

HRC's Annual Report on Foreign Affairs in 2012 and Work Plan for 2013

**Hangzhou Regional Center (Asia-Pacific) for Small
Hydropower (HRC)
National Research Institute for Rural Electrification
(NRIRE)
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In 2012, led and supported by Ministry of Commerce, Ministry of Water Resources and Nanjing Hydraulic Research Institute, HRC carried out and implemented the decisions and arrangement of the Central Committee of CPC on speeding up the reform of national water conservancy. Staff members of HRC earnestly studied the documents of 18th Conference of CPC, with high responsibility and meticulous attitude, in the practical style of seeking truth, worked very hard, united and pioneering. Foreign-aid training projects were actively undertaken and extensive international exchanges conducted, striving to develop international market, successfully implemented bilateral cooperative projects, promoting SHP equipment export and creating social & economic benefit.

In 2012, leaders at a higher level attached great importance to the foreign affairs of HRC. Mr Hu Siyi, Vice Minister of Water Resources, Mr Gao Bo, Director-General of the Department of International Cooperation, Science and Technology of MWR, leaders of Bureau of Rural Hydropower and Electrification Development, MWR, and Department of Commerce of Zhejiang Province respectively paid inspection visits to HRC and met with the international participants of HRC, showing deep concern and support.

I. Foreign-aid Training

General Situation

In order to strengthen foreign-aid human resources development, deepen south-south cooperation, popularize Chinese SHP technology and equipment, and promote exchange and cooperation among developing countries, HRC, under the guidance of MOFCOM and MWR, successfully organized 3 foreign-aid training workshops (seminar) in 2012, with totally 83 participants (officials) from 41 countries, achieving remarkable results.

The year 2012 saw continuous improvement of the foreign aid training. The completion of detailed training scheme, strict management regulation for the lecturers, strengthening of lecturers' capacity, arrangement of visit to the villagers and etc all increased the satisfaction rate of the training.

1. Training Workshop on Small Hydropower Technology for Developing Countries

From 23 May to 6 July, the "Training Workshop on Small Hydropower Technology for Developing Countries", which is the 61th international training workshop by HRC, was held in HRC successfully, with 24 officials and technicians working in the hydropower

sector from 17 countries i.e.. Vanuatu, Nepal, Fiji, Kyrgyzstan, Cambodia, Nigeria, Zimbabwe, Kenya, Ethiopia, Sudan, Syria, Sierra Leone, Jamaica, Pakistan, Guinea-Bissau, Dominica and Sri Lanka.

During the execution of this training, HRC attached great importance to the continuous improvement of international training. Based on several years' accumulated experience in training, we worked out the <Scheme of International Training>. This scheme, which is divided into eight parts with totally hundreds of entries, covers the whole training process, including the preparatory work, reception, opening ceremony, training work, logistics, closing ceremony, send-off, and summary. It specifies certain tasks, the precautions, the handling personnel, the re-check and assistant members, finishing time, and the person who takes the relevant responsibility. The scheme effectively guarantees the diminution of the work negligence, the improvement of quality and the execution of the training.

In order to improve the presentation quality, we established a strict management system for our teaching staff. The participants would evaluate the courses of each lecturer, and make scores. The feedback of the scores and evaluation results would be given back to the lecturers, and the lecturers could continuously improve their future lectures based on the recommendations of the participants and improve the quality of foreign aid training.

Mr. Zhang Jianyun, Academician of Chinese Academy of Engineering and President of Nanjing Hydraulic Research Institute and Director of Dam Safety Center of MWR gave a special lecture “Water Resource vs Impacts of Climate Change in China” to the international participants of Training Workshop on SHP Technology for Developing Countries. The participants broadened their horizon after having Mr. Zhang’s illuminating lecture complete with excellent texts and graphics in PPT, which explained the profundity in simple terms.

In addition, a visit to a village scored good result, appreciated by Ministry of Commerce. The participants were arranged to visit Diaojiaowan SHP Station at a village in Changle town where participants were divided into groups to have dialogues with local villagers. The visit enabled



the participants to see the great changes after the construction of SHP plants in Chinese social, economic and living aspects. Participants praised the visit as an unforgettable trip to the countryside.

At the closing ceremony, Nepalese participant Mr Ramesh, monitor of the class commented:“We made some friends here. We expressed a lot through our eyes to eyes and smiles to smiles. We are emotionally and psychologically closer with Chinese people. During this training period we shared, learnt and saw many of your experiences and technical know-how in SHP and other fields. With the knowledge you imparted to us we are sure that we will be able to contribute in the development of SHP and water management in our countries. Besides your technology of small hydropower, we are taking with us your tea and silk and Tai Chi to our homes never to forget. We sincerely thank all of you for the useful lectures, study tours to SHP plants, industries, university, villages, sightseeing and shopping. This training will help strengthen friendship between China and our countries. When we go back to our countries we will make every effort to be connected with you for further cooperation. The world is looking forward to you for every cooperation. We need you. We would like to see China become mightier. Many of your developments in the fields of flood control, irrigation and small hydropower are visionary, inspiring and enlightening to all of us and to those who will understand your spirits through us in our home countries.”

