

## HRC's Annual Report on Foreign Affairs in 2018 and Work Plan for 2019

In 2018, HRC earnestly studied and implemented the guiding spirits of the 19th CPC National Congress. Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for the New Era, and led by the Ministry of Water Resources (MWR) of China and its affiliated Nanjing Hydraulic Research Institute (NHRI), HRC followed the “Belt and Road” initiative. According to the Implementation Plan on Cooperation of Energy and Rural Electrification for Countries along the “Belt and Road”, HRC organized international training, undertook extensive exchange and established four (4) overseas centers. Meanwhile, HRC promoted scientific and technological cooperation and innovation, strived to expand international market, and promoted capacity cooperation as well, so the work on foreign affairs scored fruitful results.

### **I. International Training**

To enhance the foreign-aid human resource development, deepen the South-South Cooperation, and promote exchange & cooperation among the developing countries, especially for those along the “Belt and Road” in the fields of clean energy including water resources, small hydropower and rural electrification, and strengthen mutual understanding and enhance traditional friendship, HRC actively implemented ten (10) foreign-aid trainings and seminars for developing countries, entrusted by the Ministry of Commerce. There is a total attendance of 359 managerial and technical talents from 38 countries of Asia, Africa and Latin America. The training languages include English, French, Russian and Vietnamese. The training topics cover SHP development, clean energy, water management, resources investigation & planning, rural electrification, hydropower station and dam safety, water project management, poverty reduction and

sustainable development, climate change and so on, among which 2 seminars were held for the countries along the “Belt and Road”, Training Course on Small Hydropower Technology and Seminar on Construction and Management of Water and Hydropower Projects were held respectively in Ethiopia and Nigeria for the first time, Training Course on Small Hydropower Technology for Rwanda was held in the fourth consecutive year and the tailor-made bilateral training programs were implemented in China for D.R. Congo, Uzbekistan and Vietnam.

Furthermore, at the invitation of Department of Energy Management, the Ministry of Energy and Mines of Laos, HRC organized experts to lecture on hydropower station and dam safety management in Laos, and shared the latest technology of dam safety monitoring, dam risk assessment and management, and hydropower station safety with over 120 participants including officials from the Ministry of Energy and Mines and provincial departments of energy management and some hydropower developers. The plan of 2019 foreign-aid training programs was submitted to China International Development Cooperation Agency, and application for foreign-aid training program from the Ministry of Science and Technology of China was also submitted through the Department of Science and Technology of Zhejiang Province.

Table 1: List of Foreign-aid Training Courses in 2018

No.	Project title	Venue	No. of attendants	Participating countries
1	2018 Seminar on Water Resources Management & Small Hydropower Development for Countries along the Belt and Road	Hangzhou	43	Dominica, Ethiopia, Guyana, Kenya, Nepal, Palestine, Peru, Rwanda, South Sudan, Sri Lanka, Tajikistan, Ukraine, Uzbekistan, Zambia
2	2018 Seminar on Electrification Mode Based on Clean Energy for Countries along the Belt and Road	Hangzhou	23	Afghanistan, D.P.R. Korea, Ethiopia, Kenya, South Africa, Uzbekistan, Venezuela
3	2018 Training Course on Small Hydropower Technology for Rwanda	Rwanda	50	Rwanda
4	2018 Seminar on Construction and Management of Water &	Nigeria	61	Nigeria

	Hydropower Projects in Nigeria			
5	2018 Training Course on Small Hydropower Technology for Ethiopia	Ethiopia	50	Ethiopia
6	2018 Training Course on Small Hydropower and Rural Electrification for The Democratic Republic of Congo	Hangzhou	20	The Democratic Republic of Congo (D.R. Congo)
7	2018 Seminar on Small Hydropower and Sustainable Development of Rural Communities for Developing Countries	Hangzhou	31	Egypt, Lesotho, Uganda, Kenya, Ethiopia, Mexico, Grenada, Guyana, Surinam
8	2018 Seminar on Small Hydropower and Rural Electrification for the Francophone African Countries	Hangzhou	41	Algeria, Madagascar, Senegal, Comoros, Burundi, Niger, Djibouti, Côte d'Ivoire, D.R. Congo, R. Congo, Mali, Equatorial Guinea
9	2018 Seminar on Water Resources Management and Small Hydropower Development for Uzbekistan	Hangzhou	20	Uzbekistan
10	2018 Training Course on Water Resources Investigation and Planning for Vietnam	Hangzhou	20	Vietnam

