Dakar 2010

ICOLD

The role of infrastructures meeting needs in the Basins

Enrique Cifres, Dr.Eng
Chairman of ICOLD Tech.Committee
"Role of dams in the development of River Basins"

80 ans years

- Today the International Commission on Large Dams (ICOLD-CIGB) remains the world's **leading non-governmental international organisation** that provides a forum for the exchange of knowledge and experience in dam engineering.

- ICOLD is now focused on the **dissemination** of dam technology for the betterment of the developing countries.

- **ICOLD leads the profession in setting standards and guidelines to ensure that dams are built and operated safely, efficiently, economically, and are environmentally sustainable and socially equitable**

ICOLD was established in Paris on 6th July 1928.

88 member countries

>10,000 individual members

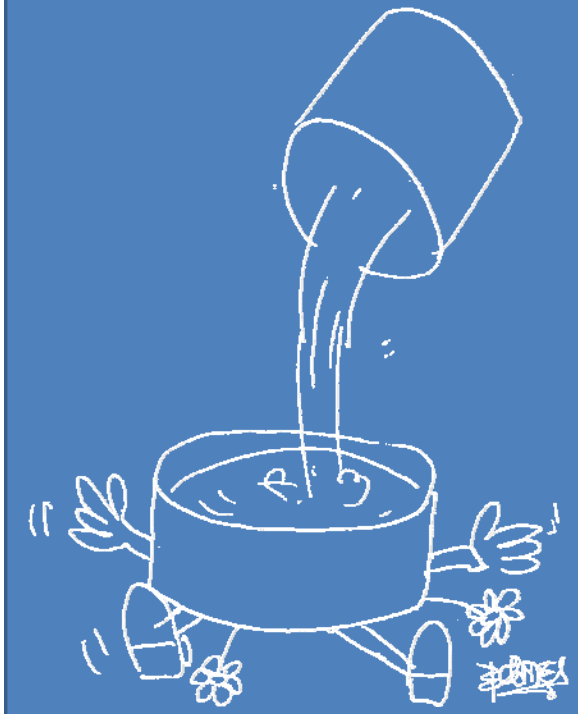
over 500 international experts in 24 Technical Committees

>140 publications

<80-90's

Structural measures

<80-90's



Structural measures

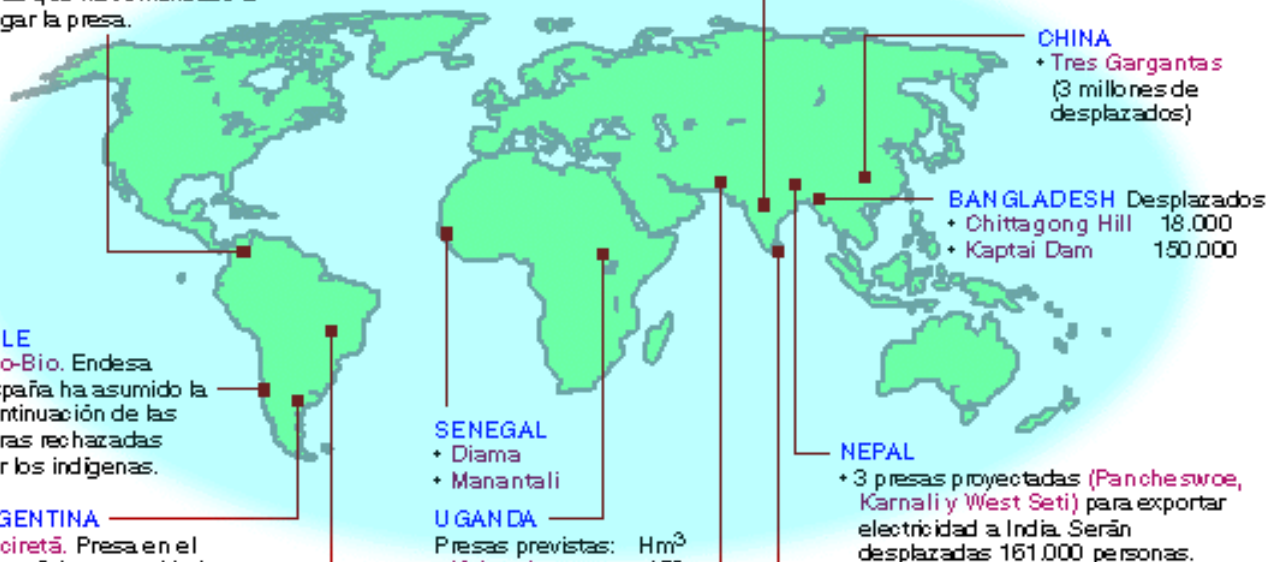
90's

Non structural measures
Just management

Las presas más conflictivas del mundo

Presas en el mundo

• Existentes	800.000	Cada año se ven desplazadas cuatro millones de personas
De grandes dimensiones	45.000	
• En construcción	1.600	



COLOMBIA
• Embera-Katío. Los indígenas no aceptan las indemnizaciones. Consideran sagradas las tierras que ha comenzado a anegar la presa.

INDIA
• Sardar Sarovar. 43.000 personas desplazadas.
• Otras presas: Telegu Ganga, Chamera, Sharavathi.

CHINA
• Tres Gargantas (3 millones de desplazados)

BANGLADESH Desplazados
• Chittagong Hill 18.000
• Kaptai Dam 150.000

CHILE
• Bio-Bio. Endesa España ha asumido la continuación de las obras rechazadas por los indígenas.

ARGENTINA
• Yaciretá. Presa en el Paraná. Las autoridades pretenden subir la cota de 70 a 83 m para almacenar 21.000 Hm^3. Supone desplazar a 10.000 familias

BRASIL
• Tucuri. 40.000 personas desplazadas

SENEGAL
• Diama
• Manantali

UGANDA

Presas previstas:	Hm^3
• Kalagala	450
• Murchison Falls	642
• Bujagali	320
• Ayago S.	234
• Ayago N.	304
• Kamdin	180

NEPAL
• 3 presas proyectadas (Pancheswoe, Karnali y West Seti) para exportar electricidad a India. Serán desplazadas 161.000 personas.

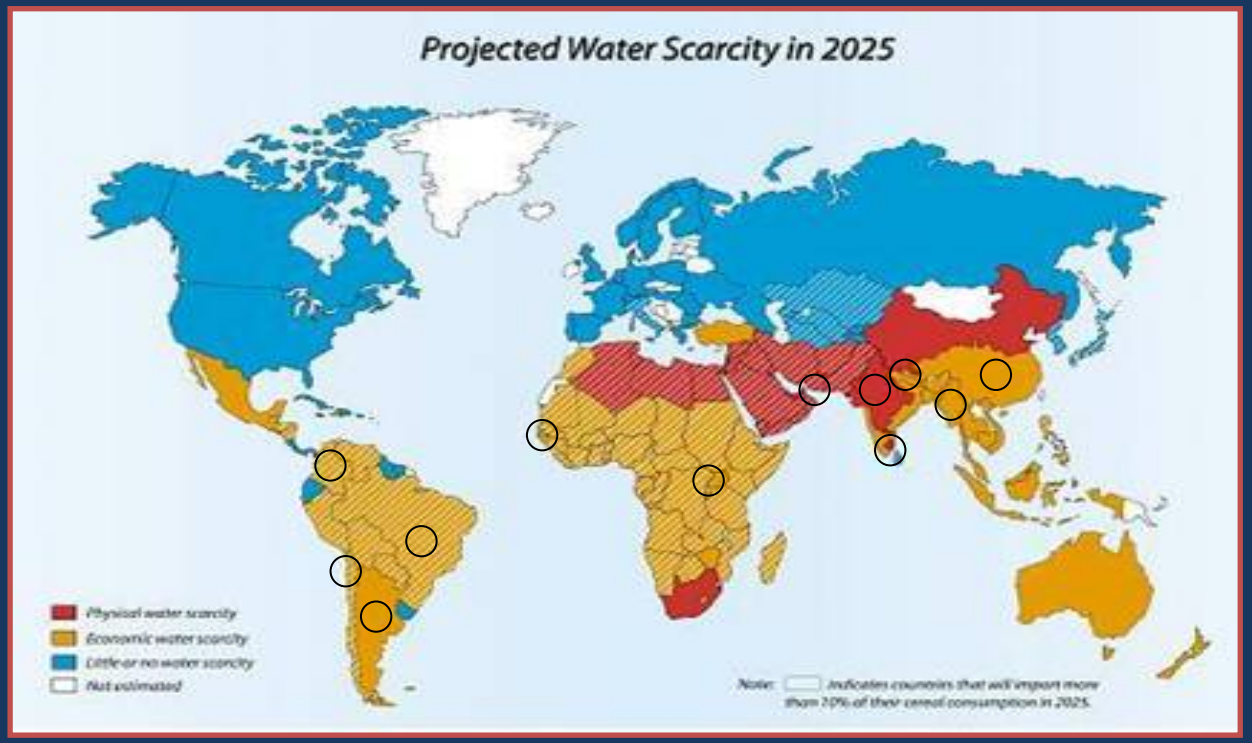
SRI LANKA
• Mahaweli (700.000 personas desplazadas)
• Victoria (en proyecto)

PAKISTÁN
• Kalabag (río Tarbela), en construcción.