The statistics from the questionnaire shows that participants were satisfied with all the items of the training, especially with “Management capability”, “Organizational skills of the Chinese staff” and “Reception attitude” 100% satisfaction. Over 90% participants expressed they were very satisfied with the “training content”, “Course degree of difficulty” and “Lecturers”. Over 80% participants felt satisfied with “Suitability of course quantity” and “Correlation between study tours and the program theme”. All the participants commented the training beneficial or very beneficial on “Role of the program in promoting cooperation between China and your country in the relevant fields”.

2. Seminar on Rural Electrification for Developing Countries

The Seminar was held from 30 Aug to 26 Sept 2012 and working language was English, which was attended by 24 officials in energy sector from Antigua and Barbuda, Cambodia, DPR Korea, Fiji, Ghana, Guyana, Kenya, Laos, Liberia, Malawi, Nepal, Papua New Guinea, Uganda, Tanzania and Zimbabwe.

During the implementation of the seminar, officials were arranged to visit the well-known Three Gorges project and were left deep impression. They expressed it was their greatest honor to visit this grand project, a glorious milestone in the exploitation of hydropower resources.



On the SHP Forum during the seminar, we invited our old participant Mr Igor from Macedonia to introduce SHP development of Macedonia and bilateral cooperation with HRC on SHP. After going back from the SHP training in 2007, he took part in



the implementation of several SHP or other renewable energy projects. Currently, he is secretary general of Macedonian generation enterprises association. Based on actual examples, his vivid introduction touched everyone present. An official from Malawi expressed with excitement: The introduction consolidated the confidence

of us working in the hydropower sector from African countries. Our brother has set us a good example, worthy of our study. We should think it over. What he has scored, I believe we can also make it. From now on, we should act quickly. Let's take substantial efforts to light Africa and to realize rural electrification in our rural areas.

To enrich the life of the participants at spared time, HRC organized an international boat-rowing match, participated by officials from 4 continents. The arrangement was well planned and atmosphere friendly. Officials expressed that the match was unforgettable, which, together with the friendship of HRC and the Chinese people, will rest in their heart for ever.

The monitor and the participant from Zimbabwe Ms Shorai expressed her gratitude to Ministry of Commerce, HRC, all the lecturers and the training team on behalf of all the participants. She said: "During this training period I have no doubt that all participants learnt from China's experiences and technical know-how in SHP, Solar power and Wind power development and their important role in Rural Electrification and overall socio-economic development. With the knowledge HRC imparted to us,

we will certainly contribute in the development of SHP & renewable energy to boost Rural Electrification Programs in our respective countries. This seminar has



strengthened friendship between China and our countries. As we go back to our countries, we will make every effort to be connected with you for further cooperation. I strongly encourage my fellow participants to exploit this cooperation seriously. You are so

caring. You worked tirelessly to make sure that our schedule never had a dull moment. We will never forget memorial events like boat rolling competition at the West Lake and having a chance to eat in Chinese and Korean restaurants where we had an opportunity to cook for ourselves.”

The statistics from the questionnaire shows that officials were very satisfied with the seminar, expressing 100% satisfaction with “Training content”, “Course degree of difficulty”, “Accommodation”, “Transportation arrangement”, “Management capability”, “Organizational skills of the Chinese staff” and “Reception attitude”. The positive evaluation of the officials is not only the affirmation to the training programs, but also is the motivation and direction for our future work.

3. Training Workshop on SHP Technology for Francophone African Countries

The "Training Workshop on SHP Technology for Francophone African Countries ", a 42-day foreign-aid training program was conducted by HRC at Hangzhou from 18 Oct to 28 Nov 2012. 35 participants from Benin, Central Africa, Comoros, Cote d’Ivoire, Djibouti, Guinea, Equatorial Guinea, Congo (Kinshasa), Madagascar, Niger, Morocco, Mali, Togo and Tunisia attended it. The working language is French.

