China's SHP Policy and its Role in Promoting SHP Development

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Abstract: The development of China's small hydropower (SHP) has a history of over 100 years. Especially after the formal establishment of the People's Republic of China (PRC), China has attached great importance to the development of SHP and implemented specific policies to overcome the challenges at different stages of SHP development. This paper briefly introduces the management system of SHP in the Chinese context, reviews different policies related to SHP development, analyzes the role of different policies in promoting SHP development over time, and finally discusses the pertinence, effectiveness and sustainability of SHP policies.

Keywords: China's SHP development, management system, policy

Introduction

China is rich in small hydropower resources with an estimated potential of 128 GW (using China's SHP definition of < 50 MW), widely distributed over more than 1,700 counties. Since Shilongba hydropower station was put into operation in 1912 (the first small hydropower station in mainland of China) until the end of 2016, China has built more than 47,000 SHP stations with a total installed capacity of more than 77 GW and an annual output of over 230,000 GWh, which accounts for about one fourth of the country's hydropower generation. Currently, 60% of China's SHP potential has been developed.

Since the establishment of the People's Republic of China (PRC) in 1949 and over the past 68 years, SHP and associated grid construction provided access to power to over 300 million rural population. The development of SHP was of great significance for the development of China's electric power industry and played an unique role in electrifying impoverished mountainous areas, improving ecological environment, promoting economic and social development in rural areas, alleviating poverty among peasants, enhancing peasants' market awareness, ensuring regional emergency power supply as well as promoting the SHP development worldwide.

The rapid development of SHP in China was possible not only due to the formation of a socialist market economy system in China, but also due to the important achievements of China's reforms and opening up policy as well as engagement in international cooperation. In terms of management system, investment and taxation policies, China's SHP has established a policy system with Chinese characteristics which supports sound SHP development. These policies have played a positive role in promoting SHP development. China's SHP development model can be used as reference for other developing countries.

SHP Management System

County-based Decentralized Management System

As a continental country, China's small hydropower resources are widely distributed with its availability varying greatly from region to region. In order to utilize SHP resources to an optimum extent and to trigger local initiatives, China always insists on a principle known as "central guidance and local implementation"[1] when it comes to SHP development and management. SHP development strategy, objectives, standards and policies are mainly made by central government, while SHP planning, development, operation, management and equipment manufacturing are executed by local governments. Under the guidance of the overall strategy for SHP development in China, SHP development for self-sufficiency is combined with electricity supply by the extension of large power grids based on a policy known as "local-based, micro-sized and service-oriented". This finally turned into the county-based decentralized management system for the rural electricity supply in China with electricity supply by the national grid, local power grid and stand-alone SHP.

Mechanism of "Integrated Construction and Management" and "Integrated Generation, Supply and Consumption"

Since SHP development is closely related to the comprehensive utilization of water resources, in order to solve the dichotomy between power generation, flood control, water supply and irrigation, and to ensure the economic operation of the power grid, it is regarded as inappropriate to separate construction and management of the power station as well as power generation and distribution. Only integration of construction and management of SHP have the benefit of comprehensive utilization of available resources. In order to facilitate the integration of construction and management, SHP companies were set up in the counties with rapid SHP development since 1979. Under the administrative leadership of the Water Conservancy Bureau (WCB) in the county, the SHP companies were responsible both for SHP and small power grid within the county, adopting the mechanism of "Integrated Construction and Management" and "Integrated Generation, Supply and Consumption". This finally solved the dichotomy between flood control, irrigation, water supply and power

generation in the SHP development. The structure of electric power management system in China is shown in Figure 1.

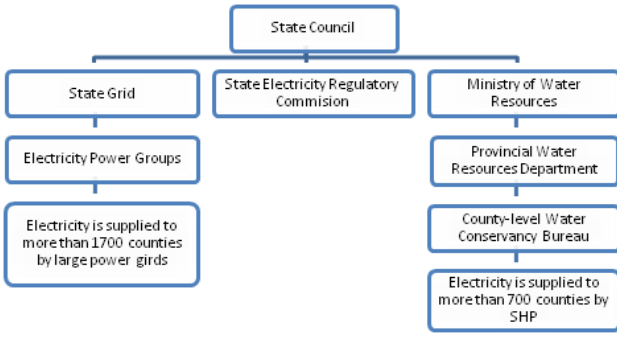

Figure 1: The structure of power management system in China (including the county-based decentralized SHP management).