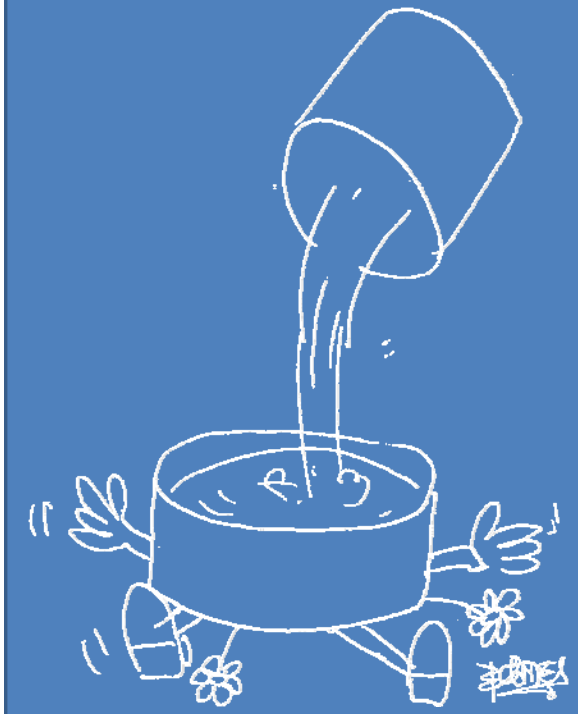
Fuente: Comisión Mundial de Presas. EL PAÍS

Year 2000: WCD

MDG



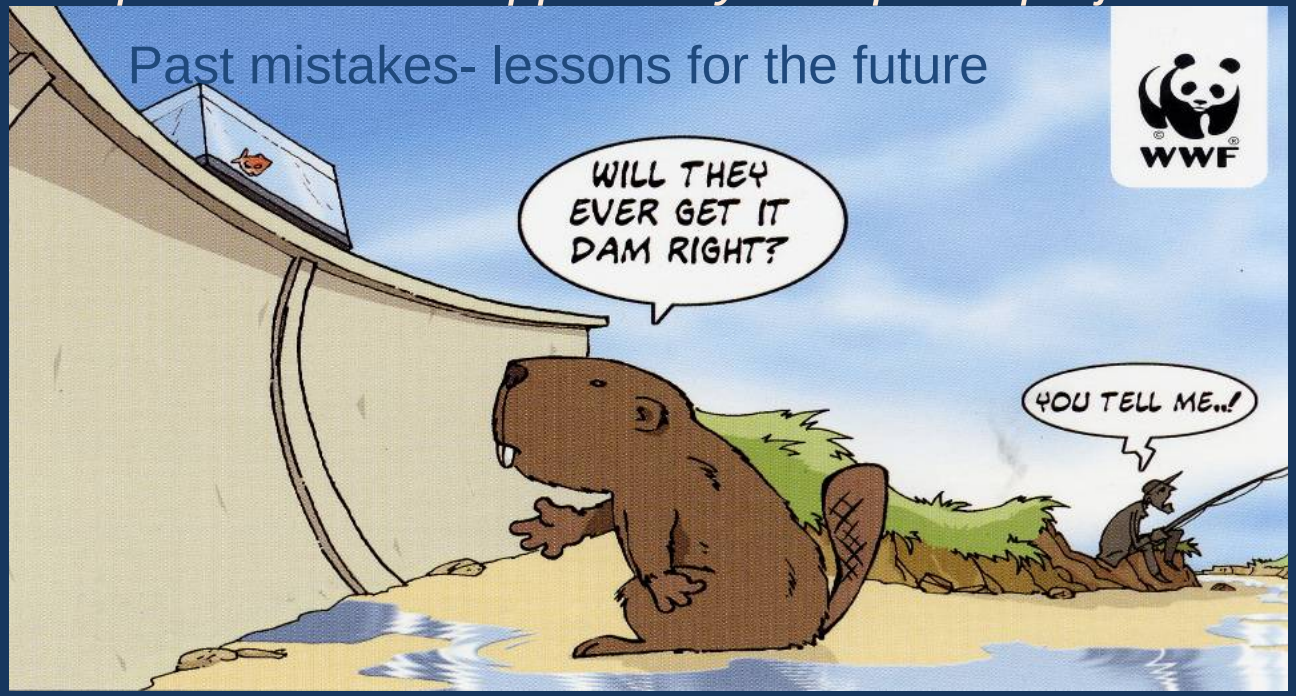
Year 2003: II-WWF Kyoto

<80-90's	90's	Late 90's and XXIst cent
		
Structural measures	Non structural measures Just management	Both plus proactive strategies

Duality between developed and developing countries' context.

Dams can play a decisive role on the development of the yet unlucky communities which are hoping to reach better living standards in developing countries.

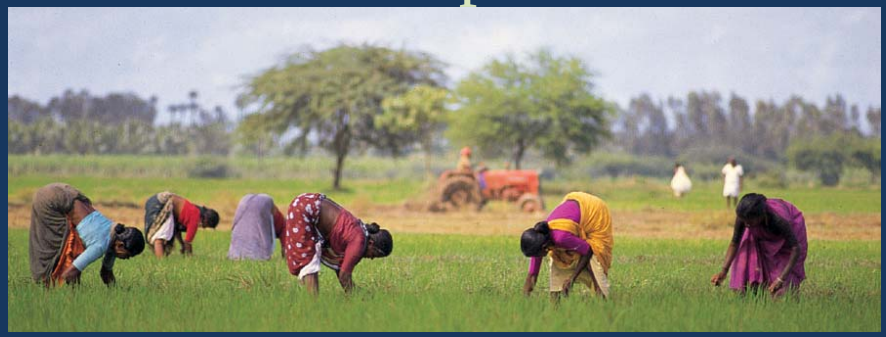
Perhaps this role could be similar to that that dams played in the past in already developed countries. Opportunity to improve projects.