During the implementation of the training, Mr Gao Bo, Director-General of the Department of International Cooperation, Science and Technology of MWR, Mr Chen Dayong, Deputy Director-General of Bureau of Rural Hydropower and Electrification Development, MWR, and other leaders paid working inspection to HRC, met with the international participants of HRC, took photos, showing deep concern and support,

非洲法语国家小水电技术培训班
Formation sur la Technologie de Petite Centrale Hydroélectrique
pour les Pays d'Afrique francophone
2012年10月18日—11月28日 Du 18 octobre au 28 novembre, 2012
中国·杭州 Hangzhou·Chine
主办单位：中华人民共和国商务部
Sponsor: Ministère du Commerce de la République Populaire de Chine
承办单位：水利部农村电气化研究所(亚太地区小水电研究培训中心)
Organisateur: Institut national de Recherche pour l'Electrification rurale (HRC)



ensuring the full success of the foreign aid training programs. The trial textbook on SHP in French was used during the training. The translation from the English version took 4 years and around 20 French specialists took part in the translation or revision. The completion of the textbook on SHP in French laid a good foundation for the future training workshops for francophone. Throughout China, there are not many such training institutions which could hold technical training of foreign aid in French, which is one of HRC's features.

During the training, we arranged a study tour and discussion for the participants in Zhejiang Jinlun Electromechanical Co., Ltd, the first ranking company of top ten enterprises of China's small hydropower equipment, and the participants combined the technical experience and practice with acquired professional theoretical knowledge perfectly. And we also fully showed them the development level of small hydropower in Zhejiang and even in China, furthermore, the wisdom and diligence of Chinese people. The participants studied the features and advantages of China's small hydropower equipment during the site visit. This visit has promoted the Sino-African cooperation for small hydropower projects, and the Chinese products further toward the African market. In the course of an in-depth discussion with the participants, Jinlun Company has found by surprise that the participant of the Central Africa, Mr. ZANGBE, was precisely the one in charge of the hydropower project in Central Africa, which was about to be executed by Jinlun Company. During the visit, the two sides held several in-depth discussions about project-related issues that were commonly concerned, it was very helpful to this bilateral small hydropower cooperation which was about to launch.

compared to that in the year 2011. At the end of the training, HRC was awarded an honorary certificate prepared by the 35 participants: “HRC, the best training institution”, representing their definite affirmation of HRC’s training work.

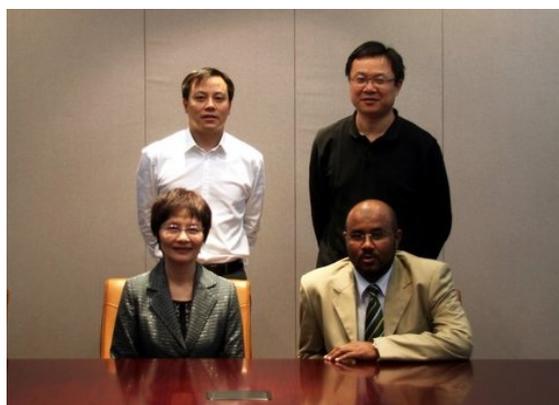
II. International Communication

1. Reception of Foreign Guests

In 2012, HRC totally received 13 foreign delegations of 45 foreign guests (as per appendix 1), respectively from Kenya, Turkey, Albania, Venezuela, Nepal, Czech, Chile and UNESCO. The visiting of new and old friends enhances the communication and understanding, improves the friendship and trust, thus reaching cooperative purpose for many projects. The important visits include:

(1) Official of UNESCO Visited HRC

On October 23, 2012, Mr. Hassan, official of UNESCO, visited HRC, and had a discussion on the financing of Sudan SHP cooperation project. Mr. Hassan had visited HRC twice before, and he have contributed to the conduction of UNESCO “Framework Research of Arabic Renewable Energy”. HRC undertook the development consultation for two small hydropower projects in Sudan.



(2) Officials of Venezuelan Ministry of Science and Technology Visited HRC

On November 1, 2012, Mr. Francisco Karthus, Director of National Center of Research Authentication for Housing and Urban Development, Ministry of Science and Technology, the Bolivarian Republic of Venezuela, the inspectors Mr. Francisco Hernandez and Mr. Juan David Keira, accompanied by staff member of the Embassy of the Bolivarian Republic of Venezuela in China, paid a visit to HRC for communication.



The delegation was assigned by Venezuelan Ministry of Science and Technology for enhancing the cooperation in the new field, especially in SHP technology and energy field between Venezuela

and China, and seeking for Chinese partner. During the meeting, Venezuelan delegation learned in detail about SHP development in China, especially the project situation and relevant policies of rural electrification, ecological protection project of substituting SHP for fuel, efficiency improvement and capacity enlargement of rural hydropower, and they took great interest in containerized SHP, rubber dam technology, hydraulic automatic shutter gate technology, complementary technology of wind power, solar power and hydraulic power. Mr. Karthus, head of the delegation, said:“before visiting, we already had a preliminary understanding that HRC is very capable in SHP field in China. Through this visit, we had a further understanding about HRC, and the scientific research achievements and talent team left us a deep impression. The development process of HRC showed us the achievements and a prosperous future of China after reform and opening up. We will arrange and report the achievements of this visit to government authorities, and strive for the cooperation with China under the agreement of governmental science and technology cooperation framework. Hereafter, we hope HRC could send technical delegation to Venezuela for further communication and cooperation opportunities”.

