

## HRC's 2006 Annual Report & Plan for 2007

- I. Four international Training Workshops on SHP Implemented
- II. R & D
- III. Information Exchange & Publications
- IV. Hydropower Equipment Export
- V. Foreign Guests Reception & Outbound Missions
- VI. Plan for 2007

### I Four international Training Workshops on SHP Implemented

No	Name	Countries	Participants
1	Hydropower Training for SCO	2	7
2	Seminar on Water Resource Planning & Management for Cambodia	1	15
3	Seminar on Electric System Planning & Analysis for Cambodia	1	15
4	Training Workshop on SHP	30	42
Total			79

#### 1 Hydropower Training for SCO

Hydropower Training for Shanghai Cooperation Organization was held from 25 May to 3 July at HRC for participants from central Asia, as entrusted by the Chinese Ministry of Commerce. Seven engineers from Kazakhstan and Uzbekistan took part in. It was first time for HRC to hold the course in Russian, however, it was implemented with full success.



As the first time to conduct in Russian, the grave problem we faced was shortage of hydropower professionals who could speak Russian. Advertisements were put nationwide, as the result, highly qualified personnel were selected, winning the praise from the participants. Secondly, we adjusted the items for study tour, in accordance with the concrete requirement of the training course and based

on the previously training experience. The sites selected for the study tours were welcomed, including the tidal power in Wenling, Tianhuangping Pumped Storage Plant in Anji, Xinanjiang Power Plant and Water diversion project in

Jiangsu.

#### 2 The seminar on water resource planning & management for Cambodia

The seminar on water resource planning & management for Cambodia was held by HRC from 23 Nov to 12 Dec 2006, as entrusted by the Chinese Ministry of Commerce. Fifteen participants from Cambodia attended with satisfactory result, as the monitor of the seminar on water resource planning & management commented at the closing ceremony, "20 days passed very quickly, but we have got a huge wealth, because we gained much experience, advanced technology and methods from teachers and fields visits. All these are related to the field that we need to upgrade our officials. We anticipate that the Chinese government could hold such seminar every year so that the officials from our country could benefit"

#### 3 The seminar on power system planning & analysis for Cambodia

The seminar on power system planning & analysis for Cambodia was held by HRC from 23 Nov to 12 Dec 2006, as entrusted by the Chinese Ministry of Commerce. Fifteen participants from Cambodia attended with satisfactory result.

In the report to the Chinese Embassy in Cambodia and to the Chinese Ministry of Commerce by the

team leader of the 2006 seminar on power system planning & analysis, it points out “This training course is very interesting and from this course, we could learn more experiences from HRC of electric power planning and analysis, not only in development of power demand forecast, optimization of the project, economic analysis, environmental impact assessment,



and financial method for implementation of small hydropower projects and also from the observations of the small hydropower plant, pumped storage hydropower plant, dam simulation laboratory, turbine manufacturer, but also from other company on biomass power generation which are suitable for rural electrification in Cambodia.”

That is also the first time for HRC to conduct “power system” seminar. The scheduling, teachers, teaching materials and study tours are quite different from the “SHP” as what we did in the past. The study tours we arranged to the dispatching center of Zhejiang province, Hangzhou Garbage Power Plant and Beilun Thermal Power Plant were just appropriate and appreciated by the participants of the seminar.

#### 4 SHP Training Workshop

In all, 42 participants of 30 coun-

tries from 5 continents attended the small hydropower training course from 19 Dec 2006 to 8 Feb 2007, as entrusted by the Chinese Ministry of Commerce. An international lecturer from Sweden was invited to give presentations for two days.

Under the support of Ministry of Commerce, Ministry of Water Resources, Department of Foreign Trade & Economic Cooperation of Zhejiang province, and Foreign Affairs Office of Zhejiang province, the year 2006 witnessed a breakthrough in HRC’s implementation of international training programs.

First, it is the first time for HRC to conduct as many as 4 training workshops in a year. Secondly, HRC conducted two workshops or seminars for “Officials”, i.e. seminar on water resource planning & management for Cambodia, and seminar on power system planning & analysis for Cambodia. It is the first time for HRC to conduct seminars for “Officials”. According to the Ministry of Commerce, the requirements for holding seminars for officials are different. Thirdly, It is the first time to have 79 trainees in a year, exceeding 40 for one class. It is the first time to conduct training in Russian. Through the implementation of so many training programs, HRC increased its capacity in holding training workshops and its staff’s ability increased considerably, thus, the working efficiency enhanced.

China pays great attention to the overseas training missions for the numerous developing countries. China’s president Mr Hu declared recently 8 measures at the Beijing Summit of Sino-African Forum for promoting new Sino-African strategic partnership and cooperation in a wider scale and higher level, including training 15000 African personnel within 3 consecutive years.

## II、R&D

### 1、Key technology for containerized SHP station

HRC has cooperated with Tyco Tamar Co of Australia and conducts the research on key technology for containerized SHP station which has the features of low construction cost, short construction period, easy operation and maintenance, able to realize unmanned operation, and appropriate for the hilly remote areas.

