

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

Welcome to the 15th issue of our newsletter. Here at IN-SHP in Hangzhou, China, we have been greeted by the initial spring blooms, making this a season of fruitfulness and endowing us with spirit of forward thinking.

This issue features the first of the top ten manufacturers in small hydropower equipment – Zhejiang Jinlun Electromechanic Co. Ltd. It has 55 years of experience in manufacturing hydropower equipments and boasts an area of more than 170,000 square meters. Jinlun has also been certified by ISO 9001:2000, ISO 13601:2004 and OHSAS 18001:2001. Its latest achievements, a co-research in model runner with specification ZZ500 has won the Chinese National Science Congress prize and China's 2nd National Prize for Progress in Science and Technology.

I am also pleased to inform our members that the first *World Small Hydropower Development Report* by UNIDO and ICSHP has entered its final production phase and is expected to be completed in the second half of the year. We will inform our members once this becomes available.

On another note, please join me to welcome our two new volunteers, Sidney Yap Yee Lan and Laxmi Aggarwal from Malaysia and Tanzania respectively. They are currently Assistant Program Officers to the Multilateral Development Affairs Division.

ICSHP strives to promote the use of small hydropower as a clean energy solution to meet the growing demand of energy in the world, especially in developing countries. In order to serve our members better, we seek interested parties to enquire, suggest and contribute to the various aspects of our work and services. You may email us at report@icshp.org.

SHP Events in China

1. **The Projects of Replacing Fuel with SHP in Xiushui and Fengyi County of Jiangxi Province Passed the Provincial Acceptance**
2. **Ministry of Water Resources: Strengthen the Rural Hydropower Construction**
3. **Anhui Province Achieved the State Investment of 40.17 million yuan for Rural Small Hydropower**

Projects of Replacing Fuel with SHP in Xiushui and Fengyi County of Jiangxi Province Passed the Provincial Acceptance

With the joint efforts of all levels of governments and relevant departments, the projects of replacing fuel with SHP in Xiushui and Fengyi County of Jiangxi Province were completed in the first half of 2012. Through half a year's trial operation, the two projects passed the acceptance organized by China's Jiangxi Provincial Water Resources Bureau and Development and Reformation Commission. The total installed capacity of these two projects is 5120 KW with the investment of 42.25 million yuan . The annual generation is estimated at 4.13 million kWh serving 3,445 households.



'Strengthen rural hydropower construction', China's Ministry of Water Resources says

On February 19, Ministry of Water Resources of China issued a document stating that it would strengthen the rural hydropower construction in the planning regions as well as areas in water conservation and water pollution prevention and control to improve the mechanism for ecological compensation.

Rural hydropower mainly refers to small hydropower. The construction of a SHP project can be carried out without the approval of energy department, with a short construction period and a relatively small investment.

Statistics in 2013 show that China's rural hydropower sector is experiencing rapid growth. The newly increased and installed capacity was at 3 million kilowatts and the total installed capacity was at 65 million kilowatts. Currently, SHP can not only solve the electricity problem in remote rural areas, but also improve the rural electrification levels. The document thus went forth to state that China would solve shortage of drinking water in rural areas and promote construction of water-saving projects.

Anhui Province Achieved the State Investment of 40.17 million yuan for Rural Small Hydropower

In 2013, China contributed 40.17 million yuan of its central budget investment to the Anhui Province for the development of rural SHP. 23.87 million yuan of this total budget investment of SHP will go to replacing fuel and 16.3 million yuan will be allocated to new rural electrification. This is the first central hydropower construction plan in Anhui Province for this year. It will in turn provide an impressive support of five projects on SHP, replacing fuel and 10 projects on new rural electrification.

Special Report: An Introduction of ICSHP Jinhua Base

UNIDO-ICSHP's SHP Equipment Jinhua Manufacturing Base – Zhejiang Jinlun Electromechanic

About Jinlun

Zhejiang Jinlun Electromechanic Co., Ltd, founded in 1958, is located in the economically developed coastal city of Jinhua, Zhejiang Province of China. As a key enterprise designated by National Mechanical Industrial Bureau, it is the SHP (Small Hydro Power) Demonstration Base of UNIDO. Jinlun is ranked the first of the top ten manufacturers in small hydro power equipments. Jinlun boasts an area of more than 170,000 square meters, with a building space of 100,000 square meters and over 700 employees. Independent intellectual property rights on hydropower equipment, advanced designing concept and philosophy as well as a large workshop equipped with more than 400 sets of various mechanical processing and testing machines have enabled Jinlun to manufacture equipment with high efficiency and creditable quality.



