

〈研究論文〉

# Imbalance and Reconstruction: Changting Experience of Reconciliation between Human Beings and Nature

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**Abstract:** In addition to the local ecological vulnerability, soil erosion in Changting is mainly caused by the ecological damage which caused by the increase of population. Soil erosion has brought frequent natural disasters and serious social problems to Changting people. Since the 1980s, Changting began to control soil erosion with a complex and difficult task. After decades of hard and unremitting efforts, it has achieved good results and become a model of soil and water loss control in China. The key to the success of soil erosion in Changting lies in the construction of legal system, long-term perseverance, mass participation and scientific innovation.

**Key Words:** Changting Experience; Soil Erosion; Ecological Civilization

Since the 1980s, Changting county of Fujian Province has begun the arduous work of soil erosion control. Changting continued to carry forward the spirit of “Constantly dropping wears the stone and ten times harder than others” and do one job after another, then forming the “Changting experience”. It is soil erosion controlling and ecological civilization building with “party and government leadership, mass subject, public participation, multi-strategies, people oriented and persistence”, by which the ecology and society achieved a remarkable results. The successful practice of ecological protection and restoration in Changting County has been praised as a model of soil erosion control in southern China. It has realized the organic unity of ecological environment protection and healthy economic development, and has taken a sustainable

development path from “barren mountains and hills” to “lucid waters and lush mountains” and then to “mountains of gold and silver”.

## 1. Causes of Soil Erosion in Changting

The serious soil erosion in Changting County is the result of a long-term accumulation of historical factors. Although there are natural factors of ecological fragility caused by special soil and climate of Changting, there are also reasons of mountain desertion caused by historical turmoil and land ownership in feudal society<sup>1</sup>. But the main reason is the contradiction between population growth and natural resources, as well as the human factor of ecological deterioration caused by the competition for natural resources among human. A large

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Fund Project: Western project of Fujian Federation of Social Sciences in 2018 :< The Exploration and practice of xi Jinping Important Exposition on Rural Revitalization in Fujian> (FJ 2018X011)

number of people lived together and over-demanding from nature leads to vegetation destruction. Various reasons such as contradictions between human and the land extensive production and the man-made destruction and so on, which contributed to the intensification of soil erosion. After comprehensive analysis, political reasons and destruction by human have become the main causes of soil erosion in Changting. "there are more opportunities in Hetian and Cewu areas for the forest vegetation destruction due to the large population density and frequent long-term human activities. Not only are there no rare animals and plants in these areas, but soil erosion is becoming more and more serious due to the gradual decrease of forests and the imbalance of ecological environment"<sup>2</sup>.

Since ancient times, Changting has been a battleground for military strategists, with numerous wars. It recorded that "The troops in Changting was in charge of six commands and eleven camps" from <LinTingZhi><sup>3</sup>. By the Republic of China, 37 barracks and fortresses had been recorded in the county records. According to the county chronicles, the forest has been destroyed in centralized and large area due to the strategy of fire attack or the need of energy preparation in the wartime and chaotic period since the establishment of Tingzhou (Changting) County. For example, in the Major Events of <Changting County Chronicle of the Republic of China>, a process of mountain war which was "burning the grate with firewood" was recorded from the Yuan Dynasty to the nineteenth year of the Yuan Dynasty(1282). In the seventh year of Xianfeng(1857), the Taiping Heavenly Kingdom "burned and looted the people in Changting County, and the people could not be abused". The Hetian Officials and People's League trained to resist the enemy and fought with the enemy on the night of April 22nd

(the Lunar calendar). Landlords and religious forces occupying forests are fighting scramble for ownership of forest resources. Especially in the transit of the Taiping Army the phenomenon of burning mountains by arson occurs from time to time. Not only the trees on low hills were burned down, but also the original dense forest resources were gradually left with shrubs and grass. For example, from 1912 to 1916, there were two large-scale predatory and indiscriminate deforestation incidents in Changting due to the forest rights disputes between clans and factions.

