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A Study of China's Bamboo Project Aid to Rwanda

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Abstract China, as the world's largest developing country, has long combined the common interest of the Chinese people with that of the people of all countries, and under the framework of South-South Cooperation, it has always provided assistance within its capacity to other developing countries. As an important component of aid to Africa, forestry plays an irreplaceable role in foreign aid. Currently, the forestry aid to Africa is gradually changing from the previous trading of resources to sustainable development and utilization of resources. Especially the implementation of Bamboo Planting, Processing and Utilization Project Aid of the Ministry of Commerce to Rwanda undertaken by China National Bamboo Research Center (CBRC), helps Rwanda and the entire east African region to achieve sustainable use of forest resources, improves local employment, provides a new path of development for China's forestry to "go out", and further strengthens the traditional friendship between China and Africa.

Key words China's foreign aid, Africa, Bamboo

1 Introduction

As the largest developing country in the world, China insists to providing assistance within its ability to other developing countries under the framework of South-South Cooperation, in order to support and help the developing countries and especially the least developed countries to reduce poverty and improve people's livelihood. China has actively participated in international development cooperation and has played a constructive role. Since the new century, China and African countries have shifted from the simple "aid" to the "cooperation" with the nature of aid, and have gradually accelerated assistance and cooperation efforts. In 2013, China-Africa trade volume reached \$ 210 billion, and China surpassed the United States to become Africa's largest trading partner for six consecutive years^[1]. China's investment in Africa has increased year by year, which has been the focus of attention of Europe, the United States and other developed countries. Forestry aid, as an important part of China's aid to Africa, also plays an irreplaceable role.

2 Current situation of China's forestry aid to Africa

2.1 Rich forest resources but low utilization rate in Africa

Africa has rich forest resources, and the forest cover area is about 650 million ha, accounting for 17% of total world forest cover area. There are abundant plant species in African tropical forests, and in about 10000 kinds of plants that have been identified, 3000 of them are Africa's unique species^[2]. The timber volume is large, and the economic value is high. It is the world's major tropical timber production base rich in many valuable wood species. In recent years, Africa's forestry has developed rapidly, and the

growth rate of timber harvest has surpassed the world's average. However, the use is unreasonable, and 90% of timber resources are for firewood. Few of them are used as industrial materials, and most of them are exported in the form of log. The rest of them are mostly used as sawing and cutting wood processed primarily, while the proportion of deep processed wood products is very small. In addition, the African timber exploitation and utilization rate is not high, and considerable timber resources are consumed naturally.

2.2 Existing models of China's forestry aid to Africa The forestry aid to Africa includes three aspects: buying timber from African countries; cooperating with African countries for deforestation; building wood processing plants in Africa. However, in some African countries with poor infrastructure, the transportation network is seriously flawed, power transmission and means of communication are inadequate, and the fuel supply is difficult, severely restricting the development of the timber industry. The overall legal system is not perfect in African countries. It does not provide a good macro environment for foreign investors, making more and more Chinese companies unwilling to go to Africa to carry out forestry investment and forestry trading. In addition, some African countries now lay great emphasis on the protection, ecological functions and sustainable use of forest resources. Therefore, there is an urgent need for a new model of forestry cooperation at the government level.

3 Source and background of bamboo project model

During the implementation of Bamboo Planting, Processing and Utilization Project of the Ministry of Commerce for Rwanda undertaken by CBRC, useful experience has been accumulated, and summing up the development model of bamboo project can provide a useful reference for further forestry aid to Africa. China is known as "bamboo kingdom", and bamboo has become one of China's four sunrise industries in the forestry development. Especially in the past 30 years, China's bamboo industry has been developed by

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leaps and bounds. Currently, it has formed more than 3000 kinds of bamboo products. Bamboo technology is one of the traditional Chinese foreign aid projects, integrating the social, economic, and ecological benefits. It is an effective way to help the other countries to develop bamboo industry by using the most advanced techniques of bamboo cultivation, processing and utilization in China, which helps to alleviate poverty and better solves the local socio-economic and ecological problems. As one of the first units assuming the task of foreign aid training, since 1993, commissioned by the Ministry of Commerce, UNDP, UNIDO and the Indian government, Bamboo Research and Development Center has implemented 96 phases of multilateral technical training courses including 3 phases of ministerial training classes, and cultivated 2597 bamboo industry and forest industry talents for a total of 106 countries. In 2008, two participants from Rwanda were trained, and the participants learned rich bamboo planting and processing technology in China. After returning home, they expressed the hope to Rwandan government that China could help them to implement bamboo projects. In early 2009, Bamboo Research and Development Center sent five experts to Rwanda to implement the project. So far, three phases of projects have been implemented for six years, 21 experts have been dispatched, and the total project funding has reached 15 million yuan. Presently, the fourth phase project has been formally identified, and it will be completed in early 2017.

4 Bamboo project model

4.1 Establishment of two bases (i) Bamboo planting base. The base area is 6000 m², and there are 100000 bamboo seedlings; 3 bamboo varieties are introduced from China, growing well; the Rwanda staff are helped to establish 25 nurseries, with annual output value of \$0.4 million and 400 employees; 2 bamboo demonstration bases are established, with an area of 10 ha. (ii) Bamboo processing base. Trainees can produce more than 150 kinds of bamboo woven products and bamboo furniture products to be exported to Uganda, Burundi and other East African countries; 2 bamboo machine processing bases are established, with an area of about 5000 m², and the production lines of bamboo toothpick, bamboo curtain and bamboo mat are established.

4.2 Staff training 44 phases of bamboo planting and bamboo processing technology training are organized for a total of 840 people, including 20 phases of bamboo processing training classes to train 400 people, and 24 phases of bamboo planting technology training classes to train 440 people.

