

**SUMMARY OF THE FOURTH  
INTERNATIONAL HYDROPOWER  
ASSOCIATION WORLD CONGRESS ON  
ADVANCING SUSTAINABLE HYDROPOWER  
21-24 MAY 2013**

The Fourth International Hydropower Association (IHA) World Congress on Advancing Sustainable Hydropower convened from 21-24 May 2013, in Kuching, Malaysia. A pre-Congress workshop was held on Monday, 20 May, on Hydropower and Regional Development, organizing in association with the IHA. The Congress brought together close to 500 participants from government, the private sector, intergovernmental organizations, research institutes and non-governmental organizations to discuss hydropower sustainability.

On Tuesday, 21 May, the Hydropower Sustainability Assessment Council General Meeting and the IHA Consultative Council met, while a number of participants took part in a networking tour to Sarawak Cultural Village. The Congress Official Opening, hosted by the Government of Sarawak, took place in the evening.

From Wednesday, 22 May, to Friday, 24 May, the Congress convened throughout the day in plenary sessions, focus sessions, lunch lectures, side events and evening receptions. Plenary sessions addressed a variety of issues, including: directions for hydropower; water and energy policy; the concept of modern hydropower; roles for the Hydropower Sustainability Assessment Protocol (the Protocol) in informing decision-making; and incorporating sustainability into business practice. Focus sessions addressed: whether sustainability is constraining economic development; regional interconnections; who is investing in hydropower; working with project affected communities; climate change; and renewable systems. On Friday afternoon the IHA General Meeting took place. This summary covers the Congress from 22-24 May 2013, including all of the plenary and focus sessions, and a number of selected side events.

**A BRIEF HISTORY OF THE IHA AND  
MULTILATERAL ENERGY INITIATIVES**

The IHA was formed under the auspices of the UN Educational, Scientific and Cultural Organization (UNESCO) in 1995 as a forum to promote and disseminate good practices and further knowledge of



IHA President Refaat Abdel-Malek (left) and Chief Minister of Sarawak Pehin Sri Haji Abdul Taib bin Mahmud (center)

hydropower. It is governed by a biennial General Meeting of its members and by a Board, which meets at least three times a year and is comprised of up to 18 elected members, up to six co-opted members and one Executive Director.

The IHA aims to advance the role of hydropower in meeting global water and energy needs by: championing continuous improvement and sustainable practices; building consensus through strong partnerships with other stakeholders; driving initiatives to increase the contribution of renewable energy, especially hydropower; and raising awareness of the role that hydropower can play in sustainable development as a source of renewable energy.

Key initiatives include: the Hydropower Sustainability Assessment Protocol; a specialized website to provide guidance and disseminate best practices ([hydrosustainability.org](http://hydrosustainability.org)); and the greenhouse gas (GHG) research project, a collaborative initiative with the International

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Hydrological Programme of UNESCO, to improve understanding of the impact of reservoirs on natural GHG emissions in a river basin. The latter seeks to obtain better comprehension of current methodologies and help to overcome knowledge gaps, including through the UNESCO/IHA GHG Measurement Guidelines for Freshwater Reservoirs. Specific workshops are also promoted by IHA to disseminate its guidelines and lessons learned. The main IHA website is: <http://www.hydropower.org>

### **SUSTAINABILITY GUIDELINES**

**AND PROTOCOL:** Considering sustainable development to be a fundamental component of social responsibility, sound business practice and natural resource management, the IHA developed Sustainability Guidelines, adopted during the meeting of its Council in November 2003, to provide a framework for good practice in hydropower. This led to the development of an IHA Sustainability Assessment Protocol, approved by the IHA Board for adoption in July 2006, to assist IHA members in assessing performance against criteria described in the IHA Sustainability Guidelines. Both the Guidelines and IHA Protocol were superseded by the adoption of the Hydropower Sustainability Assessment Protocol (the Protocol) in 2011.

### **HYDROPOWER SUSTAINABILITY**

**ASSESSMENT PROTOCOL:** The Protocol is the result of intensive work from 2008 to 2010 by the Hydropower Sustainability Assessment Forum, a multi-stakeholder body with representatives from: social and environmental NGOs (Oxfam, The Nature Conservancy, Transparency International, WWF); governments (China, Germany as observer, Iceland, Norway, Zambia); commercial and development banks (Equator Principles Financial Institutions Group, the World Bank as observer); and the hydropower sector, represented by IHA.

The Protocol assesses the four main stages of hydropower development: early stage; preparation; implementation; and operation. Assessments rely on objective evidence to create a sustainability profile against some 20 topics, depending on the relevant stage and covering all aspects of sustainability.

**1ST IHA WORLD CONGRESS:** The IHA's First World Congress on Advancing Sustainable Hydropower was held in Antalya, Turkey, from

29-31 May 2007, and included sessions on: technical hydropower innovation; social and environmental performance evaluation; the role of the public and private sectors; social responsibility; and the certification of good practices in the hydropower sector. (IISD coverage: <http://www.iisd.ca/ymb/hydro/>)

**2ND IHA WORLD CONGRESS:** The 2009 IHA World Congress on Advancing Sustainable Hydropower convened in Reykjavik, Iceland, from 23-26 June 2009, and discussed how hydropower is both vulnerable to and part of the solution to climate change. The first day of the Congress revolved around the theme "water, energy and climate change," while on the second day participants engaged in a seminar on hydropower and GHG emissions, as well as a discussion panel on hydropower markets. (IISD coverage: <http://www.iisd.ca/ymb/hydro/iha2009/>)

**3RD IHA WORLD CONGRESS:** The 2011 IHA World Congress on Advancing Sustainable Hydropower was held at Foz do Iguaçu, Brazil, from 13-17 June 2011. This Congress included the launch of the Protocol, the result of a joint effort by the industry and environmental and social NGOs to define criteria for the sustainable development and management of hydropower projects. (IISD coverage: <http://www.iisd.ca/ymb/hydro/iha2011/>)

### **MULTILATERAL INITIATIVES ON RENEWABLE ENERGY**

Energy emerged as an issue of environmental concern when Agenda 21 and the Rio Conventions were being implemented in the 1990s. In July 2000, leaders of the eight major industrialized democracies (G8) met in Okinawa, Japan, for the G8's 26th Summit. The G8 established a Renewable Energy Task Force to identify actions to promote a change in the supply, distribution and use of renewable energy in developing countries. In 2001, the Task Force concluded that renewable energy resources can sharply reduce local, regional and global environmental impacts, as well as energy security risks.

**INTERNATIONAL CONFERENCE ON RENEWABLE ENERGIES:** This Renewables 2004 Conference took place from 1-4 June



Dancers with Congress participants during the cultural show at Sarawak Cultural Village.

2004, in Bonn, Germany. It produced three outcome documents: a Political Declaration; Policy Recommendations; and an International Action Programme with 165 endorsed voluntary commitments, whose progress is monitored through the UN Commission on Sustainable Development (CSD) process. Subsequent meetings were held in Beijing, China (2005), Washington D.C., US (2007) and New Delhi, India (2010).

