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# IHA World Congress Bulletin

## A Daily Report of the IHA World Congress 2009

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### IHA WORLD CONGRESS HIGHLIGHTS: THURSDAY, 25 JUNE 2009

On Thursday, 25 June, delegates convened for the second day of the International Hydropower Association (IHA) 2009 World Congress. In the morning, delegates participated in panel-led discussions on hydropower development, and on investment and financing models. In the afternoon, the Congress resumed with a panel-led discussion on hydropower markets, followed by a seminar on hydropower and greenhouse gases.

#### **HYDROPOWER DEVELOPMENT**

In this session, facilitated by Roger Gill, Hydro Focus PTY, participants were encouraged to consider the greatest challenges in developing hydropower.

Jeremy Bird, Mekong River Commission, discussed the relationship between hydropower development, fisheries, and livelihoods. He said hydropower projects create potential barriers for migratory aquatic species, but also noted the opportunities they provide for power generation, development and economic growth. He emphasized the importance of strategic planning and of opening up dialogue among stakeholders, including citizens, private companies, and governments.

Jorge Machado Demazio, Electrical Energy Research Center, Brazil, outlined Brazil's institutional arrangements for hydropower development, including basing energy sales on an auctioning system, meaning that 100% of captive load is allocated under long-term contracts.

Israel Phiri, Ministry of Energy and Water Development, Zambia, discussed the role of his office in facilitating private sector involvement in hydropower development, and described a Zambian policy that encourages independent power producers as well as public-private partnerships.

Shi Guoqing, National Research Centre for Resettlement, China, described China's resettlement strategy, stating that China's 86,000 dams have displaced nearly 20 million people since 1949. He said that involuntary resettlement is part of national policy and has affected both rural and urban citizens. He said that social impact assessment and the provision of safeguards are key components of IHA's sustainable hydropower protocol.

Dipak Gyawali, Former Minister of Water Resources, Nepal, expressed concern over recent allegations of embezzlement by German contractors from a GTZ-funded dam project in Nepal. He attributed current levels of corruption to a lack of robust institutional structures. He described infrastructure projects as a "runaway technology phenomenon" with an unreflexive hydrologic focus that ignored social and environmental concerns. He urged the hydropower sector to engage with multiple stakeholders, including social critics and civic movements.

Jean-François Astolfi, EDF, described EDF's attempts to implement market-oriented operation of hydropower plants, as well as its concentration on refurbishment and upgrading of existing power plants. He also explained EDF's work in Laos on the Nam Theun II hydroelectric project and said involvement of the local population was key to the project's success.

In the ensuing discussion, delegates addressed: refurbishment of hydropower plants for supplying power during peak demand periods; the importance of the International Finance Corporation Performance Standards and the Equator Principles; the lack of power engineering capacity in developing countries; the need for local support of hydropower projects; the need to obtain free, prior and informed consent from local communities before proceeding with projects; and concerns about the "hijacking" of the political process for hydropower development by powerful interest groups.

#### **INVESTMENT AND FINANCING**

Jean-Michel Devernay, IHA, facilitated the panel on Investment and Financing Models. Identifying financing as the main limiting factor in hydropower development, he encouraged panelists to consider how private sector interest can be generated, given the current global financial crisis.

Providing an overview of trends in energy resource financing, Angus McCrone, New Energy Finance, presented charts of asset investments in clean energy, attributing the recent downward turn in investments to the recent credit crunch. He noted the resilience of hydropower compared with other renewable energy sectors like solar and wind power.

Colin Clark, Brookfield Power Corporation, said long-term, high-value hydro projects with steady cash flows are attractive to investors, but cautioned that there are inherent risks at all stages of their development and operation. He outlined risk management strategies, including investing in areas with mature markets and stable regulatory regimes, and allocating risks to the parties with the capacity to control them.

Marcelo Campos Battisti, Banco Itau, said that institutional change within the financial sector is unavoidable and urgent. Noting that this is based on a heightened aversion to risky investments, he said that this now includes legal and reputational risks associated with social and environmental dimensions. He noted that such risks can be mitigated by following the Equator Principles.

Donal O'Leary, Transparency International, said that the 2008 Global Corruption Report featured a chapter on the hydropower sector, and lamented that the sector's heavy reliance on contractors and consultants has led to high levels of corruption, which often undermines local support for projects and contributes to reputational risks. He noted that these risks can be offset through the use of anti-corruption "integrity pacts" between developers and bidding contractors, overseen by independent monitors.

Gil Maranhão Neto, GDF Suez Energy, Brazil, noted that the classic model of using developing banks for financing is becoming exhausted. He explained that there is limited participation of private banks in Brazil, due to inflationary inheritance. Maranhão explained that Brazil needs to adapt its regulatory framework to decrease business risks, and to better allocate risks to attract funders to projects.

Lin Chuxue, China Three Georges Project Corporation, explained that the Three Gorges project was partially funded by an injection of capital by the Chinese government and a

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long-term policy loan from the State Development Bank. He said that between 2003 and 2008 the project had recovered one-third of its investment in the form of depreciation and profit.

During discussion, participants addressed: risk management; investing in a company as a whole as opposed to individual projects; corruption as a reputational risk; new anti-corruption measures introduced by India's Supreme Court; the impact of political instability on hydropower development; the need to manage risks early in the project cycle and to allocate risk carefully; and the potential for corruption risk assessments.

### MARKETS

Øivind Johansen, Ministry of Petroleum and Energy, Norway, facilitated the session on hydropower markets. Rhaghuvier Sharma, World Bank, described challenges for hydropower markets, including weak economies, a lack of technical and managerial capacity, and policy changes. He stressed that public-private partnerships offer a potential solution as they allow for risk-sharing, with the public sector partner taking the development risks and the private sector partner taking the operation and construction risks.

