



COMMISSION INTERNATIONALE
DES GRANDS BARRAGES

INTERNATIONAL COMMISSION
ON LARGE DAMS

**INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS
« EUROPE-INBO 2008 »
SIBIU (ROMANIA) – 1 – 4 OCTOBER 2008**

Implementation of the Flood Directive

**Role of dams in flood mitigation
ICOLD position and experiences**

Dr. Enrique Cifres

Chairman

Committee on “Role of dams in River Basin Management”



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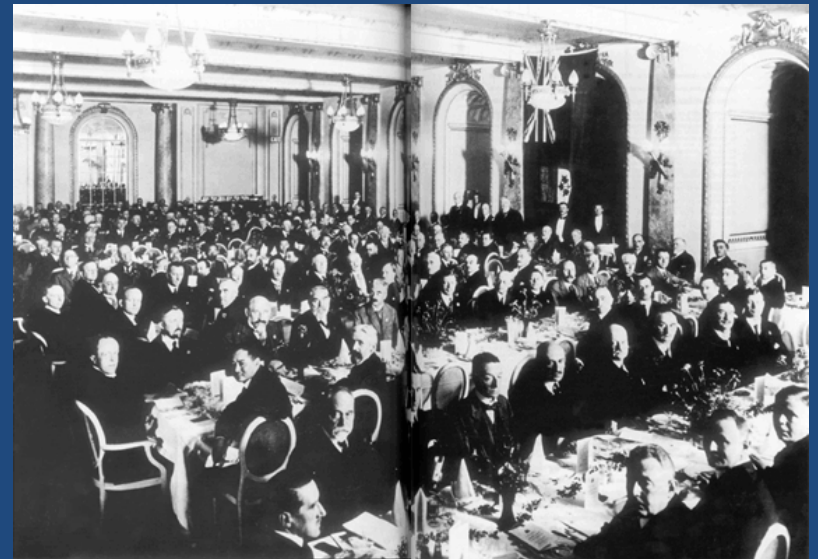
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¿What is ICOLD?

The International Commission on Large Dams (ICOLD) is a non-governmental International Organization which provides a forum for the exchange of knowledge and experience in dam engineering.

ICOLD members are essentially practising engineers, geologists and scientists from governmental and private organizations, consulting firms, universities, laboratories and construction companies.

We have National Committees from 88 countries with approximately 10 000 individual members.



Since 1928

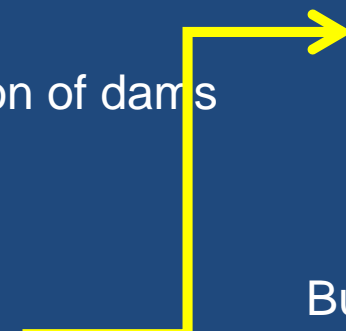


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Technical Committee

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- Committee on seismic aspects of dam design
- Committee on hydraulics for dams
- Committee on dam surveillance
- Committee on the environment
- Committee on dam safety
- Committee on Engineering activities in the planning process for water resources projects
- Committee on sedimentation of reservoirs
- Committee on operation, maintenance and rehabilitation of dams
- Committee on the public awareness and education
- Committee on register of dams and documentation
- Committee on Dams for hydroelectric energy
- Committee on dams and floods**
- Committee on role of dams in the management of river basins**
- Committee on Dams and Water Transfers
- Committee on global climate change and dams



Bulletins:
 2006
**Role of Dams in
 Flood Mitigation**
 –
A review

....



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The annual cost to the world economy, of flooding and other water-related disasters, is between US\$ 50 and US\$ 60 billion

The 2002 floods in Europe claimed 100 lives and caused US\$ 20 billion in damage.



