中国水利水电建设集团公司
SINOHYDRO CORPORATION

Establish a scientific development philosophy Innovate hydro construction techniques Realize a harmonious development of resources exploitation and eco-environment protection

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I China’s hydropower construction enterprises are the important force that pushes forward its hydropower development

China’s hydropower construction has attained the splendid achievements.

By the end of 2004, China’s total installed hydropower capacity will have exceeded 100 GW, the total installed capacity for under-construction hydropower stations approximately amounts to more than 40GW. China is really worthy of being called as the giant in terms of hydropower construction in the world.

SINOHYDRO has successively constructed or participated in the construction of 70% of China's large and medium-scale hydropower stations and key water-control projects, has constructed a total of nearly 100 large and medium-scale hydropower stations, which have a total installed capacity of more than 50,000MW.

SINOHYDRO was ranked the 81st among the Top 225 Global Contractors by Engineering News Record in 2003.

II China's hydropower construction techniques are in the world's frontline.

1. Historical development course of China's hydropower construction techniques

The first period (Early of the founding of the People's Republic of China——early of 1960s): Period of underdeveloped techniques.

The installed capacity of hydropower stations was very limited. Hydropower construction personnel were extremely deficient. Construction materials were inadequate, construction equipments were outdated and mechanization degree was very low. During this period, construction had to mainly rely on foreign technology assistance.

The second period (Mid 1960s——the end of 1980s): Period of continuous development of techniques.

- The equipment level had been improved, construction mechanization degree had steadily increased and China had already been able to construct hydropower stations on its own.

- Typical water conservancy and hydropower projects: Liujiaxia Hydropower Station in Gansu Province in 1960s, Baishan Hydropower Station in Jilin Province that was built in 1970s, Gezhouba Hydropower Station in Hubei Province in 1980s.

- By the end of 1980s, China's installed hydropower capacity had reached 34,580 MW.

The third period (Early 1990s until now): Period of advanced techniques.

- China's construction techniques enjoy a leading position in the world, and it has fully enforced construction mechanization, conducted extensive international technology exchange and cooperation.

- By the end of 2003, the regular installed hydropower capacity in China mainland amounted to 89,000 MW, jumping to the world's No.1 position.

- Typical water conservancy and hydropower projects: the Yangtze Three Gorges Project, Xiaolangdi Multipurpose Dam Project.

2. Major construction technological achievements

- **In the field of dam construction, China has mastered construction technology of various dams and the technology of building a dam in complicated conditions.**
- **In the field of electro-mechanical installation and hydraulic metal structure fabrication and installation ,China has mastered the installation and commissioning of complete set of large-capacity and extra-high -voltage electro-mechanical equipment.**

- **In the field of underground project construction , China has been familiar with techniques of underground hydro-structures with large cross section, long tunnel and complicated geological conditions.**
- **In the field of rock excavation and foundation treatment , China has mastered various kinds of blasting techniques, high dam foundation treatment and foundation treatment of complicated geological conditions.**

- **In the field of check measurement and monitoring system, China has applied a series of advanced techniques.**

- **In the field of pumped storage power station, SINOHYDRO is capable of undertaking independently the construction of large pumped storage hydropower station together with its corresponding installation and commissioning of electro-mechanical equipment.**

3. Environment protection measures adopted in hydropower construction and their effects.

- **Firstly, implement “three sync steps” in the hydropower construction**
- **Secondly, control the loss of water and soil erosion in the working area**
- **Thirdly, realize “zero discharge” of production waste water and protect the water quality of rivers by setting up the disposal system of production waste water**
- **Fourthly, recover the vegetation and construct an ecological dam construction area**
- **Fifthly, set up the civilized working areas and camps**

III Paying close attention to ecological problems and promoting sustainable development of hydropower

1. **Ecological problems are the important issues to be scrupulously settled in hydropower construction**
2. **Hydropower development and project construction should go from tradition to science, build environmentally friendly hydropower project**

- The hydropower construction enterprises in China agree with the conclusions concluded in the World Summit on Sustainable Development held in 2002 in Johannesburg.

- China’s economic and social growth still requires the vigorous hydropower development.

- We must, on the basis of scientific development philosophy, treat hydropower resource development, and set up an eco-environment friendly hydropower construction system.

3. *Boost up the research and application of "green hydropower project" construction technologies and methodologies*

The first is to strengthen the research and application of project construction with more care and reinforcement techniques.

The second is to strengthen the research and application of land reclamation technology.

The third is to make reasonable layout and reduce to the lowest level the effects on environments.

The fourth is to strengthen the research and application of the comprehensive utilization technology of spoiled/surplus materials.

The fifth is to strengthen the management of eco-environment reconstruction in the reservoir area.

The sixth is to strengthen the education on and management of environment protection.

Thank you all!

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