CIGB ICOLD
The Dams Newsletter
May 2014 #-14

Mastering Water and Renewable Energy in a mutating world ? Ask ICOLD !

by Michel de Vivo

It is now well established that the conditions are ripe for dam development in this early 21st century. First in Eastern Asia, then in Africa and Central Asia, many projects have been launched, some of them being already operating. The U Turn represented by the 2003 World Bank Water Resources Sector Strategy sent a worldwide signal to governments, financial institutions and engineering companies : a new Golden Age is coming for dams !

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As we enter this new Golden Age, it is the moment for celebrating all the accomplishments made during the last ten years by ICOLD, thanks to the efforts of the Presidents and Vice-Presidents who devoted there experiences, time and energy to our Commission.

First, there is a general and measurable increase in ICOLD's actions and impact on society: 15 new member countries have joined the ICOLD family: that is a 20% increase as a result of a constant effort to make ICOLD better known in the diplomatic circles. This is accompanied by the doubling of the average number of participants to ICOLD annual conferences, thanks to the effort of the successive organizing committee, but also as a result of the renewed interest in dams. Finally, there has been a 30% increase in the number of Technical Bulletins published and in the participation of experts in the Technical Committees.

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ICOLD 80th anniversary celebrated in 2008

ICOLD has reorganized itself and is ready for the 21st Century: a new Constitution has been adopted. The World Register of Dams is now available online, on a new Website centered on communication and knowledge-sharing. It now incorporates an efficient research tool, which makes the Register a fruitful source of data for the dams community. There won't be any new paper edition of the Register in the future, but updates which will be incorporated in the online tool as soon as the National Committees transmit new data. ICOLD has also strongly invested in Africa, the new continent for dam development: two regional Congresses have been organized (Burkina 2008 and Ethiopia 2013) and the next one will be held in March 2015 in Marrakesh (Morocco). Actions for capacity building and lobbying

Editorial

have been launched. The Africa 2013 event in Addis Ababa is especially important since it was a very successful event which will replicated, continuating our cooperation with Aqua Media International.

Since this has been recognized by many ICOLD meetings as an imperative, Major communication operations have taken place. ICOLD's 80th birthday has been celebrated with a conference in Paris in 2008 and two World Declarations initiated by ICOLD have been signed by four international organizations, including the World Energy Council, to reaffirm the major role played by dams for sustainable development. Together with those major initiatives, ICOLD Presidents and Secretary General have made more than 50 in large international conferences during the last 6 years to bring ICOLD message to miscellaneous audiences. Finally, a didactic pamphlet, Dams and the World Water, has been published, dedicated to young people and general public. It has been already translated in many in many different languages by National Committees.

ICOLD is continuing to play its role in international organizations. In the World Water Council, ICOLD has ensured three consecutive mandates as governor and has played a key role in many World Water Fora, including with organizing many sessions. ICOLD is right now, for the first time, part of the Steering Committee preparing the next 7th World Water Forum in Daegu, South Korea. ICOLD has also integrated the community of United Nations' Global Compact Initiative and participates in the International Chamber of Commerce's Commission on Environment and Energy as well as in its Green Economy Task Force.

Looking for the future…

ICOLD has approached UNESCO's to get an Observer Status, that would be a recognition of ICOLD's contribution to the science and technology of dams. Also, ICOLD is currently trying to get a Headquarters agreement with the French State, to reinforce its position as a major International Organization. Those are long processes which may take a long time before coming to achievement but they are now in progress.

Finally, I am particularly pleased with the successful launch of the Young Engineers Forum and of the associated prize awarded to the best projects achieved by young engineers. This has already resulting a significant increase in young engineers' participation in ICOLD activities and it is a good sign of ICOLD's vitality.

Of course ICOLD has changed and evolved: it's not the same ICOLD has some of us knew 30 years ago. It is asserting itself as both a crucial Actor and Witness of major water infrastructures development.

Mastering Water and Renewable Energy in a mutating world ? ICOLD is your partner for the 21st century !

