



## ICOLD President answers Oxford misleading study

### 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.

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The existing 50 000 "large dams" supply 15% of the world electricity production and provide irrigation water for feeding 800 million people. But there are extra needs, as can be seen in many countries of Africa where people are cutting the forest for cooking energy, where they live in darkness and are hit by water-related diseases and malnutrition which result in millions of fatalities each year, mainly women and children.

### Sample biased, because unrepresentative

The study is based on a sample of 245 dams, which appears as a total misrepresentation of the 50 000 large dams existing today, as shown in the table:

	Ansar et al. Report	Reality (World Register of Dams, Hydropower and Dams 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
<b>Average extra cost extrapolated to all large dams in the world</b>	<b>\$35,000 billion</b>	<b>\$600 billion</b>

### Traditional Cost-Benefit analysis is not well adapted to large dams which appear however as cost-efficient

Usual cost benefit analysis, based upon high discount rates, is unfavourable to dams, which operate along one century with low operation costs. Even with this method, hydropower worldwide is usually the most economic way for power production beyond coal power. A recent study by the International Renewable Energy Agency on the levelized cost of energy shows hydropower to be the least cost option of all the renewable energies. Even the WCD did conclude: "It is worth emphasizing that cost recovery has not been a substantial problem for hydropower projects".

Atif Ansar and Bent Flyvberg clearly did not make their [homework seriously, as demonstrated by ICOLD Vice-President](#)

Zielinski on the two specific cases of Itaipu and Grand Renaissance.

## The study completely ignores the climate change problem and doesn't provide any viable alternative to large dams and hydropower

"Policy makers should prefer energy alternatives that require less upfront outlays and that can be built very quickly" What would be those alternatives? Fossil fuel plants consuming coal or gas. Without explicitly saying it, the authors use a purely financial reasoning to bring us toward a carbon-emitting electric system. The carbon emissions of fossil fuels plant and the climate change problem are not mentioned in their text.

## Dams and Water Storage infrastructures for Sustainable Development

**Applying the unjustified recommendations of Ansar et al. would be disastrous for the poorest countries of Africa, Asia, South and Central America.** ICOLD, together with other international scientific institutions, [has signed a World Declaration on Water Storage for Sustainable Development](#) (Kyoto 2012), which explains why there is an urgent need to build more water infrastructure for the development and the well-being of the people of the world.

## The conclusions of the Ansar report are also unjustified for the very large dams

The basic data (height, construction time...) of the sample are closer to those of very large dams as financed by global financial institutions. But the average cost overrun of 99% claimed by the paper seems totally unjustified by the six references for his sample: Asian Development Bank (ADB), World Bank, World Commission on Dams, TVA, US Army Corps of Engineers and US Bureau of Reclamation. The paper does not give detailed figures, but the relevant data for those organizations are actually:

Institution	Number of Dams	Cost overrun in constant dollars
ADB	23	16%
World Bank Hydropower	70	27%
World Bank Multipurpose	10	39%
WCD crosscheck	81	21% (56% in current dollars)
<b>Total</b>	<b>184</b>	<b>24%</b>

(Ref : WCD Report pages 40-42 and 49-52)

The three other references are concerning 40 dams among the US dams, for which the report claims an average cost overrun of 11%. Thus, the 99% claimed overrun cannot be explained by the six given references. One explanation could be the inclusion of 20 or 25 dams with very large cost overrun (about 500% as average) which do not appear in the six references. One of these added dams alone, with a 5000% cost overrun, explains 20% of the 99% claimed! Such an extraordinary case (an actual cost 50 fold the initial evaluation) should not have been included without any justification. The dam is not even named!

The above comments have been made quickly and could be more accurate, provided the authors make their data and methods public.