Developed context

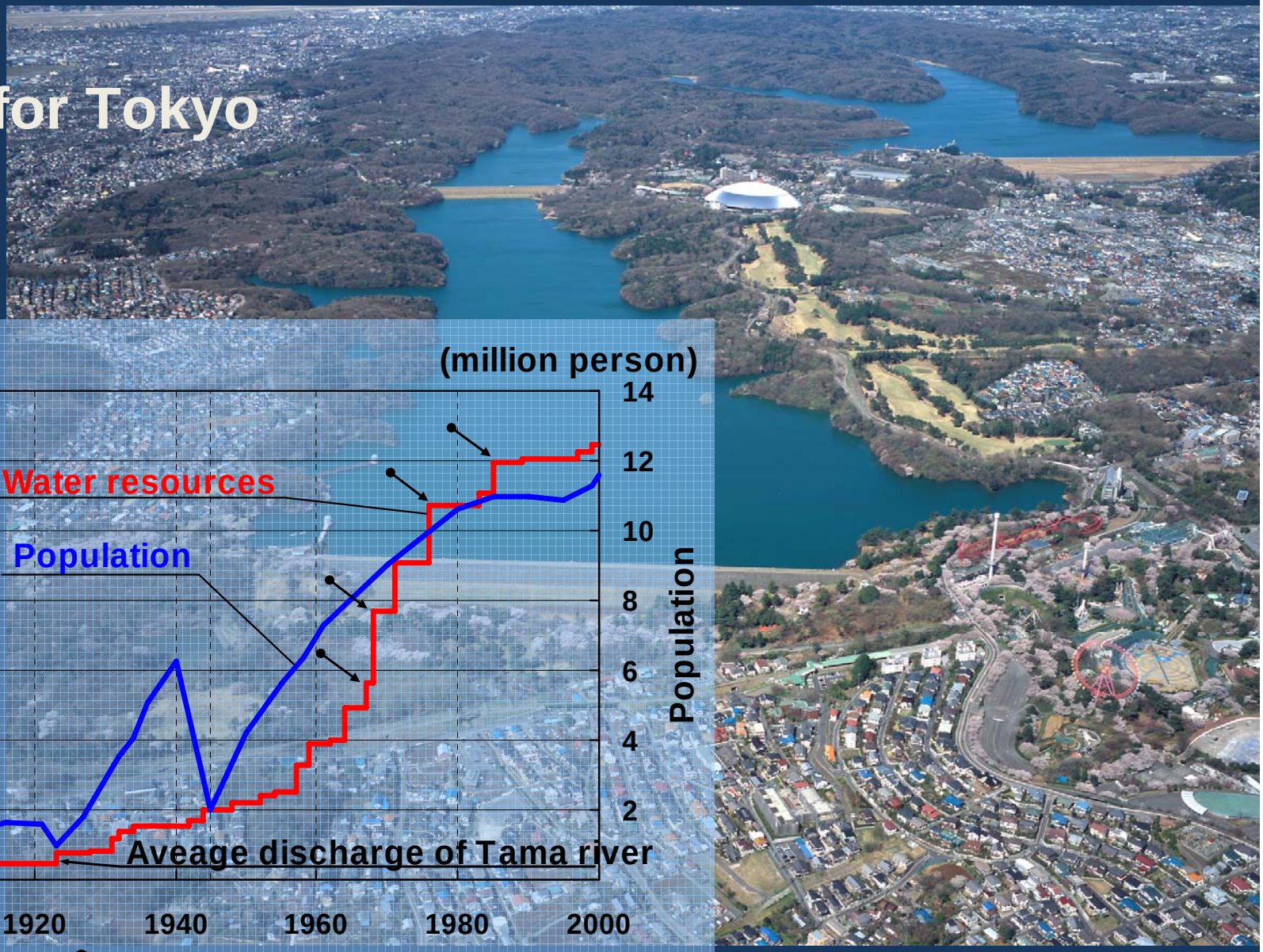
- Lot of dams
- Few more sites for reliable new dams
- Progress no longer depends on dams
- Population and water demand are stable
- Ability to un-couple economic growth from water resource utilization.
- National interest has been replaced by individual comfort.
- Constitute wealthy communities that can afford to pay more for food.
- Many of their major cities are settled by lakes or to the sea, or at least enjoy wetter conditions and less severe droughts.
- Furthermore the cost of desalination of sea waters is now competitive with fresh water resources.

