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Elementary Experiences, Problems and Countermeasures of County Forestry Economy

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Abstract County forestry economy is a strong power for regional green economic development, and an important way to improve farmers' income and promote living environment in urban and rural areas. According to the investigation of ten typical counties or cities with forestry industrial advantage, this paper sums up the elementary experiences of county forestry economy, analyzes its prominent problems. Countermeasures are brought forward to improve the development of county forestry economy.

Key words Forestry, County economy, Technological innovation, Industrial advantage

Forestry economy at the county level refers to the business production and organizational management of the forestry department and company in the county, including proper treatment of forestry production and reproduction, organization and coordination of forestry productive factors and seeking forestry economic benefit. It is the basic unit of forestry economic progress and also closely relates to ecology, economy, society and culture at the county level. Promoting healthy economic development in the forestry at county level is the scientific practice of economic operation and management in forestry industry and the essential measure to exert the comprehensive capacity of county government, which is conducive to the realization of construction of modern forestry industry in China and sustainable development of regional economic society. The topic of developing county forestry economy has been raised both at the meeting of Central Forestry Committee in 2009 and National Forestry Bureau in 2011. The chief of state forestry bureau pointed out that it was imperative to nurture forestry industry and to form several forestry industry colonies such as peach county, date county, chestnut county, husbandry county and bamboo county. According to the *Notice of Forestry Industry Investigation from State Forestry Bureau* (No. [2011]80), the development and fund management office of State Forestry Bureau and the research institute of forestry policy and information, Chinese Academy of Forestry initiated the investigation in the economic development of forestry economic development.

Ten typical counties were chosen for the study, Pizhou City in Jiangsu Province, Anji County in Zhejiang Province, Lin'an City, Shaxian in Fujian Province, Sanming City, Ningming County in Guangxi, Wuming County, Leiyang City in Hunan Province, Yanling County in Henan Province and Wushengqi and Yili Resource Group in Inner Mongolia.

1 Experience in forestry economic development at the county level

1.1 Development of special forestry economy based on natural resources Location benefit and natural resource are two aspects of natural advantage and two essential factors that influence economic development at country level. A county or city with a natural advantage enjoys more competitive advantage and opportunity than other counties or cities. According to comparative advantage theory, the current location advantage and natural resource are analyzed and plan to develop special industry in certain county is formulated^[1]. For instance, if the resource for forestry tourism in a county is abundant, this county can boost tourism industry featuring forestry. If a county encompasses lots of bamboo, it can improve forestry economy by develop bamboo industry. Only through insisting on the advantage and specialty can be the economy in the county be competitive and find its spot in the international market. The practices in developed counties prove that the development of special forestry economy is the way to success. The possibility of establishing forestry industry plays significant role in the development of forestry economy. For example, the rapid development of forestry tourism in Lin'an City depends on its unique location and natural resources. Until 2010, Lin'an had built 19 travelling spots and the total area was up to 26 666.67 hm², which accounted for 12% of total forest land in the city. The added value of tourism reached 1.16 billion yuan, which was around 12.53% of the added value of third industry in Lin'an City. In 2010, the total output in Anji County was up to 14 billion yuan, which accounted for 73.68% of the total production value in the area. The output of bamboo industry was over 13.5 billion yuan, which covered 96.43% of the general output of the entire forestry industry.

1.2 Taking advantage of the supportive policy to stimulate the industry vigor It is the government, the initiator and promoter of economic development in the forestry county, who directly determines the quality, scale, speed and efficiency of economic development at the county level in the regional economic development. The choice of industrial policy is critical to the economy in