Jinlun consists of Jinshui Power Plant Engineering Co., Ltd., Hydropower Equipment Research and Development Center, Mechanical Branch, Generator Branch, Installation Branch, After-Sale Service Center, Jinhua Yalun Plastic Die Carrier Co., Ltd., Jinhua Jinlun Import & Export Co., Ltd., Jinhua Yalun Mechanic Co., Ltd., which provide a one-package service such as EPC contracting, engineering, civil construction, installation and commissioning, training, etc.

With more than 50 years of experience in manufacturing hydropower equipment, Jinlun is fully capable of

manufacturing turbines with more than 200 specifications that fall into four categories i.e. Francis, Kaplan, Pelton and Tubular with a single unit capacity of up to 100 MW.

Jinlun products have been installed in more than 800 locations across 31 domestic provinces, municipalities and autonomous regions in China, as well as over 50 countries and regions in five continents. The units with advanced technology have been operating safely and constantly for decades. Jinlun has been granted authority to oversee project contracting by the Chinese Ministry of Commerce. With its professional experience in the hydro power field, Jinlun provides high quality products and customized solutions.

Design

With independent developing, designing and innovation, adopting CAD, CAM and CAE computerized design and analysis and as well as introducing software such as CFD, FE to develop hydro power equipments with proprietary intellectual property rights, its products have met the international standards. Currently, Jinlun has developed over 100 various new turbine specifications, of which over 10 were awarded national patents. Meanwhile, over 20 advanced technologies have been introduced both at home and abroad. Jinlun's Research and Development center has been designated as a provincial and as a new technology enterprise research and develop institution.

Manufacturing

Specific attention has been paid to technology innovation and development to promote higher efficiency and quality in production. With rich experience and various big and medium computerized processing equipments and as well as CNC lathe for machining runner blades and guide vanes, Jinlun is competent to manufacture hydro power equipment with more than 200 specifications that fall into four categories, Kaplan, Francis, Tubular and Pelton, adaptable water head range 2~1000m and flow 0.05~200m³/s, which have met all kinds of requirements.

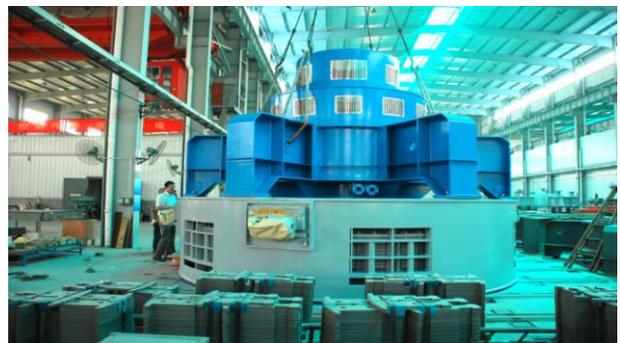
Honor – Certifications and Prizes



Jinlun has been certified by ISO9001:2000 quality management system, ISO13601:2004 Environmental management system and OHSAS18001:2001 Occupational health and safety management system. They have established an effective and practical management system via carrying out manual management, process documentation and working documentation as well as other standard management system documentations, all procedures starting with pre-sale service, design, workmanship, manufacturing,

inspection and test, delivery, supervision to erection and commissioning up to after-sale service are all well controlled during the implement stage so as to guarantee reliable quality and a stable performance to meet the clients' satisfaction.

In 1967, Jinlun succeeded in making a single regulation Kaplan runner named 'Jinhua #1', of which energy efficiency and anti-cavitation performance was prior to the runners imported from other countries. In 1973 and 1992. Jinhua #1 was put on the list of national turbine Consecutive series runner-spectrum, formally named as ZD760 runner, and widely promoted throughout the country.



Jinhua has won China's National Science Congress for its co-research in model runner with specification ZZ500 on the Gezhou Dam. Its conducted design and research of Jiangxia in tide energy power plant has also won itself China's 2nd National Prize for Progress in Science and Technology.