During the training courses, full exchanges were made among the team members of the project of National Key R&D Program of China called “China-Pakistan Joint R&D Center on Key Technologies of SHP and Rural Electrification” and participants from Pakistan, Nepal and Sri Lanka etc., for undertaking small hydropower demonstration, data collection and setting up a database, etc. in South Asian countries. The extensive exchanges enriched the training content, promoted the implementation of international cooperative project and enhanced the cooperation results of training programs.

Besides, HRC organized an editorial team to revise the content of textbook. Most of the work has been finished till now, which further improved the textbook quality. HRC signed a cooperative agreement with Hohai University for jointly establishing a practice base for international students. Both sides made full use of their own

advantages and strengthened personnel training and exchanges in relevant fields. HRC recommended six (6) former participants to award the “Belt and Road” scholarship on water resources for their further education in Hohai University.

## **II. Important Meetings or Conferences**

1. On April 10<sup>th</sup>, 2018, HRC staff attended the first meeting of China-Hungary Joint Steering Committee on Water Management Cooperation, which was organized by the Department of International Cooperation, Science and Technology, MWR, and HRC representative discussed cooperative issues with partners under the China-Europe Water Platform (CEWP);

2. From June 24<sup>th</sup> to 30<sup>th</sup>, 2018, HRC staff accompanied experts from Austria, Sweden and Italy to participate in the conferences and relevant activities of CEWP held in China. Cooperation in the fields of water and energy safety, green hydropower standards, etc. has been discussed;

3. From Sep. 3<sup>rd</sup> to 4<sup>th</sup>, 2018, Director General Dr. Xu Jincai attended 2018 Beijing Summit of the Forum on China-Africa Cooperation and discussed cooperative issues about capacity building and joint R+D in the fields of small hydropower and rural electrification with relevant African authorities;

4. From Oct. 23<sup>rd</sup> to 26<sup>th</sup>, 2018, HRC staffs attended International Symposium on Dam Safety and Risk Management organized by Dam Safety Management Center of MWR, NHRI, World Bank Group and Academic Division of Civil, Hydraulic and Architectural Engineering, Chinese Academy of Engineering, and gave presentations;

5. From Oct. 29<sup>th</sup> to 31<sup>st</sup>, 2018, HRC staff participated in the 23rd Annual Meeting of China South-South Cooperation Network organized by China International Center for Economic and Technical Exchanges;

6. From Nov. 1<sup>st</sup> to 2<sup>nd</sup>, 2018, Director General Dr. Xu Jincai attended the first Lancang-Mekong Water Cooperation Forum organized by MWR and the government of Yunnan Province. Dr. Xu exchanged ideas with relevant authorities of participating countries for cooperation on water management and development;

7. On Dec. 13<sup>th</sup>, 2018, Director General Dr. Xu Jincai attended the first meeting of Joint Working Team for China-Mongolia Water Resources Development Cooperation held by the Department of International Cooperation, Science and Technology, MWR. Dr. Xu introduced the cooperation between HRC and the partners in Mongolia and exchanged views about further cooperation;

8. On Dec. 14<sup>th</sup>, 2018, Director General Dr. Xu Jincai attended the 2018 Working Meeting on International Cooperation of Water Resources held by the Department of International Cooperation, Science and Technology, MWR, and introduced HRC's work and put forward suggestions on international cooperation for the new era;

9. From Dec. 19<sup>th</sup> to 20<sup>th</sup>, 2018, HRC staff attended 2018 Training Course on Water Resources for Director of Foreign Affairs held by the Department of International Cooperation, Science and Technology, MWR, and gave a presentation about how to apply and organize international trainings.