forestry county. Industrial policy decides the ratio of the first industry, second industry and third industry in the county. The clear and cut industrial policy is conducive to the reasonable and advanced industrial organization, especially in an underdeveloped area where weak fundamental industry and low layer demands proper policy from the government. Based on reasonable industrial organization, government makes up tax policy to subsidize the industry^[2]. Leiyang City, a typical city of coal resources, has taken the government-orientation as the core to develop oil-tea. In order to change the economic growth mode, Leiyang has listed oil-tea project to be part of the general economic and social progress in the city. The fund has been reasonably allocated in Leiyang City. In 2010, the oil tea forest in Leiyang was 76 666.67 hm² and the annual output of oil-tea was up to 5 million kg. There were more than 40 oil-tea plantation and process industry and the annual output of oil-tea industry reached 0.5 billion yuan. Pizhou City creates favorable condition for the forestry development through political support. This city has emphasized on the concept of "making people rich is the standard, helping the poor is the responsibility and management is the service". In recent years, Pizhou City has endeavored to make the atmosphere of promoting forestry industry by three measures. Firstly, the government has tried to create favorable environment for companies to have the colony reaction. Secondly, the city managed to offer desirable service. Thirdly, starting an undertaking is encouraged in Pizhou City. In fact, Jiangsu bank has established branches to offer credit loans^[3]. Besides of making industrial policy, the government should change its function, reinforce the service awareness, and lead the forestry industry development^[4]. In 2010, the output of forestry industry in Pizhou City reached 12.556 billion yuan, which was in the first place of the entire province. Furthermore, its contribution rate to financial income was 32% and the rate to farmers income was above 25%.

1.3 Dependence on scientific innovation to boost upgrade of forestry industry The key of economic competition for the forestry industry in the county is the science and technology. The forestry industry based on science and technology has vitality and competition. Strengthening the support of scientific and technological innovation has become the inevitable choice of sustainable development of forestry economy. Right now, some forestry companies are poorly structured and their technology is underdeveloped. Environmental pollution is still prominent. The extensive development makes it hard to survive. Science and technology innovation system at the county level is so urgent that the focus of developing forestry economy has changed from quantity to quality and quantity^[1]. Following measures are feasible and practical.

Firstly, due to scientific and technological advancement, the outdated technologies give place to suitable advanced machines. For example, in Pizhou City, more than 50 programs and 150 machines were adopted in succession and 174 libraries^[5] had been built to help more than 90% companies get out of trouble.

Secondly, we should integrate technology resource and im-

prove production-teaching-research mechanism. Through the platform of "Fujian program trade fair", companies in Sanming City established cooperation with more than 140 universities and scientific research institutes. Fudan University and Sanming University created the genuine medicine project study center together. Four post-doctoral moving stations were established. Particularly, a series of competitive biological and medical universities and scientific research institutes reached an agreement. In 2010, the forestry output in Sanming City reached 38.02 billion yuan, which increased by four times than that in seven years earlier. The net forestry income per capita was around 1 612 yuan, which rose by nearly seven times than that in 7 years earlier.

Thirdly, we should focus on innovation to accelerate scientific research result and provide better service. In cooperation and innovation, Hangjingqi Yili Resource Cooperation offered full scientific and technological service to support the treatment in Kabuqi desert and lead the scientific sand industry development. In recent years, the company has invested more than 1 billion yuan in the forestation of 3 500 km² in the Kabuqi desert and developed herb plantation and pharmaceutical industry which worth more than three billion yuan. In 2010, there were more than 16 000 lab monkeys in Weimei Biological Science and Technology Co., Ltd in Guangxi. The company gave about 3 000 monkeys of high quality to foreign countries and the annual average output was over 30 million yuan.

Fourthly, we should solve the problem of talent shortage. The government introduced favorable policies to attract talents and developed education and other social careers to improve people's disposition^[1]. There were more than 1 100 people currently working in the bamboo industry in Anji County to accelerate the sustainable development of the bamboo industry in Anji.

1.4 Market locations and industrial extension Market demand is the huge engine that drives the industrial development and innovation. The choice of forestry industry takes the market as its orientation and adjusts industrial organization and product tacit in time. Based on market demand and industry extension, this industry developed. The favorable industrial organization is the premise of vigorous operation.