Michel De Vivo, *Secretary General*

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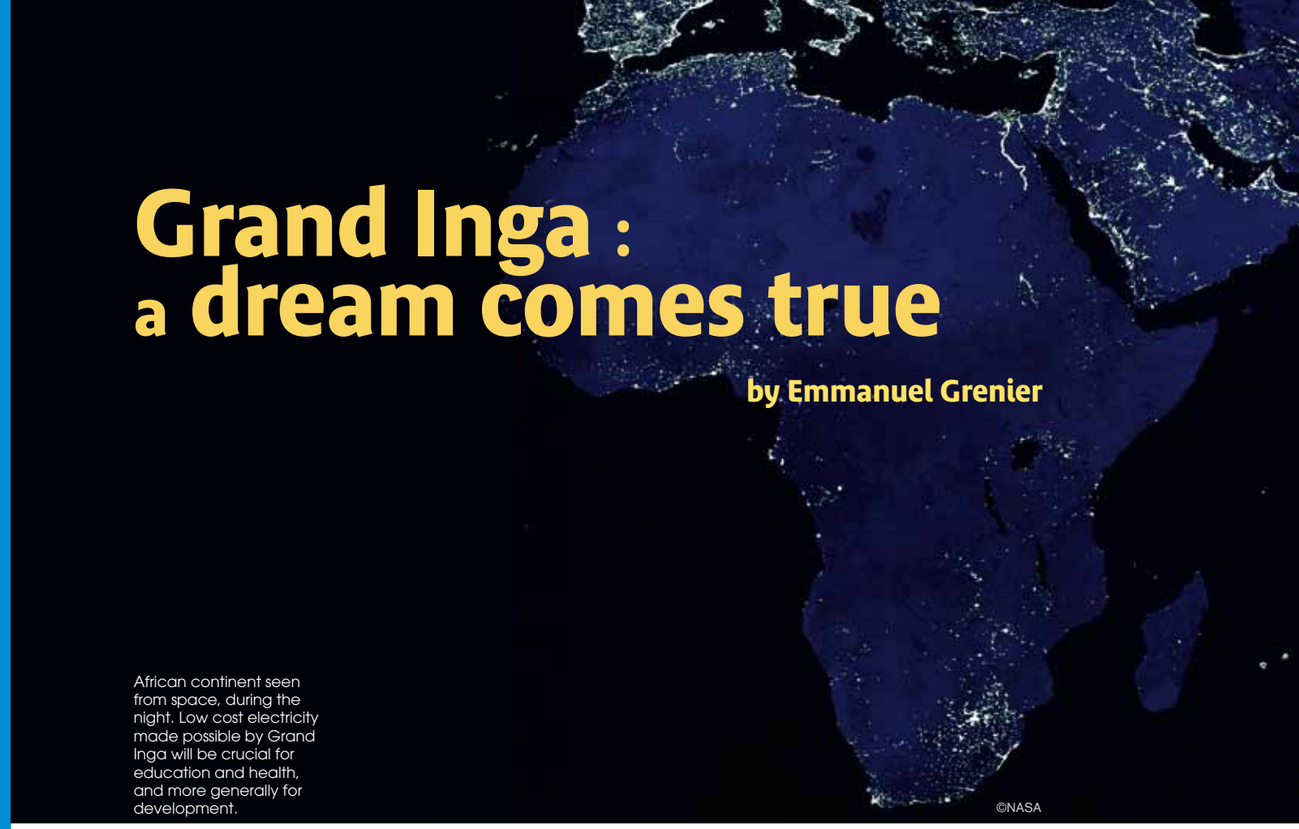
Delegates are voting during 2010 Executive Meeting in Lucerne

©Michel de Vivo

ICOLD was represented at Shanghai 2010 World Expo



African continent seen from space, during the night. Low cost electricity made possible by Grand Inga will be crucial for education and health, and more generally for development.

©NASA

Grand Inga : a dream comes true

by Emmanuel Grenier

Throughout 2013 and most recently, there has been many good news for Grand Inga; a project many thought as a dream is now becoming real, with the World Bank commitment and the beginning of the works planned next year.