**CSD:** The ninth Session of the UN Commission on Sustainable Development (CSD-9), held from 16-27 April 2001, at UN Headquarters in New York, US, addressed matters related to energy, transport and the atmosphere. The meeting was preceded by comprehensive preparations on energy issues, including meetings of the *Ad Hoc* Open-Ended Intersessional Group of Experts on Energy and Sustainable Development, and regional intersessional meetings. CSD-9 recognized, *inter alia*, that the Millennium Development Goals (MDGs) would not be met without increased access to modern energy services.

The fourteenth and fifteenth sessions of the CSD (2006-2007) were tasked with reviewing progress in energy for sustainable development, industrial development, air pollution/atmosphere and climate change, together with inter-linked and cross-cutting issues. Countries did not arrive at an agreed outcome on these issues, with fundamental disagreements on the nature, scope and ambition of the sustainable development agenda - particularly the issues of energy and climate change - and the role of the CSD in this regard.

**WSSD:** The World Summit on Sustainable Development (WSSD), held in Johannesburg, South Africa, from 26 August to 4 September 2002, encouraged the development of new "Type II" initiatives, which are voluntary public-private partnerships aimed at advancing implementation on the ground. Several of these Type II initiatives were launched in the area of energy for sustainable development.

**IRENA:** Negotiations for the establishment of an international renewable energy agency were held during 2008-2009. A Founding Conference adopted the International Renewable Energy Agency (IRENA) statute on 26 January 2009, which entered into force on 8 July 2010. Five meetings of IRENA's Preparatory Commission were held during 2009-2011, leading to the first session of the IRENA Assembly held from 3-5 April 2011, in Abu Dhabi, United Arab Emirates. IRENA's purpose is to promote increased and widespread adoption and sustainable use of all forms of renewable energy. One hundred forty-eight countries and the European Union (EU) are signatories of IRENA, and 73 states and the EU have ratified its statute.

**2ND ASSEMBLY OF IRENA:** This meeting convened from 14-15 January 2012, in Abu Dhabi, United Arab Emirates. Delegates adopted decisions on, *inter alia*: work programme and budget for 2012, the secondment of personnel, ethics and conflict of interest, and the Abu Dhabi Fund for

Development. Two ministerial roundtables were also held on the proposed medium-term strategy of IRENA and IRENA's cooperation with the private sector.

**3RD ASSEMBLY OF IRENA:** This Assembly met from 13-14 January 2013, in Abu Dhabi, United Arab Emirates, to discuss IRENA's work programme and budget for 2013, medium-term strategy, progress on programmatic activities, and implementation of policies on ethics, conflicts of interest, and the secondment of personnel. The Assembly included two ministerial roundtables on financing renewables for development and the costs and benefits of renewable energy, as well as programmatic presentations on various IRENA reports and activities.

**RIO+20:** The third meeting of the Preparatory Committee for the UN Conference on Sustainable Development (UNCSD or Rio+20), Pre-Conference Informal Consultation Facilitated by the Host Country, and the UNCSD convened from 13-22 June 2012, in Rio de Janeiro, Brazil. Energy is addressed in the Framework for Action and Follow-up in the Rio+20 Outcome, which *inter alia*: recognizes the critical role that energy plays in the development process and commits to facilitate support for access to sustainable modern energy services; emphasizes the need to address the challenge of access to sustainable modern energy services for all; reaffirms support for the implementation of national and subnational policies and strategies; commits to supporting efforts on electrification; recognizes the need for energy efficiency; recognizes the importance of promoting incentives favoring, and removing disincentives to, energy efficiency and the diversification of the energy mix; and notes the UN Secretary-General's Sustainable Energy for All (SE4ALL) initiative and expresses determination to make sustainable energy for all a reality, while recognizing that countries set priorities according to their specific challenges, capacities and circumstances, including their energy mix.

**HLM ON ENERGY IN THE POST-2015 DEVELOPMENT AGENDA:** At the High-level Plenary Meeting of the 65th Session of the UN General Assembly on the MDGs, held in New York in September 2010, governments called for acceleration of progress towards achieving the MDGs, and for consideration of ways to advance



A view of the room

the UN development agenda beyond 2015. In response, the UN undertook several initiatives aimed at developing this agenda, including: setting up a UN System Task Team on the Post-2015 UN Development Agenda; launching a High-level Panel of Eminent Persons on the Post-2015 Development Agenda (HLP); appointing a Special Advisor on Post-2015 Development Planning; and launching national and global thematic consultations.

The thematic consultation on energy, which aims to collect stakeholder views on lessons learned from the MDGs and the post-2015 development agenda, consists of three phases: a global online discussion; regional consultations; and the high-level meeting (HLM).

The HLM on Energy in the Post-2015 Development Agenda took place on 9 April 2013 in Oslo, Norway. Participants took stock of the online and regional consultations on energy, and finalized a common vision to be set forth as a set of recommendations to the HLP. They engaged in discussions on how energy challenges can be addressed via the post-2015 development agenda, including by ensuring: the roles of women are meaningfully addressed; youth and education play central roles; joint energy-related goals are developed in collaboration with other post-2015 consultations to ensure their multi-sectoral support; and the private sector is included as a key actor in delivery of goals.

## IHA CONGRESS 2013 REPORT

### PLENARY SESSIONS

#### HIGH-LEVEL PANEL ON DIRECTIONS

**FOR HYDROPOWER:** On Wednesday morning, Richard Taylor, IHA Executive Director, welcomed delegates to the Congress and described the long journey since the last Congress held in Foz do Iguaçu, Brazil, in June 2011.

Refaat Abdel-Malek, IHA President, moderated the session, stressing that the Congress represents a sharing of views between many stakeholders involved in sustainable hydropower. He encouraged debate, urging delegates to participate actively.

Yan Zhiyong, Vice President, China Society for Hydropower Engineering (CSHE), outlined the expansion of the hydropower sector in China, introducing the targets and the roadmap for hydropower development included in China's 12th Five Year Plan. He emphasized that by 2020

the total installed hydropower capacity in China will reach 420 gigawatts, including pumped storage. He also highlighted three issues important to hydropower development: ecological and environmental impacts, noting more effort is needed for accurate and comprehensive analyses; resettlement of populations in a people-centered manner; and measures for ensuring project safety, especially during events such as earthquakes and floods.

Arthur Mynett, UN Educational, Scientific and Cultural Organization Institute for Water Education (UNESCO-IHE), stressed the importance of a strong knowledge base to advance the field of water management and described the work UNESCO-IHE undertakes in this regard. He highlighted that 70% of the world's fresh water is used for agriculture and suggested that meeting this demand will be a challenge in the context of population growth and climate change.