Anji County is famous for its bamboo industry, which has gone through four stages, transforming from selling raw bamboo to buying bamboo, from bamboo pole to bamboo, from physical use to biological use and from pure processing and chain business. The bamboo process chain has made the bamboo utilization rate up to 100%, which is an efficient way to use bamboo in Anji. This not only increased efficiency but also set an example for other companies. Companies in Lin'an City know well that tourists favor local product so they grow hickory and bamboo. In this way, tourists can both enjoy the scenery and buy green food. Meanwhile, companies extend the industry chain and increase added value. Companies in Sanming City established pharmaceutical and biological industrial chain based on biological industry and medical resources such as yew and *Chloranthus glaber*. In 2006, the Jintoten

Camella in Leiyang City developed more than ten kinds of products and annual value reached 0.132 billion yuan which meant that the annual income increased by 200 yuan. The progress in oil-tea industry not only promoted the development of oil tea industry in Leiyang, but also triggered the enthusiasm in developing oil tea industry in Leiyang.

1.5 Let the leading enterprise play its role To upgrade the forestry economy, mass proportion is the basis, but the leading enterprise is the key. The development in Zhejiang, Jiangsu and Fujian proves that the development speed not only depends on major companies, but also the few leading enterprises. Local government help leading enterprises to expand^[1] and grow so as to guide the industrial group development and establish global brand, as well as to reduce production cost. Shaxian County followed the idea of "leading program-industry chain-industry mass-forestry and industry base". In 2010, there were 13 companies that worth thousands of millions yuan. Thus, Shanxian became the first county in Fujian that had a forestry industry that worth five billion yuan. Daya Wood Co., Ltd boasts 6 500 hm² of forestry land. Sanhe Food Co., Ltd leads the bamboo industry development in Shanxian and surrounding places. In 2010, the boiled bamboo was around 65 000 t, which was worth 0.467 billion yuan. The tax was 8.278 million yuan, which accounted for 26% of the bamboo share in Japan. Pizhou City considered wood industry as pillar industry and encouraged upgrade of industrial structure. Through conducting the project of helping famous forestry companies, a group of renowned furniture companies have been introduced. More than 300 furniture companies completed the upgrade and more than 100 wood companies turned into high-end wood furniture companies. Meanwhile, no less than 200 companies which had poor equipment and outdated technologies were eliminated.

1.6 Excavating traditional culture to improve the connotation of industrial brand Regional economy is influenced by many factors, among which culture is a major reason. Chinese culture is an essential part of world culture. With the economic development and globalization, more and more people are willing to pay for the culture connotation in the product and service. So the forestry industry should swim with the tide and establish his own trademark. It is advisable to divulge forestry culture tradition and nurture industrial civilization. Through the integration of traditional values and modern technology, a new forestry industry has come into being. The horticulture in Yanling dates back to Tang Dynasty. In recent years, the calyx canthus has won lots of medals. Until the end of 2010, the total output of horticulture industry in Yanling County reached 4.8 billion yuan, which accounted for 49% of the total value of agriculture. The added value of horticultural industry accounted for 19.4% of the GDP and the net income of farmers in horticulture area was up to 12600 yuan. It is suggested to form a communication platform about ecological culture and use ecological culture to develop regional tourism.

1.7 Changing development mode to stimulate ecological construction and industry development The forestry economy

should start with protecting native ecology and coordinating ecological construction and industrial development. Not only the economic development and benefit should be considered, but also the energy support, ecological environment and social holding capacity, and the cost. Practice proved that the ecological value of clean water and green tree was precious. Lin'an City and Wushengqi explored in the ecological resources protection and social economic coordination aspects. Since 21st century, Lin'an City has proposed ecological economy and economical ecology. Based on the ecological construction, companies developed sand industry. In 2011, the total value of forestry was 0.15 billion yuan and the net income per capita was up to 2 300 yuan. The sand industry made farmers increase their net income to 1 370 yuan.