Small Hydropower Policies

Development Policy

"Public ownership and joint development of diverse forms of ownership"

Before 1990s, SHP was developed by planned scale and mainly relied on the investment of the central and local governments. Since the late 1990s, in order to solve the dichotomy between power supply and demand, and because of the shortage of government funds, China encouraged various economic entities to invest and develop SHP. Private capital was flowing into the hydropower development resulting in a change of the hydropower investment structure from the government investment-oriented model to a private investment-oriented model.

"Self-construction, self-management and self-consumption"

The SHP development in China mainly relies on the joint efforts of county, town and village administration. The application of the principle of unified planning and hierarchical management, known as "self-construction, self-management and self-consumption", led to an improved relationship among SHP station, local and national power grid, protected and stimulated the enthusiasm for local SHP development, and finally promoted SHP development.

"Integrated cascade development"

Cascade development is one of the main features of SHP development in China. The first power station construction as part of cascade development mainly relied on the direct investment of the governments, including local government. Profits from the first cascade power plant were used in further SHP cascade development. The first power station was regarded as a parent SHP station following by further development. The mechanism was formulated to promote the development of river basin power generation companies and hydropower groups.

Investment Policy

Local investment and self-sufficiency

This policy has long been adopted by China and can be simplified as following: to promote local economic development, local people use locally available funds, technologies and materials to develop local SHP resources; while being supported and guided by the central government, especially when it comes to financial and technical assistance. Years of practice show that even a small amount of investment from the central government could greatly mobilize local enthusiasm, and thus promote rapid and smooth development of SHP.

Multi-channel financing and electricity generates electricity policy

SHP development funds are mainly from local financing sources, and the central government selects the merit projects to provide appropriate support. To promote SHP development, the central government also reduced or remitted taxes for a certain period. The profits from the existing power plants will be invested in developing new SHP. The central government stipulated that the profits of SHP shall not be included in the public finance accounts and may not be delivered to the government. On the contrary, except the payments for wages, raw materials, depreciation of fixed assets, equipment maintenance and other operating costs and repayment of loans, the profits should be invested in the redevelopment of SHP.

Use of joint-stock system

SHP Company should actively join the stock market to issue bonds for financing SHP development. Foreign capital is encouraged to flow into national hydropower field. In the newly published foreign investment reference list, China allowed foreign capital to participate in the SHP construction and operation in China in a variety of ways. Foreign investors may develop and operate SHP independently or jointly with domestic investors to enjoy preferential policies for foreign investors.

Tax Policy

Before the implementation of the new tax system in early 1994, the business tax for SHP was only 5%. After 1994, it was changed to 6% of VAT, which is more favorable than the 17% for large power stations and large power grids. The income tax is 33% of the profit, whereas some provinces even refund the income tax to the SHP owners. These policies are more favorable for SHP than for the large power station.

Loan Policy

Policy-based Loan

The central government gives priority to SHP for the provision of policy-based loans through state-owned banks, and gradually increases the proportion of loans in

policy banks such as the Agricultural Development Bank. The funds are allocated from the central banks to the local banks to ensure the capital requirements. Agricultural Bank of China, China Construction Bank, Industrial and Commercial Bank of China and other state-owned banks would arrange special loans for SHP every year, and some provincial governments even subsidize the loan interest for SHP. Banks invest hundreds of millions (RMB yuan) every year in SHP development, and the repayment period is generally more than 10 years.

Financial support

Through special financial support, the central government has implemented several national plans for SHP development, such as:

- *Rural Hydropower Electrification County Construction Project:* This project began in the early 1980s. The purpose of the project was to solve the problem of rural electricity shortage. It was carried out by the counties, whereas the country provided partial fund to guide the social funds for SHP development.
- *Small Hydropower Substituting Fuel Project:* The purpose of the project was to protect the ecological environment and to provide electricity and long-term wealth for peasants. Through the national financial and policy support for the SHP construction (new and expansion) and by reducing electricity price, the central government supplied peasants around the SHP plant with affordable electricity to meet their needs for cooking and heating.
- *SHP Capacity Expansion and Efficiency Improvement Project:* The purpose of the project was to improve the comprehensive energy efficiency and safety performance of old SHP stations and increase their electricity generation. In 2011, the Ministry of Finance (MoF) and MWR chose six provinces, namely Zhejiang, Chongqing, Hubei, Hunan, Guangxi and Shanxi, to implement the SHP capacity expansion pilot project. After successful pilot phase, the project has gradually been implemented nationwide.

