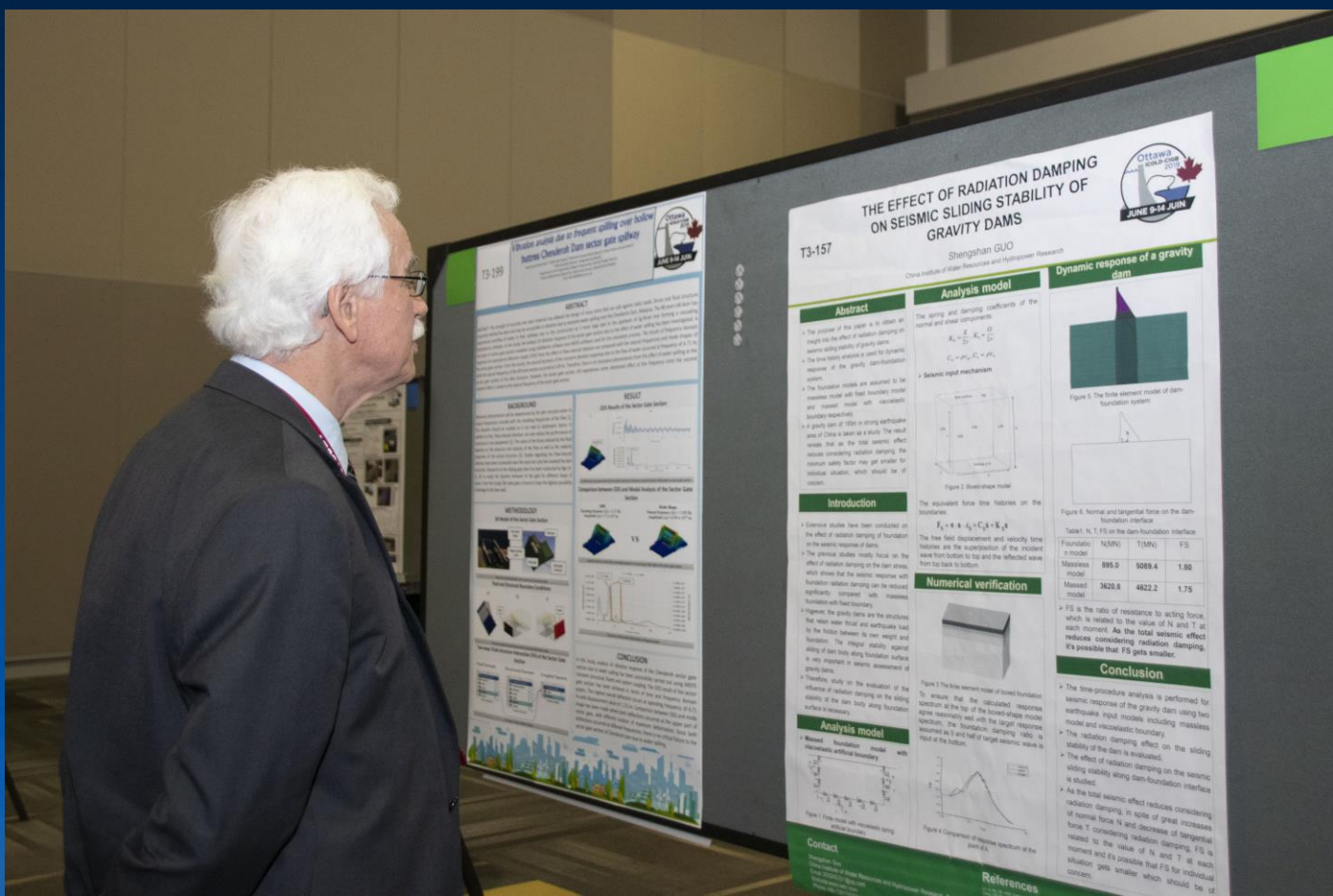
By Savings on the price of materials and on their employment (RCC Dams)



Innovation is crucial

- **Climate Change makes Dams and Reservoirs a Must in two ways:**
- **Hydropower** is by far the largest low-carbon production of electrical power, especially appreciated during the peak period to replace gas-turbine-produced power.
- **Reservoirs** associated with pumped storage power plants are the only large scale form of power storage known today
- **Reservoirs** today essential to ensure Water Supply in the regions affected by water stress. These regions will increase in number and surface due to climate change.





