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IN-SHP

International Network On Small Hydro Power

NEWSLETTER

Message from the Director General

Prof. Liu Heng
Director General, IN-SHP

I'm proud to present the 8th edition of our IN-SHP newsletter and to announce, that the International Network on Small Hydro Power was celebrated its 17th anniversary on the 12th of December. We will continue to do our best to promote the use of small hydro power (SHP) as a clean energy solution to meet the growing demand for energy in the world.

In Durban, South Africa, the 17th Conference of Parties (COP) to the UNFCCC ended on 9th of December 2011. The outcome included a decision by Parties to adopt a universal legal agreement on climate change as soon as possible and no later than 2015, including both developed and developing countries. It was also decided that the second commitment period under the Kyoto Protocol shall begin on 1st of January 2013 and end either on 31 December 2017 or 31 December 2020.

The year of 2011 is coming to an end and I would like to wish you all the best for the coming year of 2012. More exciting international events are ahead of us, with the "International Year of Sustainable Energy" starting as well as in June 2012 Rio 20+, the United Nations Conference on Sustainable Development.

Our Multilateral Development Division's programmatic CDM for small scale hydropower in China has been uploaded for comments onto the UNFCCC website. For a review of recent CDM projects and programmes worldwide, please read on in the CDM section of this newsletter.

IC-SHP's World Small Hydropower Development Report team has started to collect reports, articles and cases studies on the development situation of SHP worldwide and will be working together with the report's editorial board members to edit and review the contributions in the coming months, so that the report can be launched in June 2012.

We are tremendously grateful for your continued support and welcome any news, comments or suggestions.

Wishing you every happiness this Holiday Season and prosperity in the New Year. We look forward to continuing our relationship in the coming year. All the best to you and your family!

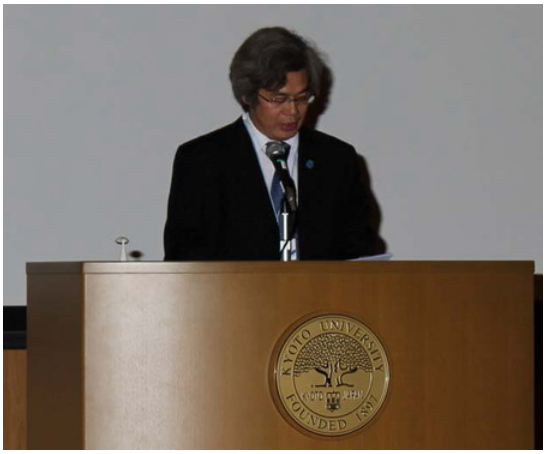
Special Events

Sierra Leone Minister of Energy and Water Resource visits ICSHP in Hangzhou

At the invitation of Prof.LIU Heng, Mr. Davidson, Sierra Leone Minister of Energy and Water Resource visited ICSHP on November 4th 2011, since he attend "Developing countries ministers seminar on water resources and SHP" in Hangzhou. They recalled SHP promotion activities of ICSHP in Sierra Leone over the past years, as well as the exchange and cooperation in many international events. Both sides hoped to further strengthen the financing on three small hydropower projects in the preliminary work, promoting them to the construction stage as soon as possible.

Sierra Leone is one of the ten countries in the "Lighting-up Rural Africa" project carried out by ICSHP and UNIDO. ICSHP also sent many experts to Sierra Leone for field investigation, selecting and developing SHP potential projects, all of which are supported by UNIDO and GEF (Global Environment Facility).

Prof. LIU Heng Attended 19th IHP Asian and Pacific RSC Conference



On October 24th -28th 2011, Prof. LIU Heng, vice chairmen of UNESCO-IHP China committee and General Director of ICSHP, and 6 other Chinese representatives attended EXTREME2011 held by UNESCO-IHP in Tokyo, Japan. Over 100 representatives from 27 countries and districts attended this conference, including Australia, New Zealand, Japan, South Korea, Thailand, Vietnam. The seminar discussed and exchanged policies of meteorology, hydrology and tsunami disaster.

