

# IN-SHP

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*International Network  
on Small Hydro Power*



## NEWSLETTER

### Message from the Director General



Prof. Liu Heng  
Director General, IN-SHP

Happy New Year! Welcome to the 14<sup>th</sup> issue of our IN-SHP newsletter. We are an international organisation that strives to promote the use of small hydropower (SHP) as a clean energy solution to meet the growing demand for energy in the world, especially in developing countries.

Therefore, I am very glad to share with you the news, that the Shiwang'andu small hydropower station, located in the northeast of Zambia was completed in December 2012 as part of the "Lighting up Rural Africa" project carried out by ICSHP and UNIDO. This SHP station, 800 km away from the capital, is now able to provide a remote area with clean and renewable electricity and is an excellent example of South-South cooperation.

In China, the UNIDO ICSHP Changsha Hydropower Control Equipment Manufacturing Base opened its new building in December 2012, which will improve the capacity to provide national and international trainings for small and medium hydropower and includes a Centre for R&D. This will enhance the capability for better South-South cooperation. A special report is included in this newsletter.

ICSHP is looking forward in 2013 to further engage in the EU-China Water Platform, for example exchanging knowledge on Green Hydropower Approval Standards and Evaluation Systems as well as providing an overview of the global small hydropower situation, by publishing the first World Small Hydropower Report this spring.

We are tremendously grateful for your continued support and welcome any news, comments or suggestions that you would like to share with us and the international small hydropower community.

## Events of IC-SHP

1. **President and Ambassador of Zambia Attended the Completion Ceremony of Shiwang'andu Station**
2. **Prof. Liu Heng Attended the 2012 Global South-South Development Expo**
3. **The Ambassador of Austria to the PRC visited ICSHP**

### President and Ambassador of Zambia Attended the Completion Ceremony of Shiwang'andu Station



From left to right: Zhou Xiaou, the Ambassador of China to Zambia, President Satta and the first president Kaunda.

On December 5, 2012, the completion ceremony of Shiwang'andu small hydropower station was held in Muchinga Province of Zambia. Current president Sata and the first president Kaunda of Zambia appeared in person. Besides, over 1000 people including the Ambassador of China to Zambia, the Minister of Mines, Energy and Water Development, senior representative of UNIDO and other important representatives from many organizations attended the ceremony.

Shiwang'andu small hydropower station is located in Muchinga Province, the northeast of Zambia, 800 km away from the capital. Since the independence of Zambia in 1964, this area had been without electricity but relying on diesel oil or other mineral energy. With the support of UNIDO, the Zambian government will construct renewable energy generation projects based on independent grid, in order to deal with climate change and reduce the carbon emission. Shiwang'andu station is one of the successful completed projects. It is also a part of the "Lighting up Rural Africa" project carried out by ICSHP and UNIDO.



Prof. Liu Heng and Mr. Kaunda, the first president of Zambia

Mr. Satta, Zambia's president was highly complimentary about the impact of this project. The station not only supplies electricity to local schools, clinics and farms, but also promotes rural electrification and reduces the dependence on firewood. It plays an important role in promoting tourism, increasing employment and attracting investment. Mr. Satta indicated that the Zambian government would rapidly develop small hydropower in order to improve the national power supply situation. The representative of UNIDO also gave a speech to praise the Zambian government to positively develop the renewable energy. He also said that Shiwang'andu station would be a sample for other developing countries to carry out south-south cooperation.



Shiwang'andu station is co-funded by Global Environment Facility (GEF) and Zambia Power corporation, supported by UNIDO and constructed by ICSHP. The total installed capacity is 1MW with two 500KW units. Its construction started in April 2011 and was completed on December 5, 2012. Zambia national television, news and websites all reported this spectacular event.

### **Prof. Liu Heng Attended the 2012 Global South-South Development Expo**



The United Nations Industrial Development Organization (UNIDO) hosted and co-organized jointly with the United Nations Development Programme (UNDP) from 19- 23 November 2012 the fifth annual Global South-South Development Expo (GSSD Expo) at the Hofburg

Palace in Vienna, Austria. Prof. Liu Heng, Director General of ICSHP was invited to attend this event.