(3) Distinguished Delegation from Chile Visited HRC

On 16 November, accompanied by Ms. Dai Aiping, Division Chief, Department of Foreign Affairs of Zhejiang Province, the 10-member delegation from Chile headed



by Ms. Felisa Ojeda V., Governor of Aysén Province, paid a visit to HRC. During the friendly bilateral meeting, Director Cheng and Governor Felisa addressed respectively. Director Cheng said:"HRC is a national research institute

specializing in small hydropower and we also serve as a world-wide window for international small hydropower cooperation. Small hydropower is a renewable energy which has been universally recognized by the international society and embraces the obvious advantages of rich resources, proven technology, economic cost, flexible electric dispatching and high energy return rate. The SHP development in orderly manner and its sustainable utilization have played a very important role in reducing the greenhouse gases emission, protecting the forest and the vegetation, improving production and living conditions for rural population and contributing considerably to

the rural economic and social development As we know, Chile is a beautiful country with comparatively large potential of hydropower development. Since Chinese small hydropower has its unique characteristics in terms of development and utilization, our center HRC would like to make contribution to the promotion of hydropower development in Chile. We hope that your honored visiting can deepen the mutual understanding and promote the bilateral cooperation in the field of small hydropower". According to the speech of Governor Felisa, Chile is rich in water resources and the government also attaches an importance to hydropower development. In Aysén Province, there are many rivers and lakes; however, due to lack of the experience concerned, they hope to be informed of the achievements and experience of hydropower development in China. The delegation members took great interests in listening "HRC Briefing" and "SHP Development in China", and asked questions respectively. An in-depth discussion was held and the guests from Chile suggested that a MOU would be signed with HRC and the concrete cooperative projects were expected to be carried out in near future.

2. Outbound missions

In 2012, HRC has applied for 21 oversea visiting delegations of 36 people to Ministry of Water Resources (as per appendix 2). HRC dispatched delegates respectively to France, Macedonia, Turkey, the Philippines, Vietnam, Pakistan and other countries to attend international conferences, implement science and technology cooperation between governments, carry out the tasks of the installation of hydraulic equipments, technical consultation, contract negotiation of the equipments export and so on. The important visits include:

(1) HRC delegates attended the 6th World Water Forum.

During March 12-17, 2012, the 6th World Water Forum was held in Marseille. HRC



Director Ms. Cheng Xialei, as a member of Nanjing Hydraulic Research Institute Delegation, delivered a speech at Session 1.4.3: "Social policies for disaster risk reduction and resilience" and took part in the spot discussion as an invited guest and answered questions.

(2) HRC delegate attended Energy Sector Coordination Committee Meeting of Central Asia Regional Economic Cooperation

During May 21-22, 2012, Energy Sector Coordination Committee Meeting of Central Asia Regional Economic Cooperation was held in Philippines. 40 representatives from 11 countries attended the meeting and they commented on the



implementation of Energy Action Plan and Energy Work Plan 2013-2015 of Central Asia Regional Economic Cooperation. Mr. Lin Ning, Director Assistant of HRC, attended the meeting, and discussed the follow-up project cooperation with the participants who had taken part in the SHP International Workshops undertaken by HRC.

(3) HRC Delegation Visited Vietnam for the Cooperation Project between Vietnamese Governments

During July 7-15, 2012, at the invitation of Vietnam Institute of Hydraulic and Renewable Energy (IHR), headed by HRC Deputy Director Mr. Xu Jincui, a 4-people delegation visited Vietnam to carry out the cooperation project between Chinese Government and Vietnamese Government---“Research on the



Emergency Guarantee Technology for Rural Hydropower under the Disaster Condition Caused by Climate Variability”. HRC signed a Memorandum with IHR on black-start technology of hydropower station and other potential cooperation projects.

(4) HRC Delegate Attended 2nd EAS Energy Efficiency Conference

From July 30 to Aug. 2, 2012, 2nd East Asia Summit (EAS) Energy Efficiency Conference was held in Phnom Penh, Cambodia. 200 people from ASEAN include senior officials, experts and company managers. Professor-level senior engineer Li



Zhiwu made a report titled "China's small hydropower in rural energy development" to introduce China small hydropower policy, technology, development obstacle and other aspects. During the meeting, Mr. Li paid a visit to Mr. HENG SOKKUNG, Under Secretary of State, Ministry of Industry, Mines and Energy, Cambodia, who had attended the Ministerial Seminar on Water Resources and Small Hydropower, and paid a return visit to some participants who had taken part in international training course for small hydropower held in HRC.