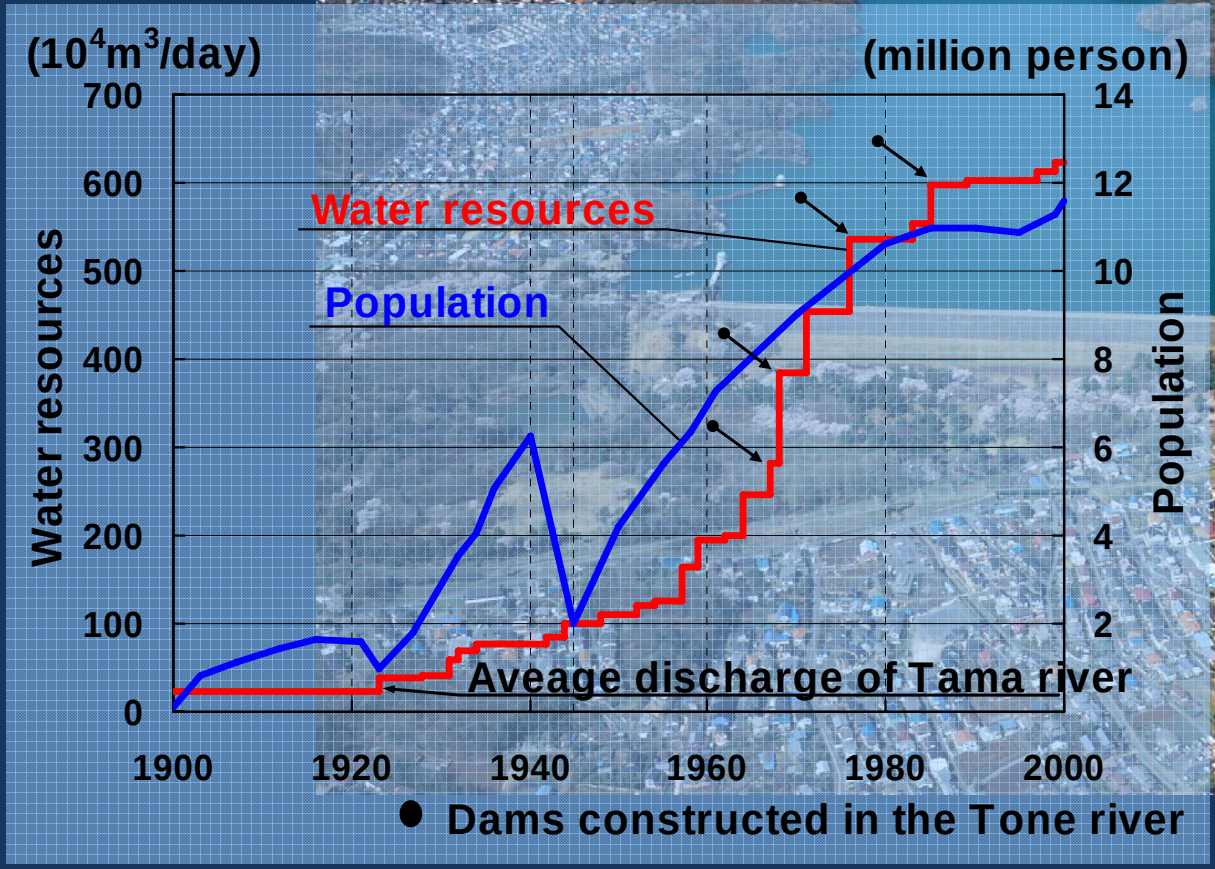
Underdeveloped context

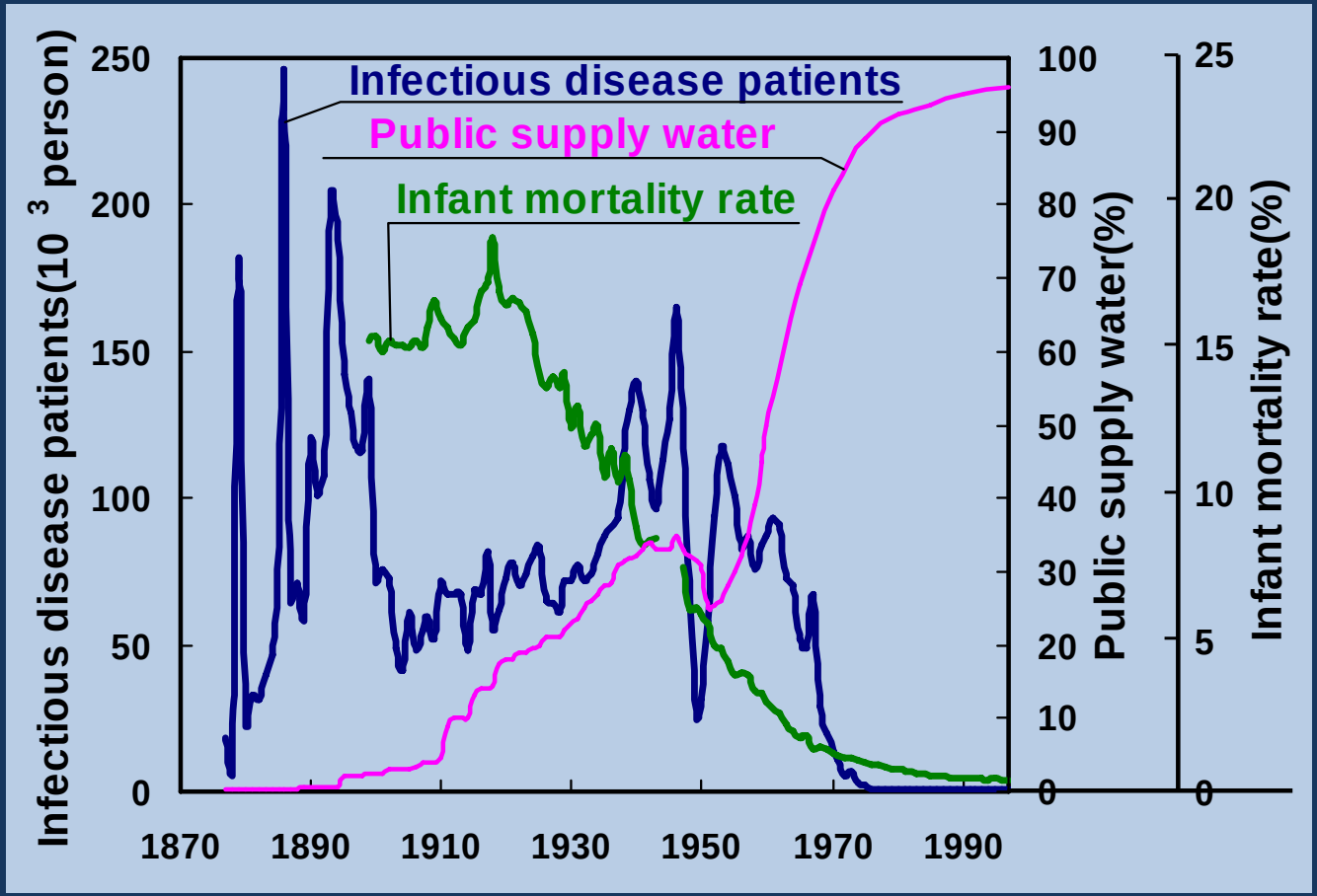


- Lack of infrastructures
- Population and increased demand growth .
- Water demand would increase even quicker.
- The access to clean water and sanitation services, adequate health care and education and other fundamental requirements for a satisfactory quality of life are already lacking.

Water for Tokyo



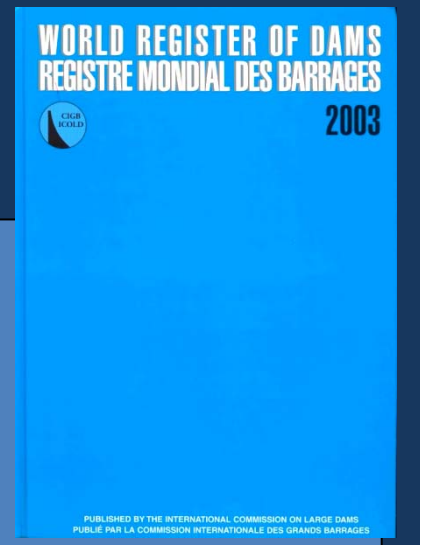


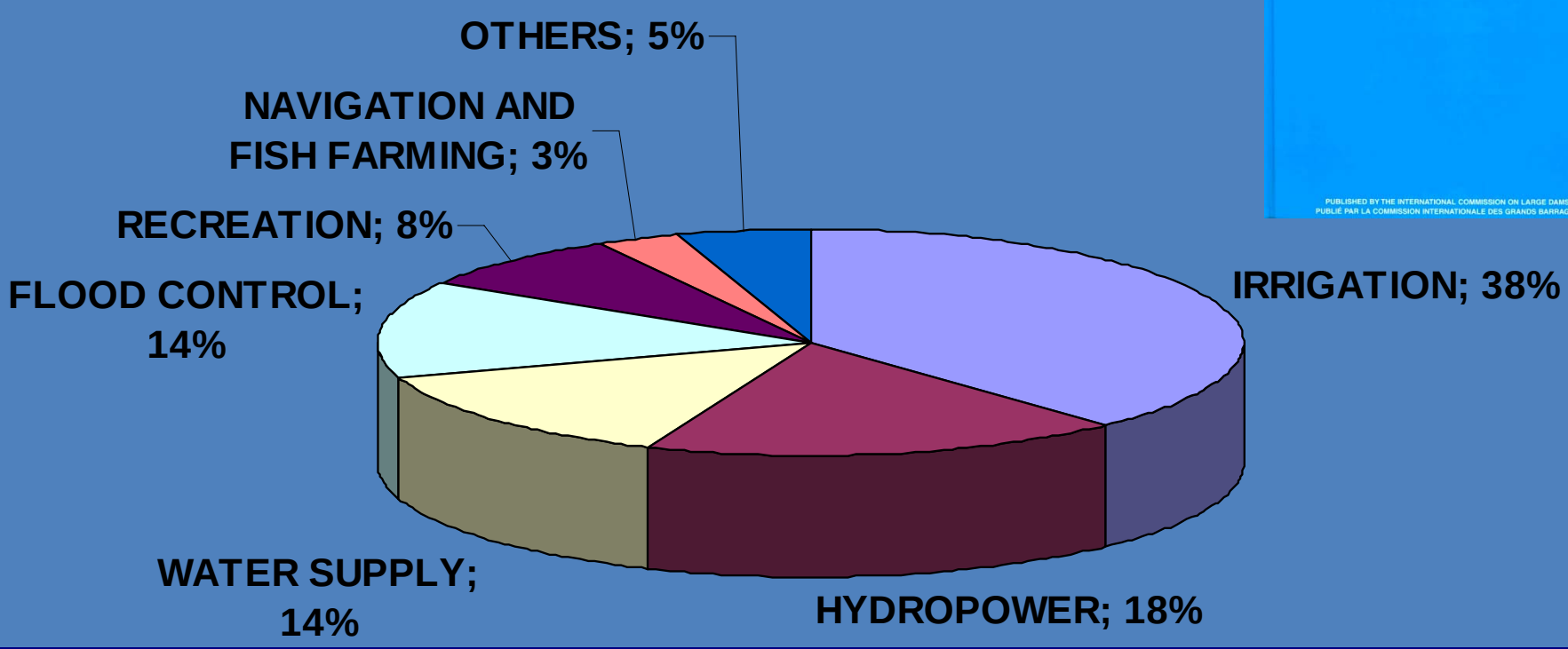


Organización Mundial de la Salud

:1,8 millones de niños de todo el mundo (900.000 en el África subsahariana) mueren a consecuencia directa de diarreas y otras enfermedades ocasionadas por aguas contaminadas y por un saneamiento insuficiente.