Jean-Michel Devernay, World Bank, provided a chronological overview of the World Bank Group's approach to hydropower and set out five areas for continued progress, namely: strengthening integrated planning; giving more attention to long-term sustainability and work on extending the life of dams; ensuring connections between hydropower and the larger development agenda; becoming more creative when designing models to leverage significant financial resources; and fostering regional collaboration. He concluded by stating that the World Bank Group's ambition is to "help clients do the right projects, and do the projects right."

Tan Sri Datuk Amar Haji Mohamad Morshidi bin Abdul Ghani, State Secretary, Sarawak, Malaysia, emphasized that hydropower projects in Sarawak State are a primary strategy for growth, highlighting the Sarawak Corridor of Renewable Energy (SCORE) programme as a highly viable and successful case, attracting investments and creating skilled and semi-skilled jobs. He also noted that continuous efforts are needed to draw lessons learned from various hydropower projects to ensure community engagement and create employment for people directly affected.

Stating that energy is the only proven path to growth and prosperity globally, Torstein Sjøtveit, CEO, Sarawak Energy Berhad (SEB), introduced a global perspective on sustainability and identified measures to resolve challenges in the SCORE programme, such as mitigation of social costs for affected local communities and rehabilitation. He concluded by welcoming suggestions on how to improve hydropower projects.



Yan Zhiyong, Vice President, China Society for Hydropower Engineering (CSHE)



IHA President Refaat Abdel-Malek

Peter Kallang, Save Rivers, took the floor at the end of the session to state that he was barred from the pre-Congress workshop, organized in association with IHA, and demanded that the construction of dams be stopped due to their adverse social and environmental impacts.

**WATER AND ENERGY POLICIES:** On Wednesday afternoon, Simon D'Ujanga, Minister for Energy, Uganda, moderated the session, reminding delegates that many rivers are transboundary. He referenced the Nile Basin Initiative as an example of riparian states collaborating towards regional water management.

Yamfwa Mukanga, Minister of Mines, Energy and Water Development, Zambia, underscored that over 90% of energy in Zambia is generated by hydropower, but that the output still falls short of national demand. He said his Ministry is exploring how to develop integrated approaches to energy and water. He stressed that Zambia needs to attract foreign investment into the national hydropower industry to boost the country's energy production.



Yamfwa Mukanga, Minister of Mines, Energy and Water Development, Zambia

Øivind Johansen, Ministry of Petroleum and Energy, Norway, explained that almost 100% of Norway's energy needs are met by hydropower. He noted Norway develops hydropower master plans, which promote cooperation between the power and water sectors.

Zhou Shichun, Hydrochina Corporation, explained that hydropower is the most important renewable energy source in China, but noted the potential is unevenly distributed across the country. He emphasized the importance of including a range of goals within hydropower strategies, such as flood control, GHG emissions reduction and socioeconomic development.

James Dalton, IUCN, stressed that water management is about delivering "water in a certain quality, at a certain time, in a certain place." He suggested that the IHA increase its role in informing better water policy for a sustainable global economy. He said stakeholder dialogues are required to develop policy recommendations.

Jeremy Bird, Director General, International Water Management Institute (IWMI), called for: policy coherence; upstream planning; and innovation at the project level, particularly from irrigation specialists.

Xavier Ursat, Electricité de France (EDF), underscored the important policy reforms required to implement the recommendations made by other speakers in the session. He emphasized the development of common indicators between the water and energy sectors to enhance dialogue between the two.

The ensuing discussion centered on: water quality; geopolitics; and resettlement. On water quality, participants recognized the critical need to protect and conserve water catchment areas and to develop common language for communication between the water and energy sectors. Some participants underscored the need to broaden the discussion from water for hydropower specifically, to better water resource management generally. On geopolitics, panelists noted the complex interactions in regional and inter-country activities, and some highlighted that dialogue is the most effective way to reduce conflict between countries, and upstream and downstream stakeholders. On resettlement, some suggested treating resettlement as a development opportunity that can improve the livelihoods of affected people.

**CEO ROUNDTABLE ON WHAT IS MODERN HYDROPOWER:** David Appleyard, Chief Editor, HRW Hydro Review Worldwide, moderated the Thursday morning session, underscoring that hydropower is increasingly seen as an important element of a green energy mix.

Wolfgang Semper, Chairman, Hydro Equipment Association (HEA), suggested that "modern hydropower" entails a range of elements, including new forms of equipment for a variety of situations, new features in power plants and innovative approaches to new technologies. He emphasized that modern hydropower requires strong factual arguments to make its case.

Elsbeth Tronstad, SN Power, suggested that regional variation in the definition of "modern hydropower" is acceptable, and that learning, expanding and improving efficiency is part of Norway's current hydropower agenda.

Katai Kachasa, CEO, Lunsemfwa Hydro Power Company, stated that hydropower is required to unleash Zambia's development and to "jump-start economic activity."

Roy Adair, CEO, Hydro Tasmania, argued that hydropower has received a boost from its role in GHG mitigation. He also underscored that the electricity market has changed and that hydropower is required to meet new challenges. He suggested that hydropower's flexibility is the key to its durability.



Torstein Sjøtveit, CEO, Sarawak Energy Berhad (SEB)

Torstein Sjøtveit, CEO, SEB, said that hydropower is a renewable and climate friendly energy source.

Participants engaged in discussion on a range of issues. On dam affected communities, there was debate about: the potential miscommunication that occurs between dam proponents and affected communities; the consequences for local communities' societies; the importance of stringent rules on relocation and the responsibility

of companies to comply with them; the principle of free, prior and informed consent; where the ultimate responsibility to local communities lies; and the balance required between local and national priorities.

On opinions about hydropower, there was a general consensus that hydropower stakeholders are learning from the past and improving the industry's conduct. One discussant described hydropower as an "industry in renaissance." At the same time, some noted that hydropower delivers long-term benefits and in this regard is "under-sung." An African perspective was offered, focusing on the contribution hydropower can make in reducing biomass use.

A Chinese perspective suggested that good communication with affected communities is critical in minimizing resistance to proposed developments. One participant noted that hydropower is often not perceived to be as innovative as solar and wind. Participants noted that the optimal size of a project is contingent on local factors, and called for post-construction audits.

#### **INFORMING DECISION-MAKING: EMERGING ROLES FOR THE PROTOCOL:**

On Thursday afternoon Moderator David Harrison, The Nature Conservancy, moderated the session and underscored the importance of the Hydropower Sustainability Assessment Protocol (the Protocol) to the future of sustainable hydropower. He explained the Protocol is not a standard, but a standardized measurement tool.

Philipp Hauser, GDF SUEZ Energy Latin America, drew on the example of the Protocol's use in the context of the Jirau Dam in Brazil and suggested that emerging uses related to the Protocol include: promoting competitive advantage; responding to non-financial and sustainability ratings; providing a due diligence tool; increasing sustainability in early project development; and building relations with institutions.

Kate Lazarus, IFC, discussed experiences of applying the Protocol and underscored that testing in pilot cases and using the Protocol is building constituents for improved hydropower governance in the Mekong region and is leading to the Protocol's greater use. She said taking a river basin approach

in transboundary situations is important. She concluded by stating that the Protocol can be used synergistically with the IFC Performance Standards.