2 Prominent problems in forestry economic development

2.1 Launching forestry industry without considering economic development The investigated counties did not issue any documents about forestry economic development nor considered the importance of forestry in the economy of the county. Though the forestry industry in some countries advanced fast, there was certain spontaneity and blindness in development and the original path of depending on traditional industry can't be eliminated. Most cities hadn't put forestry development in the outstanding strategic position and they had blur idea of economic development. For instance, when Shaxian County in Fujian Province introduced forest process company in the large company, the government gave priority to investment rather than management without studying local materials supply and considering local resource shortage.

2.2 Drawbacks of current policies The economic development is comprehensive and its concentration of political investment has a high requirement. There are numerous policies right now in China and a little money to meet the requirement. Though the government set a mind to raise the oil money, it is hard to form practical magnitude. Besides, some policies are not considered fully in the design stage and haven't been adjusted and improved with social economic development. For example, in the development of sand industry in Wushengqi in Inner Mongolia, a biological electricity company based on *Salix cheilophila* didn't enjoy any subsidy because the government hadn't listed *Salix cheilophila* as biomass energy tree, which hurt local farmers' feelings and influenced the sand treatment results.

2.3 Weak economic developments Economic development requires favorable fundamental condition. According to the study, the current infrastructure is hard to satisfy and meet the good and fast economic development. Firstly, the infrastructure in each country is outdated. Secondly, mobility of resource is inadequate. Thirdly, the word process is restrained from raw materials. With the rising labor cost and difficult operation, economic benefit decreased incessantly. As the good times have gone, the labor force cost in forestry industry in China enhanced. After the implementation of new labor law, the employees' salary rose by 20% in gener-

al, which increased companies burden dramatically. Fourthly, information about forestry is inaccessible and each family runs the business alone. Not a single industry association has been organized. Fifthly, the forestry market is immature. There are problems in the training fund and the industrial development fund, *etc.*

2.4 Low industrial organizations and lack of illustrious brand

The industrial organization, famous brand and high-end level are important indicators to balance economic development. Though the forestry developed at different levels, the low-end phenomena prevail everywhere. Most counties are still in the primary stage of forestry industrialization and its organization is imperfect. Judging from the external aspect, the proportion between each industry is prominent, while in the internal side, optimization is necessary. Taking Pizhou City as an example, the first industry accounts for a large proportion in the economy and the second industry occupies the international market by dint of its low cost. Because of lower product structure and continued appreciation of RMB, the raw materials and labor cost much more and the advantage of low cost in forestry company has gone. Contrasting to the regional brand and scale, sustaining competition among companies is what the market needs. The new industry featuring biological industry and wild animal breeding is at early stage^[5]. The lack of corresponding social service makes it hard to be a pillar industry.

2.5 Limited investments in scientific research and lack of talents

Though the forestry science and technology in each place are widely applied, the scientific level is not high. This is because that on the one hand the talent drain leads to implausible scientific power and difficult innovation, which influenced economic development. On the other hand the profit is low and the innovation mechanism hasn't been formed. For instance, although the bamboo industry in Anji County, cottonwood industry in Pizhou and flowers industry in Yanling are quite mature now, the following research and development ability is fairly weak and relevant technologies are inefficient. In addition, there are still some problems to crack in the forestry production field and to solve these problems requires cooperation between government and scientific research companies. There are still rooms to improve technologies in the fields of forest travelling, forest culture, flowers and seedlings, sandy plants cultivation machine and wild animals breeding system.

3 Suggestions on promoting economic development

County forestry economy is the cell of the state forestry development, a major element in regional green economic development and an essential way to increase farmers' income and improve people's living environment. It was said at the seventeenth National People's Congress and State Central Forestry Committee that the promotion of modern forestry is an honorary yet difficult task. Following suggestions are put forward based on the investigation.