World SHP News

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2. [Asia](#)
3. [Europe](#)

[America](#)

[Voith-equipped Cubujuqui micro hydroelectric project online](#)

The Costa Rican utility Coopelesca has begun the commercial operation of its 22.8-MW Cubujuqui small hydroelectric project located in Horquetas de Sarapiquí. The hydropower project is a turn-key operation jointly supplied by Voith Hydro Brazil and Voith Hydro India, which features two Voith-manufactured 11.4 MW Francis turbines.

"We are very satisfied with the results we have achieved," said Voith Hydro Brazil President and CEO Osvaldo San Martin. "Cubujuqui constitutes a success for the company, as well as a reference in Central America."

The project was constructed to help meet Costa Rica's growing demand for energy.

Source: *Hydro World* (February 25, 2013)

[U.S. House passes hydropower energy policy with unanimous vote](#)

America's hydroelectric power sector received a boost as House Resolution 267, also known as the Hydropower Regulatory Efficiency Act of 2013, received a unanimous 422-0 vote of approval before the U.S. House of Representatives.

The legislation is essentially the same as the H.R. 5892, which was a bipartisan energy policy designed to promote growth of mini hydro and in-conduit projects by streamlining the Federal Energy Regulatory Commission (FERC) permitting process for low-impact proposals.

Specifically, the Hydropower Regulatory Act will:

- increase the small hydro exemption from 5 MW to 10 MW
- remove conduit projects under 5 MW from FERC jurisdiction
- increase the conduit exemption to 40 MW for all projects
- provide FERC the ability to extend preliminary permits
- require FERC to examine a two-year licensing process for non-powered dams and closed-loop pumped-storage

The bill received a unanimous 372-0 approval from the 112th Congress in July 2012, though it did not come to a Senate vote before the end of the past session. It was re-introduced to the 113th Congress in mid-January by Reps. Diana DeGette, D-Colo., and Cathy McMorris Rodgers, R-Wash., before passing the House Energy and Commerce Committee about a week later.

Its passage today in the House makes it the first piece legislation approved by the 113th Congress. "[The National Hydropower Association] applauds today's passage of the Hydropower Regulatory Efficiency Act," NHA Executive Director Linda Church Ciocci said. "The unanimous vote demonstrates that policymakers view hydropower as a solution to the nation's energy challenges and believe we should expand its contributions to America's energy mix."

Source: *Hydro World* (February 13, 2013)

Hydropower's role in this energy mix was mentioned by President Barack Obama yesterday in his State of the Union address, who said he would urge his cabinet to "speed the transition to more sustainable sources of energy." "Today, no area holds more promise than our investments in American energy," Obama said. "After years of talking about it, we're finally posted to control our own energy future."

According to the NHA, hydroelectric sources currently provide about two-third of the nation's renewable electricity with 100,000 MW of power installed coast-to-coast. Studies show, however, that an additional 60,000 MW of hydroelectric capacity and 1.4 million cumulative jobs could still be created with the correct policies in place.

"Unleashing American ingenuity to increase hydropower production will lower energy costs and help create thousands of jobs," McMorris Rodgers said. "The future of American energy independence depends on the development of an 'all-of-the-above' energy approach, and I'm proud that hydro is finally on its way to being part of it."

The legislation must now pass the Senate and receive presidential approval. "Though passing this legislation is an important step, we must complete the process," Voith Hydro President and CEO Kevin Frank said. "I urge the Senate to act on and the President to sign this legislation to increase the use of hydropower across the United States."

Asia

Construction of new micro hydro project begins in India's Kerala state

India's Kerala Minister for Electricity and Transport Aryadan Muhammed said that a new micro hydro project in Kerala should help decrease power shortages in Malappuram once commissioned in 2015. Speaking at a recent ceremony marking the laying of the small hydroelectric project's foundation stone this past week, Muhammed said the 3.5-MW Adyanpara plant will be complete in 18 months.

The US\$5 million project, which is being developed by a joint consortium that includes Kirloskar Brothers Limited and Aryacon Constructions, will include three 1.5 MW small turbine units, a 5.5-meter by 57.5-meter check dam and a 975-meter long tunnel.

Power will only be generated at the Adyanpara plant during Kerala's rainy season, with the used water being cycled into the Adyanpara waterfalls on the Chaliyar River.

Kerala is located along India's southern tip, with the western side of the state bordering the Arabian Sea. On the topic of India, HydroWorld.com reported earlier this month that West Bengal has announced a plan to increase its hydroelectric capacity by 1,080 MW.