### **III. Exchange of Visits**

#### **1. Foreign Guests Visiting HRC**

In 2018, HRC received 5 delegations of 28 foreign guests in a total, respectively from Rwanda, Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, Vietnam, Ghana and Canada for technical exchange and project cooperation.

(1) On May 31<sup>st</sup>, 2018, a 2-person delegation headed by H.E. Mr. Charles Kayonga, the Ambassador of the Republic of Rwanda to China, visited HRC. H.E. Ambassador expressed his appreciation for the work and achievements that HRC did for Rwanda, especially the training courses successfully organized for Rwanda in past three years. The trainings won supports from local government and was welcome by trainees. Through further discussion, both sides listed mutual cooperation priorities and reached consensus.

(2) From June 28<sup>th</sup> to 30<sup>th</sup>, 2018, twenty (20) young talents working in water field from nine (9) ASEAN member countries including Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand and Vietnam were accompanied by the representatives of Lancang-Mekong Water Resources Cooperation Center and Hohai University to visit HRC. Young talents made exchange with HRC staffs and shared expertise, and also visited China Water Museum for understanding China's long history of water management and the related achievements.

(3) During Oct. 21<sup>st</sup>-22<sup>nd</sup>, 2018, Institute for Hydropower and Renewable Energy (IHR) of Vietnam sent a 3-people delegation to visit HRC. The two sides had discussion on

cooperation of Lancang-Mekong water management, hydropower and dam safety, the development of renewable energy and other fields.

(4) On Nov. 9<sup>th</sup> 2018, Prof. Allen Curry from River Research Institute of Canada came to HRC and gave a presentation on Decision-Making and Scientific Support for Large-Scale Dam Demolition.

(5) On the afternoon of Nov. 28<sup>th</sup> 2018, a 2-person delegation from Genser Energy in Ghana visited HRC to discuss cooperation on technical services for two cascade hydropower projects in Ghana. As required, HRC shall send consultants to Ghana for site investigation and data collection as soon as possible.

## **2. Outbound Visits of HRC**

In 2018, HRC dispatched six (6) delegations of 26 staffs respectively to Laos, Ethiopia, Rwanda, Kenya, Uganda and Pakistan for international cooperation, foreign-aid trainings, etc.

(1) From March 21<sup>st</sup> to 26<sup>th</sup> 2018, two HRC staffs together with a delegation of Nanjing Hydraulic Research Institute (NHRI) visited Laos for organizing the Seminar on Hydropower and Dam Safety, which was co-sponsored by World Bank and South-South Development Center. Over 120 participants including officials from the Ministry of Energy and Mines, the provincial departments of energy management and some hydropower developers attended.

(2) From May 2<sup>nd</sup> to 14<sup>th</sup> 2018, a 3-person delegation visited Ethiopia, Uganda and

Rwanda. The delegation paid courtesy call respectively to H.E. Dr. Ing Seleshi Bekele, Minister of Water, Irrigation and Electricity of Ethiopia, H.E. Dr. Ing Getahun Mekuria, Minister of Science and Technology of Ethiopia and other high-level officials of Ethiopia, and briefed China-Africa cooperation on clean energy and rural electrification based in Ethiopia. The delegation visited Rt. Hon. Dr. Ruhakana Rugunda, Prime Minister of the Republic of Uganda, Uganda Refugee Authority, Uganda Electricity Regulatory Authority and Uganda Rural Electricity Authority, and had exchange and discussion on the cooperation of solar pumping system, solar water purification and off-grid solar power generation system, as well as human resources training, standard formulation and technical transfer in the field of renewable energy including small hydropower and solar energy. In addition, the delegation paid visit to Uganda Electricity Generation Co., Ltd., discussing the renewal of MOU and the promotion and demonstration of solar pumping system and the development of rooftop solar power system. HRC delegation signed a MOU with University of Technology and Arts of Byumba in Rwanda for the cooperation on production, teaching and research in the field of renewable energy.