Policy on Grid Connection, Sales and Power Supply Protection

Coordination between SHP and large power grid

In the region where conditions permit, SHP and respective power grid can be connected to the national grid to achieve complementary electricity supply and to improve its quality. Large power grids are not allowed to encroach SHP's consumers, or to merger SHP with any excuses. To allow this, the MWR stipulated in 1975 that: SHP and its power grid should first follow the "self-generation, self-supply and self-consumption" principle and then can be connected to large power grid if possible. After the connection, the owners and the administration authority of SHP station are not allowed to be changed. The SHP station signs the grid-connection agreement with the large grid, and then they will supply electricity for each other, offsetting monthly and settling account difference. The power supply should result in SHP development, taking into account the national, collective and local interests, whereas the state grid should follow the non-profit principle.

Power tariff

The power tariff should be regulated by the market. In order to ensure the interest of investors, the tariff should follow the principles of repayment of capital and interest, and certain profits should be left in order to develop new SHP.

Participation Policy

Combined with infrastructure construction for irrigation and water conservancy, local people are mobilized to participate in the SHP development according to the principle known as "who invests, who benefits". The principle stipulates that local people accumulate capital to invest in SHP stations and power transmission lines less than 10 kV with a part of funds provided by the central government as support. The peasants expressed high enthusiasm for SHP construction, emphasizing that "if you want to overcome poverty, you should develop SHP first." Participation of local peasants proved to be effective in solving fund shortage for SHP development. In general, the power transmission projects fewer than 10 kV could be funded and built by the local peasants that benefited from the project in the first place, which allowed local people to gain experience and expertise in SHP development. For poor mountainous areas, the government would give appropriate support. It is also a common approach that peasants provide labor instead of money. Some counties stipulated that it was the duty of all peasants to work for 8-10 days every year for the construction of water conservancy and public facilities. In the construction of power plants and power grids, some counties converted the peasants' participation days into capital shares.

Energy Compensation Policy

SHP resources are mainly distributed in the central and western regions of China that is almost the same with the distribution of China's poor population and ecological conservation area. SHP is not only an important foundation for the development of the vast mountainous rural areas, but also an important source of income for these areas. Some SHP is built on the basis of water conservancy projects. Therefore, in addition to power generation, the plants also have other functions like flood control, irrigation and water supply, just to mention a few. The operation of SHP must first meet the requirements of flood control and industrial and domestic water supply. For SHP with social and public welfare, the state has increased government financial support for SHP construction investment and the proportion of subsidies from the central government.

Thus, a benign long-term development mechanism has been formed.

Renewable Energy Policy

Hydropower is explicitly listed as a priority for energy development in China's Renewable Energy Law, which is a historic event for SHP. It indicates that the development of China's hydropower resources has changed from policy-oriented to legal development, and as a result, SHP will have sound development under the legal protection in the future. The Renewable Energy Law plays a significant role in formulating compulsory grid-connection system for SHP and providing financial support and special funds. It stipulates that "power grid enterprises shall sign grid-connection agreements with renewable energy generation companies which have obtained administrative approval legally or submitted for records, purchasing all generated electricity in the area covered by the grid and providing grid-connection services". At the same time, the Law also stipulates that "the central government shall provide financial support for renewable energy projects in rural areas". The Law also formulates support policies for credit, taxation and other aspects.