Noting that the Protocol has been translated into other languages, Bernt Rydgren, ÅF Consult, said the Protocol brings enormous potential to improve the sustainability performance of the hydropower sector, and it can be used in other types of work with hydropower companies.

Calling for wider endorsement of the Protocol, Jian-hua Meng, WWF, said that WWF is in favor of promoting "the right infrastructure solutions in the right places." He said "market transformation" is necessary to help move the hydropower sector toward better and sustainable practices.

Donal O'Leary, Transparency International, called for focusing on governance and anti-corruption issues, and for promoting integrity among developers. He said the inclusion of sections on governance, procurement, and regulation in the Protocol is useful, and called for the Protocol to be used widely and in the earlier stages of hydropower project planning.

Comments during the discussion included: the need for capacity building in developing countries, including using the Protocol in this regard; the importance of using the Protocol in the early stages of project development; unofficial uses of the Protocol to inform dialogue, internal assessments and set up internal systems; the role of the assessor; the tension between encouraging a wide range of unofficial uses of the Protocol, while retaining the high-quality of official assessments; focus on the large-scale economic and environmental contributions hydropower can make; the pros and cons of striving towards international good practice or best practice; public scrutiny of published assessments; whether the numbered scoring system distracts from discussion about the key issues; and why only five official assessments have been made to date.

Richard Taylor, IHA Executive Director, concluded the session, recalling that the Protocol was designed to help all projects whether they are high or low performing.

**INCORPORATING SUSTAINABILITY INTO BUSINESS PRACTICE:** On Friday morning, Mohamad Irwan Aman, SEB, set out how SEB is



A view of the dais during the Informing Decision-Making session: Donal O'Leary, Transparency International (TI), Jian-hua Meng, WWF, Bernt Rydgren, ÅF Consult, Kate Lazarus, IFC, and Philipp Hauser, GDF SUEZ Energy Latin America

embedding the Protocol into their core operations, including in the planning and implementation of projects. He concluded by presenting SEB's trajectory on the "journey towards sustainability," underscoring that, despite challenges, genuine efforts are being made to improve performance.

Pablo Cardinale, IFC, emphasized that "development that is not sustainable is not development at all." In that context, he suggested that the Protocol is a useful tool for promoting sustainability and identified four enduring challenges, namely: informed communication between all stakeholders; cumulative impact assessment and management; engagement of indigenous peoples; and cross-cutting issues related to stakeholder engagement and negotiations.

Noting that the cases presented were aspirational, Mark Lovett, Transparency International, highlighted that hydropower projects cannot afford to ignore public opinion and that risk increases when local communities are not engaged. He said that Transparency International will continue to scrutinize progress on key areas, including: governance and decision-making; conflicts of interest in downstream procurement; and accountability of finance and investment.

David Crean, Hydro Tasmania, explained the importance of "leveraging off the Protocol" to, *inter alia*, test companies corporate systems and strategic direction. This can be followed up, he explained, by incorporating the findings into an overall sustainability strategy, and establishing a sustainability code and long-term sustainability indicators.

Barbara Fischer-Aupperle, Voith Hydro, provided the perspectives of an equipment supplier, suggesting that such companies have a responsibility to uphold the standards set out in the Protocol and to be the "multipliers of good performance." She encouraged everyone to take a common approach to sustainability across the industry, for the full lifetime of the projects.



Barbara Fischer-Aupperle,  
Voith Hydro

Other issues raised included: benefits associated with going beyond minimum legal standards; the importance of improving communication between stakeholders; improvement of the use of the Protocol; and whether greater inclusion of people concerned with the negative effects of hydropower in future Congresses would increase the legitimacy of the IHA. There was also a call for SEB to use the Protocol to undertake an official assessment of the Baram dam. Richard Taylor, IHA Executive Director, underscored his satisfaction with the uptake of the Protocol and presented an optimistic view of future progress.

**CLOSING SESSION:** On Friday afternoon, Refaat Abdel-Malek, IHA President, chaired the closing session. He emphasized this Congress represents "a step forward" for the IHA, noting that the industry has "come a long way."

Nasri Sebayang, Chairman, Indonesian Hydropower Association, presented on the current status and development plan of hydropower in Indonesia. Arguing that there is high potential for hydropower in Indonesia, he underscored three key challenges, namely socio-environmental impacts, regulatory aspects and project financing. He concluded by drawing attention to the importance of the Protocol to Indonesia's future hydropower development.

Alexandre Uhlig, Instituto Acende, Brazil, explained that Brazilian authorities are currently exploring the hydropower potential of the Amazon basin and how to improve the consultation process with indigenous peoples to ensure that "consent is free, prior and informed." He concluded by stressing that the sector "needs to learn how to communicate" to better engage other stakeholders on the positive aspects of hydropower.

Jacob Irving, Canadian Hydropower Association, explained that Canada generates 60% of its power from hydropower, delivering an inexpensive form of electricity to consumers, which can also help meet the energy needs of the US while achieving lower overall GHG emissions. He concluded that hydropower is important in the context of fighting energy poverty and called on delegates to "celebrate hydropower."

Bhanu Pokharel, General Secretary, Nepal Hydropower Association, said Nepal is a "small country with big hydropower potential" and multiple challenges, including energy poverty and political instability. He said selling electricity to other markets without addressing energy poverty in Nepal is not sustainable. He called for singling out hydropower development from the national energy policy, with the support from the international community, especially the World Bank, Asian Development Bank and International Monetary Fund, and the private sector, to achieve a better energy mix and energy security.

Datuk Amar Haji Awang Tengah Ali Hasan, Minister of Resource Planning and Environment II, Minister of Public Utilities, Minister of Industrial Development, Sarawak, Malaysia, conveyed the gratitude of Sarawak's Chief Minister to the participants for their attendance and contributions. He noted that the Congress was successful, judged by the rich dialogue, shared ideas and complex issues addressed. He emphasized that the SCORE programme would help Malaysia become a developed country by 2020 and create jobs, and thanked IHA members for their contributions to that initiative. He underscored that the local application of international best practices will lead to further improvement in the Sarawak government's approach to hydropower development.

IHA President Abdel-Malek thanked the hard work of all staff. In turn, Richard Taylor, IHA Executive Director, thanked the state government of Sarawak, Malaysia, for hosting the Congress. He also thanked the SEB, the IHA Board, and all participants, as well as welcoming the participation of non-governmental organizations, making this Congress an inclusive one.

IHA President Abdel-Malek announced that the next IHA World Congress will be held in China in two years. Lin Chuxue, Vice President, China Three Gorges Corporation, also on behalf of the Chinese Hydropower Association and the Chinese National Committee on Large Dams, addressed participants welcoming them to the Congress in China in 2015. He said the Congress could discuss issues, including: settlements; multipurpose hydropower gaps; finance; and the relationship with upstream wind and solar energy.

The Congress closed at 4:10 pm.

