

## Article

# A Frugal Eco-Innovation Policy? Ecological Poverty Alleviation in Contemporary China from a Perspective of *Eco-Civilization Progress*

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**Abstract:** Ecological poverty alleviation is a discursive and policy system with rich theoretical implications, comprehensive policy tools and multiple practical approaches, constituting an important dimension of contemporary Chinese poverty alleviation theory and practice, or a complete case of eco-innovation. Promoting green development, establishing ecological public-welfare compensation mechanisms and organizing ecological relocation are the three major modes or paths of implementing this policy. It is undoubtedly a historic success on the one hand and has still great potential for self-adjustment or self-transformation on the other from a perspective of *eco-civilization progress* or sustainability.

**Keywords:** ecological poverty alleviation; *eco-civilization progress*; green development; ecological public-welfare compensation; ecological relocation



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## 1. Introduction

Ten years ago, *Eco-civilization Progress* that put emphasis on civilizational progress in the field of ecological environment protection and governance was officially incorporated into its integrated layout of socialist modernization at the 18th National Congress of the Communist Party of China (“CPC”). In the Chinese context, it indicates that harmonious coexistence between man and nature becomes a political consensus and a must-be-followed national strategy to “build a moderately prosperous society in all aspects” in the coming years and beyond. Almost at the same time, the leader of the CPC put forward a national initiative of “targeted poverty alleviation”. Since then, ecological poverty alleviation has been a key policy tool to achieve the goal of eradicating absolute poverty in rural or remote areas of China by the end of 2020. The core idea of ecological poverty alleviation is that natural ecological resources in a broad sense are utilized in a scientific way to promote sustainable economic and social development and improve local people’s livelihoods while maintaining or restoring the quality of the ecological environment.

Based on this, with a limited scope of study and a qualitative research-based method, our paper will first make a brief review of the debate on “frugal eco-innovation”, illustrating why this concept can be brought to analysis here. In the following sections, part one will describe the formation and evolution of China’s ecological poverty alleviation policy in the discursive context of *eco-civilization progress*, aiming to reveal the overall background and decision-making process in which this policy was formed; part two will then make a descriptive analysis of three examples which represent the major models or approaches to implementing ecologically innovative policies of poverty alleviation, highlighting that green development, ecological public-welfare compensation and ecological relocation as public policy tools should be applied in different areas or cases; and part three will conduct a further reflection on the operation and performance of ecological poverty alleviation

policy, suggesting that this policy of eco-innovation is undoubtedly a historic success on the one hand and has still great potential for self-adjustment or self-transformation on the other from a perspective of *eco-civilization progress* or sustainability.

## 2. Background

As ecological issues gain increasing attention, sustainability and affordability are becoming important drivers of economic innovation and social development. In this context, a new model of frugal innovation has been developed. In general, frugal innovation indicates improving the entire production mode by reducing the economic and environmental costs of production. Initially, the definition of frugal innovation mainly revolves around enterprise production and business management. For example, Prahalad and Mashelkar [1] stated that frugal innovation refers to providing more and better products or services to more consumers with fewer resource costs, while Tiwari and Herstatt [2] demonstrated that the core characteristic of frugal innovation is cost effectiveness, reflecting the idea to create significantly more value by minimizing the use of resources. Such an understanding actually narrowly construes “frugal innovation” as “low-cost innovation” that tends to take ecological sustainability for granted as an inevitable result of frugal innovation and makes ecological sustainability subordinate to economic sustainability [3]. From this perspective, Rosca et al. [4] argued that frugal innovation—while it may have a positive impact on economic sustainability—is not necessarily sustainable for the environment, since most frugal actions only focus on slowing unsustainable development, not creating sustainability. More than that, if frugal innovation is designed to profit from low-income customers with affordable products, it can have adverse impacts on sustainability [5].

Accordingly, frugal eco-innovation [6] or ecological [7] as a tool to promote sustainable development has recently aroused widespread concern in the study of sustainability. At the level of innovation concepts, Carrillo-Hermosilla et al [8] proposed that eco-innovation is a form of innovation that improves environmental performance, including different types of resource utilization and corresponding impacts. Therefore, eco-innovation is a complex process of technological and social system transformation that involves four dimensions: design optimization, user participation, product service extension, and governance improvement, in which the design dimension is decisive to determining the environmental impacts of innovation and labelling it eco-innovation. Baud [9] proposed compatible conditions between frugal innovation and sustainable development: (1) firms should commercialize frugal products and services; (2) low-income people should participate in value chain activities; and (3) natural resources should be used in a frugal manner. By analyzing European companies and publicly reported environmental cases, Vilchez and de la Hiz [6] proposed the concept of “frugal eco-innovation” based on the concepts of “eco-innovation”, “eco-efficiency”, and “frugal innovation”, which refers to an ecologically sustainable and economically profitable business management approach. In their view, frugal eco-innovation requires not only redesigning products to make them less expensive and easier to use, but also reforming processes and business models to enable dematerialized patterns of production and resource consumption. Le Bas [10] discussed the differences between the concepts of “frugal innovation” and “sustainable innovation” despite their similarity. Frugal innovation matches the emergence of a new technological paradigm, whereas sustainable innovation denotes the direction taken by innovation efforts towards social needs and environmental concerns. In other words, frugal innovation and sustainable innovation are strategies dedicated to cost cutting and environmental benefits, respectively. Albert [11] further analyzed the relationship between frugal innovation and sustainability, arguing that frugal innovation is not only inherently socially and economically sustainable, but also has great potential to address ecological sustainability. To highlight the dimension of ecological sustainability, he used a concept of “ecologically sustainable frugal innovation” to denote frugal innovation that has a positive correlation with ecological sustainability.