(5) HRC Delegate Attended International Off-grid Renewable Energy Meeting

During November 1-2, 2012, International Off-grid Renewable Energy Meeting was held in Ghana. HRC assigned Mr. Cui Zhenhua to attend the meeting. At the meeting, Mr. Cui gave a report entitled "Rural Electrification through Small Hydropower in China".

(6) HRC Carried Out Cooperation in Renewable Energy in Pakistan

During December 10-16, 2012, 4-people delegation including Mr. Xu Jincai, Deputy Director of HRC, Mr. Lin Ning, Director Assistant of HRC, and other two relevant persons in charge paid a visit to Pakistan

to carry out cooperation in the field of renewable energy such as hydropower, solar power and so on. During their stay in Pakistan, HRC delegation visited Renewable Energy Technology Committee, Ministry of Science and Technology and several related departments, as well as the Minister for Affairs of Kashmir and Northern Area,



the Federal Government of Pakistan, and the Economic and Commercial Counselor's Office of the Chinese Embassy in Pakistan. The Delegation received warm reception by local government, scientific research institutions and power developers, and signed memorandum of cooperation with Punjabi Bureau of Energy and Habib Rafiq (Pvt.) Limited on the broad cooperation of technical training, cooperative R&D, and project demonstration in the field of small hydropower and other renewable energy.

(7) International Seminar on SHP Cooperation between India and China

On October 23, 2012, sponsored by National Development and Reform Committee of China, National Energy Administration of China and Ministry of New and Renewable Energy of India, "International Seminar on SHP Cooperation between India and China" was held in Beijing. Professor-level senior engineer Mr. Zhao Jianda of HRC

attended the meeting and made a keynote speech entitled “Development Situation of Chinese Small Hydropower and Relevant Policies”.

3. Information Exchange

In 2012, HRC has finished the translation drafts of *Operation and Maintenance of Small Hydropower Station Technical Specification*, *Technical Code for Construction of Small Hydropower Station*, *The Acceptance Code for Construction of Small Hydropower Station*, and completed the English translation draft for examination of *Guidelines on Electromechanical Equipment guide for Hydroelectric Installations*. The formulation and publication of the above English version standards have a great practical significance in promoting the development of international hydropower market and increasing the international business of design of SHP projects and equipments export and so on.

HRC has edited and published the “*SHP News*” of 2012, collecting huge number of articles concerning SHP technology and development, as well as the cutting-edge news in the field of SHP of many countries. The influence of the website of HRC has been enhanced. This year, it released 24 pieces of English news, collected and edited some global SHP and SHP industry information. In 2012, 28 papers from HRC staff members were published (as per appendix 3).

III. Export of hydropower equipments

In 2012, HRC’s subordinate equipment completing company carried out the after-sale service for 5 power stations of AKFEN project; completed the on-site installation and commissioning of Murat cascade power station and put it into operation; finished the on-site service of Kartalkaya project, carried out the on-side service of Osman, Kale and Sena project. Osman and Kale projects are



expected to be completed in January, 2013 and Sena project will finish installation in April, 2013; started on-site service for containerized units in Kosovo; Otluca project has finished the shipment and is about to conduct the on-site installation service; organized the equipments manufacture for project in Angola; carried out the after-sale service for Pinar project; launched the development of SHP markets in Turkey, Kosovo, Serbia, Togo, Macedonia, Ivory Coast, Pakistan and so on.

The company has newly undertaken 3 foreign projects: equipment completing of GIKIRA (2*200kw) in Kenya, feasibility report for the construction of DOBRUSHA power station in Kosovo, equipment completing of Gangelas project (1*1004KW+1*250KW) in Angola.

IV. Design for overseas engineering

In 2012, in addition to carrying out bilateral cooperation projects such as the design of PAKKAT power station in Indonesia, project design for RUHUII, construction drawing design for LUBUK hydropower station and AIR PUTIH hydropower station in Indonesia, construction drawing design for UPPER BAIUNE in Pupa New Guinea, feasibility research for THUAN HOA hydropower station in Vietnam, engineering

consultation for Naltar-V hydropower in Pakistan, HRC's subordinate Planning and Design Institute for M/S Hydro also undertook the design for some new cooperative projects, such as RENUN hydropower station in Indonesia, THUAN HOA hydropower station (30MW) in Vietnam, SIBUNDONG hydropower station in



Indonesia, DEBELAT hydropower station in Indonesia, AIR PUTIH hydropower station in Indonesia, etc.