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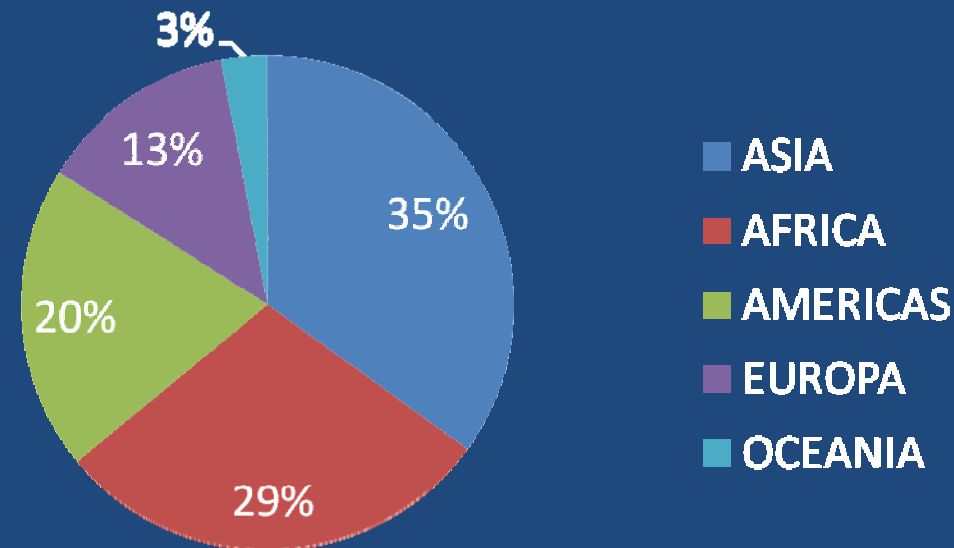
..but



It is estimated that **one billion** people, one sixth of the global population -the majority of them among the world's poorest inhabitants -**live on flood plains** today

In Asia, between 1987 and 1997, floods claimed an average of **22,800 lives per annum** and caused an estimated US\$ 136 billion in economic damage

- Floods accounted for **half** of the total disasters,
- water-borne and vector disease outbreaks accounted for 28% and
- drought accounted for 11% of the total disasters.





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XX Century

direct deaths

1931 – 145,000

1935 – 142,000

1954 – 30,000

>400.000 direct casualties

Indirect: related diseases, plagues,
economic losses, poverty..