After a large number of Han people migrated to the South and gathered along the Tingjiang River, they must cut down a large number of bamboo, rattan and grass to increase their economic sources, besides farming and cultivation. According to the Records of <Changting County Chronicle of the Republic of China(1940)>,Hetian and Zhuotian were important timber producing areas, processing and trading centers. Before the Republic of China, there were several hundred thousand of silver coins a year for Chinese fir alone, but in the Republic of China, it fell sharply, only tens of thousands of silver coins a year. During the feudal period, Changting people were exploited and oppressed by feudal landlords for a long time. They did not have forest ownership, so they would not actively participate in forest protection. Around the Soviet period in Western Fujian, the people had no time to manage mountains and forests because of successive years of war, and the forest resources declined further. Although the Soviet government of Western Fujian put forward a series of policies for afforestation and forestry development during the Soviet period. in October 1934, along with the northward movement of the main Red Army of the Central Committee, the Kuomintang army opened up roads and built forts to attack the Soviet area, and forest resources

of Changting were once again felled as “military funds”. The excessive deforestation of forest resources leads to more and more serious local soil erosion.

The consequences of forest fires were also very serious. According to <Changting County Chronicle>, people had the habit of burning fire to drive animals and burning ash to accumulate fertilizer on the mountain since ancient times. A little carelessness would lead to forest fires, which would destroy thousands Mu even ten thousands Mu of forest trees once. All the dynasties have promulgated laws and regulations for the prevention and control of mountain forest fires in Changting. Since the founding of New China, the government organs of Changting have attached great importance to the prevention and control of mountain forest fires. However, due to the inadvertent use of fire by the masses, forest fires occur in varying degrees every year. From 1950 to 1970, there were 1,475 fires in the whole county, burning 808,000 Mu of mountains and burning 45,149,000 trees. Among them, 866 were caused by productive fire (58.7%) and 609 by non-productive fire (41.3%). In 1955, the forest fires were the most serious, and 165 fires occurred from October to November alone. The burning area reached 353.7 thousand Mu, and 192.47 thousand trees were burned<sup>4</sup>. It can be seen that the causes of soil erosion in Changting could be attributed to human activities to a large extent.

## 2. Problems Caused by Soil Erosion in Changting

Soil erosion began to lead to frequent occurrence of natural disasters, and natural disasters in turn promote soil erosion more serious. Because of the forest vegetation destruction, the serious soil erosion and poor rainwater storage capacity, mountain torrents break

dikes in rainy season. According to investigation, in the intrinsic geological structure of Changting Hetian, “most of the main host rocks are coarse-grained granite, whose composition is mainly quartz, followed by potassium feldspar, which contains a small amount of biotite and has strong weathering. After weathering of potassium feldspar biotite in the host rocks, the remaining quartz sand grains which are difficult to weathering are loose, with large sand content and poor corrosion resistance”<sup>5</sup>. The rainfall in Hetian is heavy and concentrated, especially since the end of Qing Dynasty. The destruction of mountain forests was particularly serious. The vegetation coverage in mountain area was very low, and it was easy to form soil erosion under the erosion of rainwater. According to records: in general year, the affected cultivated land in Hetian is more than 12,000 Mu, accounting for 21.8% of the cultivated land area; in addition, due to mountain floods, resulting in water erosion and sand pressure, a large area of cultivated land turned into sand bars, resulting in the total area of sanded cultivated land about 2,154 Mu in Hetian, accounting for 3.94% of the cultivated land area, while the drought-prone area is about 28,900 Mu, accounting for 52.7% of the cultivated land area. It is the key area of flood and drought disasters in the county<sup>6</sup>.

Because the soil epidermis was exposed all the year round and eroded for a long time, the surface soil was eroded completely, the soil was abnormally “barren”, revealing the weathering layer of coarse sand grains, and the nutrient content in mountain area is very low. Large areas of mountainous areas were exposed, and the surface heat radiation was intense, the temperature rised and the evaporation increased accordingly, thus forming a microclimate leading to the mountainous surface especially dry and hot. According to the measurements at that time, “the average temperature is

0.9°C higher than city proper (the difference could only be 0.25 to 0.3°C according to altitude), and the zero centimeter ground temperature is 76.6°C higher than city proper 2.6°C<sup>7</sup>. According to historical records, organic matter content was 1.22%, and total nitrogen was 0.0604%, and total phosphorus was 0.0132% in the surface soil of moderately eroded red soil(0-15 cm) in Hetian. The organic matter content was 0.365%, and total nitrogen was 0.0283%, and total phosphorus was 0.0045% in the shallow gully erosion topsoil. Because of the abnormal "arid and barren" soil, it was difficult for plants to grow. Generally, there is mainly Masson pine with coverage of 20-40% in the slight loss of mountain areas. In the heavily erosion mountain areas, only sparse Masson pine and Barren-Tolerant grasses such as *arundinella hirta* and pines and so on, which had coverage of 10-20%. In the intensively erosion mountain areas, the growth of masson pine was very poor, with annual growth of only 5-28 cm, and the which become a little old pine and grew per meter by more than ten years by coverage of 5%<sup>8</sup>.