V. Work Plan for 2013

Based on the fruitful achievements concerning foreign affairs work in 2012, HRC will make unremitting efforts to continuously enhance international cooperation on SHP, vigorously undertake international exchange and foreign-aid training, conscientiously implement the strategy of “Go Global”, actively explore overseas markets, and further promote SHP equipment export. Details of the work plan for 2013 are set out below.

1. To earnestly conduct the three foreign-aid projects (Seminar on Rural Electrification for Developing Countries, Formation sur la Technologie de Petite Centrale Hydroélectrique pour les Pays d’Afrique francophone and Training Workshop on Small Hydropower Technology for English-speaking African Countries) entrusted by the Ministry of Commerce; plan to revise the English version of the training materials “*Small Hydropower*”; to publish the French version of the training materials “*Small Hydropower*”;

Hydropower” based on the suggestions and comments from the participants of the training workshops who had read the trial edition; to make persistent efforts to ensure the excellent fulfillment of the foreign-aid training projects sponsored by MOFCOM; to earnestly conduct the training workshop on SHP for ASEAN countries.

2. To pay a visit to 1-2 countries which have dispatched participants to HRC for attending the foreign-aid training projects, aiming at collecting suggestions for sustainable improvement; to further strengthen the in-depth exchange with the foreign colleagues and governmental sectors in the field of SHP, to enhance friendship and promote cooperation.

3. To fully play the role of an important “window” for international exchange and cooperation on SHP, to strengthen the development of “the two magazines and the website” of HRC, and plan to build a section of French version of the website, to undertake extensive information exchange with the international organizations, the oversea SHP institutions and the colleagues at home and abroad.

4. To actively explore the overseas markets; to maintain the market in Turkey and undertake the overhaul and supply the spare parts for the projects built in Turkey; to further explore the African markets based on the projects in Angola and Kenya; to build the demonstration project on the containerized SHP units in Macedonia, to further explore the markets in East Europe, such as Kosovo, Albania and Serbia, etc.; based on the demonstration project on the containerized SHP units for “Black Start-up”, to further explore the markets in south-east Asia, such as Thailand, Myanmar and Indonesia, etc.; to explore the market in Pakistan by strengthening the communication with the old training participants and the cooperation with the construction companies and installation companies.

5. Plan to dispatch the delegate(s) to Nepal for attending the Energy Summit.

Appendix 1

Foreign Guests Hosted by HRC in 2012

No.	Time	Country/Organization/Delegate(s)	Objectives & Achievements
1	1/9-1/10	The owner of a SHP station in Kenya	The visit paid by the owner signified the formal startup of the cooperative project focusing on

			equipment supply and technology export, playing a role of demonstration for opening up African market, and providing experience for the further market development in Africa.
2	1/9-1/12	5 delegates from the Turkish company	The foreign guests visited the equipment manufacturer and inspected the test of hydropower equipment to be supplied.
3	3/18-3/20	5 delegates from the Turkish company	The foreign guests visited HRC, holding a discussion on hydropower projects and wind power development.
4	4/2-4/4	2 delegates from Albania	The foreign guests visited HRC, holding a discussion on the pre-feasibility study on local hydropower development.
5	7/2-7/6	5 delegates from the Turkish company	The foreign guests visited the equipment manufacturer and inspected the test of hydropower equipment to be supplied.
6	9/22-9/23	2 delegates from the Turkish company	The foreign guests visited the equipment manufacturer and held a primary technical discussion on the new project.
7	10/23	Mr. Hassan, Official from UNESCO	The foreign guest visited HRC and held a discussion with HRC leaders on financing for the cooperative SHP project in Sudan.
8	10/31-11/1	4-member delegation led by Mr. Francisco Garcés, Director of National Research and Certification Center for Housing and Urban Development, Ministry of Technology, Venezuela	The foreign guests had a meeting with HRC leaders and learnt the general survey on SHP development in China and the related policies and new technologies, aiming at promoting the exchange in the field of science, technology and renovation, as well as the cooperation in the field of SHP and other renewable energies.
9	10/29-10/31	The manager from a Nepalese company	The foreign guest visited the equipment manufacturer and confirmed the intention to have a long-term cooperation with HRC.
10	11/4-11/6	3 delegates from Czech Republic	The foreign guests visited the equipment manufacturer and had a meeting with HRC representatives, hoping that the cooperative project would be well promoted.

