

## Ecological protection in underdeveloped areas of China (the case study of Hubei Province)

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In China, the areas with geographical remoteness, complex terrain, and poor infrastructure conditions often become clustering contiguous poverty-stricken areas.

Not only are they economically underdeveloped, but also their majority belong to the range of restricted or prohibited development zone, and bear the responsibility of national or regional ecological protection owing to be fragile ecologically. It means that ecological protection and economic-social development turn into an inevitable contradiction, which requires us to explore a win-win road.

### **1. Survey on the underdeveloped areas of Hubei**

Hubei Province, located in the hinterland of China and the middle reaches of the Yangtze River, has four agglomerate and contiguous poverty-stricken areas, which are Wuling Mountain region, Qinba mountain, Dabie Mountains and Mufu mountain for a total of 25 national poverty-stricken counties.

The County Economic Development Evaluation Report Of Hubei Province in 2011, issued by, the Provincial Statistics Bureau of Hubei Province and the Provincial Economic and Information Technology Commission at the end of March this year, divides the 80 counties (cities, districts) into three categories according to the level of economic development

The First group are the counties (cities, districts) ranks in the top 20 of the county economic development index (hereinafter referred to as class I counties and cities); the second are from 21 to 60 (hereinafter referred to as II class counties and cities); and the third are from 61 to 80. The 20 counties (cities, districts) of III class are mainly located in west or the northwest mountainous areas of Hubei, and their land area account for 28% of the counties of the province and the resident population 17.8%. However, the GDP and local general budget revenue they created in 2011, only accounted for about one tenth of the counties of the province.

## 2. Ecological and environmental conditions of the less developed areas of Hubei

In these places, the vegetation coverage is very high and most of them are the birthplaces of the medium and small rivers, so the ecological environment is beautiful. For example, in the Enshi Tujia and Miao Autonomous Prefecture, the existing woodlands area is 24.03 million mu, accounting for 66.6% of the total state land area; forest area is 17.01 million mu and the stumpage area is, 50 million cubic meters. Although the area of woodland, forest and stumpage have accounted for 18.56% – 18.78% and 24.39% of Hubei province respectively the statewide environmental situation is still very grim. Firstly, the demand for environmental protection infrastructure construction is very urgent. Secondly, the rural garbage and sewage pollution problems have not been effectively solved and the problems of rural ecological environment protection are every salient. Thirdly, environmental regulatory mechanisms and organizations are inadequate and can not meet environmental protection requirements in new era.

The county report shows that, in the 2011 rank of the county economy of Hubei Province, the top 5 counties are all located in suburbs of large and medium cities or the plains, while the last 20 counties belong to the four poverty areas except three. From the analysis of eco-environmental indicators, the poverty-stricken areas are higher in the two indicators of industrial pollutants emission intensity – chemical oxygen demand (COD) and sulfur dioxide emissions. It reflects that economic development in poverty-stricken area is extensive, and the task of energy saving is as difficult as it in the developed counties.

## 3. Unity of opposites between modernization and ecological protection in the underdeveloped areas

As a new growth point, the underdeveloped areas not only have the great development

potential, but also face practical difficulties and bottlenecks that the economy is lagging behind, the ecological consciousness of the masses is weak and the capital investment is scarce. Therefore, it is significant to explore a way that can coordinate environmental protection with economic development in underdeveloped areas.