On March 20th 2014, the World Bank Board has approved a grant of US$73 million to the Democratic Republic of the Congo for the 'Inga 3 Basse Chute (BC) and Mid-Size Hydropower Development Technical Assistance' project. According to David Theis, the Bank's spokeman, "This project has the potential to improve the lives of millions of Africans in the DRC and elsewhere in Africa with affordable clean energy". He adds : "Once developed to international technical, environmental, and social standards, Inga 3 BC will create transformational development impact. The Technical Assistance project will support the Government of DRC to develop the Inga-3 BC hydropower development in a manner that maximizes its impact for the people of DRC and the wider region."

Throughout the past year, there has been similar moves which make Grand Inga closer to becoming real. In May 2013, a meeting took place in Paris between officials from South Africa and Congo. It ended on an agreement on the implementation of Inga 3. South Africa Ministry of Energy official Garrith Bezuidenhoudt explained his country will purchase 2500 MW of Inga 3's capacity: "We have affirmed our commitment to the project by already provisioning for this purchase in our budgetary plan".

In October 2013, during his official visit to Kinshasa, President Jacob Zuma made public a new energy treaty which was the endpoint of the Paris meeting. Said Zuma : "I must convey how particularly pleased and excited I am by the progress taking place towards the realization of the Grand Inga Hydropower Project. This incredible feat of human ingenuity, when completed, will have the capacity to power Africa and indeed to export electricity beyond the continent." A bidding process for Inga 3 has begun and has narrowed to three consortiums: China's Sinohydro and Three Gorges Corporation; Actividades de Construcion y Servicios, Eurofinsa and AEE from Spain; and Daewoo-Posco from South Korea, with SNC-Lavallin from Canada.

Financing the dream

Funding for the Grand Inga project is coming from a number of sources, including the African Development Bank, World Bank, French Development Agency, European Investment Bank

and Development Bank of South Africa. But it is clear for a long time that nothing will be done without the participation of the private sector.

"This project will not happen without private sector financing," says Meike van Ginneken, the World Bank's sector manager for energy in west and central Africa. "Even all the donors combined would never be able to finance it, let alone the government of the DRC. So you will have to make it a bankable project and in order to do that, one of the key factors is to have credible off-takers."

The fact that South Africa utility Eskom and mining interests are ready to put in some money shows that Inga 3 will not be another "white elephant" project. The price will be very competitive, especially compared to other renewable energies : less than 0.025 $/kWh, compared to 0.40 - 1$/kWh for solar and 0.10 - 0.15$/kWh for wind. If Inga 3's electricity was to be produced by fossil fuel plants, it would mean 100 million metric tons of fossil fuel burning every year


a view of the old Inga dam.

> **"Oil exploited in Africa is mostly exported. This would be the first energy project of that size which would serve only the continent"**
>
> Hela Cheikhrouhou, African Bank of Development, Director of the Department Energy, Environment and Climate change.

The strength of commercial interest in Inga suggests it is not the kind of white elephant project that public sector actors have invested in across Africa in the past. Inga III is "definitely of interest in the long-term [for South Africa]" says Anton Eberhard, an energy expert from the University of Cape Town. "Its price is likely to be competitive compared to other non-coal options such as nuclear, gas or other imports."

It would certainly be a development game-changer for the region. The DRC mining industry remains the only real engine of growth for a country with little other revenue sources at present. A burst of cheap power could help the country extract its cobalt, tantalum, diamond and copper reserves. Ms van Ginneken adds that revenues from the Inga project will support the government budget and therefore public spending, although the country's governance is a work in progress.

A project larger than Three Gorges

The Inga 3 dam will be located on the world's largest waterfall by volume, Inga Falls. Inga Falls is 50 kilometers upstream of the Congo River's mouth and already incorporates the Inga 1 (351 MW) and Inga 2 (1,424 MW) hydroelectric facilities, commissioned in 1972 and 1982, respectively.

Inga 3 cost is estimated at $ 12 billion and the first phase of the "Inga 3 BC" ", (4.800 MW) should begin as early as October 2015. Major stakeholder in the project, South Africa is planning to buy a substantial part of the production from the new dam. The country would take 2500 MW from the future hydroelectric plant Inga 3 low head, thus becoming the reference buyer. At the Energy Ministry of South Africa, this commitment is made very concrete with provisions for this buying already included in the budget program.