DAMS´S PURPOSE

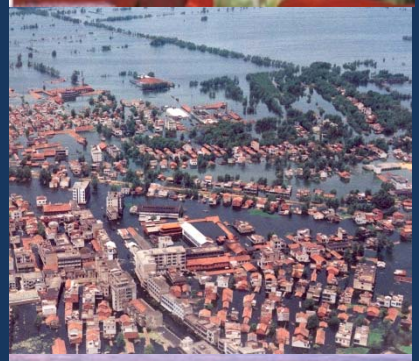




50.000 LARGE DAMS IN OPERATION

SMALL DAMS : 1 MILLION

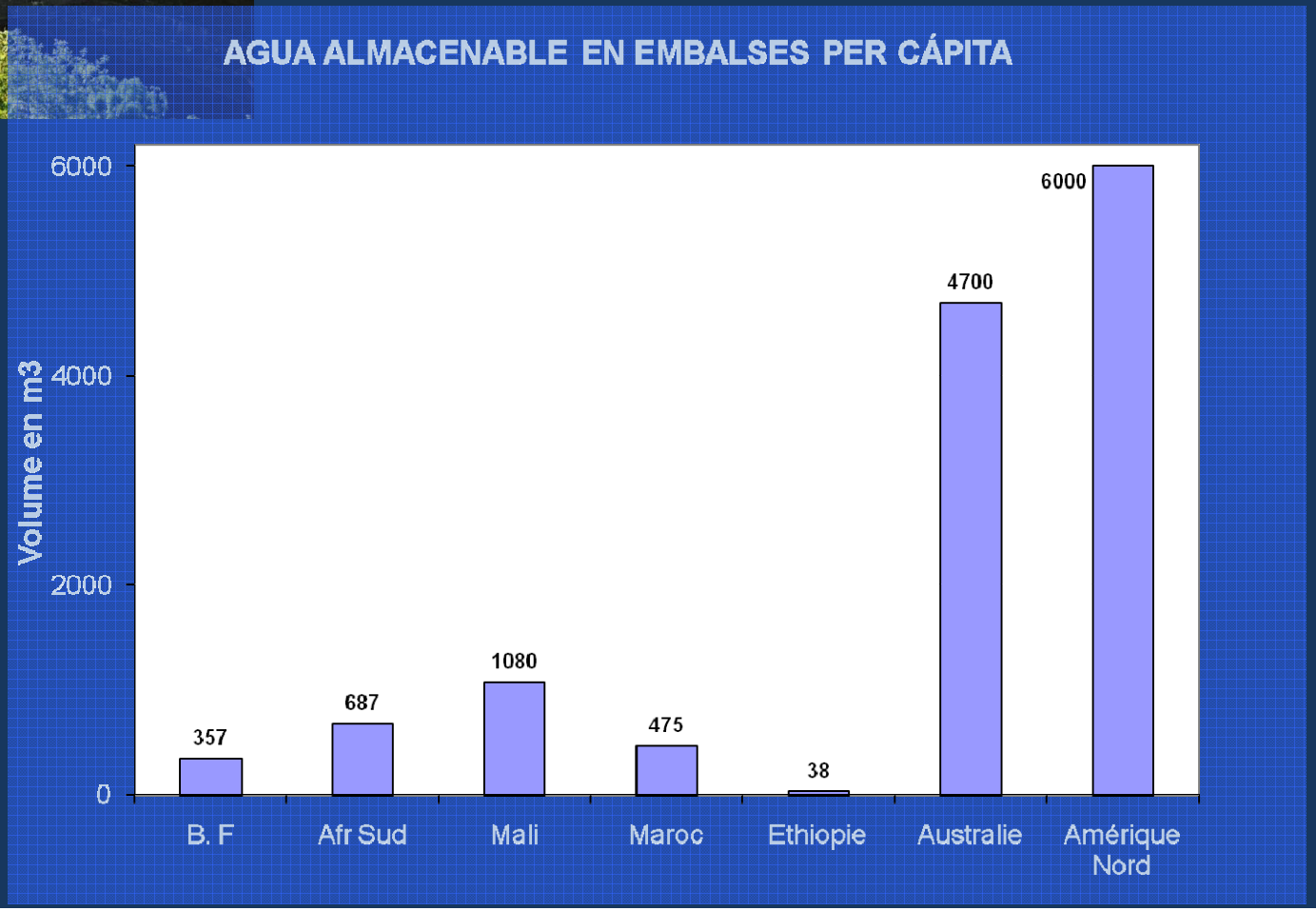
THE TOTAL RESERVOIR CAPACITY: 8,300 KM^3



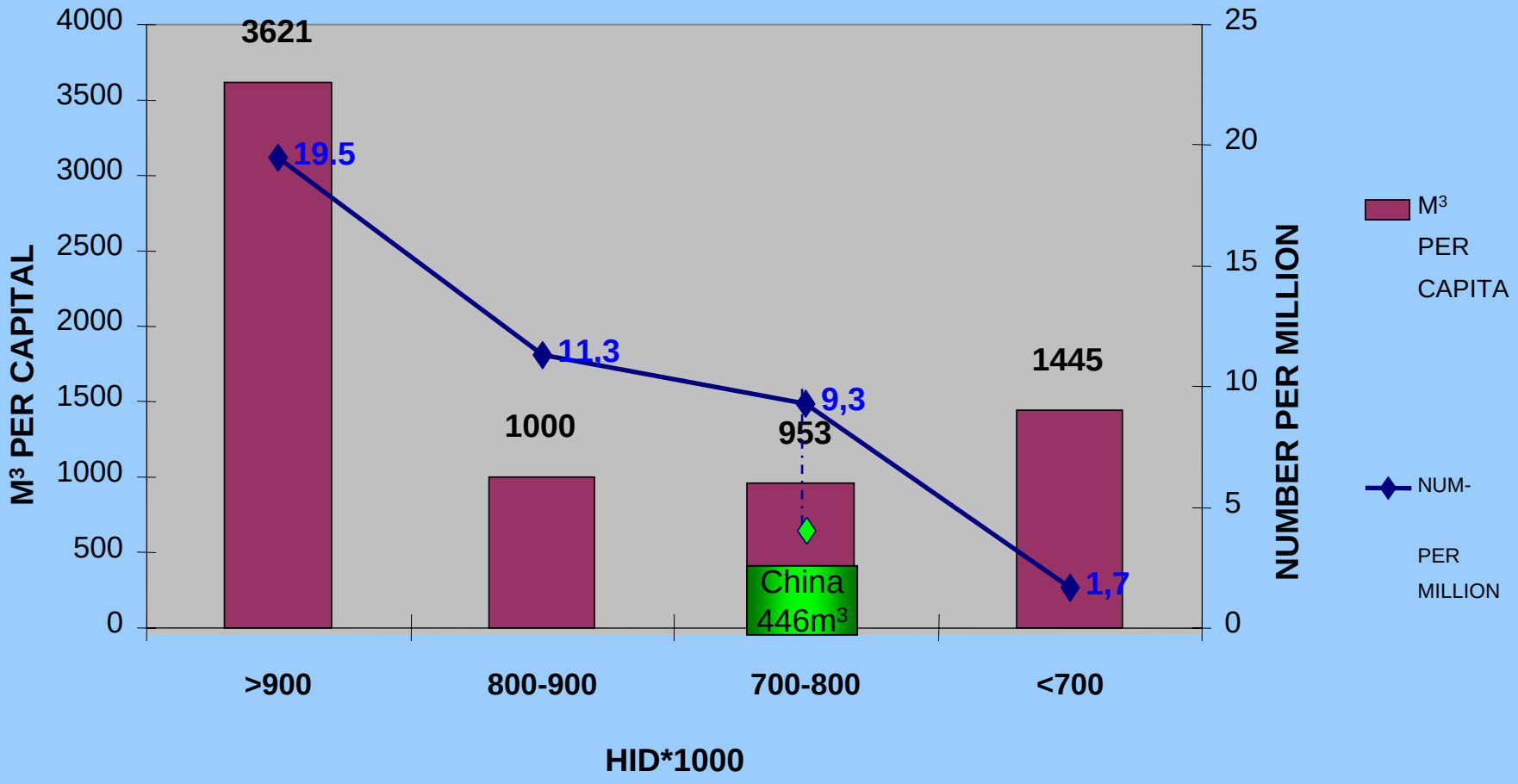
ROLE OF DAMS

- IRRIGATION: 17 % ARABLE LAND
  → 40% OF TOTAL WORLD CROPS.
- DRINKING WATER SUPPLY
- FLOOD MITIGATION.
- HYDROPOWER: 20% ELECTRICITY

Storage per capita



DAMS´S INDICATORS-
HUMAN DEVELOPMEN INDEX (HDI)