Created in 2008 and being the first exhibition of its kind "from" and "for" the South, the GSSD Expo showcases successful Southern-grown development solutions (SDSs) aimed at addressing the need to meet the Millennium Development Goals (MDGs). In line with its mission, the UN GSSD Expo focused this year on "Energy and Climate Change: Inclusive Partnerships for Development". During the five-day event, tangible and innovative solutions were presented and revealed how governments as well as the civil society from the Southern countries are expanding their access to energy, while simultaneously combating climate change, as well as global health pandemics and the lack of social protection for vulnerable populations. Within this context, UNIDO's Observatory for Renewable Energy in Latin America and the Caribbean and

Eletrobras' Light for All Programme were selected as showcase examples in the Solution 5 of the GSSD Solution Exchange Forum 1: "Energy, Climate Change and Industrial Development".

During the event, the UNIDO representative in Brazil and current head of the regional program of the Observatory for Renewable Energy in the Latin American Countries (LAC), Gustavo Aishemberg, presented the program in which he emphasized that the Centre is primarily a South-South cooperation program, aimed at fostering greater cooperation within the region through a series of tools developed to promote greater interaction between countries. A clear example is the renewable energy knowledge portal developed by UNIDO in the context of this regional program, which contains, among other tools, a virtual platform for the exchange of specialized information on renewable energy. These technical cooperation instruments developed by the Observatory are designed to enable countries to share information on best practices that will, in turn, induce a greater South-South cooperation.

Prof. Liu Heng and the representatives from UNIDO and Zambia Power Corporation introduced the Shiwang'andu small hydropower station. This project was specially recommended by UNIDO as an example of south-to-south cooperation. Prof. Liu was also awarded a certificate of "In recognition of special contribution to South-South Cooperation and Triangular Cooperation" by United Nations Office for South-South Cooperation.

While in Vienna, Prof. Liu also attended a preparatory meeting for the "World Water Development Report" in the UNIDO headquarter and the Industrial Development Board of UNIDO.



### **The Ambassador of Austria to the PRC visited ICSHP**



Dr. Irene Giner-Reichl, the Ambassador of Austria to the PRC, invited by Prof. Liu Heng, visited ICSHP on December 14, 2012.

Prof. Liu first introduced the history, recent activities and achievements of ICSHP to the Ambassador, especially the completion of Shiwang'andu small hydropower station in Zambia constructed under the support of UNIDO and Vienna Renewable Energy Forum. He then also introduced the "Green Hydropower Approval Standards and Evaluation System" and "Rural Hydropower Capacity Expansion".

The Ambassador was highly complimentary about the positive role of ICSHP for global small hydropower development; she was also interested in the programs of "Green Hydropower Approval Standards and Evaluation System" and "Rural Hydropower Capacity Expansion". Dr. Giner-Reichl introduced the EU-China Water Platform situation. As the leading country of EU, Austria hopes that there would be more cooperation with ICSHP.

Besides, Prof. Liu also exchanged his views on the compilation of the World Water Development Report V.

## Special Report: Introduction for Changsha Base of ICSHP

### UNIDO ICSHP CHANGSHA HYDROPOWER CONTROL EQUIPMENT MANUFACTURING BASE

UNIDO ICSHP UNIDO ICSHP Changsha Hydropower Control Equipment Manufacturing Base, co-founded by UNIDO International Center on Small Hydropower and Changsha Municipal Government with HNAC as its carrier, is located in HNAC Production Base, Lusong Road, Lugu, Changsha National High-tech Industrial Development Zone.

#### 1. About HNAC

HNAC Technology Co., Ltd. (restructured from Changsha Huaneng Automatic Control Group) is a private high-tech enterprise located in Changsha High-tech Industrial Development Zone. It covers an area of 80,000 m<sup>2</sup> with over RMB 100 million Yuan fixed assets and more than 800 staff. Since its establishment 19 years ago, HNAC has committed to the R&D and management of automatic control and information integrated processing for power plants, substations, pump stations and sewage treatment which are related to electric power industry.