### 3.1. Shennongjia Forest Region promote reducing greenhouse gas emissions by conserving energy

In order to ensure the completion of the emission reduction targets, the Shennongjia Forest Region continues to take effective measures since Eleventh Five-Year. Firstly, they strengthen the construction and operation regulation of sewage treatment facilities, greatly improving centralized sewage processing capabilities. They also build three new urban sewage treatment plants, and apply for two township sewage treatment plants. Secondly, they promote the structural reduction, and speed up eliminating backward production capacity. Thirdly, they strengthen the management of emission reduction, and actively promote clean production. They have upgraded and built a ten thousand tons of new yellow phosphorus production furnace, with a number of patented technology of environmental protection and energy saving. In production it can save 900 kWh per ton of electricity, 0.5 tons of phosphorus ore, and 6.25 million RMB of cost every year than the original small yellow phosphorus electric furnace. Fourthly, they have strengthened the comprehensive utilization and improved the environmental benefits. Under the guidance of EPA, Wushan Mining Company has completed many deep-processing projects, such as the exhaust gas boiler, high purity yellow phosphorus and phosphorus sludge burning acid. The new production line recycles sewage and utilizes exhaust heat of yellow phosphorus, replacing the existing two sets of three tons/h coal-fired boilers to provide steam.

It also makes use of yellow phosphorus residue purchased by the cement manufacturer for the processing of raw materials, and makes the phosphorus precipitated into phosphoric acid by burning. After the implementation of these projects, the company will save 79 tons of coal and reduce more than 80 tons of SO<sub>2</sub> emission and more than 2,100 tons of CO<sub>2</sub> emission.

### **3.2 The Enshi mode, combination of eco-tourism development and environmental protection**

Two years ago, residents along the Enshi Grand Canyon scenic area do not pay attention to environment, with sewage and garbage everywhere, so they are miserable. Now, thanks to the comprehensive renovation project of the rural environment, the environmental protection department has equipped the offices of Tunbao country and Mufu with 890 trash cans, 10 garbage cleaning cars, four pull hanging refuse collection vehicles, four lid garbage transfer vehicles and two environmental monitoring vehicles, and built a 20 t / day waste transfer station and 29 garbage pools. These measures have greatly facilitated the disposing of the citizens' waste, and brought a clean and tidy village, leaving a good impression on the tourists.

At the same time, the city has improved the farmers' environmental awareness by distributing publicity materials, making environmental pacts and the Three-Character Classic of rural environmental protection. Currently, the city has distributed more than 20,000 copies of publicity materials, set up more than 20 billboards along the road of the Grand Canyon, and trained more than 3,000 people about environmental protection knowledge and skills in the form of conference.

The city takes the opportunity of the comprehensive renovation environment improvement of contiguous village project in Enshi Grand Canyon area.

With unified planning, and integrated resources, the city continues to promote the policy of Award for Control, and takes contiguous remediation of the rural environment as the main way to promote the protection work in Enshi City. Now, the Enshi Mode combined eco-tourism development with environmental protection has begun to take shape.

On the other hand, Enshi takes ecological resources as the basis and the eight ecological corridors as the skeleton, to create a tourism industry with national impact. Eight ecological corridors represent different developing direction of each region. Enshi Yulu Ecological Corridors highlightS the tea industry and eco-leisure tourism, culture and sports development. Enshi Grand Canyon ecological corridor emphasizes tourism industry. Qingjiang Source Ecological Corridors turns to the brand of tobacco, and to the development of modern tobacco agriculture and ecological leisure tourism; Suobuya Ecological Corridors devotes itself to tourism and eco-leisure tourism. 318 Eco-corridor focus on tea and fruit industry, traditional culture, sports, and ecological leisure tourism. Qingjiang Gallery Ecological Corridors, turns to tourism, the medicinal botanical garden, summer vacation and selenium resources development. Lotus Pond Ecological Corridor demonstrates the ecological tourism, history and culture, and suburb economic development. Stream Ecological Corridors devotes itself to animal husbandry, tobacco industry and eco-leisure tourism development such as landscape ecology, ancient architecture and ancient villages.

By highlighting the characteristics and regional focus, Enshi Prefecture tourism industry going through small to large and, weak to strong, achieves a historic breakthrough, and has become the domain of state and economic growth pole. Badong Shennong Stream has successfully created a national 5A scenic, and Enshi toast City, Lichuan Tenglongdong

Cave and Enshi level field camp a national 4A level scenic spots. At the same time, Enshi and Lichuan are named as China's Excellent Tourism City while Badong, Xianfeng as the Tourist County in Hubei. After organizing successfully Ecological and Cultural Tourism Festival in Enshi two times, Enshi has acquired better reputation for tourism. The number of tourists increased from 2.75 million five years ago to 16.58 million in 2011, and tourism revenues increased from 1.08 billion RMB up to 8.6 billion RMB.