With the development of society, the population of Changting is increasing, not only the per capita land resources are less and less, but also the demand for forest resources by human is more and more. The load capacity of ecological environment is far beyond the standard. Finally, the soil erosion in Changting is aggravating, and the ecological environment is deteriorating gradually, and a serious vicious cycle has been formed. Agriculture has made great progress since the founding of New China. The farming measures of Changting have also provided conditions for the further intensification of soil erosion. The masses of Changting accumulate fertilizer rely on the way of burning hills or shoveling grass to get ash to carry out agricultural activities. According to a survey conducted by Lu

Chenglong et al. in 1963, they investigated the peasant households which was 41.4% of grain cultivation areas in seven large groups with the distribution in Shang street and Zhong street and Xia street of Hetian. The source of fertilizer was mainly from shoveling turf and burning ashes. Every year, it need to shovel and burn the area about 800-1000 Mu on the hillside. In addition, although the soil erosion caused by the mine infrastructure in Changting was not very serious, it was widely distributed with many locations and great harm. Guan Zhong wrote in <Guan Zi-Li Zheng> that "no vegetation can breed, and the country is poor; if the vegetation grows, the country will be rich"<sup>9</sup>. Poverty is the first killer of ecology, and Soil erosion is accompanied by poverty and backwardness, then ecology and livelihood depend on each other. Serious soil erosion leads to the decline of soil fertility and the rise of river bed and frequent drought and flood disasters and the increasing poverty of people's live.

### 3. What Does Changting Experience Tell Us

The process of soil erosion control in Changting has lasted for nearly a hundred years with repeated and tortuous efforts from generation to generation. With the spirit of indefatigable and ten times harder than others and the dripping stone, finally it achieved a decisive victory in soil erosion control in Changting. Soil erosion control in Changting started in the 1920s. At that time, some of the management work was official organizations, and some were private spontaneous organizations, but most of them were small-scale intermittent governance forms. Since the reform and opening-up, Changting County has once again started the work of soil and water conservation, which mainly focuses on the capital construction on farmland. The

work of soil erosion control has become an important issue for the governors of Fujian Province. Following the vigorous promotion of soil erosion control work in Changting of Xiang Nan who used to be Secretary of Fujian Provincial Party Committee, Xi Jinping paid attention to the situation of soil erosion in Changting many times. In 2012, he pointed out that “we should sum up Changting Experience and promote the work of soil and water loss control work throughout nationwide”<sup>10</sup>, which made the barren hills and barren mountains in Changting to be green at last, so that “Changting Experience” was upgraded to be the practical achievements of national referential construction of ecological civilization. The experience of soil erosion control in Changting in recent 100 years has provided important enlightenment for ecological civilization construction in contemporary.

Firstly, we should continue to improve the supervision and management system with the guarantee of legal system construction and multi-party management. The so-called “no rules, no square circle”. If we want to do a good job in the management of soil erosion in Changting, we must improve the relevant laws and regulations and standardize the behavior whether the government or the people and whether the collective or the individual. On the one hand, Changting people resolutely implement the <Law of the People’s Republic of China on Water and Soil Conservation>, and the policies and documents promulgated by the state as the most basic legal guarantee for soil erosion control. On the other hand, according to the actual situation of the local work, Changting formulated strong operational laws, regulations, orders and agreements for soil and water conservation to promote soil erosion control work in detail and the related constraints even spread to the countryside. At the same time, rules and regulations are

only the premise, but the key is publicizing rules and regulations, and also strengthening law enforcement. This is necessary to requires comprehensive and strict supervision and management by the government departments.