Yangtse River

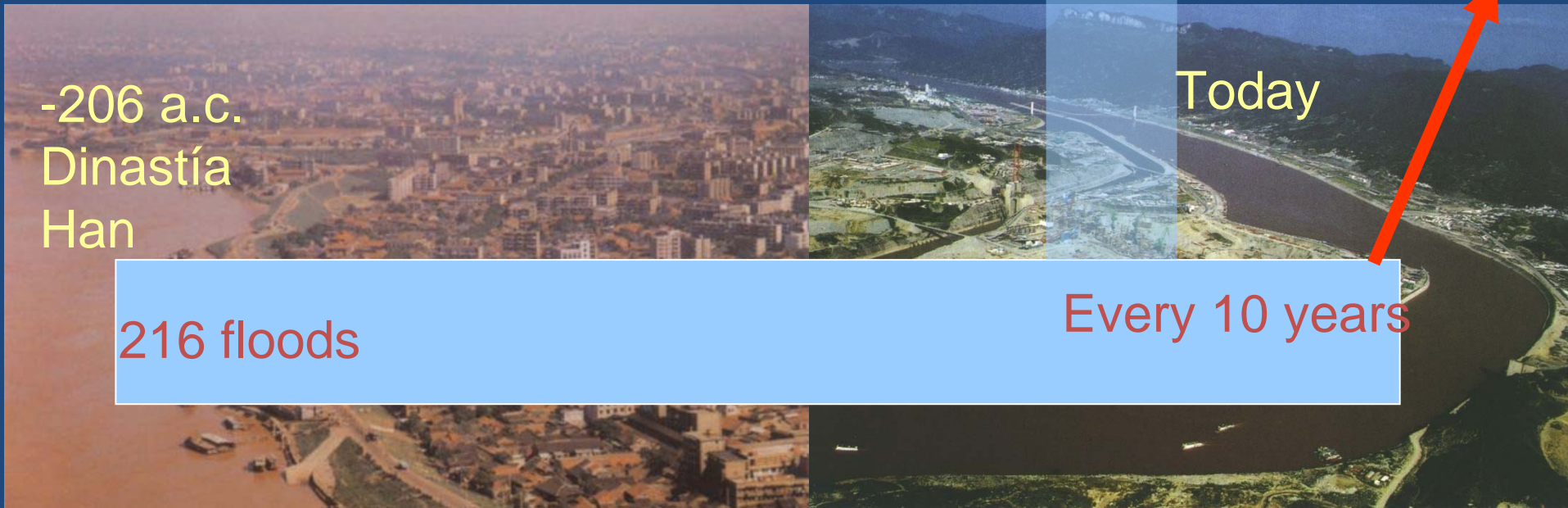
T = 100 years

-206 a.c.
Dinastía
Han

216 floods

Today

Every 10 years



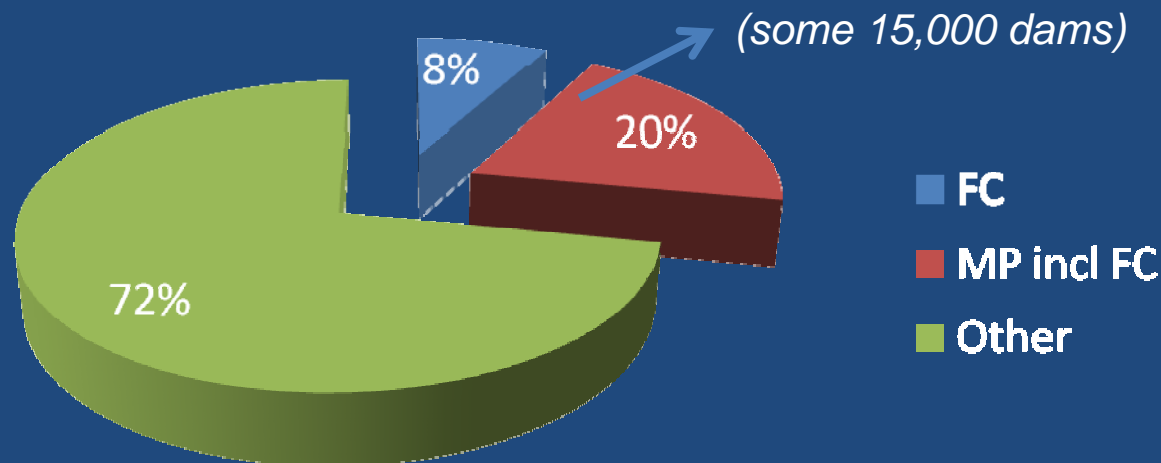


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WHICH ROLE CAN DAMS PLAY FACING FLOOD CONSEQUENCES?

Reservoir **MODIFIES** the natural streamflow regime. In most of the cases dams can improve the inflow conditions at risky areas. That means also a modification on suspended solid flows.





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<80-90's



Structural measures



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- **Induced false safety**
- **Growth of vulnerability**

The increasing pressure of urban and industrial development on metropolitan areas means, besides a **growth in the value of settled capital**.

Investments on protection measures against floods, structural or not, has to be based on a concept of sustainability, so that the creation of infrastructures **do not generate an acceleration of the vulnerability** of the territory.

Non structural measures::

- Incentives to leave flood plains,
- Land use management
- Appropriate warning systems,
- Insurance policies, etc



Bco. la Saleta. 26/10/00





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<80-90's

90's



Structural measures

Non structural measures
Just management



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<80-90's

90's

Late 90's and XXIst cent



Structural measures



Non structural measures
Just management



Both plus proactive strategies



PPP – key point for ICOLD



Vilamarxant dam Public Participation Process.



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What has to be learnt?