3.1 Paying attention to forestry economy to realize the double-increasing goal

According to the twofold increase goal proposed by Chinese President Hu Jintao, the conservation of forestry is supposed to increase to 0.6 billion m³ and the forest cov-

erage rate should be up to 21.66%. Besides, it is clearly stated that the government should invigorate county economy, expand autonomy and exert advantages. The government should pay attention to forestry development and issue relevant policies on the scientific transformation of forestry development. To further understand the economic development, the government should make general planning and the strategic placing of the forestry industry and improve management. Liability of increasing both forestry economy and the overall economy of the county is passed down to the government at county level. Additionally, the classification promoted the changes and development in forestry at the county level. It is advised to support construction of forestry industry strategically, first solving the easy ones and then the tough ones. In some special places, such as Henan, Shandong, Anhui and Jiangsu, ecological forestry centers can be established to explore the efficient mode of balanced development of agriculture and forestry and those centers would be the successful model for other companies in future. Furthermore, government at county level should take the initiative in economic development. The department at county, province and regional level should give political support and market service, and hand over rights in resources allocation and production organization to forestry departments. Meanwhile, the formulation of scientific and feasible forestry monetary system should be one of the primary standards to judge the government's achievement.

3.2 Increasing financial investment and technology support

To realize the changes from traditional forestry to modern forestry, promote sustainable development and improve modernization level, the government should invest in more money and intensify scientific technological support. Firstly, the government can improve infrastructure, quicken road construction, and improve forestry protection. Secondly, the agricultural bank and credit association should give more support and provide low-interest loan to help solve the problem. Thirdly, the government should emphasize on education to train more talents and improve the forestry constructor's quality.

3.3 Guiding green consumption and establishing famous brand

Forest has following features as green, nature, low-carbon, and recycle. It is the optimal replacement of high-consumption product and typical recycle green product. The advocating of green consumption not only is the essential part of ecological civilization construction and driver and necessity of promoting green entrancement. Firstly, the government should publicize and enhance people's awareness of green consumption. Government leaders should take the lead in setting the green consumption concept and the mass media should publicize on green consumption. To put green consumption into public education can improve people's obligation to protect public interest and ecological environment. Secondly, the government should take some feasible measures to change habitual consumption mode and to open an age of green consumption. Consumers are encouraged to choose wood product by giving a price subsidy. Thirdly, green industry should be developed vigorously. Advanced scientific technology and manage-

ment method are used to develop green product and service, to improve product and service quality and reduce cost. Fourthly, renowned brand of wood product should be made. Core technology and manufacture craft should be made to form the quality standard system of wood product. Market expansion and advertisement are necessary.

3.4 Promoting the development of leading forestry companies and enhancing agricultural organization level Practices prove that the forestry enterprises can both stimulate regional economic development and drive regional ecological construction. More attention should be paid to forestry enterprises because they play important roles in pushing forward economic development and increasing farmers' income. First of all, the central party and regional government should issue some concrete measures to support forestry companies. Secondly, standards to evaluate forestry companies shall be formulated. Thirdly, the upgrade of forestry industry and new product production should be addressed quickly. Fourthly, forestry associations should be helped to improve their ability to fight back market risks.

3.5 Mechanism innovations and modern forestry industry development Forestry economy is a contemporary project, which needs to be addressed and modified constantly. In the first place, relevant policies should be adjusted immediately and then to stimulate economic development. Ecological compensation standard needs improving to motivate people's enthusiasms. Additionally, it

is necessary to improve social service level in policy, finance, science and technology, information and market, *etc.* Farmers are encouraged to carry out intensive utilization of forestry space. Furthermore, measures should be taken to enrich ecological culture. Investment in ecological construction needs to be increased and the ecological culture construction program needs to be initiated to meet the societies' diverse requirements from ecological culture and to improve a country's soft power and sustaining influence. In addition, it is imperative to break the isolation of wood production and ecological construction, and to get rid of extensive management style by depending on the integration of technology and policy and turning to intensive management style.

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