Since the reform and opening-up, the municipal Party committees and governments at all levels have attached great importance to the work of soil erosion control. The NPC and CPPCC have strongly supported the work and the disciplinary inspection and supervision organs have actively supervised and served. Successive Changting County Party Committee and county government took soil erosion control as a major task. Relevant departments at all levels concerned, guided, supported and coordinated operations to form a strong synergistic force for comprehensive soil erosion control. In the process of supervision and management, we should strictly implement the accountability system, and improve the three-level supervision system of county and township and village, then carry out all-round and multi-level supervision and management of funds and projects and achievements, and strictly investigate and prosecute acts of destroying soil and water conservation. In this way, it not only ensures the normal progress of soil erosion conservation work, but also it further promotes the development of local production. Practice has proved that this kind of safeguard system which is guaranteed by law and supervised by various ways is not only a magic weapon for Changting to control soil erosion, but also a reference for nationwide.

Secondly, we should take system engineering as the starting point and long time for merit, then giving full play to the spirit of persistence. Persistence is a precious spirit of struggle. It is the people of Changting who persevered in this spirit and finally won the overall victory in soil erosion control. In the long run, the

purpose of controlling soil erosion is to improve people's livelihood, but the immediate consequence of closing mountains and prohibiting deforestation has become a dilemma facing by the people. The contradiction between the two has tested governments at all levels. The key problem in soil erosion control is how to solve the demand of people for fuel in some Changting area where soil erosion was more serious. The change of wood-burning habits of villagers for many years is not a matter of overnight. New plants still be cut down and dug secretly even after the closing mountains and prohibiting deforestation. In order to prevent this phenomenon, the government departments have not only adopted subsidies and incentives, but also formulated relevant policies and regulations to ensure the implementation of the work. At the same time, it is also inseparable from the establishment of full-time forest rangers in all villages, and formulated village rules and regulations to restrict illegal felling.

Whether it is the implementation, policies and regulations of government, or the self-cultivation good habits of villagers, it is a process of perseverance. In addition, "since 1983, the county has mobilized the residents of city proper to adopt sewage and coal-saving stoves and expanded the construction of methane generating pits in rural areas in order to save energy"<sup>11</sup>. The government provided the experience of biogas fuel for the people, and produced biogas by raising pigs. Biogas is a good fuel. It vigorously promotes the development mode of ecological agriculture of "animal husbandry, biogas and fruit". Consequently, it not only protects the vegetation on the mountain, but also develops ecological agriculture, which improves the income of farmers, and solves the problem of firewood burning of farmers fundamentally, and then solves the problem of cutting down trees. Comprehensive control

of soil erosion is a huge systematic project. The Changting County Party Committee and the county government have always regarded soil and water conservation as the strategic content of the sustainable development of the whole county. They have put it on the realistic requirement of 500,000 people living and working in peace and contentment in the whole county to plan and mobilize the coherence between the cadres and the masses in the whole county to control soil erosion in decades like a day, and have jointly managed it. Then the spirit of "dripping water through stone, ten times harder than others" was formed through persistent adherence. Practice has proved that the construction of ecological civilization is not a matter of day and night, especially in some areas where ecological damage is extremely serious, the spirit of long-term success has played an important role. The Communist Party of China has always emphasized the persistence of "long-term success" as a Chinese civilization for thousands of years, and internalized it into the heart and externalized it into practice, winning successes in the process of solving problems.

Thirdly, depending on the participation of the people, and the government should take the lead and insist on giving full play to the main role of the people. "Adhering to the mass line is an important magic weapon for the Party from victory to victory"<sup>12</sup>. To mobilize and rely on the masses is a basic principle that the Changting Experience has always adhered to. If it only depends on the government to protect and management, the soil erosion control work in Changting is not only difficult, but also inefficiency. Changting adopted the practice of "fixing the right to use mountains and forests, fixing roots and people's minds", then would determined the right to use mountains and forests and mobilized the enthusiasm of farmers to plant

trees, at the same time let the masses participate in the work of soil erosion control and gained benefits from it. Based on the experience of auctioning barren hills, the county government has further established a supporting property rights system, which allowed the land to be transferred in various ways, such as share-taking and leasing and so on. Through the support of funds, technology and other aspects, the county government encourages some farmers who own funds and foreign companies to participate in it. The fine tradition of self-reliance and hard struggle in the old revolutionary areas is vividly demonstrated by countless ordinary people in the process of soil erosion control. There are many grass-roots heroes who took part in soil and water conservation in the harnessing of barren hills.