Abstract

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Introduction

Extensive studies have been conducted on the effect of radiation damping on the seismic response of dams. The previous studies mostly focus on the effect of radiation damping on the dam stress, which showed that the seismic response with foundation radiation damping can be reduced significantly compared with no radiation damping. The higher seismicity against sliding of dam base along foundation surface is very important in seismic assessment of gravity dams.

Analysis model

The radiation damping is modeled by a spring-damper system at the base of the dam. The time history analysis is used to evaluate the seismic response of the gravity dam-foundation system.

THE EFFECT OF RADIATION DAMPING ON SEISMIC SLIDING STABILITY OF GRAVITY DAMS

Shengshan GUO
China Institute of Water Resources and Hydropower Research

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Numerical verification

The time history analysis is used to evaluate the seismic response of the gravity dam-foundation system.

Conclusion

The time-procedure analysis is performed for seismic response of the gravity dam using two earthquake input models, including massless model and viscoelastic boundary. The radiation damping effect on the sliding stability of the dam is evaluated. The effect of radiation damping on the seismic sliding stability along dam-foundation interface is studied. As the total seismic effect reduces considering radiation damping, in spite of great increases of normal force N and decrease of tangential force T considering radiation damping, FS is moment and it's possible that FS for individual concern.

References

1. ...
2. ...
3. ...

Table 1. N , T and FS on the dam-foundation interface

Foundation model	N(MN)	T(MN)	FS
Massless model	895.0	5089.4	1.80
Massed model	3620.8	4822.2	1.75







DAMS AND DEVELOPMENT

A NEW FRAMEWORK
FOR DECISION-MAKING

THE REPORT OF THE WORLD COMMISSION ON DAMS



November 2000

EARTHSCAN

Earthscan Publications Ltd, London and Sterling, VA

DAMS AND DEVELOPMENT

A New Framework for Decision-Making



THE REPORT OF THE WORLD COMMISSION ON DAMS



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Quote

“Political freedom alone is still not enough
if you lack clean water.



Freedom alone is not enough
without light to read at night,
without time or access to water to irrigate you farm,
without the ability to catch fish to feed your family.

For these reasons
the struggle for sustainable development
nearly equals the struggle for political freedom.

They can grow together
or they can unravel each other.”

Nelson Mandela



The impact of WCD

The devil is in the details

- Several governments including Germany, South Africa, Sweden and Vietnam – have organized dialogue processes to integrate WCD recommendations into national policy.
- All anti-dam organizations jumped on the WCD Report to use it as a weapon against dam construction







RICERCA D'ITALIA SALUTE SOCIETÀ AMBIENTE VITA SPAZIO FISICA E

Home > Ambiente > "Troppe dighe nel mondo"

Ambiente

"Troppe dighe nel mondo"