By the end of 2012, HNAC products have been supplied to over 6,000 plants in 32 countries worldwide, of which the market share of hydropower automatic control equipments ranking the first in China.

HNAC was authorized by the former Ministry of Electric Power as the designated manufacturer of key products. In 1999, it was listed in the Recommended Catalog of Main



Equipments and Manufacturing Enterprises for Upgrading and Construction of Urban and Rural Power Grid by State Economic and Trade Commission and State Power Corporation, and nominated as one of the main drafters of Guidelines of the Application Of National Hydropower Station Automatic Equipment, Pump Stations Automation and Infomatization, Excitation and Governor Control Equipments and other automatic control equipments.

HNAC became a member of UNGC (United Nations Global Compact) in 2009; and was authorized to be the hydropower control equipment manufacturing base of UNIDO in 2010. HZNet Remote Monitoring Service Center was successfully put into operation in 2010, becoming the first platform in the industry to provide remote monitoring service to the users of hydropower plants and pump stations. In November of 2012, HNAC listing application was accepted by Hunan Supervision Bureau of CSRC and HNAC listing plan started. In 2012, HNAC became the first Academician Workstation in the field of water conservancy and hydropower

automatic control. The awarding of Academician Workstation has played an important part in introducing the intellectual support, talents and technology connection, leading the development of intelligent water conservancy and hydropower.

HNAC has good awareness of its social responsibility. As the unique Control Technology Training Center of Chinese Society of Hydroelectric Engineering (CSHE), HNAC holds free trainings and seminars on automatic control technologies every year. Till now all together over 4,000 technicians worldwide have attend 55 phases of training workshop on small and medium hydropower automation system, pump station automation and information system. In the meantime, HNAC donates to the Hope Primary School, increases job vacancy and supports the environmental protection to create a harmonious society.

## 2. UNIDO ICSHP Changsha Hydropower Control Equipment Manufacturing Base



In October of 2010, the UNIDO ICSHP Changsha Hydropower Control Equipment Manufacturing Base (hereinafter referred to as the Base), co-founded by UNIDO International Center on Small Hydropower and Changsha Municipal Government with HNAC as the carrier, was settled in the west of HNAC Production Base. After two years of construction, the Base officially came into use on December 12, 2012. The overall building area is about 4,000 m<sup>2</sup>. The first and second floors are for exhibition include a large conference room, the third to fifth floors are for research and development.

As a public platform of power plant industry, the first and second floors of the base introduce the development of the hydropower industry, UNIDO ICSHP and its Four Bases in the world, the primary and secondary equipments supplied by the enterprises in the power industry. It also has several multimedia meeting rooms and a large multifunctional studio which can hold more than 1000 people at a time.

## 3. Development Goals and Responsibility

Depending on HNAC's experiences on automation and information transformation in the fields of electric power, water conservancy and other industries, and the platform of ICSHP, Changsha Base has expanded its market to the automatic control and information integrated processing of solar power, wind power generation and other emerging industries. Meanwhile, we will make it a leading pioneer of small and medium hydropower control equipments with the highest R&D level, maximum production capability and the first sales output value in the world.

With the help of International Center on Small Hydropower, Changsha Base has carried out more and more technical exchange, and holds trainings and meetings for the hydropower industry both at home and abroad. It will promote the cooperation of small hydropower and other renewable energy between China and various countries, push forward the economic and technical cooperation exchange in small hydropower, and greatly accelerate the development and utilization of renewable energy. (Contributed by Reporter of Changsha Base).

## World SHP News

1. [America](#)
2. [Asia](#)
3. [Europe](#)
4. [Oceania](#)

### [America](#)

#### [Canadian developer still eyeing hydro as power source for Nunavut capital](#)

Hydro World (December 12, 2012)

A proposal from the Qulliq Energy Corporation could provide hydroelectric power to the capital of Canada's northernmost territory, should it be approved by the Iqaluit City Council.

Qulliq said its plan is to build two hydropower plants -- one at Janyes Inlet and the other on the Armshow River -- on the south side of Frobisher Bay. According to a 2007 prefeasibility study, the Janyes Inlet project would have a total capacity of 5 MW, while the Armshow River plant could generate between 3.4 and 7.5 MW depending on its configuration.