The Environmental Impact Study has shown that this phase has no consequences on the populations, who will not be affected by the flooded zones. Neither will Inga 3 have an ecological impact on the flora and fauna from this savanna.

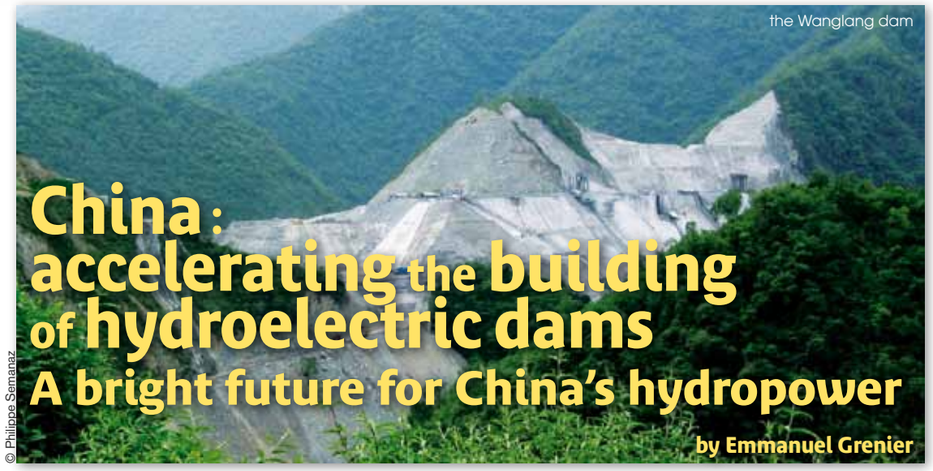
The mythical Grand Inga project is now transformed in a carefully sequenced action plan, with many power plants that are added gradually. Inga 3 is thus divided in two operations : the first one, called Low Head, will begin in 2015. It does not involve a dam, but a river intake on a tributary, the Bundy, which is situated 100 meters above the Congo. Those favorable natural conditions lead to a very attractive power price. The second operation will follow which will add a 3000 MW capacity. Five other plants will gradually increase the total capacity to 40 000 MW. That is the originality of the technical feasibility study proposed by EDF-Africa, associated with the US and French engineering firms Aecom and Nodalis : to transform the Grand Inga project in a sequence of many power plants.

Two hydropower plants already exist on the Congo, with the Inga 1 and Inga 2 dams, with a total power capacity of 1800 MW, but Inga 3 Low Head should help to cut the power deficit of the Democratic Republic of the Congo, to face the growing needs of the population and the industries, especially the mining industry.

The dam will generate more than one third of the electricity currently produced in Africa as it captures the force of the 1.5 million cubic feet per second cascading into the Atlantic Ocean. Funding is through the World Bank, African Development Bank, European Investment Bank, French Development Agency and Development Bank of South Africa. Initial estimates for the project, which begins October 2015, are $80 billion U.S. dollars. Inga 3 is generally viewed as the symbol of the U-turn operated by the World Bank about dams, from a quasi-opposition in the 90s, which took the form of the World Commission on Dams in association with IUCN, to a frank support now. Some feared that this support would be undermined by a decision from US Senate: an appropriations bill voted on the initiative of Senator Patrick Leahy that orders the World Bank's U.S. board member to vote against any major hydroelectric project.

World Bank had postponed a decision on the Inga 3 Project which it was supposed to take on February 11. But on March 20, it showed its commitment. Jim Yong Kim, president of the World Bank Group, has explicitly said he wants to steer the bank toward larger "transformational" infrastructure projects and has specifically mentioned the building of large-scale hydroelectric dams in energy-starved parts of Africa and elsewhere to advance development and tackle climate change. That commitment was shown last February when Congo Republic (Brazzaville) signed an agreement with a subsidiary of the World Bank (Société Financière Internationale) for the building of the Sounda dam 1000 MW hydropower project.

The decision taken on March 20 is but the last sign of the World Bank commitment to Inga 3.



