

## **Intensifying Foreign-aid Training on Small Hydropower and Promoting Capacity-building of Developing Countries**

*--dedicated to 20 years' involvement of HRC in South-South Cooperation*

Hangzhou Regional Center (Asia-Pacific) for Small Hydro Power (briefed as HRC) is a regional organization established in Hangzhou in November, 1981 under the joint sponsorships of the Chinese government, United Nations Development Program (UNDP) and United Nations Industrial Development Organization (UNIDO). It is the one committed to research, training, information sharing and consultation in terms of small hydropower (SHP) in the Asia-Pacific region and even the world. Since its establishment, HRC has completed 80 training workshops and seminars in the field of water resources, SHP technology and rural electrification, which are entrusted by Ministry of Commerce, Ministry of Foreign Affairs, Ministry of Science and Technology, the ASEAN Secretariat, and the UN organizations, etc.. The participants of these workshops and seminars include around 1600 government officials and technicians from 112 countries. Besides, HRC is also one of the first centers that start to undertake the foreign-aid training program under the Ministry of Commerce from 1993, and 58 training workshops have been accomplished to this day.

The foreign-aid training program is an important part to the South-South Cooperation, playing a vital role in enhancing friendship and promoting economic and technical cooperation between China and other countries. Over the past 20 years, HRC has been unswervingly adhering to the mission of strengthening foreign-aid training on SHP and promoting the capacity-building of developing countries. Moreover, HRC has been accumulating experience and exploring new possibilities in implementing foreign-aid training programs. Improvements in both training mode and performance bear witness to the remarkable achievements that have been scored in several aspects.

### **I. Exploring Various Training Modes**

Over a long time, HRC has been innovating the training modes and seeking for

further improvements. Great achievements have been made in several aspects including diversification of training language, expansion of training content, extension of training venue to countries other than China, upgrading of training level, etc.

### **(1) Diversification of training language**

In 1993, HRC organized a foreign-aid training workshop with English as its working language for the first time. In 2005, a training workshop on SHP technology for French-speaking African countries with French as its working language was organized by HRC, but in 2006, another training workshop on SHP technology for central Asian countries with Russian as its working language was organized. Over the past years, HRC has successfully improved the training program in terms of working language from single language (English) to multiple languages (English, French, Russian), expanding the beneficiary countries of the training program from English-speaking countries to French and Russian-speaking countries.

### **(2) Extension of training venue to countries other than China**

In response to the “going out” policy from the Ministry of Commerce, HRC has carried out several training workshops on SHP technology in countries other than China. In May, 1999, training workshops were conducted in Turkey and Greece. In December, 2014, a training workshop on SHP technology for southeastern Asian countries, a Perez-Guerrero Trust Fund (PGTF) project, was conducted in Indonesia. In July, 2015, a 20-day training course on SHP technology was successfully held in Rwanda, which was welcomed and appreciated by the local government, partners and the Economic and Commercial Counselor’s Office of Chinese Embassy, and in 2016 another training course plans to be organized in Rwanda again. Up to now, HRC has made a successful shift in training mode from “bringing-in the participants” to a combination of “bringing-in the participants” and “organizing training workshops abroad”. This very expansion offers more training opportunities to grass-rooted technicians, further boosting the influence of HRC and China’s foreign-aid training

program in the world.

### **(3) Upgrading of training level from engineers to officials and ministers**

To meet the training demand of different levels, the training has been upgraded from technology-oriented courses intended for engineers to seminars and ministerial-level workshops intended for officials and ministers. Besides the training workshop on SHP technology and rural electrification held every year, as the one and only organization that is entitled to hold ministerial seminar on water resources, HRC once conducted “Ministerial Workshop on Water Resources and Small Hydropower for Developing Countries” and “Workshop on Water Resources Management and Planning for Developing Countries” respectively in 2011 and 2015. On the workshops, about 50 ministers and high-level officials in the field of hydropower and energy from Asian, African and Latin American countries had in-depth discussion and idea exchange with each other, leading to significant effect and great achievement.

### **(4) Expansion of training content to rural electrification and renewable energy**

The training workshops conducted by HRC in earlier time are largely themed on SHP. Along with the construction of SHP-based rural electrification, and based on HRC’s research findings in hydro, solar and wind hybrid power-generating system, the training subjects and contents are continuously renewed and enriched. To this day, HRC has expanded its training content to the field of rural electrification, not only to include the experience in rural electrification development, but also to cover solar and wind power-generation technology and hydro, solar and wind hybrid power-generation technology, as well as water resources management, agricultural water resource utilization, sustainable development of rural communities, etc..