### **FOCUS SESSIONS**

**IS SUSTAINABILITY CONSTRAINING ECONOMIC DEVELOPMENT:** On Wednesday morning, John Dore, Australian Agency for International Development, moderated the session. Emmanuel Boulet, Inter-American Development Bank, noted that these questions were discussed at the UN Conference on Sustainable Development (UNCSD or Rio+20) meeting in 2012 and are encapsulated in the concept of the green economy. He suggested that “welfare” is more important than growth and asked how the hydropower sector can contribute to inclusive green growth.

Eugenio Barrios, WWF Mexico, explained that while previous governments’ approaches to water management did not focus on environmental sustainability, that trend is changing. He explained how a new policy in Mexico sets high standards for 200 important river basins that are located in common property lands, while lesser standards are required in other areas.

Arun Sen, CEO, Lanco International, suggested that the sustainability of hydropower has long been discussed, but that it is still easier to assess the sustainability of thermal-technologies than of

hydropower. He explained that hydropower presents a unique challenge because the impacts of present decisions take years to become evident.

Viraphonh Viravong, Vice Minister of Energy and Mines, Lao PDR, argued that in some cases long-term sustainability and short-term economic development must be traded against each other. He called for improved assessment tools to assist project proponents in ensuring sustainability.

Cecilia Tortajada, President, Third World Centre for Water Management, acknowledged that hydropower is increasingly seen as a clean energy, rather than as a problematic form of energy production.

Joerg Hartmann, Independent Consultant, suggested the best indicator of project sustainability is the level of associated conflict, especially in balancing local, national and international priorities. He argued that the debate about how to measure sustainability is over, due to the work already invested in the concept’s development.

The discussion focused on a number of issues, including: the cost-benefits of hydropower versus thermal-technologies; the trend towards mixed-use projects; the challenge of defining and measuring sustainability; institutional reforms required to achieve sustainability; the need for biodiversity offsets to be paid for by the sector; the expense of social and environmental costs within the lifetime of a project; the fact that resettlement of communities takes much longer than is currently allocated for in projects and that resettlement should not be seen as “benefit sharing”; the need for more dialogue between communities, companies and governments to define sustainability at the local level; and who should have the final say in whether a project goes ahead.

**REGIONAL INTERCONNECTIONS: MAKING IT WORK AND MAXIMIZING VALUE:** On Wednesday morning, Moderator Raghuveer Sharma, Chief Investment Officer, IFC, contextualized the discussion by saying that hydropower development is about and beyond economic benefits, emphasizing that regional cooperation opens up opportunities especially for landlocked countries.



A view of the dais during plenary session on incorporating sustainability into business practice (L-R): Barbara Fischer-Aupperle, Voith Hydro, David Crean, Hydro Tasmania, Mark Lovett, Transparency International, and Pablo Cardinale, IFC



Tracy Lane, IHA, highlighted discussions from the pre-Congress workshop on hydropower and regional development, which took place Monday, 20 May 2013. She said hydropower can be a key component of development, noting that the support of government, especially coordination among different government entities, is critical to ensuring strong investment frameworks. She also highlighted that the development of hydropower projects should not come at the expense of local populations.

Jean-Michel Devernavy, World Bank, said connecting hydropower resources to the market and bringing markets to the resource is a concept requiring more in-depth thinking and analysis to achieve potential benefits. He emphasized the importance of political will, noting the complexity of multi-country collaboration and regional hydropower development. He said institutional arrangements are necessary to ensure the integrity of multi-country collaboration.

Isaac Kirk Koffi, CEO, Volta River Authority, described the challenges faced by hydropower projects undertaken between Bhutan and India, and between the US and Canada, underscoring that economic and policy frameworks, and strategic partnerships with the private sector are catalytic elements in facilitating hydropower development at the regional scale.

Noting regional energy demand trends, Anthony Jude, ADB, identified energy deficits and energy security as drivers for regional interconnection. He said inter-border agencies and regional coordinating centers are necessary to help build capacity and facilitate hydropower development.

Sameer Kumar Singh, IFC, introduced various regional experiences in river basin-level planning. He suggested that the mandate of current institutional mechanisms should expand from single rivers to encompass entire river basins.

Simon Krohn, Mekong River Commission, stressed the importance of country relationships and political climates, and the participation of stakeholders to support dialogue in hydropower development.

In the ensuing discussion, participants and panelists considered the financial risks, incentives for investment and policy support, standardization of guidelines for inter-country collaboration on hydropower projects, mitigation of local impacts at the project level and regional dialogue.



Simon Krohn, Mekong River Commission,

### WHO IS INVESTING IN HYDROPOWER:

On Wednesday morning, Moderator Judith Plummer, University of Cambridge, contextualized the discussion on risks entailed in hydropower investment, highlighting the distinction between actual and perceived risks relating to technical, institutional, financial, social and environmental issues.

Waqar Ahmad Khan, CEO, Star Hydro Power Limited, underscored the lack of investment in hydropower projects in Pakistan, despite the incentives and established frameworks encouraging investments. He identified the perceived security risks and the structural imbalances in the power sector as main barriers to developing medium- and large-scale hydropower projects in Pakistan, whereas technological risks affect the smaller hydropower projects.

Noting that Africa is a relatively new entrant in the hydropower sector, Israel Phiri, Hydropower Consultant, Zambia, said there is increasing government support for developing hydropower projects in a number of African countries. He said that hydrological risk is ranked high in the African hydro-agenda, and that current efforts to develop hydropower in Zambia are mostly driven by local companies.

Colin Clark, Chief Technology Officer, Brookfield Renewable Energy Group, said businesses in the hydropower sector seek high quality, long-life assets in stable markets to ensure long-term investment returns and to counter-balance the effects of energy price and resource scarcity. He stressed that the capacity to understand and manage market risks is essential to developing hydropower projects.

Kieron Stopforth, Bloomberg New Energy Finance, introduced a statistical comparison of the investment profile of hydropower and those of the wind and solar sectors. He said the overall energy capacity of the hydropower sector is much bigger than that of the wind and solar sectors, but the growth in wind and solar industries is exponentially larger than hydropower. He also noted the terms of debt for small hydropower projects are similar to solar and wind projects.

The discussion focused on a number of issues, including: corruption risk faced during hydropower project investment; application of the Clean Development Mechanism to incentivize the development of hydropower projects; comprehensive and effective risk management for regional-level hydropower development; and differences between grants and capital investments in comparing hydropower, wind and solar sector investment statistics.

### WORKING WITH PROJECT AFFECTED COMMUNITIES:

On Wednesday morning, Tan Sri Rastam Mohd Isa, Chief Minister's Department, Sarawak, Malaysia, moderated the session and introduced the topic as being a controversial but critically important issue. He recognized

that dam construction leads to a range of local transformations, and welcomed the discussion to explore the challenges and to develop solutions.