Source: *Hydro World* (February 18, 2013)

Sri Lanka micro hydro rehabilitation projects receive boost from new ADB loan

Sri Lanka's National Development Bank (NDB) will use a US\$1.29 million credit line from the Asian Development Bank (ADB) to rehabilitate and repair 19 micro hydro projects. The credits will be granted to private developers and will finance up to 100 percent of the total estimated costs for restarting the small hydropower sites. The loans carry a concessionary rate of five years, including a maximum grace period of up to one year.

The 19 mini hydropower projects -- located on private tea- and rubber-estates in Sri Lanka's Badulla, Kandy, Kegalle, Matale, Nuwara Eliya and Ratnapura districts -- will add an estimated 1.3 MW of combined capacity and fall under the Estate Micro Hydro Rehabilitation and Re-Powering Project (EMRRP), which is funded by the ADB's Sustainable Power Sector Support Project.

"We are proud to partner this national endeavor which would make a significant contribution to the national economy through repowering of renewable energy sources with potential to generate considerable volumes of power," NDB Chief Operating Officer Indrajit Wickramasinghe said.

Similar programs have existed since the mid-1990s, according to NDB, with more than 253 MW of total hydroelectric capacity added to Sri Lanka's grid by way of rehabilitated 0.25 MW to 10 MW hydropower projects.

Source: *Hydro World* (January 18, 2013)

BHEL inaugurates second of two new small hydro turbines at Tajikistan's 9.5-MW Varjob

Indian manufacturer Bharat Heavy Electricals Limited (BHEL) has completed the rehabilitation and modernization of Tajikistan's 9.5-MW Varjob micro hydro plant. The mini hydro project -- owned by Tajikistan's national power company, Barqi Tojik, previously included a pair of 3.67 MW turbine units. BHEL replaced those with two 4.75 MW units as part of the renovation, modernization and upgrade contract that was funded by the Indian government. Varjob's first new unit was commissioned in November 2012, with the second being officially inaugurated during a ceremony earlier this week.

Source: *Hydro World* (January 15, 2013)

Europe

Scottish micro hydro project developers charged with destroying mussel habitat

Developers of a 1.5 MW mini hydro project in a Highland Perthshire glen are facing fines of up to US\$245,000 for diminishing the population of a protected species and for causing long-term environmental damage to Scotland's River Lyon. Sources said English-based Shawater Ltd. admitted to being responsible for the death and injury of pearl mussels while working on the Inverinian hydroelectric plant, allowing its sub-contractors to build a pipeline, ford and access road "in a manner likely to cause pollution to the water environment".



According to reports, Shawater failed to prevent suspended solids and other materials from entering the Inverinian Burn and River Lyon, clogging the waterways with silt and depriving juvenile

mussels from oxygen.

Also being charged alongside Shawater are Alan Smith, director of A&C Construction, and Charles Kippen, director of Chic Kippen & Son -- both were hired to work on the project. Sentencing is expected to take place this week.

Pearl mussels are ranked amongst the most critically endangered mollusks in the world, and with about half of their global population located in Scotland and are a federally protected species. "It is unfortunate that a very small number of developers and contractors choose to ignore the rules," said British Hydropower Association (BHA) CEO David Williams. BHA and its Scottish members regularly work with the Scottish Environmental Protection Agency (SEPA) and Scottish Natural Heritage (SNH) when designing and building hydropower projects. Williams said, "To protect the flora and fauna within the boundaries of each scheme." None of the parties involved with the Inverinian project are BHA members, according to Williams.

Source: *Hydro World* (February 20, 2013)

Clean Development Mechanism News

[UNFCCC expands efforts to increase regional distribution of clean development mechanism projects](#)

Bonn, 12 February 2013 - The United Nations Framework Convention on Climate Change (UNFCCC) secretariat and the East African Development Bank (EADB) have signed a partnership agreement to establish a regional collaboration centre in Kampala, Uganda in an effort to increase participation in CDM projects.

The partnership agreement was signed by UNFCCC Executive Secretary, Christiana Figueres, and the Director General of EADB, Vivienne Yeda. This is the second regional collaboration centre established by the UNFCCC and a regional development bank in Africa, with the aim to bring benefits of the CDM to currently under-represented regions. The first centre, which was established a few months ago in Lomé, Togo in collaboration with the Banque Ouest Africaine de Développement (BOAD), provides assistance in the development of CDM projects in Francophone Africa. The office in Kampala will be operational as of 1st May 2013.