As the president of Asian and Pacific RSC of UNESCO-IHP, Prof.LIU Heng held the speech in the opening meeting. He said, serious disasters have threatened human being's lives and sustainable development. Continuous to strengthen research and cooperation on hydrology, particularly on meteorology, hydrology and tsunami disasters in this area are necessary to promote social cognition and disaster relief.

Prof.LIU also presided over a two day round-table discussion at the conference. UNESCO Jakarta office and Secretariat of the regional RSC reported IHP relevant affairs and development situation of Southeast Asia and Pacific area in 2010-2011. This conference concluded with a plan for the next stages in this area. Chinese delegation and other representatives developed an active exchange to enhance the hydrology knowledge in the Asia-Pacific region. China IHP RSC expressed support for water resource technology development in this region and publicized hydrologic development policies in China.

Hydro 2011 in Prague, Czech

On October 16th – 19th, Hydro 2011 conference was held in Prague, Czech. Ms Hu Xiaobo attended the conference on behalf of ICSHP.

The themes of total 33 meetings included e.g. international small hydropower, European hydropower, climate change and hydrology, environment. More than 1300 representatives from 74 countries attended this conference. Ms. Hu chaired a session on international hydro power, introducing China's small hydro power development. Besides, entrusted by Prof. LIU Heng, General-Director of ICSHP, she talked with Hydropower & Dams Journal about Asian Hydro 2012 being held in Thailand and future cooperation. She also reached a consensus on World Small Hydropower Development Report edited by ICSHP.

International training on Small Hydropower Plants is held in Hangzhou

On 25th November 2011 the one month International Training on Small Hydropower Plants for 8 North Korean participants started. This is part of a UNDP Project called "Sustainable Rural Energy Development (SRED) Program in the Democratic People's Republic of Korea (DPRK)". The 8 participants are from the Ministry of Electric Power and Industry, State Academy of Sciences and Central Electric Power Design Institute. This training is aimed to provide technical support for rural renewable energy development in DPRK. After the training workshop, the participants will play a key role in the UNDP SREC project. Training workshops cover various aspects of small hydropower, including SHP planning, design and operating management. The participants will be visiting ICSHP manufacturing bases in Jinhua (Zhejiang) and Changsha (Hunan Province).

World SHP News

Asia

Asian Development Bank approves loan for Nam Ngum 3 hydro project

HydroReview (Nov.4, 2011)

The Asian Development Bank has announced a US $465 million loan to the Nam Ngum 3 hydropower project in the Lao People's Democratic Republic.

When completed in 2017, the 440 MW hydro plant will benefit not only energy-hungry Thailand, but also the Lao PDR, where it is hoped earnings from the Nam Ngum 3 project will help stimulate the impoverished country.

It is expected that 2,072 GWh exported annually to Thailand will generate nearly $770 million in revenue - $200 million of which have been earmarked specifically for social services and environmental protection programs.

"Earnings from clean energy exports are vital to poverty reduction efforts," said Christopher Thieme, director of ADB's Private Sector Operations Department. "One in every three people survive on less than $1.25 a day."

The Nam Ngum 3 project will also be of significant environmental benefit to Thailand, where approximately half of all current greenhouse gas emissions come from natural gas-burning power plants.

"By using hydropower instead of fossil fuels, Thailand will avoid an average one million tons of carbon dioxide emissions every year – the equivalent of taking 175,000 vehicles off the road," said Anthony Jude, Director in ADB's Southeast Asia Department.

The Nam Ngum 3 project will comprise a 220-meter-high dam that will create a 27.5 square kilometer reservoir.

The plant, estimated to cost around $1 billion, will be built and operated for 27 years by the Nam Ngum 3 Power Company (NN3PC), which is owned by three private sector companies: Thailand's GMS Lao Company Ltd. and Ratchaburi Electricity Generating Holding PCL, together with Axia Power Holdings, a wholly owned subsidiary of Japan's Marubeni Corporation. The Government of Lao PDR will also hold a stake through the Lao Holding State Enterprises (LHSE).