The session began with a video in which Labang Paneh, Indigenous Peoples Representative at Murum, Malaysia, and others set out their opposition to the Murum dam and their hopes for the Penan people's future. Labang Paneh, speaking on the panel, set out the challenges facing the Penan people caused by the Murum hydropower project. He set out the community's demands, that include a package of MYR500,000, a house with electricity and 25 hectares of land per family. He called for a meaningful response to this request and underscored that unless the conditions are met the Penan people will not accept relocation.

Datuk Fong Joo Chung, Director, SEB, noted the UN Declaration on the Rights of Indigenous Peoples, but explained that public projects in Malaysia do not require the permission of affected landowners' but affected communities must be provided adequate compensation. He stressed that the state policy is to resettle affected communities in locations that are better than their original site and balance education, health and cultural sensitivities.



Datuk Fong Joo Chung, Director, SEB

Eduard Wojczynski, Chair, CHA, explored the challenges in the Canadian context, and underscored the importance of building on long-term relationships with communities and finding alignments of interest between communities and companies.

Stephen Sparkes, Vice President, Statkraft AS, underscored the need to integrate community engagement into project planning and suggested engaging communities at the first possibility. He stressed the need to ensure long-term employment opportunities beyond financial compensation.

Shi Guoqing, Director, National Research Center for Resettlement, Hohai University, underscored the need to consider communities' physical, economic and cultural losses in an integrated manner, and to develop strong plans and monitoring mechanisms.

Richard Twum Barimah Koranteng, Executive Director, Ghana Dams Dialogue, explained the importance of: providing training for community members ahead of any relocation; managing expectations; and defining responsibilities clearly.

The discussion included comments on: international best practices; lack of independent review or public disclosure of the Murum Relocation Action Plan; future approaches to the Murum dam and Penan people; land rights;

grievance mechanisms; and timing of benefits. Peter Kallang, Save Rivers, made the final comment, stressing the challenges faced by rural communities relocated to non-rural settings, and drew attention to the many requests for information made to the SEB and governmental institutions without reply.

**CLIMATE CHANGE: FOUR DIMENSIONS FOR HYDROPOWER:** On Friday morning Fredolin Tangang, Vice-Chair, Intergovernmental Panel on Climate Change (IPCC), moderated the session and briefly introduced the work of the IPCC in relation to renewable energies and the forthcoming Fifth Assessment Report.

Byman Hamududu, Norwegian University of Science and Technology, Zambia, highlighted the need to reduce the uncertainty in climate modeling and incorporate climate change impacts into the design and safety considerations of hydropower projects. He said the impacts of climate change on hydropower will be distributed unevenly at the global level.

Tormod Schei, Statkraft AS, presented on hydropower's low and variable level of emissions and potential as a carbon sink. Noting the limited data on hydropower emissions, he underscored the importance of measuring the net emissions from hydropower reservoirs as defined by the IPCC, and emphasized the importance of aligning work processes on hydropower emissions of the UNESCO/IHA and International Energy Agency.

Stating that flood control and prevention is one of the top priorities of China's Three Gorges dam project, Li Chong, China Three Gorges Corporation (CTGC), introduced a GHG monitoring study of the Three Gorges Reservoirs (TGR). He said the research indicated that the GHG emissions level of the TGR is low, and that hydro-technology is the cleanest technology contributing to GHG emissions reduction.



Philipp Hauser, GDF SUEZ Energy Latin America

Philipp Hauser, Vice President Carbon Markets, GDF Suez Latin America, presented the private sector perspective on how to implement and finance hydropower projects for climate change mitigation and building climate resilient infrastructure. He highlighted the mitigation, energy storage, flexibility, flood control, transport and irrigation benefits of hydropower. He called for utilizing the Climate Development Mechanism and establishing a global carbon market to finance climate resilient and GHG efficient water management systems and hydropower infrastructure.

The discussion focused on the need to: reduce uncertainty through the application of multiple climate models and use appropriate downscaling methods; incorporate hydrological risks into the hydropower investments and project design; invest in data collection and advance understanding on net emissions from hydropower; materialize multi-purpose hydropower projects, including mitigating impacts on and create benefits for environment and society; take into account the impact of climate change in the design and financial modeling of hydropower projects; and take advantage of innovative funding instruments such as carbon markets to advance the sustainability performance of hydropower projects.

#### **RENEWABLE SYSTEMS: SHARING**

**EXPERIENCE:** On Friday morning, Moderator Christine Lins, Executive Secretary, REN21, provided an overview of the trends in the renewable energy market and highlighted the Renewables Global Status Report. She emphasized that the number of countries with renewable targets doubled between 2005 and 2012, and a large number of cities and local government also have such targets. She underscored this is important in the context of the dual goals of increasing the amount and accessibility of energy and combatting climate change.

Herman Ibrahim, National Energy Council, Indonesia, presented on the Indonesian geothermal roadmap to 2050. He explained that projected milestones are contingent on greater awareness by policymakers, local authorities and utilities of the full range of geothermal resources available and of their possible application.

Speaking about solar opportunities, David Renné, President, International Solar Energy Society, stated the cost of solar energy is dropping, and technology efficiency and performance is improving. He underscored the importance of improved solar forecasting to be able to assure utilities of energy availability during peak loads. He also discussed a number of examples of solar energy projects and stated that solar can augment hydropower.

Andrew Lang, Vice President, World Bioenergy Association, illustrated the potential of bioenergy, including by developing plants that integrate different renewable energy technologies such as

bioenergy and solar. He provided Denmark as an example of a county that has greatly diversified its energy generation towards small-scale and renewable sources.

Óli Grétar Blöndal Sveinsson, Executive Vice President, Landsvirkjun, presented on Iceland's national network of hydro and thermal power generation. Contrasted with wind, solar and geothermal technologies, he suggested that hydropower's flexibility makes it optimal for frequency regulation and load balancing.

Miles Smith, Hydro Tasmania, highlighted the integration between hydropower and wind in the Tasmanian energy system. He noted that while challenges exist, wind is a reliable power source and hydropower has helped facilitate integration of wind power by providing firm base load to complement the intermittency of wind.

The discussion focused on: the policy reforms needed to support renewable energy; the importance of providing greater information to policy makers; the damaging nature of fossil fuel subsidies for the renewable energy industry; the lifespan of geothermal plants; and the amount of land required to generate one megawatt of energy.

#### **SIDE EVENTS**

##### **GHG AND FRESHWATER RESERVOIRS**

**- WHAT IS THE STATE OF THE ART:** On Wednesday afternoon Moderator Tracy Lane, IHA, introduced the UNESCO/IHA GHG research project on developing measurement guidance and modeling tools to assess GHG emissions from reservoirs and mitigation guidance for vulnerable sites. Chen Shiun, SEB, Alain Tremblay, Hydro-Québec, Emmanuel Branche, EDF, and Andrew Scanlon, Hydro Tasmania, presented case studies. Tormod Schei, Statkraft AS, compared the UNESCO/IHA approach with the International Energy Agency Hydropower Implementation Agreement and suggested aligning the processes.