(3) From May 26<sup>th</sup> to June 4<sup>th</sup> 2018, a HRC delegation of 4 persons visited Ethiopia for negotiating the cooperation on engineering supervision for the transmission project of Gebe-II hydropower project, and visited Kenya to discuss Earth-head hydropower project and the water-supply planning in Nyeri County, etc.

(4) From July 16<sup>th</sup> to August 16<sup>th</sup> 2018, HRC delegation of 10 persons went to Rwanda and Ethiopia to implement foreign-aid training programs of the Ministry of Commerce of China respectively called “2018 Training Course on Small Hydropower Technology



for Rwanda” and “2018 Training Course on Small Hydropower Technology for Ethiopia”.

(5) From August 4<sup>th</sup> to 11<sup>th</sup> 2018, a 2-person delegation visited Ethiopia to investigate the progress of China-Africa Technical Transfer, Research and Training Center on Clean Energy and Rural Electrification, wrap up available achievements and discuss the follow-up work. HRC delegation visited relevant enterprise, universities and authorities in Rwanda to discuss the setting-up of Technical Transfer, Research and Training Center on Clean Energy and Rural Electrification for Eastern Africa.

(6) From August 6<sup>th</sup> to 12<sup>th</sup> 2018, HRC delegation of 5 persons visited Pakistan to implement a project of National Key R&D Program of China called “China-Pakistan Joint R&D Center on Key Technologies of SHP and Rural Electrification”. The delegation had discussions with Pakistan Council of Renewable Energy Technology, Energy Department of Punjab and National University of Science and Technology of Pakistan about talent training, laboratory upgrading as well as the site selection of rural electrification demonstration and power generation for low-head irrigation canal and the off-grid hybrid power generation etc.

#### **IV. Information Exchange**

HRC edited and published *SHP News* of 2018 in English, which was shared with over 70 countries, including about 40 countries along the Belt and Road. Besides, the database of training alumni has been updated, and the website released nearly 100 pieces of news in Chinese and English. Tens of contributions have been submitted to Zhejiang Foreign Affairs Yearbook and China SSC Network (journal).

## **V. International Sci.-tech Cooperation and Technical Transfer**

In 2018, HRC paid much attention to implement and apply for international scientific and technological cooperative projects while actively exploring new orientations. HRC signed MOU respectively with University of Technology and Arts (UTAB) of Rwanda, University of Life Sciences of Mongolia and University of Natural Resources and Life Science of Vienna (BOKU), and renewed MOU with Institute for Hydropower and Renewable Energy (IHR) of Vietnam, Uganda Electricity Generation Co., Ltd. (UEGCL) and Energy Development Corporation Ltd. (EDCL) of Rwanda Energy Group. HRC continued to push forward the construction of four (4) overseas technical transfer centers, i.e. China-Pakistan Joint Research & Development Center on Key Technology of Small Hydropower and Rural Electrification, China-Indonesia Technical Transfer Center for Rural Electrification Technology Based on Hydropower, Technical Transfer, Research and Training Center on Clean Energy and Rural Electrification for Africa and China-Serbia Joint Research and Training Center for Small Hydropower Technology by means of capacity building, joint R+D, project demonstration and technical transfer etc., so as to make the full play of HRC itself and the role of its foreign bases as the cooperative platforms.