[Kyoto Protocol's clean development mechanism surpasses 6,000 projects](#)

Bonn, 30 January 2013 – The Kyoto Protocol's Clean Development Mechanism (CDM), the international market-based tool that incentivizes greenhouse gas emission reduction projects in developing countries, passed the 6,000 project milestone this week. The 6,000th registered project will install 21 megawatts of wind power capacity to feed the electric power grid in south central Vietnam, displacing fossil-fuel-generated power and reducing emissions by 32,000 tonnes per year; the equivalent of removing the emissions of 6,058 cars each year.

In the past 10 years, CDM projects have delivered 110,000 MW of renewable energy capacity. That is roughly equivalent to the total power generation capacity of Africa. "This is a remarkable milestone for a remarkable tool created to combat climate change and contribute to sustainable development," said Peer Stiansen, the new Chair of the CDM Executive Board. "Participation in the mechanism has been well beyond expectations, which is the surest sign of the value that countries have placed in the CDM."

There are registered CDM projects in 83 developing countries, ranging from projects that reduce emissions by replacing inefficient wood stoves, to solar power projects that displace fossil fuels, to large industrial projects that destroy extremely potent greenhouse gases (GHGs).

Last December, when they met at the United Nations Climate Change Conference in Doha, Qatar, governments agreed to a second eight-year commitment period for the Kyoto Protocol and confirmed a continuing key role for market-based approaches and tools like the CDM. Despite its success – research released last year estimated that the CDM has spurred US\$215 billion in investment – the mechanism is currently challenged by low prices for the certified emission reductions (CERs) produced by CDM projects. The value of CERs has declined more than 90 percent in the past year, due to underlying weak demand, which in turn is a function of the level of national commitments to reduce GHG emissions.

[Kyoto Protocol's CDM extends its reach, surpasses 100 registered PoAs](#)

Bonn, 27 February 2013 – The Kyoto Protocol's Clean Development Mechanism (CDM) has now registered more than 100 Programmes of Activities (PoAs). The milestone was passed on a day that saw the registration of seven PoAs: a small-scale solar project in Thailand (8457); small-scale hydro projects in China (8,259) and

Brazil (7,062); a solar LED project in Kenya (7,489); cookstove projects in Mexico (8,521) and in eight African countries (7,359); and a renewable energy project in China (8,526).

Under PoA, an unlimited number of similar project activities, over a wide area or region, can be administered under a single program umbrella. They are particularly suited to small-scale or micro-scale projects. After a PoA is registered, similar projects can be added over time without the need to register each one individually, reducing transaction costs and making the CDM more attractive and accessible to least developed countries (LDCs).

“For most LDCs, especially in Africa, single CDM projects are often too small to be viable,” said Peer Stiansen, Chair of the CDM Executive Board. “The recent growth in numbers shows that PoAs are overcoming this barrier and extending the benefits of the CDM to regions not previously able to take advantage of the mechanism.” Since the PoA procedures were adopted by the CDM Executive Board in 2007, 116 have been registered in 42 countries and more than 250 are currently in the PoA pipeline. Of the active PoA projects, 60 percent have entered the pipeline since the beginning of 2012. More than 25 percent of all registered PoAs are located in Africa, compared to just two per cent of regular CDM projects. The top three project types for PoAs are household energy efficiency projects (20 percent), small-scale solar projects (19 percent) and methane avoidance projects (18 percent).

Update:

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 UNIDO and IC-SHP are in the process of working together to coordinate the peer-review stage of the World Small Hydropower Development Report.

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 [World SHP Development Report](#) homepage section. Please contact Lara Esser at lara@icshp.org for any queries.

Upcoming Events

5th Annual Small Hydro Vancouver, Canada 16-17 April, 2013	Hydro 2013- Promoting the Versatile Role of Hydro Innsbruck, Austria 7-9 October 2013
Hydrovision International Colorado Convention Center, Denver, USA 23-26 July, 2013	3rd Technical Workshop of the Regional Program & 6th Hydro Power for Today Forum Mexico August 2013 (date to be confirmed)

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This 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 www.inshp.org

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