di Admin - 23 Giugno 2004



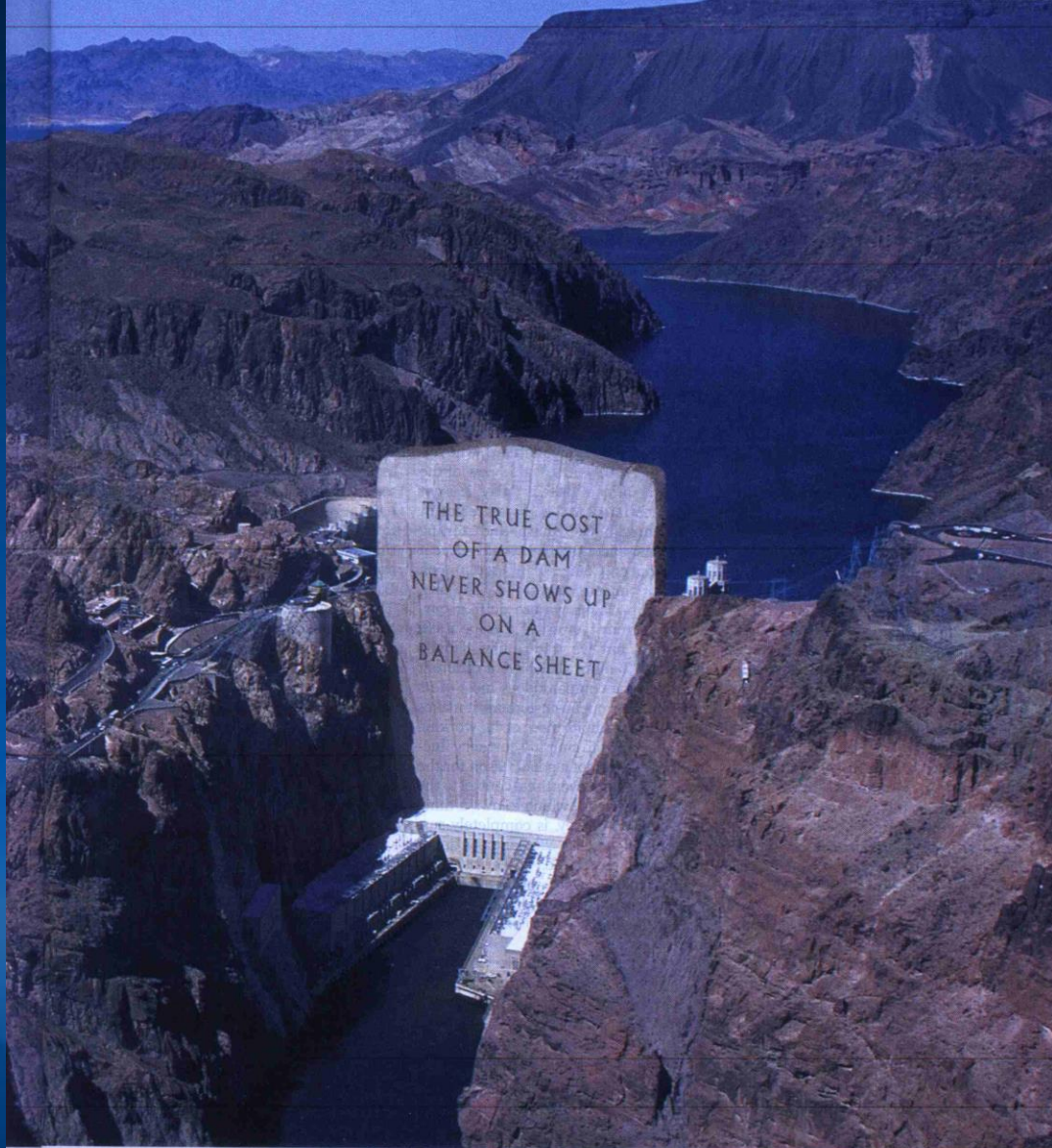
Un nuovo rapporto del Wwf identifica i 21 fiumi più esposti al pericolo delle dighe. Il primo è lo Yangtze in Cina, con 46 grandi dighe progettate o in costruzione. Ma sono inclusi nella lista anche il Rio delle Amazzoni, il Rio de La Plata in America del Sud, il Tigri e l'Eufrate in Medio Oriente, e il Danubio in Europa. Secondo i dati, oltre il 60 per cento dei 227 fiumi più grandi del mondo è stato frammentato dalle dighe. Conseguenze: la distruzione delle zone umide, il declino delle specie di acqua dolce, come delfini di fiume, pesci e uccelli e il trasferimento forzato di decine di milioni di persone. Il rapporto accusa i governi, colpevoli di non applicare le raccomandazioni della Commissione Mondiale sulle dighe (Wdc) nei loro progetti. Così, a causa di impianti di irrigazioni inefficienti, ogni anno vengono sprecati fino a 1.500 trilioni di acqua, dieci volte la quantità consumata ogni anno in Africa. "È raro che a godere dei benefici delle dighe, come i rifornimenti di acqua pulita, siano le persone che più da vicino soffrono gli svantaggi dovuti alla loro costruzione", afferma Ute Collier, capo della Dams Initiative Wwf. Sono, infatti, le comunità che vivono a valle delle dighe a fare i conti con i fiumi in secca e con la riduzione degli stock di pesce. (r.p.)

