

Ecological protection of underdeveloped regions in China: a case study of Jiangxi Province

The article presented scientific approaches to ecological protection in the underdeveloped regions of China. It describes its organization in the periods of economic recovery and rapid economic development. The article also covers acute issues concerning the enhancement of ecological protection at present.

Concept of ecological protection, environmental protection, underdeveloped regions, ecological problems, ecological safety.



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The topic of “ecological protection of underdeveloped regions in China” is closely related to the following two key words.

The first key word is *underdeveloped regions*. *Developed regions* and *underdeveloped regions* (i.e. undeveloped regions) can be at least divided in accordance with the level of economic and social development in various regions within a country.

Most of the *developed regions* are located at the coastal regions; however, most of the *underdeveloped regions* are located in the inland regions, such as Jiangxi, Hunan, Hubei and other provinces located at the middle and lower reaches of the Yangtze River.

The second key word is *ecological protection*. In fact, most people confuse *ecological protection* with *environmental protection* except for those scientists specializing in the ecological study, and they do not understand the difference

between the two, which is directly related to their lack of knowledge in the study objects of ecology and environmental science (the term *ecology* was coined in 1866 by the German zoologist E. Haeckel, and it is a scientific study of the habitats of living organisms. The English plant ecologist A.G. Tansley put forward the concept *ecosystem* in 1935 and the concept *ecological balance* in 1939.).

There is a link and difference between the study objects of ecology and environmental science. Ecology takes ordinary living organisms as the object, focusing on the study of the correlations between the natural environmental factors and living organisms, which is a part of natural science; and environmental science takes human beings as the main object, to study the interactions of the environment and human life as a whole, and thus making a close connection with social sciences.

Due to people's lack of knowledge in ecology and environmental science, they would confuse *ecological protection* with *environmental protection*. Although *ecology* has become a common vocabulary of social concern due to people's discussion on the series of major issues such as environmental pollution, resource shortage, population explosion and natural protection since the 1970s, *ecological protection* has lost its rightful place under the cover of *environmental protection*, making *ecological protection* become a mere formality, and the worrying *ecological protection* effect, which is extremely detrimental to the survival of human beings.

The geographical characteristics of the developed regions determine that the development of these regions is closely linked with the underdeveloped regions, because the clean air of developed coastal regions shall be protected by forests in underdeveloped regions, and their fresh water sources depend on the rivers flowing from underdeveloped regions; the rivers establish the life chains between the developed and underdeveloped regions as the important carrier of biological diversity, making the developed regions obtain broader ecological barriers and greater environmental capacities.

In this sense, the ecological protection of underdeveloped regions is directly related to the ecological safety of developed regions, and is also directly related to the sustainable development of developed regions. Therefore, only when the underdeveloped regions are well protected ecologically, the ecological protection and environmental protection of the developed regions will have a solid basis, and the ecological safety of the developed regions will be guaranteed.

Next, I will take Jiangxi Province as an instance of an underdeveloped region to explain the current situation of ecological protection and our efforts required to be made in the field of ecological protection.

Land reclamation, deforestation, mineral mining, dam construction, road construction, house building and other activities are bound to be conducted in the process of human development. These human activities certainly have some impacts on ecology and environment. If the relations between the economic and social development and ecological protection cannot be well handled, ecological damage will be more serious with the development of the economy and the faster pace of urbanization. The return of nature must be the retaliation for the improper development of human behaviour, and, thus, it adversely affects the survival of man, which has been proved in the long-term development practice of human beings. Therefore, how to properly coordinate the relations between economic and social development and ecological protection is of great importance in the survival and development of human beings.

Since the founding of new China, the economic and social development of Jiangxi Province can be divided into two periods, they are: the 1949–1978 economic redevelopment period and the 1979–2005 rapid economic development period. Due to the different levels of ecological awareness and attention and different production conditions and modes during these two periods, the impacts of the economic and social development on the ecology will be different.

The ecology of Jiangxi Province during the economic redevelopment period (1949–1978)

The impacts of economic and social development on the ecology have experienced two stages from the environmental pollution problem to the heavy pollution period.

During the previous stage of economic redevelopment period (1949–1957), the characteristic of environmental pollution problems was the emerging of water pollution, but the damage to the environment was localized due to the small amount of industrial pollutant emissions, so this stage belonged to the light environmental pollution period.