#### **4. Problems and shortages**

In the Eleventh Five-Year period, the investment of ecological environment protection and construction in Hubei Province, increases 32.7 percent every year. The government have promoted the dual leap of development mode and economic growth, and completed the total emission reduction task of major pollutants ahead of schedule, so the province's environmental quality continues to improve. But there are still certain problems in ecological protection of the whole Province. Since underdeveloped areas usually have abundant energy and mineral, and resources concentration is relatively high, they should pay more attention to ecological protection.

#### **4.1. Legislation of ecological protection**

China's current environmental legal system regulates that the local government is responsible for the local environment, but it does not point out the method and degree of taking the responsibility, as well as the specific responsibility after the dereliction of duty, so it needs the support of local laws and regulations. However, the recent local regulation of ecological protection in Enshi Autonomous Prefecture is Enshi Tujia and Miao Autonomous Prefecture Qingjiang Protection Ordinance passed by the fifth meeting of the Fourth People's Congress and implemented on January 1, 2003. There are 27 ordinances, mainly administrative, advocating and principled stipulates, and few disciplinary and economic incentive provisions, what leads to lack of maneuverability.

#### **4.2. Problems of the development of Eco-tourism**

In recent years, Enshi City attaches great importance to the development of tourism, takes the tourism industry as a leading tertiary industry and achieves certain results.

However, due to weak infrastructure, lack of overall planning funds and personnel and other factors, the so-called eco-tourism development is mainly extensive, and actually not ecological.

On one hand, since the Enshi Prefecture, as well as its counties, municipalities lack of overall eco-tourism development plan and guidance of market mechanism. It results in the convergence and low efficiency of the tourism development.

On the other hand, because of the underdevelopment of economic in Enshi Prefecture, the strong interest motivation drives people to obtain benefits at the expense of humanity and society. Over-exploitation of natural resources cause serious damage to the ecological environment and undermine the overall beauty of the nature. In addition, there is a dilemma between the return of the invested capital and ecological protection, — because the withdrawal of money invested in the development of eco-tourism comes from the income of the tourism project, but the income is in accordance with traffic. However, every natural landscape has its limit of environmental carrying capacity, Beyond it, they will have a negative impact on the ecology. Therefore, how to obtain a balance between the two becomes a problem for the development of the eco-tourism of Enshi.

#### **5. Conclusions**

Firstly, both government and resident are required to establish the ideas that ecological protection is the foundation of modernization in underdeveloped areas, and beautiful ecological environment is often the most unique comparative advantage and strategic resources of these regions.

That is, these areas must find the way to modernization different from the developed regions and cities, and achieve the differential development based on their own conditions.

Secondly, poor areas also have the rights of pursuit of development and happiness. Due to the vulnerability of the ecological environment and limitations of the main functional areas, however, it is better to focus on ecological agriculture, ecological industry and ecotourism. It is best choice to develop the deep processing of agricultural by-products and the tourism industry with local culture and natural landscape, because they can take ecological and economic benefits into account, and promote the economic growth.

Thirdly, ecological protection must be linked with the residents' income growth closely. Ecological protection needed local resident support in the poor areas, people protect environment consciously only when

they can derive tangible benefits. There are many effective measures can be introduced, such as providing work as a form of relief, developing rural tourism, helping the rural masses to adopt cleaner production and to develop biogas and other clean energy, adjusting energy structure and reducing or even eliminating the use of firewood or coal.

Fourthly, government and related organizations should make a detailed, workable plan, which can guide the underdeveloped areas to build a two-oriented society and two-oriented industries in accordance with the scientific development outlook.

Fifthly, policy supports, by governments at all levels, are necessary. These include fiscal policy (general transfer payments, ecological compensation), anti-poverty policies, infrastructure construction, technical support, personnel skills training counterpart support policy, and public service equalization.

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