Green Development Policy

National level

As the institution responsible for SHP, the MWR has plans the development of hydropower resources for medium and small rivers, formulates technical regulations for environmental protection of water conservancy and hydropower and carries out the construction of green SHP stations as well as the establishment of green SHP evaluation standard. In 2012, the MWR issued a policy on planning the development of hydropower resources for medium and small rivers, calling for scientific and rational development and expansion. The ministry also issued a series of regulations and guidelines like "Regulation for Environmental Impact Assessment of River Basin Planning", "Guidelines for assessment of water supply and utilization in construction projects of Water Resources and Hydropower" and "Guidelines for assessment of rivers and lakes", requiring that water conservancy and hydropower construction projects should take engineering measures, monitoring and dispatch management to ensure the ecological flow. In December of 2016, the MWR issued a guideline for the promotion of green SHP development and in the near future the assessment criteria for green SHP stations will be issued.

Local level

Policy formulation and innovation management according to the local conditions are main characteristics of SHP development in China. The Shaanxi Province has issued a guideline for green hydropower construction with requirements for proposed new/under construction/ built stations in different stages. Using the provincial financial subsidies, Zhejiang Province has carried out the construction of ecological hydropower demonstration zones and comprehensive rehabilitation measures for some old hydropower station to improve the water environment. Guangdong, Jiangxi, Gansu, Chongqing and other provinces (cities) have issued guidelines for the minimum flow management downstream of the dam, putting forward specific requirements on design and introduction of ecological flow facilities, optimization of dispatch operations and other non-engineering measures. Fujian Province has installed ecological flow monitoring devices in key river basins and introduced ecological flow monitoring to the local government's performance evaluation. Under the guidance of the MWR, many provinces have carried out useful practices of green SHP exploration.

The Role of SHP Policies in Promoting the SHP Development

The development of SHP has to be viewed in light of China's socio-economic development of the past decades. The formulation and issuance of SHP policies were important factors that determined the form and the scale of SHP development. The roles of SHP policies can be described in the following three stages.

The First Stage: Lightning and Rural Electrification (1950s-1970s)

a. 1950s: After the establishment of the PRC, with the development of agriculture and rural water conservancy, SHP has experienced rapid development. The national agricultural development plan, issued in the 1950s, required that "all the water conservancy projects with the ability of electricity generation shall also build medium and small hydropower plants to solve the rural electricity shortage". In order to promote SHP development, technical training courses and national meetings were held in 1965, and the policy known as "small-sized, service-and commune-oriented development" was put forward. In order to meet the need of cooperative agriculture development, the electrification plan "Five counties in each province, 100 towns in total" was put forward in 1958. These principles and measures at that time played a positive role in promoting SHP development. By the end of 1960s, 8975 SHP stations were built, with a total installed capacity of 252 MW.

b. 1960s: In 1960, the central government put forward the general policy of "agriculture-based and industry-led" for the national economic development, requiring that all industries should shift their focus to the agriculture-based track. In 1963, the former Ministry of Water and Power required that rural hydropower development should be based on agricultural production (commodities) with electricity being mainly supplied by large power grid and partly by small hydropower. After SHP was incorporated into the unified system of rural power,

it had positive effects on the production service on the one hand, but on the other hand it also brought a lot of adverse effects. In this period, the development of SHP declined, but due to the need of industrial and agricultural production, there was still certain development for SHP in rural areas. By the end of 1969, the total installed capacity of SHP reached 729 MW.

c. 1970s: As a result of long-term lack of electricity, people relied on the experience of electricity development. The central government issued a series of supportive policies. For instance, in terms of construction, the government encouraged local people to join the SHP construction following the principle of "build, manage and own"; in terms of planning, it was proposed to "make full use of local water resources to develop SHP wherever possible, combing with the water conservancy"; in terms of financing, "electricity generates electricity and the country provided 20% as subsidy"; in terms of management systems, it was proposed to integrate construction and management as well as electricity generation and consumption and to protect the interests of all investors"; in terms of the relationship between large and small power grid, grid-connection regulation was reformed to protect small power grid. By the end of 1979, the total installed capacity of SHP reached 6,239.5 MW.

At this stage, the capacity of the SHP in China increased significantly and the operation mode changed from off-grid station to grid-connected station. A framework was formed that required large power grid to develop together with the small power grid, while having different focus and balancing each other", which laid the foundation for the reform and development of SHP and rural electrification. After the establishment of the PR China, the development of SHP over 30 years solved electricity shortage and lighted more than half of the country and provided electricity access to over 300 million people.