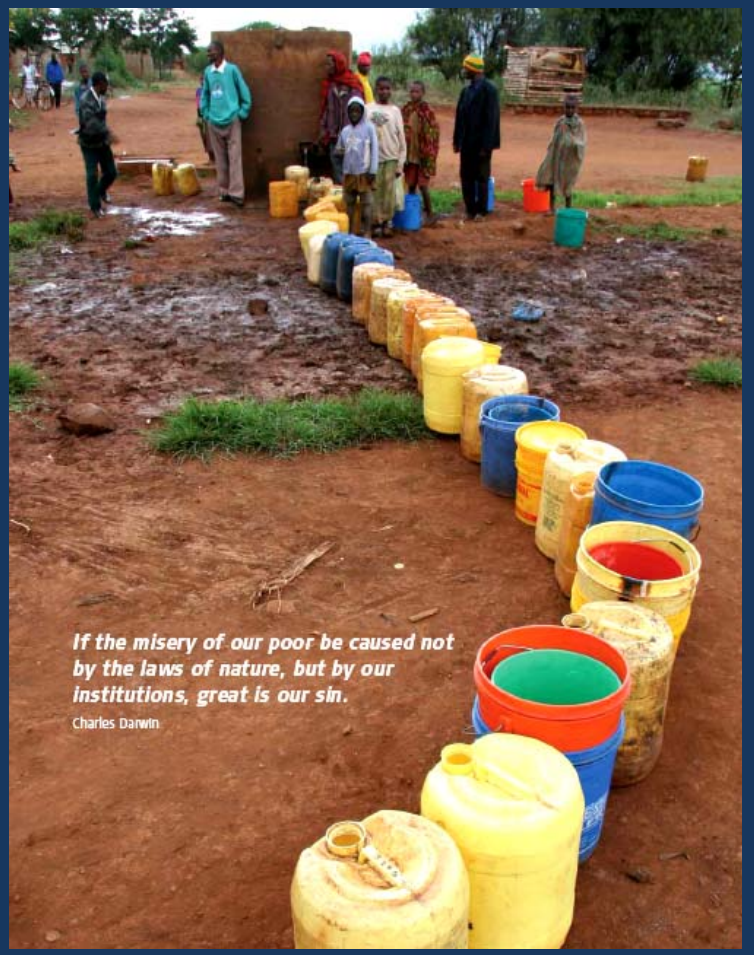


WATER AND ELECTRICITY POVERTY

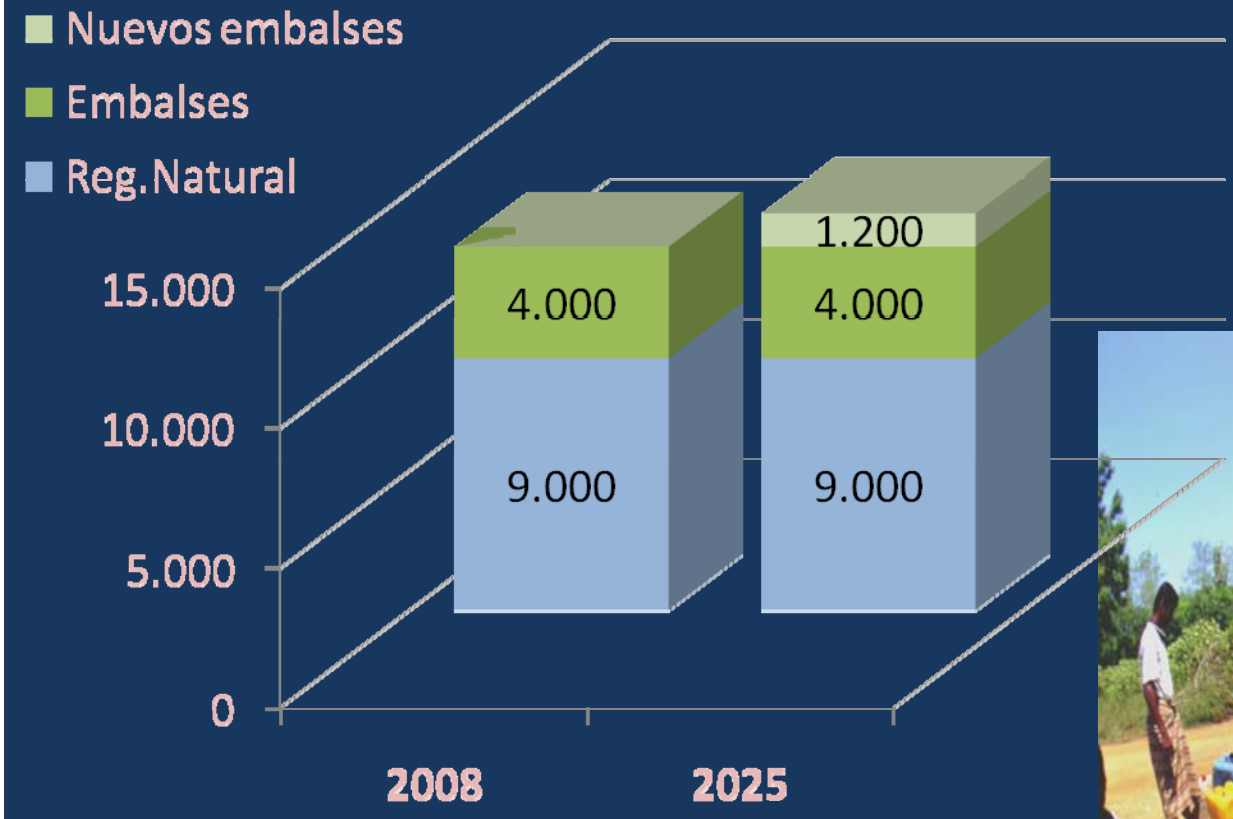
Lack of sufficient renewable water and hydropower resources is not the crucial factor in water and electricity accessibility

- In many cases, **storage is a viable option**, and given the current circumstances (a need for responsible development in the context of changing world, etc), increasing storage capacities is a major imperative.

- Storage should be utilized **as a tool to drive development**, taking into account the socio-economic and environmental impacts.



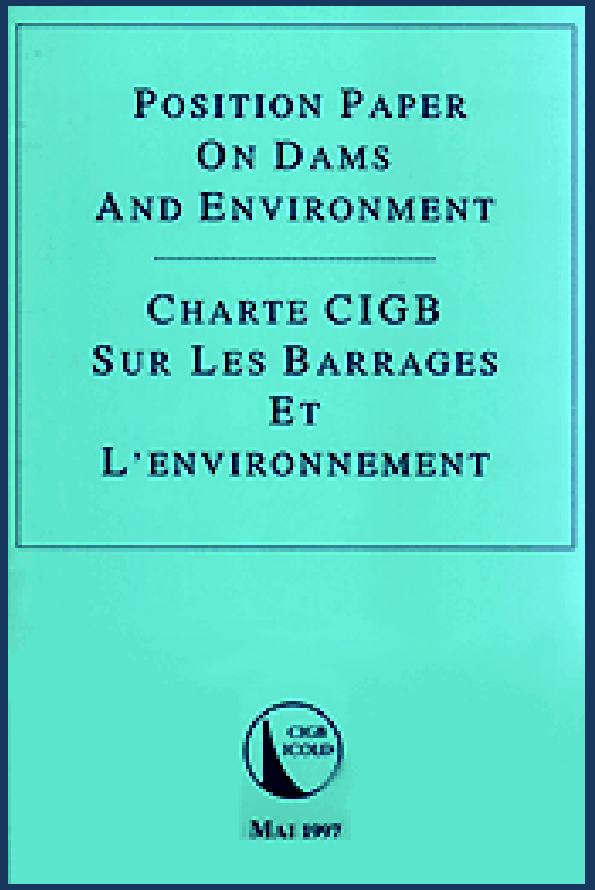
PAPEL DE LAS PRESAS EN LA REGULACIÓN DE LOS RECURSOS HIDRAÚLICOS: KM ^{3} / AÑO



ICOLD ENVIRONMENTAL POLICY

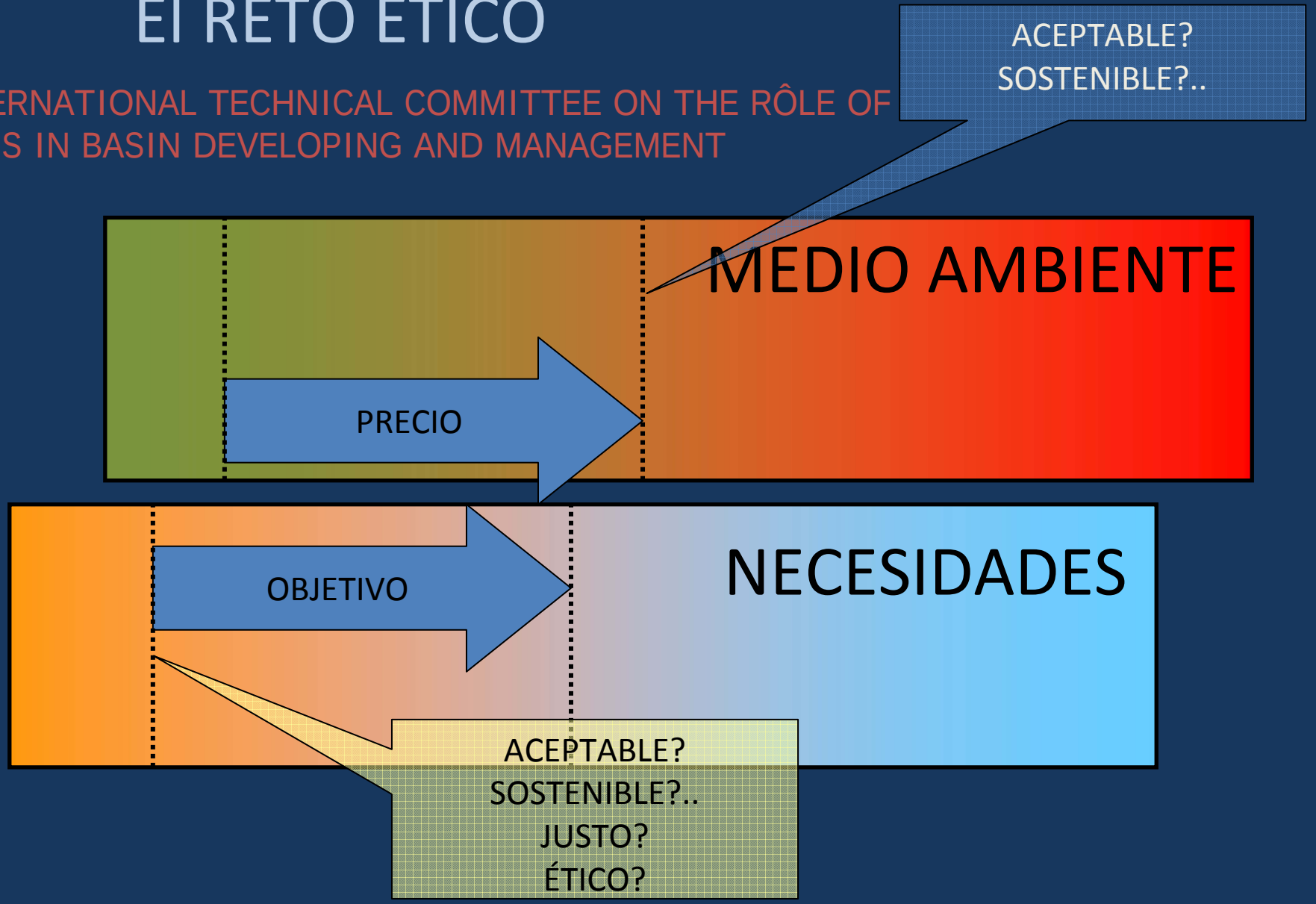
ICOLD recommends the management of the existing dams and the construction of new dams to remain within the context of **Integrated Water Resources Management**, taking into account their implementation within a framework of sustainable development, and adhering to the following basic criteria:

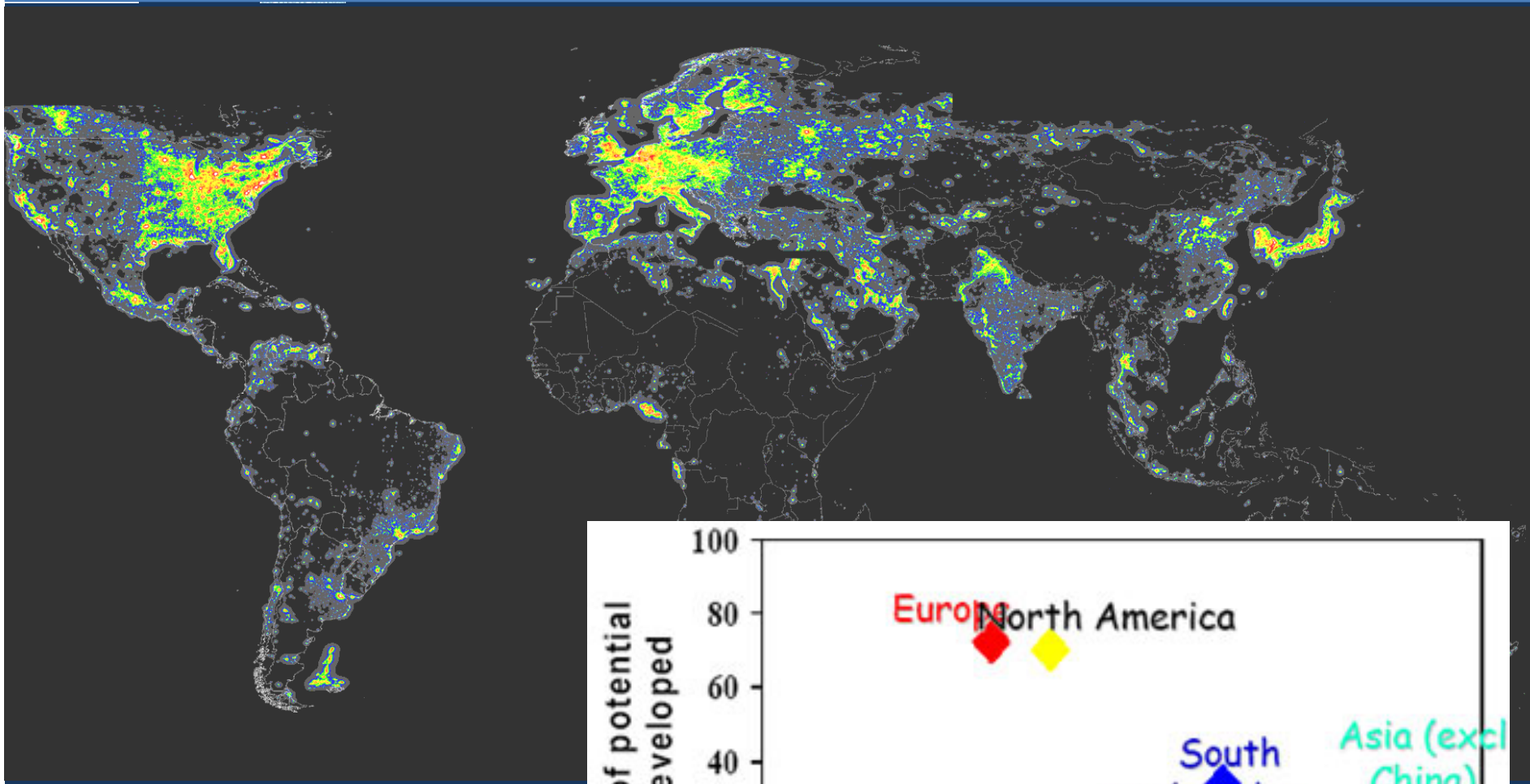
- Technical, Economic and Financial Feasibility
- Sustainable Development. Compatibility with the Environment
- Social and Political Acceptance