1. Through personnel exchange, technical discussion and on-site investigation, the project of “China-Pakistan Joint Research & Development Center on Key Technology of Small Hydropower and Rural Electrification” was implemented as scheduled. The plan on upgrading of laboratory system was completed, basic data of hydropower on related rivers (or irrigation canals) in Punjab was collected, research of hydropower technology and fabrication of related E/M equipment for low-head hydropower in the

irrigation area and the intelligent SHP control equipment were started, the assessment on the development of hydropower on typical rivers of Pakistan was made and the compilation of development plan was started accordingly. The comparison and analysis about the status quo and related standard of small hydropower development and rural electrification between China and Pakistan was made, the database framework for South Asian countries have been discussed and confirmed, the detailed plan on talents exchange and training was finalized and formalities for training the Pakistani talents in China has been finished.

2. HRC successfully implemented the project called “China-Indonesia Technical Transfer Center for Rural Electrification Technology Based on Hydropower”, in cooperation with University of Brawijaya for site selection, project design and equipment fabrication. At the same time, the project financed by Lancang-Mekong Cooperation Special Fund called “Technology Sharing and Capacity Building on Hydropower Station and Dam Safety Management for Lancang-Mekong Countries and the project financed from China-ASEAN Maritime Cooperative Fund called “Assessment of Island Renewable Energy and Demonstration of Capacity Cooperation for ASEAN Countries” will be approved in late December. All the work laid a solid foundation for the establishment of China-ASEAN Technology Transfer Center on Renewable Energy and Rural Electrification.

3. HRC carried out capacity-building activities like trainings in cooperation with Addis Ababa Science and Technology University (AASTU) under China-Africa Technical Transfer, Research and Training Center on Clean Energy and Rural Electrification and jointly trained a master student of AASTU, who had been studying in HRC for three (3)

months. HRC staffs visited Africa including Ethiopia, Uganda and Rwanda for joint research and project demonstration on solar pumping technology, actively cooperated with universities like AASTU and University of Rwanda on discipline building, joint academic and vocational training. Great importance was attached to prepare setting-up of the sub-center in Eastern Africa.

4. Together with its foreign partner, HRC held the kick-off meeting (through wechat) for the project called “China-Serbia Joint Research on the Development Technology of Low-head Run-of-the-river Hydropower”, discussed the follow-up plan, analyzed the recommended sites for demonstration, and launched the setting-up of China-Serbia Joint Research and Training Center for Small Hydropower Technology.

In addition, HRC involved itself in the project called “Sustainable Hydropower Use and Integration in China and EU (SHUI-ChE)” under the framework of China-Europe Water Platform (CEWP), sent a staff to make research study in Europe, attended international conferences as well as arranged a study tour of its foreign partner in China. Meanwhile, HRC applied for other cooperative projects financed by Lancang-Mekong Cooperation Special Fund, South-South Cooperation Fund, the Key Project of Intergovernmental Scientific and Technical Innovation and Asian Regional Cooperation Special Fund, all of which obtained remarkable achievements.

## **VI. Overseas Marketing**

In 2018, HRC had been always committed to technical consultation, design and equipment supply of small hydropower and other renewable energies, carried out the supervision on E/M equipment installation as well as overhaul or maintenance for the

built hydropower stations, etc., provided technical services and supplied equipment of SHP and other renewable energies for Nepal, Pakistan, Turkey, Papua New Guinea, Kenya, Democratic Republic of Congo, Ethiopia, Uganda, Laos, the Philippines, Cuba etc. These services satisfied the actual demand of other developing countries, really benefited the local government and people, and promoted the sustainable development of renewable energy and rural electrification construction.

## **VII. Work Plan for Year 2019**

In 2019, HRC shall continue to implement the guiding spirits of the 19th CPC National Congress and Xi Jinping Thought on Socialism with Chinese Characteristics for the New Era, strictly carry out the guidelines and policies related to foreign affairs of the central government, closely follow the Belt and Road Initiative, and rely on its own advantages and meet the needs of foreign countries for capacity building, joint R&D, project demonstration and capacity cooperation. HRC shall continue providing technical training, pushing technical transfer and indigenization of equipment fabrication, promoting international standardization and enhancing the international capacity cooperation.