The Second Stage: Poverty Alleviation in Rural Areas (1980s-1990s)

a. 1980s: Due to the development situation of China and the world, the central government put forward a policy that focused economic development with agriculture and energy development as the key tasks. In 1982, the Chinese government proposed the establishment of 100 primary electrification pilot counties which were rich in SHP resources. By the end of 1990, 109 counties reached the standard of rural primary electrification. In this period, there was a deficit problem for SHP due to the low on-grid tariff but high construction cost as well as a SHP industry crisis due to the inadequate management. The central government introduced various measures, and was finally able to restore the development of SHP and protect the enthusiasm for SHP development. By the end of 1989, the total installed capacity of SHP reached 12,930 MW.

b. 1990s: Driven by the reform, opening up and rapid development of local economy, China's SHP was further developed in regard to scale, management, scientific and technological progress and policies. Its main feature was that the definition of SHP increased from 25 MW to 50 MW because of the rapid development of SHP; the developing mode changed from stand-alone station to the cascade development in the whole river basin; and the regional power grid across county was developed on the basis of improving small power grids in each county. In terms of management, the joint-stock system was adopted in some areas, and numbers of regional power groups and river basin development groups were established based on the regional power grid construction and river basin development. By the end of 1999, the total installed capacity of SHP reached at 23,480 MW.

At this stage, most of the rural areas were provided with access to electricity, which finally resulted in complete electrification of rural areas. SHP has greatly improved the infrastructure and economy in rural areas, and it has become the leading enterprise in water conservancy and economic development in mountainous areas. The development of SHP has become an important way in promoting rural economy, increasing local fiscal revenue and alleviating poverty.

The Third Stage: Ecological Protection and Development of Regional Economy (the 21st Century)

a. 2000-2009: In the new century, reform and development of SHP has entered into a new stage with the implementation of a series of documents of the central government on strengthening the work of agricultural sector, rural areas and peasants, and gradually realized a major turning point: in terms of ideology, it changed from rapid development in the past to development considering the interests of peasants, local development, environmental protection and ecological conservation; in terms of objectives, it changed from mainly solving rural electricity shortage in mountainous areas to improving the rural electrification rate, increasing peasants' income level, getting rid of poverty in rural areas and promoting conversion of farmland to forest and natural forest protection. The country started the "Rural Hydropower Electrification County Construction Project" and the "Small Hydropower Substituting Fuel Project". By the end of 2009, the total installed capacity of SHP reached 55,120 MW.

b. 2010 to present: Since the 12th Five-Year Plan, SHP development consisted of the combination of flood control and power supply, unification of development and protection, coordination of building and upgrading, promoting the construction of "livelihood hydropower, safe hydropower, green hydropower, harmony hydropower". Rural hydropower development has achieved remarkable results. All national SHP development plans show

new achievements: the "SHP Capacity Expansion and Efficiency Improvement Project" opened up new areas, the "Rural Hydropower Electrification County Construction Project" reached a new level, and the "Small Hydropower Substituting Fuel Project" found a new way. By 2016, the total installed capacity of SHP exceeded at 77 GW.

The Role of SHP Policy in SHP Development

After 60 years of development, the total installed capacity of SHP in China has increased from 36 MW to more than 77,000 MW, which is a remarkable achievement. The total installed capacity of SHP in China in different stages is shown in Figure 2.

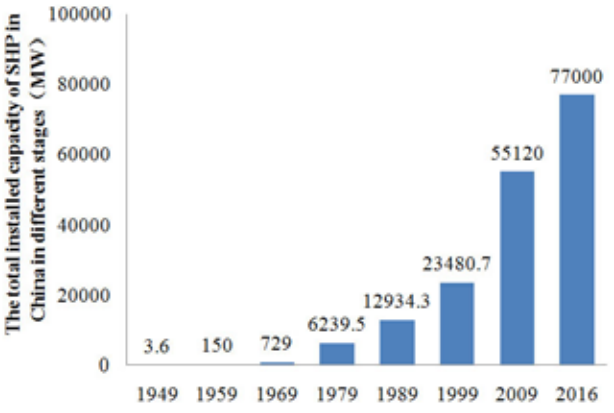

Figure 2: The total installed capacity of SHP in China in different stages.