### 2、Rural hydro intelligent control and management technology



HRC has cooperated with POWERBASE of Canada to conduct the research for rural hydropower intelligent control and management technology. The project has been listed as key item of international science and technology (2006DFB61400) cooperation by the Chinese Ministry of Science and Technology. It aims at promoting the development and management for

rural hydropower energy resource in China.

3、Continuous implement action of the research of “Sustainable Development of SHP in China” assigned by the Chinese Ministry of Water Resources. Its draft has been completed.

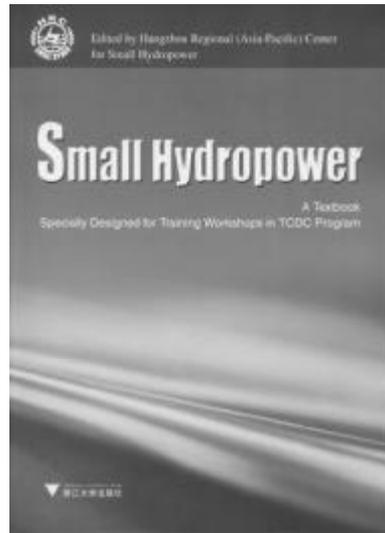
4、Research project of “Collection & Comparison of Application of International SHP Norms” assigned by the Ministry of Water Resources. The project mainly collects the standards, norms and regulations related to hydraulic engineering, hydropower, electric, mechanical and materials etc. It compares comprehensively and systematically the differences of system, application scope, and concrete technological parameters in technology, economy and management with that of foreign countries, and analyze the reasons to the differences. Based on that, put forward the recommendations for improving the regulations, standards and norms related to SHP in China, policy recommendations how to realize the transfer of “China standards” to “world standards” for decision makers. So far over 10 items of norms or standards related to hydropower and environment have been collected for analysis.

5、HRC has cooperated with Carbon Resources Co. of UK for two CDM projects in Hunan and Hainan provinces. Both these two projects have been checked and approved by the state Development & Reform Commission in China.

### III、Information Exchange & Publications

1、The textbook <SHP> in English was revised by HRC and published by Zhejiang University Press. A large amount of revision was made, attaching with 5 special topics. The year 2006 marked the 25 anniversary

of HRC’s establishment and the pub-



lication of the textbook is the gift for the anniversary.

2、The book “Blue Energy for A Green Europe — Strategic Study for the Development of Small Hydro Power in the European Union” (approximately 60,000 words in total) has been translated, and was published by Hohai University Press in June. Based on the research report BlueAGE, which was released by European Small Hydropower Association (ESHA) in the end of 2004, the book offers the details on the actual



state-of-the-art of the SHP development in European countries, makes analysis on the issues concerned, such as environmental protection, market competition and market permit, etc, trying to point out the main obstacles to the further SHP exploitation. Meanwhile, it focuses on the new concept of “exploitable environmental protection”, the updated technical research, the simplified procedure for checking and approval of project, and the incentive policies, etc, aiming to give some concrete recommendations for the promotion of further SHP development.

3、The book “Small Hydropower in Asia-Pacific Region — Status quo and Problems” has been translated from Chinese into English. Check and revision are still on-going.

4、Participation in compiling chapter 8, “SHP” in the Fifth volume “Hydropower Engineering” of <Electrical Engineering Canon in China> as entrusted by China Hydropower Engineering Society. The canon has been the first large comprehensive reference book which consists of 15 volumes and 35 million Chinese characters, for the past 30 years of electrical engineering development in China, which is practical, advanced and authoritative. The compilation plan and outline of this chapter have been submitted to the Rural Hydropower Bureau.

5、Altogether 6 issues of <SHP> in Chinese and 3 issues of <SHP News> in English were published by HRC. In all, 28 papers were issued including 3 papers published in China’s kernel magazines, 4 papers issued in international conferences and one paper issued in international journal.

6、The influence of HRC’s homepage has been increased, becoming an important window for publicity and a platform on which the HRC



staff receive information easily. According to statistics, 101 pieces of information in Chinese and 30 pieces of information in English were edited and issued in the year.

7、Accomplishment of publized materials of SHP and HRC with 3 languages of Chines, English, and French, exhibited on the 2006 Exhibit of Sino-African Friendly Cooperation organized by Chinese government. Lots of governmental leaders and ministers were present there.

8、 Provided articles for 2006 Provincial Yearbook on Foreign Affairs of Zhejiang.

#### IV. International Trade on Hydropower Equipment Supply

In April 2006, the engineers from Turkey, who were once in HRC attending the international training on SHP years ago, again come back to HRC with Turkey Customers for the cooperation of importing Chinese E-M equipment. The Memorandum of Understanding has been signed. In the 1st half of the year, HRC has succeeded in exploring the hydropower market in Latin American countries. The agreement of supplying a set of unit of 1950kW was signed recently with CRS in Peru. Meanwhile, close cooperation has been undertaken between HRC and the peers from the fields of hydropower in many

countries, inclusive of Nepal, India, the Philippines, Pakistan, Indonesia, Australia, Zambia, Thailand and Korea, etc. The quotations have been offered for over ten potential hydropower projects.