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China is the largest dam-building country, today and in the foreseeable future. About half of the 50 000 large dams of the planet are Chinese and so are a major part of those being built in the 21st century. China is also the largest hydroelectricity producer, generating 721 terrawatt-hours (TWh) in 2010, which represented 17% of its electricity consumed. According to the National Energy Administration, China added 29 gigawatts of hydropower generation capacity last year, to a total of 278 GW

The market for hydropower in China is expected to increase rapidly in the coming years. There are many ongoing construction projects of new hydropower plants and the enlargement of existing facilities. Most major players have set high targets to increase capacity to at least two to three times their current levels.The government prioritizes the development of hydroelectricity and will focus its efforts on increasing hydropower's share of total power generation, thereby constraining the share of thermal power generation.

The government's strategy for developing renewable energy in China has already had a positive impact on the development of the industry. Though, many problems still exist in hydropower development such as environmental protection, mainly because enterprises fail to deal with the relationship between hydropower development and local residents' interests as well as ecological protection. With 2020 clean-energy targets to meet, China is set to accelerate the building of hydroelectric dams, reversing a long halt caused by environmental concerns and the social upheaval of relocating people living in the shadow of dam sites.

The first sign of this new turn for hydropower development came when the country's National Development and Reform Commission (NDRC) announced, on January 22nd, a reform that will probably increase the price grid operators pay to hydroelectric power plants in an effort to stimulate industry investments.

According to China Daily, "announcement of the new policy, which has not been clearly defined yet, implies the government might raise the generator's prices of hydropower."

In the past, hydropower prices were controlled by local governments. Hydropower prices were usually lower than on-grid electricity generated by other traditional forms, including coal, and this was an obstacle to hydropower development. The commission explained that prices for hydropower will now be based both on the average wholesale prices for purchasing electricity in the country, and on the costs for installing hydropower plants.

The commission said the policy change is due in large part to the country's effort to meet its national renewable portfolio standard, which says non-fossil energy should make up 11.4% of China's overall mix by 2015. China aims to source 15% of its power mix from renewables by 2020. It has also set a goal to cut carbon dioxide (CO_2) emissions by 40%-45% by 2020 as compared to 2005 levels.

ICOLD European Club news Summary of activities during the period 2011 – 2013

José Polimón,
ICOLD Vice President

At the end of my mandate as President of ICOLD European Club (EURCOLD) I wish to thank ICOLD President and Secretary General for their warm support

In the period 2011 – 2013 we had EURCOLD Board Meetings in Luzern 2011, Kyoto 2012, Venice and Seattle 2013, and we have co organized some important events:

Risk Management Week and Benchmark Workshop on Dam Calculation, in cooperation with ICOLD and SPANCOLD, held in Valencia (Spain), October 2011.

RCC International Symposium with SPANCOLD and CHINCOLD held in Zaragoza (Spain). Technical visits were coordinated with HYDRO 2012 held in Bilbao (Spain). October 2012

European Symposium on "Sharing experience for safe and sustainable water storage", with ITCOLD, held in Venice (Italy), April 2013.

Participation in the Second Hellenic Congress on Dams and Reservoirs, held in Athens (Greece), invited by GCOLD, November 2013.

International Workshop on "Dam Incidents and Accidents, What can we learn?", with SWEDCOLD, held in Stockholm (Sweden), November 2013. It is important to remark this Workshop has been of great technical interest and its development and conclusions are amply recorded in the first issue of 2014 magazine HydroPower & Dams.

All these events had a very good attendance and papers, presentations and debates are a magnificent demonstration of the latest innovations and technologies on present Dam "state of the art".

I wish to thank to every EURCOLD members the strong support given in this three year period to these events and to the very active teams of our Working Groups that develop useful documents to help Dam professionals.

The mentioned events and activities show the vitality of EURCOLD, as evidences the interest of some European countries to enter in our Club. Poland has asked it and it will be official member during the next EURCOLD Board meeting in Bali.

I also want to thank our Secretary General, Prof. Ignacio Escuder, for his continuous support; his work and dedication are essential to EURCOLD. He is working efficiently in this position and he will continue serving with our present President Guido Mazzà.

Both of them and, of course, EURCOLD will have my greatest support as ICOLD Vice President, from SPANCOLD and also personally.

Thank you again for your confidence and support.