Through the analysis of the above three developing stages, it can be seen that the period in the 1950s was the initial stage for China's SHP. In this period, the rural power capacity was small, the power consumption level was low and the annual average increase in capacity was 15 MW. The development of SHP still continued in the 1960s due to the need of industrial and agricultural production as well as increase in standard of living. Although natural disasters and social turbulence resulted in certain difficulties for the development of SHP, the annual average capacity increased to 58 MW.

The promotion of SHP policies began in 1970s and in this period China issued a series of policies to mobilize local peoples' enthusiasm in developing SHP, which resulted in great development of SHP, and consequently an increase of annual average capacity of 580 MW. In the 1980s, the SHP development slowed down because China focused on the "Rural Hydropower Electrification County Construction Project", which led to an annual average capacity increase of 630 MW. In the following decade, SHP development accelerated again, driven by the reform, opening up policy and the rapid development of local economy. China's SHP was further developed in regard to scale, management, scientific and technological progress and policies. The annual average capacity increase amounted to 1,030 MW. In the first decade of the 21st century, as a large amount of social capital was invested in SHP industry, SHP developed by leaps and bounds with annual average capacity increase of 3,027 MW. In recent years, SHP development slowed down again because of ideological change in SHP development and a shift from the development of local economy development to environmental protection. The annual average capacity increase was 2,537 MW. Figure 3 depicts the annual increase of the installed capacity of SHP in China.

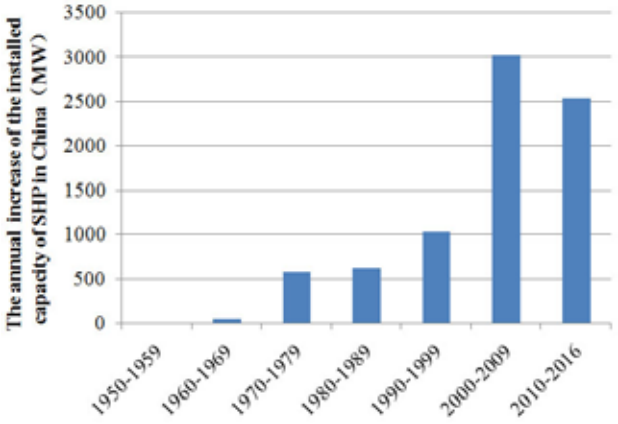

Figure 3: The annual increase of the installed capacity of SHP in China.

Discussion

Pertinence of Policies

Policies are made to promote healthy development of SHP. From the development of SHP in China, it can be seen that appropriate SHP policies have achieved the following objectives:

1. Capital security: Capital is one of the most important factors in SHP development, which is necessary for the sustainable development of SHP industry. The government should formulate policies favorable to investment in SHP industry, including policy banks, private enterprises, individuals and foreign countries, and create excellent financing conditions.
2. Technological progress: Technology is another important factor in SHP development, and it is also one of the important factors to determine the competiveness and sustainability of SHP enterprises. Technology can directly affect the economic benefit of SHP enterprises, because mature technology and low operational costs make investments in SHP to a large extent technically and economically feasible.
3. Market protection: Policies are the foundation of SHP enterprises. To promote SHP development, the government can set renewable energy quotas or a designate the supply area for SHP to legally guarantee full access to the grid and to ensure its special nature as renewable energy in the market.
4. Benefit guarantee: Benefit is not only the decisive indicator for the survival of SHP enterprises, but also the key factor for the sustainable operation of SHP industry. The expected benefit will directly

affect the enthusiasm of private investment, especially when the local people are encouraged to develop SHP. The government can also improve the benefit of SHP enterprises by policies like tax relief and tariff adjustment.

Policies have different impact on SHP enterprises through market, capital, technology and benefit. Therefore, SHP policies should also focus on and the above elements to eliminate obstacles and promote SHP development.

Effectiveness of Policies

Being part of a whole political system, the effectiveness and implementation of SHP policies are interrelated and interacted. Policy formulation should have broad public opinion basis, which can be accepted by most enterprises and individuals, and should be conform to the legal framework of the country.

Whether a policy can be implemented successfully or not, directly reflects its effectiveness. Therefore, the proposed policies should be scientific, rational, continuous, and stable and aligned with others. Whether a proposed policy will have a positive effect depends also on the consideration of its impacts on the government, enterprises and individuals. Once the policy is issued, it should be effectively implemented to ensure its authority in order to achieve the expected results.