## **II. Shifting from TCDC to ECDC and Inter-governmental Cooperation**

Since the participants of HRC’s training workshops are great in number and wide in distribution, HRC has taken this opportunity to further promote economic cooperation between China and other countries with varied forms and widened areas. Under the

inter-governmental cooperation framework, HRC has undertaken to carry out joint research in the field of renewable energies including SHP, joint trial-manufacture of advanced equipment as well as transfer of applicable technologies. Up to now, several inter-governmental cooperative sci-tech projects have been realized with great performance and demonstration effect, including *Sino-Pakistan Joint Research Centre on Small Hydropower Technology*, *Research on Emergency-supporting Technology for Rural Hydropower against Disasters Caused by Climate Change*, *Sharing of Clean Energy-based Rural Electrification Mode and Technology*, *Hydro-energy Evaluation of Island in ASEAN Countries*. In April, 2015, Chinese President Mr. Xi Jinping, on his visit to Pakistan, attended the unveiling ceremony for 8 joint sci-tech projects between China and Pakistan including the Sino-Pakistan Joint Research Centre on Small Hydropower Technology as the lead.

Besides, through the foreign-aid training, HRC's advantages in renewable energy planning and technical application have been brought into full play, thus promoting the business of engineering design, consultation, electro-mechanical equipment export, etc., which result in good economic benefits. To sum up, HRC gets started from organizing foreign-aid training workshops, adheres to the new concept of South-South Cooperation, and seeks to expand new business areas, thus making the shift from promoting "Technical Cooperation among Developing Countries" (TCDC) to stimulating "Economic Cooperation among Developing Countries" (ECDC) and inter-governmental sci-tech cooperation among developing countries, which features sustainable development.

### **III. Substantial Achievements of South-South Cooperation**

Years of efforts have produced great yields. With great leaps in foreign-aid training, HRC has cultivated a bunch of participants who have deep attachment to China. Mr. Hoang Van Thang, former participant from Vietnam Institute for Water Resources Research, has been promoted as Vice Minister of Ministry of Agriculture and Rural Development. Mr. Sinava, former participant from the Power Department of Ministry

of Industry of Laos, has been promoted as Vice Minister of Ministry of Energy and Mines. Mr. Ateye, former participant from Egypt, has been promoted as ministerial-level leader in Ministry of Power and Energy. Mr. Masanja, former participant from the Ministry of Energy and Mines of Tanzania, has been promoted as Chief Engineer of the Ministry. All the participants mentioned or not mentioned here serve as bridge of friendship between China and their own countries, and they are all indispensable and close friends to China. Besides, they function as advocates and propeller to the technical and economic cooperation in terms of SHP and rural electrification technology between China and other developing countries.

HRC's foreign-aid training, on one hand, advertises to the world China's advanced technology and successful experience in the field of small hydropower and rural electrification, and on the other, promotes project demonstration and production cooperation, pushing the export of renewable energy technology and related E/M equipment. With the help of the old participants of the training workshops, HRC has taken an active part in overseas business market for SHP planning, design & consultation, E/M equipment export, installation and commissioning, etc.. Up to today, HRC has supplied services including engineering design, consultation, equipment supply, installation, etc. with the contract volume amounting to over hundred million US dollars, to more than 100 hydropower stations in over 30 countries and regions including Philippines, Vietnam, Indonesia, Papua New Guinea, Sri Lanka, Peru, Fiji, Turkey, Macedonia, Pakistan, Angola, Kenya, etc.. Among all the projects, 45 hydropower plants whose scope of supply only includes equipment and installation have been put into operation with total installed capacity reaching over 800MW. Apart from making enormous economic profits for project owners, the implementation of these projects has pushed HRC to move further on a market-oriented route, forming a new mechanism featuring government guidance, technical support and enterprise participation, sharing the great achievements of South-South Cooperation.

For a long run, HRC has been reputed as "The Family of SHP in the World" by the

international community for its capability in SHP technology, and “The Model of South-South Cooperation” by Ministry of Commerce for its high quality and effective foreign-aid training work. Besides, the former Director General of HRC Ms. Cheng Xialei was once awarded “Special Contribution to China’s Foreign Aid” by Ministry of Commerce. Just as Mr. Kofi Atta Annan, former Secretary General of the United Nations, put it, *HRC has shared its great experience in the field of renewable energy with developing countries*. HRC will keep improving foreign-aid trainings and deepening technical and economic cooperation among developing countries based on its strength in SHP technology and talents, thus promoting capacity-building of developing countries and embracing more fruitful achievements of South-South Cooperation in SHP.

(Provided by Mr. Lin Ning and Mr. Zhang Hua)