The work of soil erosion control in Changting always adheres to the working concept of government-led, mass-oriented and social participation, and on this basis jointly promotes the work of soil erosion control. In the process of soil and water conservation, the government fully respects the initiative of the people and actively gathers the efforts of the whole county people. Finally, the green mountains and rivers that we can see today are replaced. Many of the barren hills in Changting have transferred the use right of mountain forests to farmers by auction, which has increased their enthusiasm for exploiting barren land and planting fruits. However, due to soil the erosion for a long time in Changting Mountain, the land is already too barren. It is not as easy as imagined to rebuild the barren mountains and make them bring wealth to themselves. Many enthusiastic peasants have encountered unthinkable difficulties after they embarked on the road of remolding barren hills. At this time, it is the time to show that the people are real heroes, and a large number of “fools” of Changting, such as Huang Jinyang, Shen Tengxiang and

Ma Xuemei, have emerged. Practice has proved that adherence to “people-centered” is the starting point and end point of “Changting Experience”. That is to say, every trivial matter, every contradiction and every demand of the people should be taken as the key point to be solved by the government departments. In the process of ecological civilization construction, let the masses play the main role and judge the construction results and share the construction results, so as to promote the overall progress of society in the process of which the masses continue to gain a sense of happiness and security.

Fourthly, we should continue to run through the concept of ecological economy with scientific and technological innovation as the driving force, and adjust measures to local conditions. Xi Jinping has repeatedly emphasized that “only the reformer advances, only the innovator is strong, and only the reformer and innovator wins”<sup>13</sup>. In the management of soil erosion, Changting has innovated the closure mode, implemented the “big closure and small control”, insisted on the combination of dredging and blocking, and allowed the people to “collect firewood knives” with subsidies; they innovated technology and invented the methods of ecological restoration such as “rebound Pipa” and “equal height grass shrub belt”; They innovated the scientific and technological test methods and strengthen contacts with the institutions of higher learning and research institutions, then they have established “three stations, one academy and one center” such as academician and expert workstation of soil and water conservation, doctoral research workstation of soil and water conservation, post-doctoral research station of soil and water conservation, Southern Red Soil and Water Conservation Research Institute and Fujian Province (Changting) Soil and Water Conservation Research

Center to jointly carry out research on new technologies for control. They innovated the incentive mechanism of fund subsidy and adopt the way of subsidy instead of allocation. Changting carried out large-scale subsidy for who work energetically, small-scale subsidy for less work and non-subsidy for who was not working, and mobilize the enthusiasm of the masses to participate in the control of soil erosion.

Nowadays, the concept of green development has become a hot topic, and it is particularly crucial to find a way of green development in all parts of China. Although the concept of green development was not actively advocated in the early stage of soil erosion control in Changting, under the leadership of the Party and the government the messes of Changting have taken a scientific road of ecological civilization construction. Among them, scientific forest cultivation has become the basis of ecological civilization. Scientific forest cultivation means improving the survival rate of trees and ensuring the quality of afforestation. Scientific forest cultivation lies in “adapting measures to local conditions and being economical and efficient”, that is selecting afforestation methods reasonably according to geographical, topographic characteristics and economic conditions, such as low-efficiency forest transformation, contour grass shrub belt, grass-shrub-tree mixing and small-hole sowing, cyclic planting and cultivation of grass, wood, methane and fruit, slope upgrading of tea orchard, collapse regulation and ecological revetment, etc. which way was scientific and effective for the soil erosion control. Practice has proved that through the continuous infiltration of science and technology, Changting has adopted the above-mentioned varied methods of soil erosion control according to local conditions, and has achieved remarkable results. Scientific innovation is the driving force of “Changting

Experience” in the new era. The work of controlling soil erosion in Changting is the fertile soil for innovation and has yielded fruits of reform and innovation. This achievement has precisely become the “stone of other mountains” in other parts of the country, and has popularization value.

#### Annotation:

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- 2 Changting County Local Chronicle Compilation Committee: <Changting County Chronicle>, Beijing: Sanlian Bookstore Press, 1993, p 447.
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- 4 Changting County Local Chronicle Compilation Committee, op. cit. p159.
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- 8 ibid.
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