ADB will lend up to $350 million to NN3PC. Under a risk participation agreement, commercial financial firms will assume the risk on up to $150 million of that. Thai banks and other international financial institutions will also provide loans to the project. ADB is also lending approximately $115 million to the Lao PDR government to finance LHSE's equity stake in NN3PC.

The plant will be located upstream of two existing hydropower plants, and downstream from another plant that is currently under construction. The Nam Ngum 4 A and B plants are also planned upstream of Nam Ngum 3.

China city names four groups to build 11 small hydro projects

PennWell (Dec.13, 2011)

Yichang's small hydropower agency has awarded contracts worth US$52.8 million to four Chinese groups to build 11 small hydroelectric projects in China's Hubei Province.

On behalf of Yichang City Project Management Office for Small Hydropower Projects, China International Tendering Co. solicited companies in May for the Wufeng and Changyang small hydropower plants. Between three and four bids were received for each contract.

Contracts, winning firms, and award amounts include:

Wufeng County

- Contract No. WJH&CN-Civil-1: Civil works of Chinan, Wangjiahe 1, Wangjiahe 2, and Wangjiahe 3 projects; Hubei Rui Tian International Trading Co. Ltd. with joint venture of Wuhan Hao Kun Construction Engineering Co. Ltd.; 62.7 million renminbi (US$9.8 million);
- Contract No. TJH-Civil-1: Civil works of Tangjiahe 1 and Tangjiahe 2 projects; Hubei Machinery & Equipment Import & Export Co. Ltd. with joint venture of Hubei Chu Sunlight Water Conservancy and Hydropower Co. Ltd.; 56.9 million renminbi (US$8.9 million);
- Contract No. QLG-Civil-1: Civil works of Qilinguan 1 and Qilinguan 2 projects; Hubei Xinbaofeng International Trade Co. Ltd. with joint venture of China Foreign Northwest Construction Engineering Group Co. Ltd.; 95.4 million renminbi (US$14.9 million).

Changyang County

- Contract No. ECK&XJP&CF-Civil-1: Civil works of Erchakou, Xujiaping, and Changfeng projects; Hubei Provincial Minmetals International Trading Corp. Ltd. with joint venture of Hubei Chu Sunlight Water Conservancy and Hydropower Co. Ltd.; 122 million renminbi (US$19.2 million).

Under the European Investment Bank's China Climate Change Framework Loan, Yichang City applied for 44 million euros (US$63.8 million) from China's Finance Ministry to build the Hubei Province Yichang City Small Hydropower Development Project.

Africa

New small hydro facility operating in Uganda

PennWell (Nov.23, 2011)

The operation of a US$15 million, 6.5-MWIshasha hydroelectric plant in Uganda's Kigezi Sub-Region should help reduce the country's power outages, government officials say.

The facility, which began operating on Nov. 22, sits on the Ishasha River in Kyeijura Kanyantorogo Sub-county and will not only provide power to the Kanungu district, but also nearby Rukungiri, Ntungamo, Kabale and Kisoro districts.

Ugandan president Yoweri Museveni says he hopes the plant will help spark development in the area's agro-based industries like rice and tea processing.

"This project has increased Uganda's wealth by providing electricity," Museveni says.

The facility was built by ECO Power IT with a memorandum of understanding that says the Sri Lanka-based company will operate the station and sell its power to the government for 30 years.

The project was funded by three Sri Lankan financial institutions -- the National Development Bank of Sri Lanka, Hatton National Bank and Commercial Bank of Sri Lanka.