During the later stage of economic redevelopment period (1958–1978), with the occurrence of a number of serious environmental pollution accidents due to the pollution caused by massive deforestation, serious soil erosion, disordered industrial development and other reasons, especially the continuous emerging of new provincial industrial pollution problems during the Great Proletarian Cultural Revolution, and the excessive application of chemical fertilizers and pesticides in agricultural production, the characteristics of environmental pollution were that the surface water of some rivers and the groundwater of some cities had been seriously polluted, the air quality of some cities had seriously deteriorated, environmental pollution accidents had increased greatly, and the serious recession of aquatic resources had occurred in the Province, so this stage belonged to the severe environmental pollution period.

The economic construction and ecology of Jiangxi Province during the rapid economic development period (1979–2005)

After the reform and opening-up, the economic construction boom has risen, industry, agriculture, mining, transportation, urban construction and other activities have been fully launched, with the rapid development of national economy, economic construction achievements are remarkable, and ecological protection is also on the rise.

However, due to people's lack of knowledge on ecological problems, there is still the concept of "pollution first and treatment second", and there are a lot of phenomena related to the reconstruction regardless of the ecology and environment; ecological protection often cannot keep up with the pace of economic construction, and environmental pollution develops from a localized problem to a global problem, resulting in a serious adverse impact on economic and social development and the people's livelihood all over the province.

The previous stage of this period (1979–1991) was the seriously damaged period of ecology. Its characteristics include: [1] although the development and utilization of natural resources in Jiangxi Province had promoted economic development during this development stage, this unrestricted practice of developing and utilizing the resources had a serious adverse impact on the natural resources all over the province. Ancient and rare tree species were in the danger of becoming extinct; animal resources declined significantly; the use of agricultural chemical industrial products in abundance had a large impact on the ecology and environment; soil erosion problems were getting worse; heavy metal pollution caused by mine development resulted in the serious environmental pollution of the rivers [2].

Industrialization and urbanization is the development sphere of human society, environmental pollution is often accompanied by industrialization and urbanization, and the environmental quality of the overall situation in Jiangxi Province was worse than that of before.

During the Seventh Five-Year Plan period (1986–1990), water pollution accidents in Jiangxi Province accounted for 62% of the total pollution accidents, water pollution had become a more prominent environmental issue. The accidents happened due to the following reasons: ground waters were endangered to some extent by the municipal solid waste without sanitization; bad pollution prevention measures of industrial wastewater in rural areas severely polluted the rural water environment; the industrial and mining enterprises along the river directly discharged large amount of untreated industrial wastewater into the rivers; urban sewage was untreated.

During the later stage of this period (after 1992), the government has increased the investment in ecological protection and built many pollutant treatment facilities due to the strengthening of the awareness of ecological protection; the whole Province has made great

progress in ecological protection, but ecological protection has not kept up with the pace of economic construction; ecological destruction and environmental pollution are still serious in some regions, and some environmental problems have new development.

Its characteristics include: [1] there is little change for a better ecological environmental situation. The ecological function of the forest system deteriorates continuously due to the serious damage to the natural broad-leaved forest all over the Province; soil erosion areas are reduced, but the strength erosion areas have been increasing. As Jiangxi is one of the regions with the most serious soil erosion in the south, and its ecological destruction caused by soil erosion and mining activities is still on the rise; the agricultural product pollution caused by agricultural chemical industrial products has affected the safety of agricultural products [2]. The overall environmental quality remains stable, but pollution is still serious in some regions. All the major rivers are polluted, and the urban section pollution of the rivers has posed a threat to the drinking water safety; the air quality in some cities is poor, and the acid rain pollution is more serious all over the Province; the control of total pollutant indicators and the sewage treatment rate are near the bottom of the national ranking

(in 2002, the sewage treatment rate of Jiangxi Province was 3.9%, and the national average sewage treatment rate was 22%, in which Jiangxi occupied the last place; in the recent years, the construction of the provincial and prefectural primary sewage treatment plants has made great progress, which significantly changes this kind of situation); the newly-built environmental protection projects do not reach the standard, which poses a threat to the ecology and environment all over the Province.

In the face of ecological protection problems that exist in an underdeveloped region such as Jiangxi Province, guided by the scientific view of development, we must focus on the goal of the construction of Ecological Economic Zone of Poyang Lake, accelerate the adjustment of the unreasonable economic structure, change the extensive mode of economic growth, build a resource-saving and environmental-friendly society, and protect the terrestrial ecosystem and the freshwater ecosystem as well as the safety of water environment in the middle and lower reaches of the Yangtze River as to create a superior living environment for people, explore a way with the coordination of economic society and ecological protection, and make a contribution to the sustainable development of man.