##### **INTRODUCTION TO THE PROTOCOL:**

On Wednesday afternoon Doug Smith, IHA, Simon Howard, IHA, and Donal O'Leary, Transparency International, presented on various aspects of the Protocol. Panelists described the Protocol as a framework for assessing the sustainability of



A view of the dais: Miles Smith, Hydro Tasmania, Óli Grétar Blöndal Sveinsson, Executive Vice President, Landsvirkjun, Andrew Lang, Vice President, World Bioenergy Association, David Renné, President, International Solar Energy Society (ISES)

hydropower projects, which is a consistent, globally applicable methodology that has over 20 clearly defined sustainability topics. It emerged from a multi-stakeholder process and is governed by a multi-stakeholder council. Participants then engaged with a case study to explore the utility of the Protocol.

**BRIEFING ON RESETTLEMENT: CASE STUDY OF SONG BUNG 4:** On Thursday afternoon Takafumi Kadono, ADB, moderated the session. Tran Trung Tuyen, Power Generation Corporation 2, presented a case study and a film on the Song Bung 4 Hydropower project in Viet Nam with a focus on the relocation of the Co Tu People. Other issues raised during the event included: planning process; staffing; awareness raising, training and capacity building; entitlements; key documentation including the resettlement plan; and lessons learned.

**OPERATIONALIZING MULTIPURPOSE HYDROPOWER:** On Thursday afternoon the side event was moderated by Anne Bolle, Statkraft AS. Tormod Schei, Statkraft AS, presented the needs for multipurpose hydropower projects. Emmanuel Branche, EDF, introduced the example of Durance Valley in France. Jian-hua Meng, WWF, and Jean-Michel Devernay, World Bank, highlighted the complexity and opportunities of multipurpose hydropower. The discussion centered on how to manage, ensure profitability, and promote hydropower projects for both power and non-power purposes.

### **IHA GENERAL MEETING**

On Friday afternoon, Richard Taylor, Executive Director, IHA, chaired the IHA General Meeting. An overview of IHA work 2011-2013 and of ongoing work was presented by IHA staff members, namely: Cameron Ironside, Tracy Lane, Gregory Tracz, Kate Steel and Stelios Vassileou. The overview began with details about the Protocol's governance structure and a chronological review of the work undertaken on the Protocol since the last Congress, including details about funding, translations of the Protocol and Sustainability Partners. Five working groups on hydropower development have been

formed on the following subjects: statistics and knowledge management; risk and finance; climate change; water-energy nexus; and regional and renewable systems.

On communications, the following points were made: IHA's communications team is being structured around e-communications, design, writing and events; a communications network has been established; there is regular monitoring of all events of interest to IHA members; and relationships are built with international news outlets and industry publications.

Membership is growing and currently stands at 91 IHA corporate members and 66 individual members. Membership is becoming more reflective of the regional distribution of installed capacity, regional meetings are being held to engage with members and potential members, and the South American regional office and China national office are strengthening relationships with members via regular liaison, meetings and translation.

On governance: the board election process is ongoing; the new board will be in place for the October Board meeting; and a new President and Vice President will be selected by the new Board. Work continues on the Association's legal status, and board members will be approached towards the end of 2013 with a definitive proposal on IHA incorporation with the aim of structuring the association such that members' exposure is limited and the not-for profit remit remains.

Regarding board elections, the next stage is the distribution of ballot forms on 24 June 2013 with voting scheduled for 5 September 2013 and results to be published on 13 September 2013. Twenty-one candidates will be put forward for members' vote, including: Isaac Kirk Koffi (Deputy Chief Executive Engineering & Operations, Volta River Authority, Ghana); Israel Phiri (Hydropower Consultant, Zambia); Segomoco Martin Scheppers (Senior General Manager, ESKOM, South Africa); Kenneth Adams (Senior Vice-President Power Supply, Manitoba Hydro, Canada); Colin Clark (Chief Technical Officer, Brookfield Renewable Energy Group, Canada); Marie-Anne Sauvé (Manager



IHA Central Office Staff

Government & Institutional Affairs, Hydro-Québec, Canada); Gil Maranhão Neto (Director of Business Development, GdF Suez Brasil, Brazil); Mario Lucio Ozelame (Assistant to the Executive Technical Director, Itaipu Binacional, Brazil); Rasim Khaziakhmetov (Director on Technical Policy, JSC Rushydro, Russia); Roy Adair (Chief Executive, Hydro Tasmania, Australia); Roger Gill (Principal Consultant and Managing Director, Hydro Focus Pty Ltd, Australia); Lin Chuxue (Executive Vice-President, China Three Gorges Corporation, China); Torstein Sjøtveit (CEO, Sarawak Energy Berhad, Malaysia); Xia Zhong (Vice-President, China Power Investment Corporation); Jean-Francois Astolfi (Senior Executive Vice-President Hydropower Generation and Engineering Division, EDF, France); Dominik Godde (Director, E.ON Kraftwerke GmbH, Germany); Roland Münch (President and CEO, Voith Hydro, Germany); Karin Seelos (Vice-President International Affairs Power Generation, Statkraft, Norway); Wolfgang Semper (Executive Vice President, Andritz Hydro, Austria); Oli Sveinsson (Executive Vice-President Research & Development, Landsvirkjun, Iceland); Elsbeth Tronstad (Executive Vice-President Strategy and CSER, SN Power Invest AS, Norway).

Stelios Vassileou, IHA, introduced the financial performance for the eighteen month-period ending 30 September 2012, noting the Financial Statements 2011-2013 are available on the IHA website. He set out the expenditure on sustainability, membership and operations, outreach and hydropower development. CBHC LLP was reappointed as the auditor by unanimous consent.

IHA's Executive Director Richard Taylor thanked the current members of the Board, stating that their work was integral to the IHA's current achievements. He also bestowed honorary membership of IHA on: Jean-Michel Devernay, World Bank; Terry Moss, Eskom; Refaat Abdel-Malek, IHA President. IHA President Refaat Abdel-Malek thanked Richard Taylor and both men were given standing ovations. The IHA General Meeting concluded at 5:17 pm.