Sustainability of Policies

With the development of the economic and electric power systems, SHP policies will also change accordingly. Some of the previous policies may not be able to adapt to the new requirements and lose their operability. Therefore, it is necessary to continuously improve the SHP policies according to the new circumstances. SHP development is closely related to the SHP policies, and the development of SHP in China shows that if the policy environment is favorable, SHP will develop rapidly; if the policy environment is unfavorable, then SHP will develop slowly. Therefore, it is of great significance to study and formulate reasonable and realistic policies and create a favorable policy environment for the sustainable development of SHP.

In order to ensure sustainable development, the SHP policy system should learn from the past experience and take economic analysis as the foundation to find out the main factors influencing SHP development. Learning from the successful experience of foreign countries, market mechanism and advanced institutional models should be developed and introduced to the system. Moreover, possible reforms of the state system, the macroeconomic background, and other relevant legal systems and policies should be considered to ensure the integration with policies and regulations of the relevant institutions and improve the overall benefit. SHP policies should finally be based on the market and therefore market factors such as price, supply and demand, should be fully utilized to change from the governmental direct subsidy to the market itself adjustment. Additionally, the divisions of property rights, power decentralization, privatization, open tender, resource development permit, environmental rights trading, the clean development mechanism and other means may be utilized to promote environmental protection and rational SHP development.

Conclusion

One of the key factors leading to the rapid development of China's SHP in the past years is issuance and implementation of a series of effective and incentive policies by the central and local governments. The development of SHP in China has achieved remarkable social, economic and environmental benefits for villages, agriculture and peasants. Moreover, the vast rural areas have undergone tremendous changes. Some important conclusions can be summarized as following:

(1) The implementation of county-based, decentralized management systems and the integration of construction and management as well as electricity generation, supply and consumption greatly stimulated the enthusiasm in and initiative for local SHP development, solving thus the long-existing dichotomy between flood control, irrigation and power generation.

(2) The development policies for self-sufficiency and for the integration or basin and cascade development solved the funding shortage and dichotomy between power supply and demand, stimulated and maintained the enthusiasm in local SHP development and increased the benefit of SHP.

(3) The investment polices known as "multi-channel financing", "electricity generates electricity (i.e., part of the revenue from SHP electricity sales will be invested into the new SHP station construction)", "active use of joint-stock system" and the participation policy of "mobilize the masses to contribute money and labor" solved fund and labor shortage in SHP development.

(4) The preferential policies of tax and loan alleviated the economic pressure on SHP and promoted its rapid and healthy development.

(5) The policies of grid-connection and tariffs and market-based electricity prices ensured power supply and long-term development of SHP.

(6) Energy compensation and renewable energy policies played a significant role in formulating compulsory grid-connection systems for SHP and providing financial support and special funds to ensure the sustainable development of SHP.

(7) The green development policy promoted the establishment of a number of environmentally-friendly, socially acceptable, economically rational

and standardized green SHP, and played a leading role in accelerating green SHP development.

The formulation of SHP policy in China is a process that includes identification of problems and definition of possible solutions. From the process of developing SHP policy in China, the following lessons can be learned:

(1) Enhanced understanding of SHP: SHP has significant political, economic, social and environmental benefits; China needs to develop appropriate incentive policies to promote the development of SHP.

(2) Formulate policies in line with national conditions: When formulating SHP policies, the central government should ensure that these policies meet the requirements of the national conditions as well as economic and management systems.

(3) Protect the effectiveness and authority of SHP policy: The effectiveness and authority of SHP policies is the key to achieve the desired objectives. The coordination of the institutions is the foundation to achieve the expected results.

(4) Ensure the positive role of SHP policy: To solve the problems and obstacles encountered by SHP in the market, in capital acquisition and technology development, the country needs to make different policies.

(5) Constantly adjust and improve SHP policies: With the changes of situation and development, the country needs to study and formulate rational and realistic policies to create a favorable environment to promote the sustainable development of SHP.

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Footnotes

1. Literal translation of the principle from Chinese: "central macro guidance and implementation by local governments"

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