### **1. To Continue the Foreign-aid Trainings**

HRC shall closely follow the work of Ministry of Water Resources, China International Development Cooperation Agency, Ministry of Science and Technology and other relevant authorities for continuously organizing the foreign-aid trainings, especially *Ministerial Workshop on Water Resources Management and Development Planning for Countries along the Belt and Road*, the multilateral training courses in China such as *Seminar on Water Resources Management and Ecological Small Hydropower*

*Development for Countries along the Belt and Road and Seminar on Electrification Mode Based on Clean Energy for Countries along the Belt and Road.* To meet the demands of foreign countries, HRC shall design and implement the overseas training courses in Rwanda, Zambia and Nigeria, and the bilateral training programs in China for Uzbekistan, Samoa and others. Meanwhile, HRC shall continue to recommend qualified participants to apply for the “Belt and Road” High-level Talent Scholarship for their further study in China.

## **2. To Undertake Bilateral & Multilateral Joint Research**

HRC shall concentrate more on inter-governmental cooperation and focus on the following bilateral and multilateral cooperative projects including joint research & demonstration.

(1) To undertake the project called “Technology Sharing and Capacity Building on Hydropower Station and Dam Safety Management for Lancang-Mekong Countries” which is financed by Lancang-Mekong Cooperation Special Fund. Governmental officials, researchers and experts working in the fields of hydropower and dam safety from Laos, Vietnam, Cambodia, Myanmar and Thailand will be invited to attend the *Training Course on Construction & Safety Management of Hydropower and Dam for Lancang-Mekong Countries*. HRC experts will visit Laos and Vietnam to make expertise exchange and investigation on the conditions, the management regulations and the technical standard system of hydropower and dam, and provide technical consultancy for the two countries. *Seminar on Safety Management of Hydropower and Dam for Lancang-Mekong Countries* will be held in Thailand to share advanced technology and proven experience. In addition, it is planned to promote the dam

safety assessment and monitoring in Laos and Vietnam, set up the dam safety assessment system, and carry out technical promotion and equipment demonstration, so as to help Mekong countries strengthen their supervision and control on water projects, improve their emergency response capability, prevent disasters, and ensure the security of people's livelihood.

(2) To implement the project called “Assessment of Island Renewable Energy and Demonstration of Capacity Cooperation for ASEAN Countries” which is financed by China-ASEAN Maritime Cooperation Fund. Focusing on the Philippines and Indonesia, HRC will carry out the assessment and planning on clean energy resources for island countries and the renewable energy capacity cooperation between China and ASEAN countries, including survey and potential assessment on hydropower, solar energy, wind power, ocean energy and other renewable energies, compilation of development plan, and research & project demonstration on the development modes, technology and equipment for renewable energy development and rural electrification, so as to promote the establishment of China-ASEAN Technical Transfer and Training Center for Clean Energy and Rural Electrification.

(3) To enhance the cooperation with China-EU Water Platform (CEWP) and promote China-EU exchange and cooperation on green hydropower. HRC shall continuously make research on ecological hydropower with University of Natural Resources and Life Science of Vienna (BOKU), Austria and Research Institute of Environment of Stockholm, Sweden. On the occasion of a foreign-aid training course, Symposium on Greening and Upgrading Small Hydropower will be held in Lishui, Zhejiang in May 2019, which aims to exchange ideas and share the achievements of China-EU

cooperation on green hydropower development, including concept, standard, technology, equipment and etc. with the countries along the Belt and Road, thus promoting the realization of 2030 Sustainable Development Goals (SDGs).

(4) To implement the eight major initiatives of China-Africa cooperation, i.e. industrial promotion, green development and capacity building. Through technical exchange, talent cultivation, vocational education, project demonstration etc., HRC shall cooperate with African countries for sharing the technology of clean energy and rural electrification, so as to shape a vocational education system, develop teaching software, and research and develop teaching equipment, applying internet technology, cloud platform and VR technology, and set up a demonstration of vocational education. Meanwhile, HRC shall make use of its technical and personnel advantages, to undertake research on policy and technology for clean energy development and rural electrification under the background of climate change, conduct technical training, share Chinese expertise, practice, standard etc. with African countries and make planning on water resources and hydropower, so as to help African countries to realize the 2030 Sustainable Development Goals (SDGs).