4.3 Formation of four models (i) Transfer of technology. With nursery training technology as a carrier, through the transfer of technology, the local farmers in Rwanda are helped to establish nursery, thereby improving the local economic income. (ii) "Going out" training. The project experts take the initiative to go to the Rwandan countryside, offer the training of bamboo planting and processing technology, and solve technical problems in the local production of bamboo. (iii) Soil erosion control. Rwanda is

suffering from serious soil and water loss and is actively carrying out soil erosion control. Large-scale bamboo cultivation and planting technique extension speed up the Rwanda's soil erosion control, with remarkable results. At the same time, bamboo can be also as raw material for processing and utilization, so as to increase farmers' income. (iv) Industry chain thinking. With sample production training as basis and display of international product fair as carrier, the order model is used to produce and sell bamboo products, forming an industry chain integrating training, display, processing, production and sale.

5 Challenges

In recent years, with the gradual enhancement of China's national strength and the establishment of China-Africa cooperation strategy, in terms of foreign cooperation on forestry, China is gradually changed from recipient country to donor country, but now it is still in transition. In general, the project in the first two phases is completed smoothly, but there are some problems in the third phase. Rwanda has special political and economic status and international influence, and the project can be developed into China's demonstration point on international forestry and bamboo industry, so as to improve China's international voice and promote friendly cooperation between China and Rwanda. 2016 is an important year for the bilateral friendliness between China and Rwanda, and the project should make great contribution to bilateral relations between China and Rwanda. Under the new situation, how to sum up the experience and shortcomings of the project and further improve Rwanda bamboo project is a problem to be solved as soon as possible.

6 Recommendations

6.1 Adopting measures suiting local conditions to promote local socio-economic development Through further survey and research, it is necessary to develop product training and production programs in accordance with local needs in Rwanda. At the same time, it is necessary to understand the experience and lessons about the operation of project of Chinese-funded institutions in Rwanda in order to avoid detours.

6.2 Building market-oriented whole industry chain Based on Rwanda's national conditions and bamboo situation, it is necessary to rely on technology, focus on sample production and technology training, strengthen the application in tea, coffee, seedling industry, take embassies, industrial parks, supermarkets and furniture markets as the market demonstration points, use embassy exhibition and related trade fairs as the carrier, take Chinese and Rwandan companies as the platform, use the Ministry of Land and Resources and agricultural association as a link to carry out technical training, sample production, marketing, and give full play to the advantages of bamboo to produce good social and economic benefits.

6.3 Giving full play to the initiative and creatively carrying out work In face of a lot of resistance and problems in the Rwandan

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Table 5 Comparison of the average overall operational efficiency of agricultural insurance operators at the first and third stages during 2010 – 2014

Efficiency	Stage	2014	2013	2012	2011	2010
<i>TE</i>	The first stage	0.894	0.803	0.828	0.790	0.668
	The third stage	0.878	0.780	0.680	0.740	0.698
<i>PTE</i>	The first stage	0.910	0.854	0.870	0.818	0.797
	The third stage	0.925	0.840	0.790	0.810	0.782
<i>SE</i>	The first stage	0.971	0.939	0.953	0.961	0.838
	The third stage	0.951	0.930	0.870	0.910	0.887

4 Conclusions and policy recommendations

4.1 Conclusions In this paper, we study the operational efficiency of agricultural insurance agency, and analyze the operational efficiency of agricultural insurance agency and its influencing factors in order to improve the operational efficiency of agricultural insurance agency, better supply agricultural insurance and achieve the policy effect of agricultural insurance. We draw the following conclusions: (i) Either comprehensive operational efficiency or scale efficiency of Chinese-funded agency is higher than that of foreign-funded agency, but its pure technical efficiency is lower than that of foreign-funded agency, indicating that the managerial decision ability of Chinese-funded agency is weaker than that of foreign-funded agency, and needs to be improved; (ii) The operational efficiency of professional agricultural insurance agency is higher than that of comprehensive agricultural insurance agency, and the agricultural insurance agency is greatly affected by environmental factors; (iii) The operating time of agricultural insurance agency is proportional to its operational efficiency; (iv) The quality of employees is positively correlated with the capital and cost input difference, but negatively correlated with the difference in the number of employees. Therefore, it is necessary to pay attention to the improvement of employees' working efficiency while laying emphasis on employees' quality.

4.2 Policy recommendations (i) It is necessary to strengthen and improve the support policies of government at all levels and create a suitable environment for the development of agricultural insurance agency. (ii) The agricultural insurance agency should reduce waste of resources, improve operational efficiency and improve service quality. (iii) The foreign-funded agricultural insurance agency should increase capital investment, expand the scale and enhance competitiveness. The low comprehensive efficiency of

foreign-funded agricultural insurance agency is due to low scale efficiency, so it is necessary to expand the scale of agency, maximize the profit and improve scale efficiency. In addition, it is also necessary to maintain and improve the management level and improve efficiency. (iv) Innovation is the soul of business or industry, and the market players should strengthen the innovation capacity and establish a sense of innovation.

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project, it is necessary to increase the enthusiasm for working, employ adaptable and efficient strategy and use flexible ways of working to overcome difficulty and achieve good results.

6.4 Practising strict economy and promoting hardworking

Under the poverty-stricken conditions in Rwanda base, it is necessary to use our own hands to solve the housing, warehouse and workplace issues. There is a need to promote the smooth implementation of Bamboo Planting, Processing and Utilization Project for Rwanda, help Rwanda and the entire Eastern African region to achieve sustainable use of forest resources, improve local

employment, provide a new path of development for China's forestry to "go out", and further strengthen the traditional friendship between China and Africa.

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