## UPCOMING MEETINGS

**The Asian and Pacific Energy Forum (APEF 2013):** The UN Economic and Social Commission for Asia and the Pacific is convening the Asian and Pacific Energy Forum (APEF 2013) to promote regional cooperation for enhanced energy security and the sustainable use of energy. APEF 2013 is the first ministerial conference of its kind to bring together 62 member states and associate members from the Asia-Pacific region on energy. It is expected that a Ministerial Declaration and Regional Plan of Action will be agreed, addressing energy issues from access, efficiency and renewables to connectivity and trade, within the overall context of sustainable development and in connection with the UN SG's global initiative, SE4ALL. **dates:** 27-30 May 2013 **location:** Vladivostok, Russian Federation **contact:** APEF 2013 **e-mail:** [apef@un.org](mailto:apef@un.org) **www:** <http://www.unescap.org/apef>

**Vienna Energy Forum 2013:** The Third Vienna Energy Forum (VEF 2013) will focus on the energy dimension of the Rio+20 outcome document. This high level meeting will provide leaders, policy makers and energy practitioners an opportunity to engage in interactive dialogue on key sustainable energy issues, including policies, markets, finance and technologies. **dates:** 28-30 May 2013 **location:** Vienna, Austria **contact:** UN Industrial Development Organization **e-mail:** [vef2013@unido.org](mailto:vef2013@unido.org) **www:** <http://www.unido.org/media-centre/upcoming-events/vienna-energy-forum-2013.html>

**UNFCCC Subsidiary Bodies June 2013:** The UN Framework Convention on Climate Change (UNFCCC) subsidiary bodies will meet from 3-14 June 2013. SBI 38 and SBSTA 38 will convene. **dates:** 3-14 June 2013 **location:** Bonn, Germany **contact:** UNFCCC Secretariat **phone:** +49-228-815-1000 **fax:** +49-228-815-1999 **e-mail:** [secretariat@unfccc.int](mailto:secretariat@unfccc.int) **www:** [http://unfccc.int/meetings/upcoming\\_sessions/items/6239.php](http://unfccc.int/meetings/upcoming_sessions/items/6239.php)

**International Conference on Policies for Water and Food Security in the Dry Areas:** This meeting will be organized around the following themes: incentives for sustainable and efficient water allocation and management; interactions between water management, food production and employment opportunities; and policies for enhancing food security. Various countries will present lessons learned on these three themes. The conference will examine the effectiveness of current and alternative water and food policy options, and identify strategies to enhance land and water productivity, food security, employment generation and livelihoods. **dates:** 24-26 June 2013 **location:** Cairo, Egypt **e-mail:** [CWFDA@cgiar.org](mailto:CWFDA@cgiar.org) **www:** <http://www.icarda.org/water-and-food-security-conference>

**High-Level International Conference on Water Cooperation:** The High-Level International Conference on Water Cooperation (HLIC) aims to contribute to improving water cooperation, especially at the transboundary level and encourage cooperation to achieve internationally agreed goals on water. The meeting will include high-level plenary sessions, parallel side events and thematic sessions on: water cooperation is key to poverty reduction, social equity and gender equality; water cooperation creates economic benefits; water cooperation helps preserve water resources and protect the environment; and water cooperation builds peace. The conference will also contribute to discussions on water in the post-2015 development agenda. The Conference will be organized by the Government of Tajikistan jointly with UN institutions. **dates:** 20-21 August 2013 **location:** Dushanbe, Tajikistan **contact:** HLIC Secretariat **phone:** (+992 37) 236-06-79 **fax:** (+992 37) 236-06-79 **e-mail:** [secretariat@hlicwc.org](mailto:secretariat@hlicwc.org) **www:** <http://www.hlicwc.org/>

**35th IAHR World Congress:** This Congress is co-hosted by the Ministry of Water Resources of P. R. China (MWR) and the International Association for Hydro-Environment Engineering and Research

(IAHR). Themes to be addressed include: water engineering and civilization; hydro-environment; fluvial hydraulics and river management; maritime hydraulics and coastal engineering; water resources and hydroinformatics; and climate change and hazard mitigation. Issues addressed in sub-themes, include: irrigation, navigation and urbanization; industrial hydraulics and renewable energy; urban water environment engineering; water storage; natural hazards and extreme events; and floods and flood management. **dates:** 8-13 September 2013 **location:** Chengdu, China **contact:** Institute of Water Resources and Hydropower Research **phone:** +86-10-6878-1672 **fax:** +86-10-6841-2316 **e-mail:** iahr2013@vip.163.com **www:** <http://www.iahr2013.org/index.htm>

**16th International Riversymposium:** This meeting will bring together participants to build knowledge bases and capacity to take policy decisions that address tradeoffs between river basin protections and sustainable water, energy and food security. The themes of the Symposium include: river systems, providing for people and food production; rivers and energy, new paradigms in a changing world; river cities, water, energy and food systems; river health, health rivers, healthy economies; and rivers globally, pathways to sustainability. **dates:** 23-26 September 2013 **location:** Brisbane, Australia **contact:** International Riversymposium Organizing Committee **phone:** +61 (0)7 3854 1611 **fax:** +61 (0)7 3854 1507 **e-mail:** riversymposium@ozacom.com.au **www:** <http://www.riversymposium.com>

**2013 Budapest Water Summit:** The Budapest Water Summit will take place in the context of the International Year of Water Cooperation, and will seek to contribute to the elaboration of water-related Sustainable Development Goals and to discuss solutions to water-related challenges. It will convene under the theme “The Role of Water and Sanitation in the Global Sustainable Development Agenda.” The Summit will be organized by the Government of Hungary, in cooperation with a number of United Nations programmes and the World Water Council. **dates:** 8-11 October 2013 **location:** Budapest, Hungary **contact:** Budapest Water Summit Secretariat **e-mail:** [BudapestWaterSummit@mfa.gov.hu](mailto:BudapestWaterSummit@mfa.gov.hu) **www:** <http://budapestwatersummit.hu/>

**22nd World Energy Congress:** Convening on the theme “Securing Tomorrow’s Energy Today,” the 22nd World Energy Congress (WEC) will address a range of issues related to the future energy mix including on: energy finance; clean energy; energy policy; SE4ALL; natural gas; the energy-water-food nexus; energy storage; oil and gas; hydropower; nuclear power; biofuel; energy efficiency; shale gas; energy ventures; decarbonizing transport; market design and pricing; energy access, renewable energy; and regional aspects. **dates:** 13-17 October 2013 **location:** Daegu, Republic of Korea **contact:** WEC Daegu 2013 Organizing Committee **e-mail:** [info@daegu2013.kr](mailto:info@daegu2013.kr) **www:** <http://www.daegu2013.kr/eng/index.do>

**5th IHA World Congress on Sustainable Development:** The 5th IHA World Congress on Sustainable Development will convene in late spring at a location to be confirmed in China. **dates:** June 2015 [TBC] **location:** Beijing, China **contact:** IHA **email:** [iha@hydropower.org](mailto:iha@hydropower.org) **www:** <http://www.hydropower.org/>

## GLOSSARY

ADB	Asian Development Bank
CSD	UN Commission on Sustainable Development
EDF	Electricité de France
GHG	Greenhouse gas
HLM	High-Level Meeting
IFC	International Finance Corporation
IHA	International Hydropower Association
IHE	Institute for Water Education
IRENA	International Renewable Energy Agency
MDGs	Millennium Development Goals
SCORE	Sarawak Corridor of Renewable Energy
SE4ALL	Sustainable Energy for All
SEB	Sarawak Energy Berhad
the Protocol	Hydropower Sustainability Assessment Protocol
UNCSD or Rio+20	UN Conference on Sustainable Development
UNESCO	UN Educational, Scientific and Cultural Organization



China accepts the baton as host of the next IHA World Congress