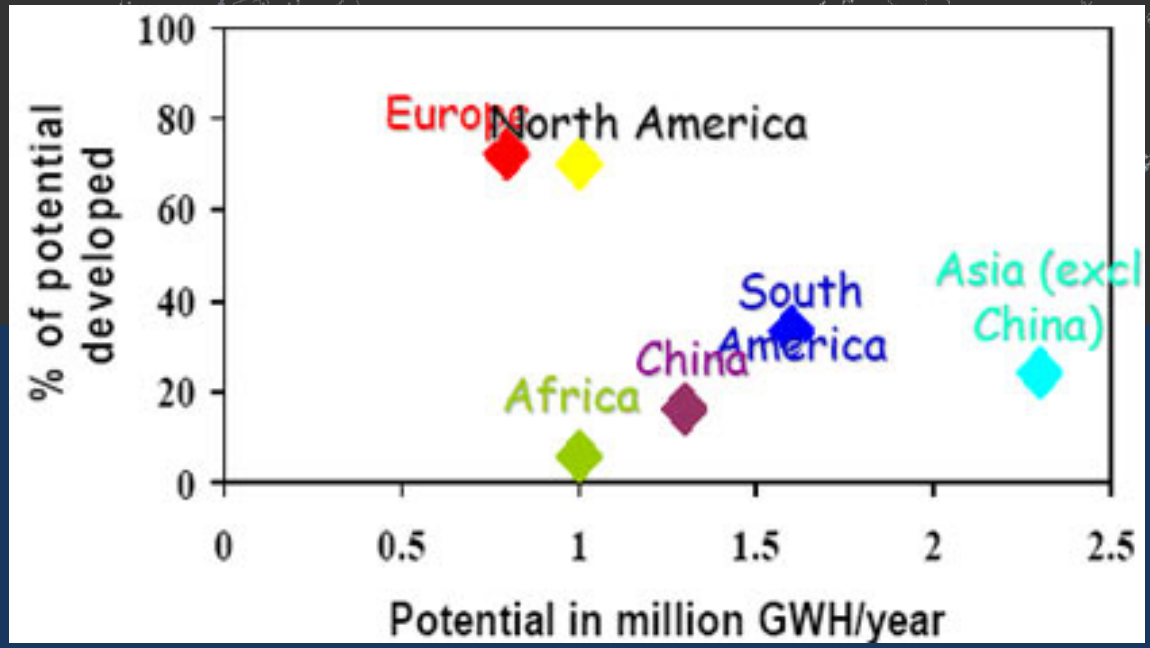


El RETO ÉTICO

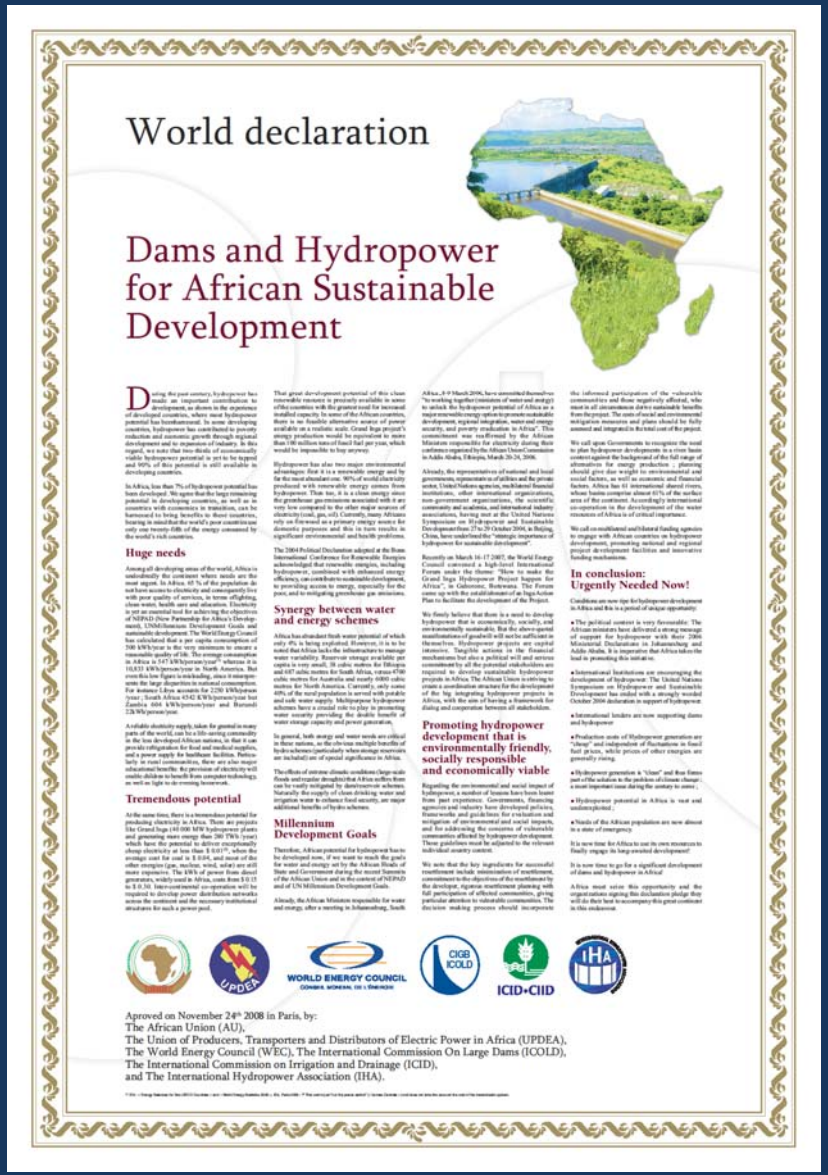
INTERNATIONAL TECHNICAL COMMITTEE ON THE RÔLE OF DAMS IN BASIN DEVELOPING AND MANAGEMENT







Potentiel hydro-électrique dans le monde



World declaration

Dams and Hydropower for African Sustainable Development

Huge needs

Tremendous potential

Synergy between water and energy schemes

Millennium Development Goals

Promoting hydropower development that is environmentally friendly, socially responsible and economically viable

In conclusion: Urgently Needed Now!

WORLD ENERGY COUNCIL

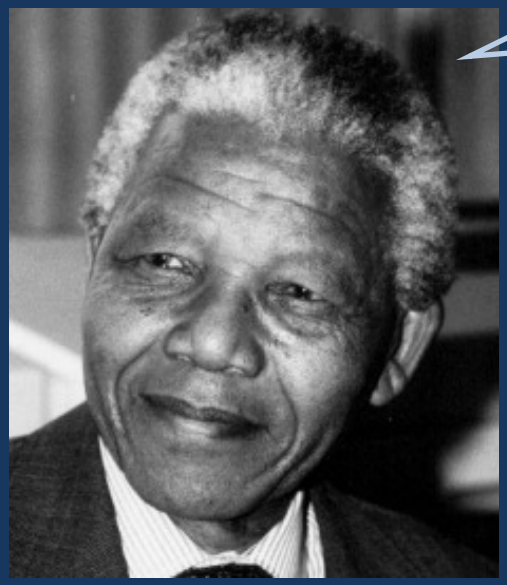
ICID+CIID

Aproved on November 24th 2008 in Paris, by:
The African Union (AU),
The Union of Producers, Transporters and Distributors of Electric Power in Africa (UPDEA),
The World Energy Council (WEC), The International Commission On Large Dams (ICOLD),
The International Commission on Irrigation and Drainage (ICID),
and The International Hydropower Association (IHA).

Con el impulso de la CIGB se firmó en Paris en 2008 una Declaration Mundial Común para apoyar :

“Les Barrages et l’Hydro-électricité pour le Développement Durable de l’Afrique”

UA	Union Africaine
CME	Conseil Mondial de l’Énergie
ICID	Commission Internationale pour l’Irrigation et le Drainage
IHA	Association Internationale de l’Hydro-électricité
UPDEA	Union des Producteurs et Distributeurs d’Électricité Africains
ICOLD	Commission Internationale des Grands Barrages



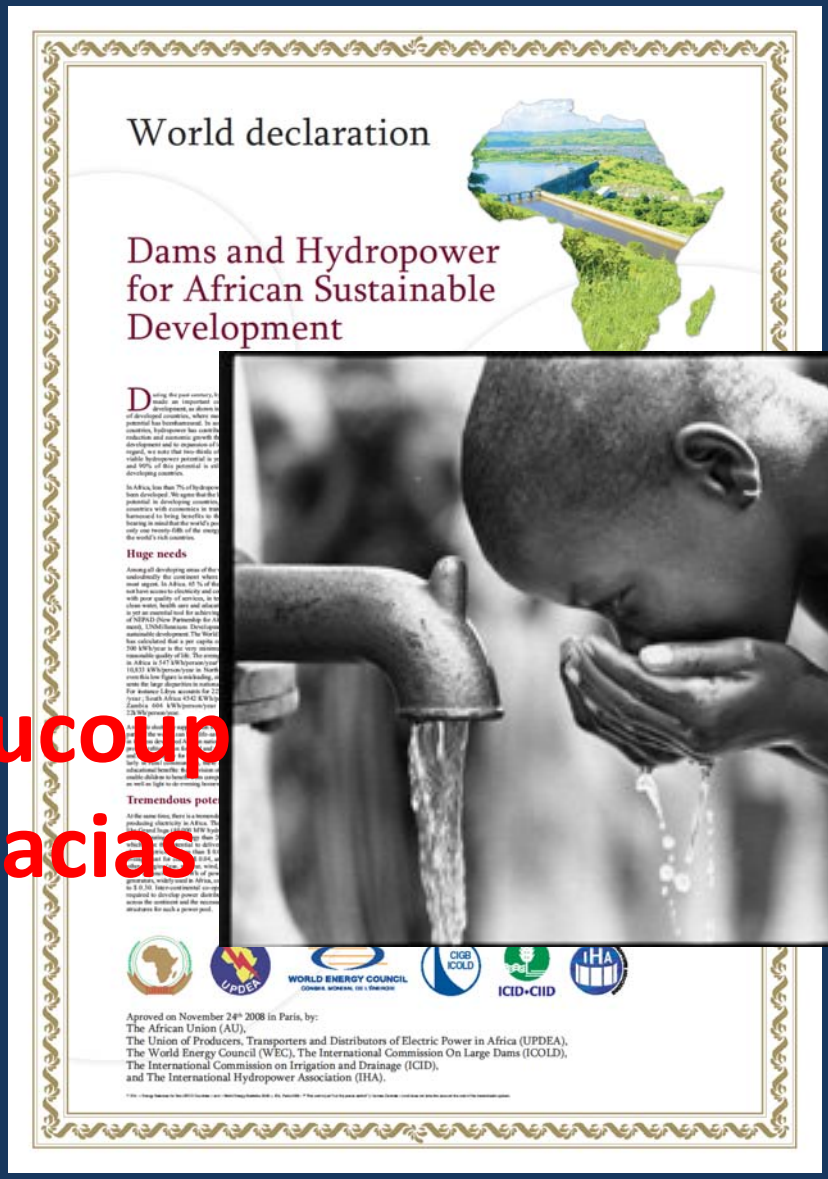
« La liberté politique est insuffisante
quand on manque d'eau.

La liberté politique est insuffisante
quand on manque d'électricité pour lire la nuit,
quand on n'a pas d'eau pour irriguer sa ferme,
quand on ne peut pas attraper de poisson pour nourrir sa famille.

Pour ces raisons, le combat pour le développement durable est aussi important que le combat pour la liberté politique.

Ces combats peuvent se mener ensemble comme ils peuvent s'anéantir mutuellement »

Nelson Mandela



Thank you
Merci beaucoup
Muchas gracias

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