The company is currently working on environmental reviews and awaiting Iqaluit approval, after which it will begin searching for investors for the US\$450 million project.

#### [Investment group completes acquisition of Allegheny River hydropower projects](#)

Hydro World (December 4, 2012)

Energy Investors Funds has acquired the Allegheny 8 and Allegheny 9 hydropower projects through its United States Power Fund IV. Financial details of the deal and the were not disclosed.

The plants, which have a total combined capacity of 30.4 MW, were completed in 1990 and are located on the Allegheny River about 35 miles from Pittsburgh. Both hydroelectric facilities will be operated by Northbrook Energy subsidiary Allegheny Power LLC under a power-purchase agreement with the New York State Electric & Gas Corporation. The agreement runs through August 2030.

"We believe the project has all of the attributes we look for in an investment," says EIF managing partner Herb Magid. "It has a solid operational history, a long-term off-take contract with a highly rated utility for the power that the plants produce, and great prospects for operating efficiently well into the future." EIF is a private equity fund management firm dedicated exclusively to the independent power and electric utility industry.

### [Asia](#)

#### [Greenko acquires 14-MW Sumez hydroelectric project in Himachal Pradesh](#)

Hydro World (December 5, 2012)

Indian renewable energy company Greenko has acquired the 14-MW Sumez hydropower plant, moving the company closer to its target of 1,000 MW of hydroelectric production by 2015. [Greenko](#) says the Sumez hydropower project has a total value of about US\$24 million, including normal project finance debt, though the company did not disclose details of the transaction. "Our hydro capacity has grown by 58% this financial year and Sumez now gives us access to the merchant power market, where we

expect to generate attractive returns for our shareholders," said Anil Chalamalasetty, Greenko's Chief Executive Officer.

Sumez was completed in early 2012 and was registered by the Rango Raju Warehousing Private Limited under the United Nations Framework Convention on Climate Change (UNFCCC). Greenko says its output is currently contracted to the state's electricity board.

The acquisition of Sumez now gives Greenko a total of 11 run-of-river hydro projects in India's Himachal Pradesh state, which have a combined capacity of 71 MW. "We will continue to selectively acquire high quality hydro projects, as current market conditions have created opportunities for a well-capitalized business such as Greenko to secure assets at very attractive prices," Chalamalasetty said. In all, the company's hydro portfolio now consists of 289 MW-worth of total capacity.

## **Europe**

### **Portland signs deal for in-pipe hydro system**

Hydro World (December 21, 2012)

Renewable power developer Lucid Energy Inc. and the City of Portland are set to begin construction of an in-pipe hydroelectric system.

The project, which is scheduled for completion in June 2013, will use Lucid's "LucidPipe" generating units, which will be installed in a section of large-diameter, gravity-fed water pipeline. The company says the units will produce at least 10 MW of energy and are being installed as part of Portland's Climate Action Plan.

"It really speaks to Portland's understanding about the importance of the convergence of water and energy in building a sustainable economy, and it will set an example for water agencies all over the world who, like Portland, are looking to reduce energy costs and embrace clean energy and smart water innovation," said Lucid President and Chief Executive Officer Gregg Semler. Portland's in-pipe hydropower system will be the second major LucidPipe installation, following the installation of a system in Riverside, Calif., earlier this year.

## **Oceania**

### **Hydro Tasmania awards contract for work at 10.5-MW Rowallan hydropower project**

Hydro World (November 9, 2012)

Hydro Tasmania has awarded a US\$4 million contract to Hazell Bros for the first stage of an upgrade project at Rowallan Dam. The contract will see Hazell Bros. make improvements to the 44-year-old dam, bringing it up to modern standards over the next three years.

Hydro Tasmania says a 2011 review found the dam's performance was consistent with expectations for a structure of its design, construction and age, although improved understandings of risks will allow the utility to reduce risks that were unforeseen in 1968. As per the contract, Hazell Bros. will construct new concrete walls inside the existing spillway walls by May 2013, after which it will increase the dam's flood capacity through summer 2015.

In all, Hydro Tasmania says it expects to spend about \$14 million on work at Rowallan Dam over the next three years as part of the company's rolling 10-year asset management plan.