(5) To conduct a strategic analysis on water and clean energy with the countries along the Belt and Road, jointly carry out policy research and provide assistance for flood control and water utilization. Based on an overall & systematic analysis and policy research, HRC shall fully understand the development planning, administrative policy, legislation, standard and constraints on water resources in the countries along the Belt and Road, which shall provide data and strategic support to the extensive cooperation among China and other countries along the Belt and Road.



(6) To make efforts for approval of the applied projects, and focus shall be given to the project of China-ASEAN Maritime Cooperation Fund called “Assessment of Island Renewable Energy and Demonstration of Capacity Cooperation for ASEAN Countries”, the project of China-Indonesia Maritime Cooperation Fund called “Seawater-desalination Demonstration with Hybrid Power Generation of Wind & Solar Energy for Islands”, the project of South-South Cooperation Fund called “China-Africa Technical Transfer and Capacity Building on Rural Clean Energy”, the project of China-APEC Cooperation Fund called “Research & Sharing on Innovative Technology for Hydropower and Dam Safety based on Digitalization”, China-South Africa Intergovernmental Sci.-Tech. Innovation Cooperative Project called “Joint Research on Hybrid Power-generation System of Wind & Solar Energy”, China-Mongolia Intergovernmental Sci.-Tech. Innovation Cooperative Project called “Application & Research on Decentralized Generation Technology of Clean Energy in Pastoral Areas”, etc. HRC shall seek for various financing channels to apply for the "BRICS Countries" cooperative project, cooperative project with developed countries and intergovernmental sci.-tech. cooperation projects. Combining "bringing in" and "going out", HRC shall promote scientific and technological innovation, through expertise exchange with developed countries and at the same time, share these with the developing countries.

### **3. To Build Up Four (4) Overseas Technical Transfer Centers**

In 2019, HRC will focus on the following work to continuously make steady progress on the construction of four overseas technical transfer centers.

(1) Center for South Asia: based on the implementation plan of the project called "China-Pakistan Joint Research & Development Center on Key Technology of Small Hydropower and Rural Electrification", research study of young Pakistani engineers shall be arranged so as to jointly undertake hydropower resources assessment, joint R+D on low-head hydropower technology of irrigation canal, select the site and make design for the demonstrative project. The further research on the adaptability of small hydropower and rural electrification mode in South Asia will also be made.

(2) Center for ASEAN Countries: China-Indonesia Joint Research Center of Rural Electrification Technology based on Hydropower shall be built up, which includes setting-up of a demonstrative project of hydropower-based hybrid power generation in Indonesia, personnel training, technical exchange and promotion. Together with the partners in Indonesia and the Philippines, HRC shall carry out the assessment and planning on clean energy resources and the capacity cooperation of renewable energy for ASEAN countries, organize and implement the projects respectively called "Technology Sharing and Capacity Building on Hydropower and Dam Safety Management for Lancang-Mekong Countries" and "Assessment of Island Renewable Energy and Demonstration of Capacity Cooperation for ASEAN Countries", and cooperate with ASEAN Energy Center (ACE) to establish China-ASEAN Technical Transfer and Training Center on Renewable Energy and Rural Electrification.

(3) Center for Africa: under the framework of Technical Transfer, Research and Training Center on Clean Energy and Rural Electrification for Africa, HRC will undertake capacity building, joint research, technology transfer and project demonstration in the field of clean energy and rural electrification, and establish the

Sino-Africa Friendship Research Institute on Rural Electrification. Meanwhile, HRC will join hands with partners in Rwanda, Côte d'Ivoire, Zimbabwe, South Africa, Egypt, etc. to prepare for the setting-up of sub-centers of clean energy and rural electrification in Eastern Africa, Western Africa, Southern Africa and Northern Africa.