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Europe

Czech firm awards contracts to equip Klastersky, build Doudlevce hydros

PennWell (Nov.2 2011)

Hydro developer RenoEnergie a.s. has awarded contracts to Czech firms to equip the Klastersky small hydroelectric project and to build the 180-kW Doudlevce project in the Czech Republic. RenoEnergie took bids in February to equip both Klastersky on the Otava River and Doudelevce on the Radbuza River. It took bids in August to build Doudlevce. The developer awarded a 10 million koruna (US$548,445) contract to Hydrohrom s.r.o. of Bystrice to supply turbines and other equipment for Klastersky. Hydrohrom was one of two bidders for the work. RenoEnergie awarded a 19.4 million koruna (US$1 million) contract to the consortium Sdruzeni firem MVE Doudlevce to construct the Doudlevce small hydro on the left bank of the Radbuza. Led by Metrostav of Prague, the consortium was one of three bidders for the work.

Norway developer names firms to equip its hydropower portfolio

HydroReview (Nov.10 2011)

Norway hydro developer Smakraft AS has named two generator manufacturers to supply equipment for its portfolio of small hydroelectric projects.

Smakraft took proposals in 2010 from four firms to participate in framework agreements for long-term relationships with the developer. Smakraft seeks synchronous generators for use mostly with Pelton and Francis turbines.

Smakraft awarded framework agreements to Leroy Somer Norden Ab of Sodertalje, Sweden, and Koncar-Generators and Motors Inc. of Zagreb, Croatia.

The developer said it proposed framework agreements for two years beginning in 2011, with options to extend twice for periods of two years each. With a total scope of supply at about 10 units per year, Smakraft said estimated cost would be between 115 million and 120 million kroner (US$18.75 million and US$19.5 million).

Established in 2002, the Bergen-based Smakraft builds and operates small environmentally friendly run-of-river hydro projects. It has 23 projects in operation and another 10 under construction.

Smakraft said it has signed another 200 contracts with landowners to develop their waterfalls, equivalent to 2,300 gigawatt-hours. It plans to develop about 10 projects per year.

Community group financially supporting new small hydro facility

HydroReview (Nov.18 2011)

The Esk Valley Community Energy Group will soon begin work on a small hydroelectric plant after selling more than 125,000 pounds in public shares, the group announces.

The hydropower facility will be located on the River Esk in Ruswarp, near Whitby, North Yorkshire, and will feature an Archimedes Screw turbine with a capacity of 50 kW.

The Archimedes Screw design -- one of several considered by the Esk Valley group -- was selected because it will offer consistency through the River Esk's annual fluctuations. The design will also allow migratory fish, otters and other protected species to travel downstream through the turbine without harm.

Archimedes Screws - historically used to transfer water uphill - have become more popular for hydroelectric production diven their environmentally-friendly design and their ability to generate power at low-head sites.

Financing for the project has been given in part by the Scarborough Borough Council and the North York Moors and Howardian Hills AONB Sustainable Development Fund with the hope that the project will lead to further hydro development at other sites along the River Esk. The remainder will be funded by community shares.

Construction is expected to be completed in 2012. The project is expected to generate about 200,000 kWh of energy each year.

French firm to supply EM equipment for 1-MW Cavaletade

PennWell (Nov.17, 2011)

The city of Toulouse has named MJ2 Technologies SARL to supply electro-mechanical equipment to the 1-MW Cavaletade hydroelectric project, proposed for the Garonne River in Toulouse.

Toulouse took bids in May for supply and installation of all electro-mechanical equipment at Cavaletade. (HydroWorld 4/28/11)

MJ2, of La Cavalerie, France, received a contract valued at 1.36 million euros (US$1.84 million). It is to supply a turbine-generator, controls, oil and grease, manuals, operating instructions, maintenance, and training.

Now that electro-mechanical equipment is selected, the city plans to seek bids for civil engineering, gates, and auxiliary equipment to be installed at the existing dam.

Serbian utility gets $59 million loan for small hydro projects

PennWell (Dec. 21, 2012)

The European Bank for Reconstruction and Development approved a 45 million euro (US$59 million) loan to Serbia's state-owned utility for renovating and building small hydropower plants.

According to an EBRD release, the loan will allow Elektroprivreda Srbije (EPS) to refurbish 15 small hydroelectric facilities and construct seven new ones at existing dams. The refurbished facilities will have a combined capacity of 18 MW, while the new ones will provide 13 MW total.