## Clean Development Mechanism

1. **Kyoto Protocol Outcome from Climate Talks (COP18) in Doha**
2. **Climate Finance**

### 1. Kyoto Protocol Outcome from Climate Talks (COP18) in Doha

From November 26 to December 7, 2012, the United Nations hosted the 18th Conference of the Parties (COP) in Doha, Qatar. In 2011, there was not enough time at the COP 17 in Durban to finalize all the rules, after the EU agreed to a second commitment period for the Kyoto Protocol (KP2). **In Doha, the rules for that second commitment period were finally agreed upon, allowing it to move forward for another eight-year period (2013-2020). While countries who have joined this second commitment period (including the EU, Australia, Switzerland, and Norway) only contribute 15 percent of global emissions, this is an important step in that it maintains the only legally binding instrument under the UNFCCC.**

With the new legal arrangement, these countries will be able to begin implementing their new commitments from January 1, 2013 without any gaps. KP2 also features an ambition trigger, which requests that KP2 Parties revisit and increase their commitments by 2014 (rather than 2015) in line with the 25-40 percent emissions reductions called for by the IPCC 4th Assessment Report. This issue will be considered at a high-level ministerial roundtable in 2014. In addition, developing countries were granted an increase of the “Share of Proceeds,” a means to use a percentage of the revenue generated by carbon market mechanisms to help developing countries meet the cost of climate change adaptation.

**For non-KP2 Parties (e.g. Canada, Japan, Russia, New Zealand), negotiators agreed to restrict those Parties’ eligibility to the Protocol’s flexible market mechanisms. In other words, although they can “participate” in clean development mechanism (CDM) projects, they cannot “transfer” or “acquire” the resulting units; only KP2 countries can trade such units.** Another key issue was how many “surplus of emission allowances” a country could carry over from the first to the second commitment period without jeopardizing the environmental integrity of the market. Countries decided to further restrict the trading and retirement of units generated from the flexible market mechanisms. This means that although a country will be allowed to carry over 100 percent of its surplus, it must happen under the following conditions:

- Any surplus will be put into a new emission allowance account called the “Previous Period Surplus Reserve;”
- A country will only be able to use this allowance if it exceeds its allowed emission (or assigned amount), and if its new emissions target is more ambitious than in the previous period; and
- There is a limit to the number of emission allowances (units) countries can trade.

In addition, many countries stated publicly in Doha that they do not plan to purchase any such units.

While it is important to have the Kyoto Protocol moving forward—even with a smaller group of countries than under the first period—the key question now is how the Protocol’s structure and rules will impact the new negotiation track and how much this model will influence the post-2020 architecture.

## 2. Climate Finance

Cited from: *Reflections On COP 18 In Doha: Negotiators Made Only Incremental Progress*. Available online: <http://insights.wri.org>

The key question on climate finance at Doha was what signal developed countries could send to developing countries on the continuation and increase of funding after 2012. Doha marked a key moment in this debate due to the fact that there was no bridge between the “fast start finance” period (which ends in 2012) and the \$100 billion commitment made in Copenhagen that begins in 2020. Developing countries were hoping for some certainty of how to get from here to there.

However, the result was a weak agreement. There was no collective mid-term commitment on scaled-up funding. Developed countries only agreed to maintain through 2015 at least the average finance levels provided during 2010-12—roughly \$10 billion a year. It is difficult to know exactly what has been pledged towards this target and to compare each country’s efforts. These open accounting questions and inconsistencies are scheduled to be addressed by 2014, as countries consider ways to better measure, track, and report climate finance.

Encouragingly, a few European countries—Denmark, France, Germany, Sweden, and the UK—individually pledged more funding annually post-2012 than they had during 2010-12. These new pledges collectively add up to more than \$10 billion over a one- to two-year period starting in 2013. There were, however, an entire set of countries that were let off the hook in Doha, with many citing the difficult economic conditions as the primary reason for their lack of a new pledge. The final agreement calls on these countries to make a pledge for 2013 and beyond “when their financial circumstances permit.” In addition, no clear pathway was established that would require developed countries to lay out a roadmap with their “strategies and approaches” to reach the target of mobilizing \$100 billion annually by 2020. Instead, negotiations on this pathway were deferred to the next COP.