11	11/16	10-member delegation led by Ms. Felisa Ojeda V., Governor of Aysén Province, Chile	The foreign guests held a friendly meeting and made in-depth exchange with HRC leaders and experts, and were well informed of the achievements and experience of hydropower development in China. It aimed to promote bilateral cooperation in the field of SHP.
12	11/19-1 1/23	3 delegates from a Turkish company	The foreign guests visited the equipment manufacturer, and checked and made an acceptance of the equipment to be supplied for the project. A summary on the cooperative project has been made between the two sides.
13	11/20-1 1-23	3 delegates from the Kenyan company	The foreign guests held a meeting with HRC experts, discussing the issues of production quality and packing quality, and reaching an agreement on the next step action plan for the cooperative project.

Appendix 2

HRC's Outbound Missions in 2012

No.	Time	Delegate(s)	Country	Mission & Achievements
1	2/24-3/29	2	Macedonia	To hold discussion on the cooperative hydropower project in Macedonia.
2	3/12-3/17	2	France	To attend the 6th World Water Forum in France.
3	3/26-6/21	1	Turkey	To give instructions on the installation of turbine-generating units in Turkey.
4	4/18-7/14	1	Turkey & Macedonia	To give installation instructions for the hydropower projects in Turkey and Macedonia.
5	4/16-4/27	2	Turkey & Macedonia	To hold discussion on the cooperative hydropower projects in Turkey and Macedonia.
6	5/20-5/23	1	The Philippines	To attend the Energy Sector Coordination Committee Meeting of Central Asia Regional Economic Cooperation in the Philippines.
7	6/22-9/18	1	Turkey & Macedonia	To give installation instructions for the hydropower projects in Turkey and Macedonia.

8	7/8-7/15	4	Vietnam	To implement one of the scientific and technical cooperative projects between Chinese Government and Vietnamese Government.
9	7/4-8/5	1	Turkey	To give instructions on the installation of turbine-generating units in Turkey.
10	7/16-7/21	1	Turkey	To give instructions on the installation and debugging of the hydropower project in Turkey.
11	7/18-8/6	2	Turkey & Macedonia	To hold discussion on the cooperative hydropower projects in Turkey and Macedonia.
12	8./6-11/3	1	Turkey	To give instructions on the installation of the turbine-generating units in Turkey.
13	9/2-9/20	4	Turkey	To hold discussion on the cooperative hydropower project in Turkey.
14	9/3-9/30	1	Turkey	To give instructions on the installation and debugging of the electro-mechanical equipment for the hydropower project in Turkey.
15	9/24-10/3	1	Turkey	To give instructions on the installation and debugging of the hydropower project in Turkey.
16	10/30-11/25	3	Pakistan	To give instructions on the installation of the turbine-generating units in Pakistan.
17	11/21-	1	Turkey	To give instructions on the installation and debugging of the hydropower project in Turkey.
18	12/10-12/16	4	Pakistan	To hold discussion on the cooperative hydropower project in Pakistan.
19	12/4-	1	Macedonia	To give instructions on the installation and debugging of the electro-mechanical equipment for the hydropower project in Macedonia.
20	12/4-	1	Turkey & Macedonia	To give instructions on the installation and debugging of the electro-mechanical equipment for the hydropower project in Turkey and Macedonia.
21	12/17-	1	Turkey	To give instructions on the installation and debugging of the hydropower project in Turkey.

Appendix 3

Papers of HRC Staff Published in 2012

No.	Title of Academic Papers	Magazine/ Conference	Serial No.	Category	Author
1	An Analysis on Installation and Operation of Rural Earth Leakage Protector	<i>China Rural Water and Hydropower</i>	ISSN 1007-2284	Chinese Core Journal	Cheng Xialei, Zhu Mingjuan, Guo Xinggan
2	Research on the Water Resources Regionalization Model Based on Extension Conducting Effect	<i>Journal of Hydroelectric Engineering</i>	CN 11-2241/TV ISSN 1003-1243	Chinese Core Journal (collected by EI)	Zhang Rengong, Cheng Xialei
3	Design on Management System of Water Resources Regionalization in China	<i>Water Resources and Power</i>	ISSN 1000-7709 CN 42-1231/TK	Chinese Core Journal	Zhang Rengong, Cheng Xialei
4	Social Policies for Drought and Flood Risk Reduction in China	<i>Session 1.4.3, the 6th World Water Forum, --Marseille, France, March 14, 2012</i>		Invited presentation	Cheng Xialei
5	IVDF-ANN Prediction Model for Monitoring Data of Landslide Deformation	<i>Journal of Yangtze River Scientific Research Institute</i>	ISSN 1001-5485	Chinese Core Journal	Qin Peng, Zhang Zheyu, Qin Zhihai, Wang Weihai
6	An Analysis on Implementation Strategy of Green Hydropower Certificate in China	<i>China Waterpower & Electrification</i>	ISSN 1673-8241	Chinese Ordinary Journal	Cui Zhenhua, Chen Xing
7	An Analysis on Establishment of Carbon Accounting System for Small Hydropower Project	<i>China Waterpower & Electrification</i>	ISSN 1673-8241	Chinese Ordinary Journal	Chen Xing, Cui Zhenhua
8	Some Issues on Electrical Design of Hydro Power Station	<i>Journal of Beijing Electric Power College</i>	CN 11-4081/N ISSN 1009-0118	Chinese Ordinary Journal	Wu Weiguo
9	Application and Anti-failure	<i>Rural</i>	CN11-2181/TM	Chinese	Wu Weiguo