"Investing in green energy generation is one of the EBRD's key priorities, and the Bank is firmly committed to supporting Serbia and the region in expanding the production of renewable energy," says Nandita Parshad, EBRD's Director for Power and Energy.

EPS has also created a subsidiary, called EPS Renewables, that will manage and operate its investments in green energy. Earlier this year, ERPS announced that it is working with Germany-based RWE Innogy to develop five run-of-river small hydro plants on the Morava River.

Clean Development Mechanism

1. **Current SHP projects on registration**
2. **PoAs on application**
3. **CDM – 65th Executive Board Meeting**
4. **New baseline for rural electrification**
5. **New publications**

Currently the following small scale hydropower CDM projects are requesting registration:

In **India**, the Project 5161 - Badyar Hydro Plant at Uttarakhand is requesting CDM registration, the project is a green field project and the total installed capacity is 4.90 MW (2*2.45MW) to generate clean energy using the energy of the flowing stream. It was expected to be commissioned in August 2011.

In **China**, there are three requesting registration. Firstly, Project 5218 Zhuxi County Chahe, Hubei Province, is a Hydro Power Project requesting CDM registration. Total installed capacity of the project is 7.5 MW and the expected annual operation hour is 3 118 hours, with a predicted electricity supply to the grid of 23 146 MWh per annum. Secondly, Project 4741 Fujian Shaowu Jintang Hydropower Project, with a total generation capacity of 11.6 MW (2*5.8MW). The project is expected to generate an annual average electricity of 41,145 MWh. Thirdly, Project 5247 Sichuan Province Dayan River 4th Level Hydropower Project is a newly built run-of-river hydropower station with the total installed capacity of 5MW (2*2.5MW) and no new reservoir is formed. Its estimated annual operation hour is 4,762h and annual generated electricity is 23,812MWh.

In **Vietnam**, Project 5273 Nam Chanh Hydropower Project is requesting registration. The hydropower plant will install two turbines of 1.05 MW rated capacity each with a projected average annual production of 8,289 MWh.

In **Chile**, Project 4800 San Clemente Hydroelectric Power Plant, a run of river type (5.5 MW nominal capacity) is requesting registration. The project displaces electricity generated by fossil fuel fired power plants, avoiding GHG emissions estimated in 16,560 tCO2e per year.

The Programme of Activities (PoA) application process is going very strong.

In November, the PoA inflow continued at high levels with 17 PoAs entering the validation pipeline (9 biogas, 3 energy efficiency in households, 2 wind power, 2 solar as well as 1 hydro programme). Regarding the submissions China leads with 25 PoAs before South Africa (23) and India (18). In total, 40 host countries are involved, of which 9 are Least Developed Countries.

Asia

In Vietnam, in early October, two different Philippine PoAs started validation (Philippines Mini-Hydro PoA., Philippine Small-scale Hydropower PoA). In Nepal, a PoA for Promotion of the Improved Water Mills (IWM) in Nepal is under validation. In China, the Promotion Programme for Small Hydropower Development in Rural

Areas in China by IC-SHP started validation and is currently in the commenting period (25 Nov 11 - 24 Dec 2011).

Its first CPA is "Jiangxi Suichuan Xianghong Small Hydropower Project" with a total installed capacity of 3.2MW (2 x 1600kw Pelton Turbines). The project is in the remote mountainous area in Suichuan County of Jiangxi Province. Suichuan County is identified as one of the "State Poverty-stricken County" by the State Council Leading Group of Poverty Alleviation and Development in 2008. Agriculture is the dominating economy in the county and the living standard is much lower than the national average. The purpose of the project is to utilize the local hydropower resource for electricity generation, hence to contribute to the local economic development. The design annual output is 13,683Mwh.