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Vice-President Polimon (left) during meeting of the Public Awareness Committee in Seattle, 2013

ICOLD meets in Seattle with record attendance

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ICOLD was returning to USA for the first time since the XX° Congress in San Francisco. Seattle was hosting the meeting with no rain during the whole week, which proved the Organizing Committee made the right choice in placing the event in this unusual august month.

Seattle has always exhibited a spirit of optimism, enterprise, and self-promotion. At one time this was institutionalized as "the Seattle Spirit," a movement that enabled the city literally to move mountains by washing down high hills to improve building sites, to connect Lake Washington and Puget Sound with locks and a canal, and to build the world's largest man-made island at the mouth of the Duwamish River.

1355 participants (including 199 accompanying persons) from 67 countries gathered in the beautiful West Coast City, built on hills and around water. The number of young professionals who attended (130) was particularly encouraging for ICOLD future.

The conference was generally recognized as a great success, with a total attendance of 1355, including 849 ICOLD country delegates, 130 Young Professionals and 199 Accompanying persons.

The program included eigth workshops, a symposium, pre-meeting and post-meeting study tours, technical tours as well as social and cultural events from August 12 to August 16.

The theme of the symposium on Wednesday, August 14, was “Changing Times: Infrastructure Development to Infrastructure Management”. This theme recognized that much of the world, including the United States, faces the challenges of managing an aging dam infrastructure during a time when sustainability, safety and security concerns are paramount.

Eight half-day workshops on Thursday and Friday have highlighted new developments and experiences in the long term management of dams. . USSD Technical Committees have organized those workshops focused on current “hot topics” which have been discussed extensively in the United States, and are of interest internationally. Each workshop covered the U.S. experience, and also discussed the international perspective.

Those who could not attend can have an idea of the conference by looking at the pictures which are available on Shutterfly for free download at: https://icold2013.shutterfly.com/

Werner Floegl (Austria) and Pham Hong Giang (Vietnam) have terminated their Vice-Presidency. Jose Polimon (Spain) and Przemyslaw Zielinski (Canada) have been elected as new Vice-Presidents.

The 83rd ICOLD Annual Meeting & 25th ICOLD Congress will take place in Stavanger (Norway).in 2015.

The 84th & 85th ICOLD Annual Meeting will be in turn in Johannesburg (South Africa) in 2016 & Prague (Czech Republic) in 2017.

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ICOLD President Adama Nombre and Michael Rodgers rejoice at the end of Seattle Meeting.

ICOLD President answers Oxford misleading study

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

By Adama Nombre, ICOLD President

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.

Recently a study named “Should we build more large dams? The actual costs of hydropower megaproject development”[1], coauthored by Atif Ansar and 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.

This study focuses on cost and time overrun without addressing the true challenges. It is suffering important drawbacks and methodology issues that we will detail.

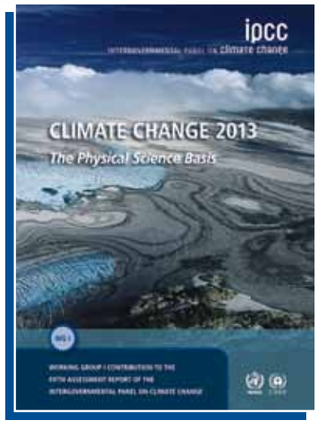
The existing 50 000 “large dams” supply 15% of the world electricity production and provide irrigation water for feeding 800 million people. But there are extra needs, as can be seen in many countries of Africa where people are cutting the forest for cooking energy, where they live in darkness and are 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
Average extra cost extrapolated to all large dams in the world	$35,000 billion	$600 billion

[1] http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2406852



IPCC 5th assessment report, published in 2013 and 2014, made clear that the climate change is already happening and that the consequences may be dire. Something completely ignored by the Ansar study, which implicitly favors fossil fuels.