Additionally, countries pledged or provided a little more than \$10 million to the Green Climate Fund (GCF) to meet its administrative costs as its Board works to further operationalize the Fund in 2013. Countries also agreed to develop the rules of engagement between the COP and the GCF Board in order to allow the COP to guide the Fund’s strategic direction without interfering in its day-to-day operations. The Standing Committee on Finance, acting on behalf of the COP, will work with the GCF Board to develop these rules through 2013, with the goal of agreeing on them by COP 19.

## Update: World Small Hydropower Development Report



### World Small Hydropower Development Report



The International Centre on Small Hydro Power (IC-SHP) is the Secretariat of the first [World SHP Development Report](#). The Report will enter the peer-review stage after the 15<sup>th</sup> of January and is aimed to be published by April 2013.

The aim of the Report is to give a global overview of the country status of SHP and thereby inform SHP practitioners, policy- and decision-makers, investors on the opportunities that SHP has to offer as a clean, renewable and local energy for sustainable development worldwide.

Please note that IC-SHP is currently not accepting any more contributions. However, since this is an on-going project, we are always glad to hear from practitioners of countries that would like to provide up-to date information for their country. Additional information and preview case studies are provided on the now [World SHP Development Report](#) homepage section. Contact: Lara Esser, email: [lara@icshp.org](mailto:lara@icshp.org).

#### Forthcoming events

##### Events

##### [World Future Energy Summit 2013](#)

#### Events

<a href="#">World Future Energy Summit 2013</a> Abu Dhabi National Exhibition Centre 15-17 January, 2013	<a href="#">Hydrovision International</a> Colorado Convention Center, Denver, USA 23 – 26 July, 2013
<a href="#">3rd Technical Workshop of the Regional Program &amp; 6th Hydro Power for Today Forum</a> Mexico Spring 2013, Date To Be Announced	<a href="#">Hydro 2013- Promoting the Versatile Role of Hydro</a> Innsbruck, Austria 7 - 9 October 2013
<a href="#">5th Annual Small Hydro</a> Vancouver, Canada 16 – 17 April, 2013	



**The World Future Energy Summit (WFES) 2013 will bring together global leaders in policy, technology and business to discuss the state of the art, develop new ways of thinking and shape the future of renewable energy.**

Building on the high profile successes of WFES 2012, the sixth annual gathering of future energy's world leaders will be home to brilliant minds and inspiring thinkers for three days of expert debate and world class innovation in the heart of Abu Dhabi.

January 2013 will mark the first year of the International Water Summit which will be held in conjunction with the World Future Energy Summit. The International Water Summit is the only event that focuses specifically on the water energy nexus and the challenges of this within arid environments. The event will include a political summit, expert conference and exhibition for delegates and water experts from all over the world.

Now, as the centerpiece of Abu Dhabi Sustainability Week, WFES 2013 will work seamlessly with a string of other global conferences in sustainability, renewable energy and cleantech, including the inaugural International Water Summit and IRENA to create an unrivalled global hub of expertise and connections.

With truly worldwide reach and authoritative subject matter expertise, WFES 2013 will bring together depth of knowledge and breadth of talent to inspire audiences, share insights, stimulate debate – and influence the agenda for the years in prospect. It is a platform from which conventions can be challenged and new thinking shaped.

Conference speakers, delegates and exhibitors are truly world class. WFES 2012 Opening Ceremony speakers included the Premier of China and the Prime Minister of Korea as well as the President of the United Nations General Assembly and the Secretary General of the United Nations. Heads of State and Heads of Government have used WFES as a unique global platform from which to launch initiatives, announce investment, make policy statements and deliver targeted media messages designed to raise awareness and increase business.

**More information:** [www.worldfutureenergysummit.com](http://www.worldfutureenergysummit.com).

#### **CONTACT IN-SHP e-NEWSLETTER**

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We value your comments and suggestions. Please send these to the Editor at [report@icsph.org](mailto:report@icsph.org)