Knut Vrålstad, SN Power, discussed the EU Emission Trading System (ETS) Linking Directive, which sets criteria on the sustainability and size of dams. He recommended avoiding layers of decision-making, saying that UNFCCC approval should be considered sufficient, and that Linking Directive restrictions on hydropower Clean Development Mechanism (CDM) projects should be removed in the post-2012 climate change agreement.

Edvard Gudnason, Landsvirkjun, said the main challenge facing the sector is demonstrating that hydropower is sustainable. He outlined efforts in Iceland to assess the carbon footprint of hydropower production, and noted that Landsvirkjun has achieved international environmental certification for its hydropower production. He advised that debates on sustainability, particularly for contentious projects, must include both hydro producers and consumers.

Clare Rhodes-James, Mott MacDonald, noted that hydropower is economically viable but that perceived risks in project development are stopping projects from moving forward. Presenting long-run costs of different energy sources, she suggested taking advantage of the current market opportunities for hydropower. She noted that long time horizons in project development dissuade financing, and offered recommendations for developing the sector, including encouraging regulatory stability in the carbon market.

Reginald Hernaes, Ministry of Environment, the Netherlands and DNA Forum, said the central challenge for the hydropower sector is to convince the international community, particularly negotiators of a post-Kyoto climate change regime, that hydropower is sustainable. He suggested IHA increase its outreach activities and promote the revised Hydropower Sustainability Assessment Protocol Tool.

Marzena Chodor, European Commission, discussed the challenges for EU hydropower project developers of meeting EC guidelines for CDM and Joint Implementation projects. She noted that projects in the pipeline registered before 2012 would be included under existing carbon credit trading schemes, but that new projects might not be eligible for credits under the ETS unless they are sited in least developed countries (LDCs).

Paul Soffe, Ecosecurities, said that hydropower projects are being demonized in climate policy arenas and that many buyers will no longer buy hydro carbon credits. He urged the hydropower industry to lobby the US and individual EU governments and to convince them of the sustainability of hydro projects.

Panelists and participants discussed: the role of governments and secure investment environments in attracting financing; the similarity in challenges faced by governments and private companies; the lack of CDM projects in LDCs; and the World Bank's strategies and requirements for funding and planning infrastructure projects. One panelist said that hydropower

development will depend in part on the outcomes of regional and international climate change negotiations with respect to carbon markets.

### HYDROPOWER AND GREENHOUSE GASES

On the issue of GHG emissions from freshwater resources, Luiz Pinguelli Rosa, Federal University of Rio de Janeiro, provided an overview of reservoir emission types, including bubble emissions, degassing emissions and downstream emissions. In the ensuing panel discussions, panelists addressed: the process of methane release from reservoirs into the atmosphere through sediment and the water column; the importance of measuring the seasonal variation in emissions, and the benefits of continuous measurement; the Electric Power Sector Protocol and the Climate Change Registry; and the use of models as tools for the assessment of GHG emissions from reservoirs.

On the progress made so far in assessing net GHG emissions, Alain Tremblay, Hydro Québec, described the preliminary results of research on hydropower reservoirs in the boreal region. He explained that net emissions are measured by comparing the gross emissions from a natural ecosystem with the emissions from a reservoir at the same site. Noting the public perception that all reservoirs emit GHGs, he said the study showed a rapid return of methane and carbon dioxide emissions to natural levels. Panelists presented research from Brazil, Norway, the US, and Laos, showing that: many reservoirs act as carbon sinks; emissions from reservoirs are lower than thermal power plants; methane emissions decrease with reservoir age; and carbon sedimentation sequesters more carbon than is emitted at the reservoir surface. They noted the importance of this research for hydropower development and policy.

Joel Goldenfum, IHA, provided an overview of the UNESCO/IHA GHG Research Project, noting its aim of gathering data on emissions from a diverse and representative sample of the world's reservoirs. He highlighted that this is an issue currently before the IPCC, and that the CDM excludes certain hydro projects. He said the project includes a panel of 140 experts and operates by consensus. Panelists discussed the project, and recommended learning from GHG inventories methods employed by other industries, such as forestry, and gathering data from both old and new reservoirs. One panelist described a project in Laos, saying that measurement of soil carbon is labor intensive, and that data was gathered on carbon dioxide, methane and nitrous oxide emissions. Participants discussed the need for a marketing campaign to counter publications claiming that reservoirs emit GHGs, and avoiding prescriptive methodologies in order to allow for innovation and efficient data collection.

### VIDEO MESSAGE FROM RAJENDRA PACHAURI

Rajendra Pachauri, IPCC, addressed IHA participants via a pre-recorded video. He highlighted the potential impacts of climate change on water flows and predicted intensified competition for water resources in the future and consequent challenges for the hydropower sector. He noted the need to invest in adaptation, and said more research is needed on region-specific impacts of climate change. He emphasized the importance of mitigation, calling for the setting of a price on carbon and for government involvement in creating incentives for new technology and investments in renewable energy.

### DAM SAFETY AND THE WENCHUAN EARTHQUAKE

Chen Houqun, China Institute of Water Resources and Hydropower Research, described the effects of the 2008 Wenchuan Province earthquake on the region's 864 hydropower stations. He said that even though the intensity of the earthquake exceeded the specifications to which many of the dams were built to withstand, no major damage occurred. He said accusations that the earthquake was triggered by the weight of the nearby dam reservoir or the Three Gorges Dam were scientifically indefensible.