TAGS ambiente salute wwf

il ritorno delle grandi dighe

Una grave minaccia al futuro dei popoli indigeni





rarely accurate. The World Commission on Dams found that, on average, large dams go over budget by 56%. They are high-risk investments. So how can you navigate this moral and economic minefield? By getting hold of WWF's Investor's Guide to Dams. It outlines good dam practice and alternatives for supplying water and energy. That way you can go into any project with your eyes wide open. DAMS. THINK AGAIN.





Sea change in ICOLD

From **HOW**
we build dams

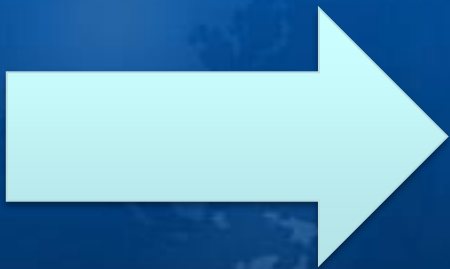


to **WHY** we
build dams



Sea change in ICOLD

From discussion
between engineers



to discussion with
all stakeholders



After the shock

- ❖ Communication Plan
- ❖ Media Manager
- ❖ Press Reviews
- ❖ World Declarations



World Declarations

❖ In 2008, in Paris:

“Dams & Hydropower for Sustainable Development of Africa”

❖ In 2012, in Kyoto:

“Water Storage for Sustainable Development”



Signed with major international organizations:

ICID, African Union, World Energy Council, Union of African Electricians, IHA etc..



2014 : another major attack

Should We Build More Large Dams? The Actual Costs of Hydropower Megaproject Development

Energy Policy, March 2014, pp.1-14.

14 Pages • Posted: 11 Mar 2014 • Last revised: 24 Mar 2014

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Date Written: March 10, 2014

Abstract

A brisk building boom of hydropower mega-dams is underway from China to Brazil. Whether benefits of new dams will outweigh costs remains unresolved despite contentious debates. We investigate this question with the “outside view” or “reference class forecasting” based on literature on decision-making under uncertainty in psychology. We find overwhelming evidence that budgets are systematically biased below actual costs of large hydropower dams — excluding inflation, substantial debt servicing, environmental, and social costs. Using the largest and most reliable reference data of its kind and multilevel statistical techniques applied to large dams for the first time, we were successful in fitting parsimonious models to predict cost and schedule overruns. The outside view suggests that in most countries large hydropower dams will be too costly in absolute terms and take too long to build to deliver a positive risk-adjusted return unless suitable risk

Oxford Study: Large Dams Are Uneconomic

Date: Friday, May 16, 2014

Large Dams Not Economic, Oxford Study Finds



245 dams in 65 countries studied

All dams built between 1934 and 2007 for which reliable data exists

What did they find?



Cost overruns



Time Overruns



NEWS

- ▶ Former WCD head Achim Steiner will lead UNDP - April 2017
- ▶ Oroville Dam, ICOLD President intervenes on the radio
- ▶ 3 new bulletins : 156-152 -149 are available
- ▶ **ICOLD President answers Oxford misleading study**
- ▶ Authors of Oxford study ignore real data about Itaipu and Renaissance dams
- ▶ China: accelerating the building of hydroelectric dams
- ▶ World Press Review

ICOLD President answers Oxford misleading study

April 2, 2014, Adama Nombre, ICOLD President A-A+

Yes, we need to build more large dams for water storage and energy for sustainable development!

Recently a study named "[Should we build more large dams? The actual costs of hydropower megaproject development](#)", authored by Atif Ansar et al. has been released by the Said business school of the Oxford University. The main conclusion of the report is that large dams projects experienced cost and time overrun, that their benefit cost ratio is very low and that small project are to be preferred. As small dams may only ensure a few percent of the storage and energy provided by large dams, this presentation actually favors not the small dams, but the fossil fuel plants.

	Ansar et al. Report	Reality (World Register of Dams, <i>Hydropower and Dams</i> yearly report)
Average dam height	77m	25m
Construction time	8.6 years	Less than three years
Power capacity	487 MW	100 MW
Actual Cost	\$1,467 million	\$60 million ($\3000 billion for 50,000 large dams)
Average extra cost	\$760 million	\$15 million
Average extra cost extrapolated to all large dams in the world	\$35,000 billion	\$600 billion



ICOLD is continuing to evolve