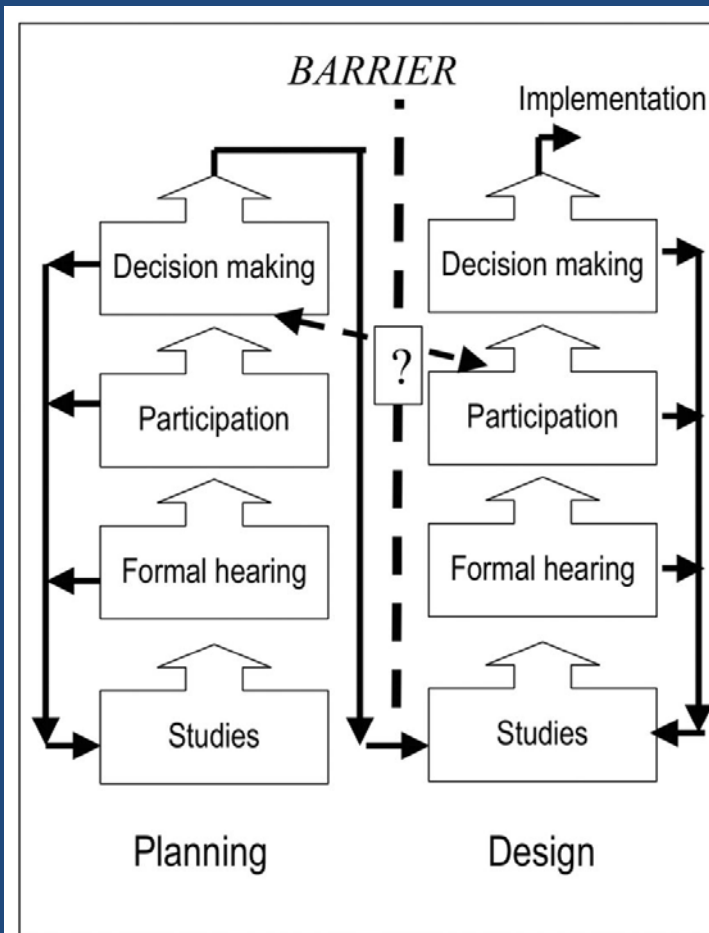
- Lack of **implication** of potential **benefited** people who trust that the administration promotes the solution of its interests. In most of the cases, public participation is held looking for legitimacy of those proposals that have not been made with that open starting position.
- **Equity in costs and benefits** means to know **externalities** that need very complex and not agreed procedures. For instance, **gained value** of the land after flood control schemes. (WIN-WIN concept)
- It's absolutely necessary to gain **credibility** from stakeholders and that is only possible believing in the process yourself. Playing the role of a fair **arbitrator** between confronted positions and not trying to defend just a proposal means to believe in the public participation as a democratic tool more than in your own criteria.
- **Transparency** and well defined rules and calendars are also essential as well as the knowledge "a priori" of the range of possibilities, boundary conditions and the scope of the discussion. Too wide scopes, larger than permitted, can be interpreted as promising possibilities that once have to be rejected become in **frustration**.
- However, there will **always** be someone who remains frustrated, including those **who for each solution find a problem**.



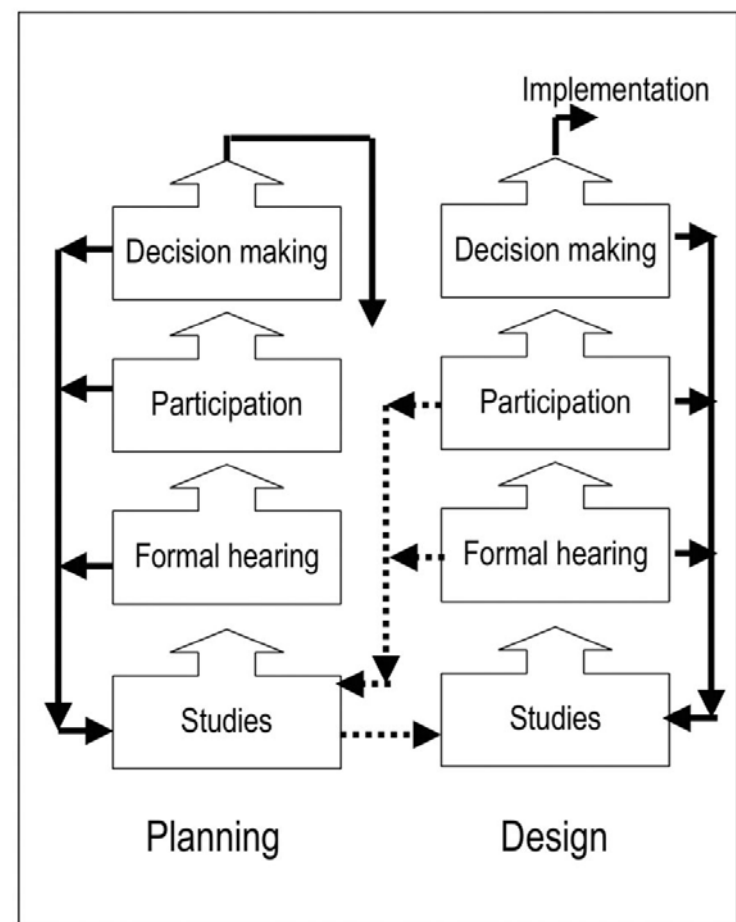
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PUBLIC PARTICIPATION IMPROVEMENT IS NEEDED !!



Classical PPP



Alternative



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Thank you for your attention

Dr. Enrique Cifres
Chairman
Committee on "Role of dams in River Basin Management"