(4) Center for East Europe: HRC shall continuously implement the project called “Joint Research on the Development Technology of Low-head Run-of-the-river Hydropower”, one of the Intergovernmental Scientific and Technical Innovation Cooperative Projects under the National Key R&D Program. According to the implementation plan, HRC shall cooperate with University of Belgrade, Serbia to do joint research on low-head run-of-the-river hydropower development technology, share the assessment & planning technology of hydropower resources on typical rivers, make simulation research and demonstration of low-head run-of-the-river hydropower development, and facilitate the building-up of China-Serbia Joint Research and Training Center for Small Hydropower Technology.

#### **4. To Promote Capacity Cooperation on Technology and Equipment**

In 2019, HRC shall enhance the export of its technology and equipment to foreign countries, including the following projects.

(1) To undertake technical consultancy and design for the capacity upgrading of a hydropower plant in Vietnam, inclusive of the on-site survey, engineering design, etc.

(2) To undertake technical consultancy and design for the rehabilitation of two (2)

hydropower stations in the Democratic Republic of Congo, inclusive of the on-site survey, engineering design, etc.

(3) To undertake design, consultation and equipment supply for a hydropower station in Kenya, inclusive of on-site survey, engineering design, equipment supply and installation service, etc.

(4) To undertake technical consultancy, design, supervision on fabrication of the turbine-generator units and supply of automatic control system for a hydropower station in Papua New Guinea.

(5) To complete the installation and commissioning of electromechanical equipment of a micro hydropower station in Nepal.

(6) To complete engineering design, equipment supply, installation & commissioning of a hydropower station in Laos.

(7) To undertake on-site survey, engineering design, equipment supply, equipment installation and commissioning for two cascade hydropower stations in Ghana.

(8) To implement bidding projects of solar irrigation systems in the Philippines and carry out on-site survey, engineering design, equipment supply and installation, etc.

### **5. To Make Water and Hydropower Projects “Going Global”**

HRC has carried out extensive and intensive exchange and cooperation with the

countries along the Belt and Road in the field of rural hydropower, and made lots of achievements in promoting the sustainable development of social economy in rural areas of these countries. These countries also have urgent demands for technologies, talents and funds in the field of irrigation and water conservancy. As irrigation and water conservancy are closely related to agricultural development, therefore, based on different natural and geographical conditions of the countries along the Belt and Road, the cooperation on irrigation and water conservancy needs to be carried out, which is of great significance in increasing agricultural production, ensuring food security and improving the capability of fighting against natural disasters. Next, HRC will give emphasis on cooperation in water projects including irrigation and water conservancy, and carry out all-round and multilevel cooperation on sustainable development of rural areas with countries along the Belt and Road to help accelerate the realization of the goals of the 2030 Agenda for Sustainable Development.

## **6. Internationalization of Standards**

HRC shall continue to promote and internationalize Chinese standards on engineering design, consultation and construction technology, and keep translating the related standards on SHP design, consultation and construction, inclusive of those on engineering contracts, tender & bidding documents and equipment fabrication, for their application and popularization abroad.

## **7. Foreign Affairs Administration**

HRC shall continuously strengthen its administration on foreign affairs and improve HRC website and two magazines, namely SMALL HYDRO POWER in Chinese and SHP NEWS in English, provide articles for Zhejiang Foreign Affairs Yearbook and

China SSC Network, and share achievements on water policy, technology, equipment, as well as good tale of water cooperation between China and foreign countries.

In the year of 2019, all HRC staffs will earnestly study the major national policies and guidelines, implement the thought of President Xi concerning water conservancy work, and focus on the key tasks of the Ministry of water Resources and orient on the Implementation Plan of HRC on the Cooperation for Countries along the Belt and Road. It is expected that, with the spirit of “stamping on stone and scratching iron with marks”, the work and self-development of HRC will leap to a new higher level.