The under-implementation projects for hydropower equipment supply, which were signed in 2006, are shown as below.

The packaged equipment exported to Peru(1950KW):USD357,630.00;

The micro units exported to the Philippines(30KW):USD17,200.00;

The control system exported to Peru(1950KW):USD54,000.00;

The micro units exported to the Philippines(30KW):USD25,600.00;

The micro units exported to Canada(50KW):USD25,200.

#### V. Foreign Delegations Received by HRC & HRC's Outbound Missions

In 2006, 12 foreign delegations, 131 guests in total, paid visits to HRC (shown in Table 1).

This year, HRC sent 7 missions,

10 engineers in total, to go abroad (shown in Table 2).

#### VI. Work Plan for 2007

1. In response to the plan put forward by the Chinese Central Government that "China would help to cultivate 30,000 various talents for developing countries in the coming three years", in the year of 2007, we applied for assignment of 4 international training courses from the Ministry of Commerce. With joint efforts of HRC staff, we strive to well implement these up-coming training workshops and offer more contribution.

2. To edit and publish continuously the journal "Small Hydropower" in Chinese (6 issues/year), and the "SHP News" (electronic edition) in English as well as the Year book of 2007.

3. To finalize and publish the book "Small Hydropower in Asia-Pacific Region —— Status quo and problems" (English Version).

4. To pursue the potential SHP cooperative projects, try to make more addition based on the contract volume of 2006.

5. Continue to strengthen the management on foreign guests reception and outbound missions.



Table 1 Foreign Guests Received by HRC

No	Delegation	Guest	Time	Objectives and results
1	CRS, Peru	2	Mar	Visited HRC for purchasing SHP equipment.
2	Turkey	4	Apr.	Visited HRC and held in-depth discussions on the project recently set to construct in Turkey (2x1412kW), covering issues of equipment selection, technical parameters, after service, and terms of payment, etc.
3	Ministry of Energy, Sudan	1	Apr.	Visited HRC and focused on SHP cooperation with African countries.
4	Uzbekistan; Kazakhstan	7	May-Jul	Attended "Training Course on Hydropower for Shanghai Cooperation Organization", which adopted Russian as the working language firstly in HRC. Fruitful results were achieved.
5	"International Water Science Summer Camp" Participants from 15 Countries	21	Jun.	Visited historic sites and hydropower stations, and learnt more about the long history of water resources and the status quo of SHP development in China
6	TEAM, Thailand	4	Jul.	Visited HRC and hydropower stations. An Agreement on Cooperation was signed.
7	TEAM, Thailand	4	Oct.	Focused on issues for the joint bidding on SHP projects in Thailand in December.
8	PESI, the Philippines	4	Oct.	Visited hydropower stations and the equipment manufactures. A MOU was signed successfully with the details discussed intensively on the export contract to be signed.
9	Collaborators from Peru	4	Oct.	Based on the contract signed before, visited the factories and took inspection on products.
10	High-rank officials from Cambodia	30	Nov.	Attended the two seminars that were successfully held for Cambodia, i.e. "Seminar on Water Resource Planning & Management for Cambodia" and "Seminar on Power System Planning & Analysis Cambodia".
11	Vice provincial governor and Owners of THAI AN station, Vietnam	8	Dec.	Held in-depth discussion on the design of Thai An Hydropower Station in Vietnam, and signed an Agreement on Cooperation.
12	Participants from 30 Countries	42	Dec. 2006-Feb. 202007	Attended "Training Course on SHP", sponsored by Chinese Ministry of Commerce.

Table 2 HRC's Outbound Missions

No.	Time	Delegate	Country	Tasks & Achievement
1	Mar.	3	Mongolia	Attended the technical coordinating meeting for Tashir Hydropower Station in Mongolia. A summary of the meeting was finalized.
2	Mar.	1	Mexico	As one of the members of the Chinese delegation, attended the "4 <sup>th</sup> World Water Forum", which was held in Mexico City from 16 <sup>th</sup> to 22 <sup>nd</sup> March 2006, with the theme of "local actions for a global challenge."
3	Mar. – Apr.	1	Turkey	Undertook the on-site technical assistance to Basaran Hydropower Station, a cooperative project in Turkey, of which, the two sets of low-voltage automatic control panel were supplied by HRC.
4	Apr.	1	Vietnam	Participated in the follow-up Training Seminar of "2005 Management of Hydro Power Development", a program sponsored by SIDA. The HRC representative submitted the "Plan of Action" named "Environmental Integration of SHP Development", which was highly evaluated by the Swedish experts and other participants from various countries.
5	Sep. – Oct.	1	Sweden	Participated in "2006 Management of Hydro Power Development", a program sponsored by SIDA. Vattenfall, a leading European energy company, conducted the training program, in which, 25 delegates from 20 countries participated.
6	Dec.	2	Cuba	Offered technical assistance to the equipment installation and testing for MOA and CROJO hydropower stations, the two projects in Cuba with financial support from Chinese Government.
7	Jan. 2007	1	India	To attend the International Training Course on "Small Hydropower: Assessment and Development" held in India from Jan.30 - Feb.10, 2007.

( By HRC Secretariat, Feb 2007 )