	Measures for “Soft-Starting Device” of Hydropower Station	<i>Electrification</i>	ISSN 1003-0667	Ordinary Journal	
10	Automation Design and Application of Hydropower Station	<i>Automation Application</i>	CN50-1201/TP ISSN1674-778X	Chinese Ordinary Journal	Wu Weiguo
11	Policy and Regulation: Regulating Development of Small Hydropower in America	<i>Small Hydro Power</i> , No.1, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Cui Zhenhua
12	Opportunities of Small Hydropower Development in Africa	<i>Small Hydro Power</i> , No.1, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Kang Peng, Wu Hao, Zhao Jianda
13	R&D Strategy for Emerging Hydropower Technologies in Canada --- General Survey	<i>Small Hydro Power</i> , No.2, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Zhao Jianda, Kang Peng, Wu Hao
14	R&D Strategy for Emerging Hydropower Technologies in Canada --- Market Analysis	<i>Small Hydro Power</i> , No.3, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Wu Hao, Kang Peng, Zhao Jianda
15	R&D Strategy for Emerging Hydropower Technologies in Canada --- Project Examination and Approval & Ecological Environment Protection	<i>Small Hydro Power</i> , No.4, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Kang Peng, Wu Hao, Zhao Jianda
16	R&D Strategy for Emerging Hydropower Technologies in Canada --- R&D for Emerging Hydropower Technology	<i>Small Hydro Power</i> , No.6, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Zhao Jianda, Kang Peng, Wu Hao
17	A New Financing Model for Construction of Hydropower Station --- Case Study in Macedonia	<i>Small Hydro Power</i> , No.3, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Wang Wanying, Lin Ning
18	Cultivation and Development of Strategic Emerging Industries in Small Hydropower Sector	<i>Small Hydro Power</i> , No.5, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Cheng Xialei, Zhu Xiaozhang
19	Research on Performance Appraisal System of Renovation Project of Rural Hydropower Station	<i>Small Hydro Power</i> , No.6, 2012	ISSN 1007-7642	Chinese Ordinary Journal	Zhou Lina, Yang Jia, Tang Yanqiu

20	Comprehensive Assessment of Water Resources of Comprehensive Utilization Project of Water Resources	<i>Small Power</i> , 2012	<i>Hydro</i> No.6,	ISSN 1007-7642	Chinese Ordinary Journal	Zhang Zheyu, Feng Dijiang
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22	Turbine Runner Selection in Expansion and Renovation of Chetan Hydropower Station	<i>Small Power</i> , 2012	<i>Hydro</i> No.6,	ISSN 1007-7642	Chinese Ordinary Journal	Jiang Xinchun
23	Analysis of Selection of Turbine Runner Type in Renovation Project of Geshan Cascade No.2 Power Station	<i>Small Power</i> , 2012	<i>Hydro</i> No.5,	ISSN 1007-7642	Chinese Ordinary Journal	Wang Xuefeng, Yang Jianfeng, Wu Tao
24	Upgrading and Renovation of Monitoring System of Changtan Reservoir Hydropower Plant	<i>Small Power</i> , 2012	<i>Hydro</i> No.6,	ISSN 1007-7642	Chinese Ordinary Journal	Wu Weiguo, Zhang Rongzhi
25	Problems and Treatment of Installation of Turbine Guide Vane in Changzhao Hydropower Station	<i>Small Power</i> , 2012	<i>Hydro</i> No.5,	ISSN 1007-7642	Chinese Ordinary Journal	Lu Jianping, Wang Guizhong
26	Status quo of Medium & Small Pumped Storage Station and its Development in Zhejiang Province (the omission in 2011)	<i>Small Power</i> , 2011	<i>Hydro</i> No.6,	ISSN 1007-7642	Chinese Ordinary Journal	Jiang Xingfen
27	Renovation for Unattended Operation of SHP Unit outside Changtan Reservoir Hydropower Plant	<i>Small Power</i> , 2012	<i>Hydro</i> No.6,	ISSN 1007-7642	Chinese Ordinary Journal	Zhang Rongzhi, Wu Weiguo