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:

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.*

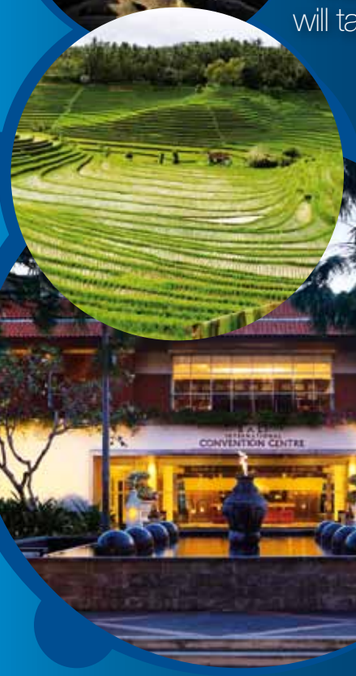
Institution	Number of Dams	Cost overrun in constant dollars
ADB	23	16%
World Bank Hydropower	70	27%
World Bank Multipurpose	10	39%
WCD crosscheck	81	21% (56% in current dollars)
Total	**184**	**24**

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

From **Bali** ...

82nd Annual Meeting

The 82nd Annual Meeting of ICOLD will take place in Bali, Indonesia, from **1 to 6 June 2014**.



More than thousand dam experts, engineers, scientists, consultants, operators, as well as high level representatives from governments, NGOs and Development Banks will meet in Bali, for the 82nd annual meeting of ICOLD.

Bali has a proven record of hosting international events and offers the opportunity to see its boundless variety of unique sceneries as well as countless traditional and cultural heritages.

An International Symposium on the theme “Dams in global environmental challenges”, with seven sessions (more details here) is organized on June 4th.

Eight pre-meeting and post-meeting study tours are proposed to make your visit to Bali still more interesting, combining gorgeous touristic views with the most interesting dams and water infrastructure built in Indonesia.

... to **Stavenger**

25th Congress

The 83rd Annual meeting and 25th Congress will be hosted by **Stavenger** (Norway) from **14 to 20 June 2015**.

YEF – NEW - Argentine

Young engineers from Argentina celebrate the foundation of YEF-ACD in a restaurant

©Alejandro Pujol

The original idea of creating a Young Engineers Forum (YEF) of ICOLD begins in Brasilia during the 23rd ICOLD Congress in May 2009, after that in 2010 it was approved by the ICOLD board and during the 79th Annual Meeting in Lucerne 2011 it was founded the Young Engineers Forum of ICOLD. From that data on, the board of ICOLD has supported strongly the development the YEF to ensure that each national Committee organize a Youth forum to involve the future generation and ensure the sustainability of the organization. The idea has spread out and at the moment there are nine (9) national forums created in deferent's countries (Argentina, Australia, Austria, Indonesia, Iran, Russia, South Africa, South Korea, United States of America). The communication space being used is the web-network Linkedin (https://www.linkedin.com) where the group "YEF-ICOLD (Young Engineers Forum)" was created and has a total of 318 members of all over the world.

The Young Engineers Forum of the Argentinean Committee of Dams (FIJ-CAP/ YEF-ACD) was founded during the VII Argentinean Congress of Dams held in San Juan in November 15th 2013. The first meeting had a participation of 20 young engineers of different provinces and the vice president for America Alejandro Pujol. The objective was to spread out the idea of ICOLD about the creation of the national YEF and involve engineers to participate and develop the forum. During the meeting it was voted the board composed with a chairman a secretary and seven vicechairmen representing different provinces of Argentina.

Following the initiative of YEF-ICOLD, it was created a group in Linkedin called FIJ-CAP where the internal communications and discussions are taking place. For technical discussion it is used the YEF-ICOLD group.

The objectives of the YEF-ACD are in accordance with the YEF-ICOLD and are the followings,

- Create a network to encourage the attendance and involvement of younger engineers at the technical activities of the Argentinean Committee of Dams (ACD).
- Provide an opportunity for knowledge transfer to the next generation and ensuring the long term future of ACD.
- Provide an opportunity for the younger engineers to connect with each other to enable sharing of experiences.
- Inspire younger engineers to become active in their regional Committees to support the above three objectives regionally, nationally and internationally.
- Provide a forum where country strategies around the attraction, encouragement, development and support of the younger engineers in the dam engineering industry can be shared.
- Provide a format where strategies can be developed to support the other objectives.

Dot. Ing. Lucas Pujol
President FIJ-CAP

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