Latin America

The Guacamaya Small Scale Hydropower Programme of Activities, which will support the development of new small scale hydropower projects in Guatemala, Honduras, Nicaragua and Costa Rica that supply electricity to the national grid. Each small-scale CDM Program Activity will comprise one or more such hydropower plants and have a combined installed capacity of no more than 15 MW, the threshold for small-scale CDM projects

In Brazil, two PoAs are under validation (TUCANO CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil. Omega Energia CDM Programme of Activities for the Promotion of Small Hydropower Plants in Brazil). It should be noted, that both PoAs use the large scale methodology (ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources), since they allow projects to be included up to 30MW. The first CPA of TUCANO is JAMBO hydropower plant, with an estimated installed capacity of 13,000,000 W and 500,000 m2 reservoir area, located in Grande river, state of Rio de Janeiro, Southeastern region of Brazil. The operation starting is expected to occur in June 2014. The first CPA of the Omega Energia PoA is SANTA CRUZ with an estimated installed capacity of 16,000,000 W and 76,900 m2 reservoir area. The project is located in Glória River, state of Minas Gerais, also Southeastern region of Brazil. The operation starting is expected to occur in January 2014.

Africa

In Southern Africa, a multicountry PoA with 15 countries has gone into validation (CDM Africa Small Scale Hydro PoA for Southern Africa). The focus of this PoA is to secure carbon finance to assist with the funding from small-scale, run of river/ existing structure, hydro projects in Southern Africa. The coordinating & managing entity "PoA Africa Hydro (Pty) Ltd has initiated the proposed CDMA Small Scale Hydro PoA for Southern Africa to promote the development and implementation of small-scale hydro projects, with the objective to contribution towards increased generation of renewable energy in Southern Africa. The first CPA proposed is a green field project (Middle Kruisvallei small scale hydro-electric project in Southern Africa). It is proposed to install one powerhouse with probably a single 2.1 MW turbine (described as the "hydro energy facility"). It will be a non-consumptive, run of river, no-flow-alteration facility.

UNFCCC, CDM-Executive Board and its panels

The EB held its 65th meeting from 21-25 November, a landmark in taking a comprehensive set of important decisions and providing guidance in order to make the CDM "fit for the future".

An elaborate procedure with several feedback loops, including public input, was agreed for DNA submissions on automatic additionality for microscale renewable electricity projects.

The PoA Standard consolidation was approved and the combined standard becomes mandatory on 25 July 2012 after an eight month grace period.

The sampling standard had been subject to an intense consultation with stakeholders and thus could already be approved, meaning that it enters into force together with the PoA standard. It requires developers to provide a sampling plan. Samples for small projects shall lead to unbiased outcomes and achieve 90% confidence and 10% precision, while for large projects and groups of small-scale CPAs in a PoA 95% confidence and 10% precision is required. Large-scale PoAs cannot sample across CPAs. Validation and verification of samples shall not lead to errors greater than 5% (i.e. the DOE wrongly accepting or rejecting a data value), with the DOE specifying the desired quality level at its discretion. Under these conditions, DOEs can sample even if project developers have not applied sampling!

New Baseline methodology for electrification of rural communities

A new baseline methodology for electrification of rural communities (reference SSC-NM073) has been submitted by The World Bank/UK Department of International Development (DFID)/Pöyry Management Consulting (Sweden) AB on 12 Aug 2011.
See: http://cdm.unfccc.int/methodologies/SSCmethodologies/pnm/byref/SSC-NM073

New publications

The PoA handbook released by Climatefocus earlier this year is now available in French,
see: www.acp-cd4cdm.org.

ETA has released its annual GHG market report, which provides a stocktaking of carbon markets and a reflection of future development, available at: www.ieta.org.

World Small Hydropower Development Report 2011

World Small Hydropower Development Report 2011

The International Centre on Small Hydro Power (IC-SHP), under the auspices of UNIDO, is coordinating a report on the worldwide development status of small hydro power (SHP). The aim of the report, as a contribution to global renewable energy, is to give a global overview of the status of SHP and thereby inform SHP practitioners, policy- and decision-makers, investors, as well as those interested in clean, renewable and local energy and sustainable development.

The report will include

- an overview for each region (i.e. Africa, Asia and the Pacific, Europe, North America, Latin America)
- the country status of over 140 countries on SHP development (including SHP policy)
- a technology section featuring innovative case studies
- a finance section featuring case studies
- a barrier section

The Editorial Board welcome experts and professionals from UN system, NGO, Governmental and Intergovernmental Organization, Enterprises, Communities etc to involve in the report preparation, in kind of articles and case studies. Case studies on countries, areas, projects describing specific policies, technologies, approaches or environmental or social impact should be no more than 1000 words. Authors are invited to submit their interest in writing with a brief description via email to the ICSHP team on the report. (report@icshp.org)

Forthcoming events

1. **Asia 2012, 26th-27th March, 2012 in Chiang Mai of Thailand, organized by Hydropower & Dam and supported by IC-SHP**
2. **Other events**

Fourth International Conference on Water Resources and Renewable Energy Development in Asia

On 26th-27th March, 2012, the 4th International Conference on Water Resources and Renewable Energy Development in Asia will be held in Chiang Mai of Thailand, which is organized by **The International Journal on Hydropower & Dams** and supported by **IC-SHP**.

This Conference is being planned in collaboration with the Electricity Generating Authority of Thailand. Speakers will represent the major water and energy utilities of the Asia and Pacific regions, as well as financiers, environmental specialists, and international experts on all aspects of dams and renewable energy. Delegations from about 50 countries attend these Asian events, to discuss all aspects of water resources development of particular relevance to the Asian region.

During the conference, **IC-SHP** will chair a panel discussion on carbon financing, which is aimed to gain an overview of the state of carbon financing in Asia, learn from case studies how carbon financing has helped the development of hydropower projects as well as pursue more opportunities of carbon financing for hydropower in Asia.

In this session, speakers will introduce the application of carbon financing for hydropower using income from carbon credits (CER) as well as voluntary offsets (VER) and CDM development. Through case studies, speakers will lead to an analysis on the role of international institutions, national governments, project developers and buyers. In addition, the future development of carbon financing to reach climate mitigation, energy and water security and poverty reduction in Asia will also be the key contents for this panel discussion.

Besides, a **Technical Exhibition** will also take place alongside the ASIA 2012 Conference, at which international consultants, developers, contractors and suppliers will showcase their expertise in the fields of water infrastructure, hydropower equipment, monitoring systems, planning software, power plant components and many other things. For details please visit: http://www.hydropower-dams.com

Other events

IPWE2012 Boulevard Mohamed VI, 40 000 Marrakech, Morocco 4-7 January, 2012	EnerTECH Bombay Exhibition Centre, NSE Complex, Goregaon, Mumbai, India 8-11 February, 2012
2nd IRENA Assembly Abu Dhabi, United Arab Emirates 14-15 January, 2012	Renewable Energy World Conference & Expo North America Long Beach Convention Centre, Long Beach California, USA 14- 16 February, 2012
5th World Future Energy Summit Abu Dhabi National Exhibition Centre (ADNEC), Abu Dhabi, United Arab Emirates 16-19 January, 2012	Mexico Infrastructure Summit Intercontinental Hotel Mexico City, Mexico 15-16 February, 2012
The Smart Grids Summit Grand Hotel Stockholm, Sweden 24-25 January, 2012	Power & Alternative Energy Asia Karachi Expo Centre, Pakistan 21-23 February, 2012
EUEC 2012 Phoenix Convention Centre, Phoenix, Arizona, USA 30 January-1 February, 2012	Materials Challenges In Alternative & Renewable Energy Florida, USA 26 February – 1 March, 2012

CONTACT IN-SHP e-NEWSLETTER

e-NEWSLETTER is a free online publication keeping hundreds of people and organizations informed of the many factors that affect SHP development and their impact on creating a brighter and greener world.

For more information, please visit our website: www.inshp.org

We value your comments and suggestions. Please send these to the Editor at report@icshp.org