At the level of innovative practices, Rajagopal [12] analyzed the complexity of eco-frugal innovation. Chen and Huo [13] took the Guangdong-Hong Kong-Macao Greater

Bay Area as an example to study the relationship between green innovation practices and carbon emission reduction. Ismail et al. [14] examined the role of low-carbon technologies in eco-frugal innovation through an analysis of clean energy development cases in Indonesia, arguing that eco-frugal innovation contributes to the diffusion of low-carbon technologies with changes in products and services and engagement with the lower governance, thus providing the conditions for an effective response to the climate change challenge. Abbas [15] investigated eco-frugal innovation and the sustainability performance of lean startups in emerging economies, which stated that organizational cohesion, business ecosystems, government support, and market management all have a significant impact on enterprises' eco-frugal innovation. Nassani et al. [16] investigated the impact of the internet of things and digital platforms on frugal innovation.

Although it has obtained explorative results, the current research mainly focuses on the innovative practices of enterprises or regional policy innovations. For the former, the primary concern is that how to turn frugal eco-innovation into an eco-efficient way of shifting firms' existing business model into a new one, to cut costs and reduce negative environmental impacts simultaneously; and for the latter, the focal point is to examine the role of ecology-oriented innovative efforts in improving the region's sustainable development. In this sense, contemporary China's ecological poverty alleviation policy in the Chinese discursive context of "building an ecological civilization" has provided an interesting example of eco-innovation occurring at the national level. On the one hand, it is an "ecologically sustainable frugal innovation" which assumes that there is a strong positive correlation between the policy goals and measures of ecological poverty alleviation and ecological sustainability; on the other hand, it is certain kind of "policy(governance) eco-innovation", though the local governments and people play an important part within it, which is formulated and carried out by the governing political party in a top-down manner. It means that its performance, successful and/or frugal or not, should be evaluated from the perspective of national public policy.

### 3. Ecological Poverty Alleviation Policy in the Discursive Context of *Eco-Civilization Progress*

#### 3.1. *Eco-Civilization Progress as a "Red–Green" Discourse and Politics*

*Eco-civilization Progress*, which means literally advancing civilizational progress in ecological environment protection and governance or to build a progressive society of ecological civilization, is a conceptualization of contemporary China's popular green political consensus and national strategy for the governance of ecological environment issues in a broad sense [17–20]. In other words, it is the Chinese version of green theoretical and policy discourses in today's world, a typical Chinese-style form of expression in the Chinese context. Among others, a major feature of *Eco-civilization Progress* discourse is its political orientation of "red–green", namely, "socialist eco-civilization" [21–23].

As a discourse of public policy, *eco-civilization progress* has been a long process of formation and evolution, benefiting from all institutional innovations and practical experience in the field of ecological environment protection and governance over the past decades, especially after implementing the reform and opening-up policy in 1978 [24]. The term *eco-civilization progress* or "building an ecological civilization" appeared for the first time in the working report to the 17th National Congress of CPC in 2007 [25] (p. 20). Five years later, the 18th National Congress of CPC established the strategic status of *eco-civilization progress* as one of the five policy pillars of "building socialism with Chinese characteristics for a new era", stressing that *eco-civilization progress* should be integrated into all aspects and the whole process of socialist modernization [26] (p. 39). In 2017, *eco-civilization progress* was interpreted as one of the major constituents of newly established political ideology, namely, Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, in the working report for the 19th National Congress of CPC, targeted at forming a new pattern of socialist modernization in which man and nature can co-exist in harmony [27] (pp. 23–24, 50–52). Taking these documents as a basis, the Fourth Plenary Session of the

19th Central Committee of CPC in 2019 put forward four basic tasks for establishing a sound system of eco-civilization institution in order to achieve the modernization of China's environmental governance system and capacity (the four tasks include "implementing the strictest eco-environmental protection policy", "establishing a comprehensive system for efficient utilization of resources", "establishing a sound system for eco-environmental conservation and restoration" and "strictly implementing an accountability system for eco-environmental protection" [28] (pp. 52–55), while the Fifth Plenary Session in 2020 presented four general requirements for advancing the progress of eco-civilization with a view to realize the objectives of "the 14th Five-year Plan" and the long-term objectives of socialist modernization by 2035 (The four requirements are "advancing green and low-carbon development", "constantly improving environmental quality", "enhancing the quality and stability of ecosystem" and "increasing the efficiency of resource utilization" [29] (pp. 27–29).

It is quite clear that *eco-civilization progress* as a green innovative discourse of contemporary China has already been an integral part of the political ideology and governance strategy of the CPC and the government. In other words, advancing *eco-civilization progress* is now to a large extent regarded as the routine work of management for government departments and officials at different levels, and is under the control and supervision of various kinds of laws and administrative regulations. However, like other green discourses or theories such as environmental protection, sustainable development or eco-modernization, *eco-civilization progress* is not just about policy, but has a wealth of consistent theoretical implications in such dimensions as philosophical values, sociopolitical orientation and mode of production and life, constituting a Chinese-style red–green environmental political philosophy, ecological political economy and social-ecological transformation theory [21,30].

On the level of philosophical values, *eco-civilization progress* implies the (re)building of harmonious coexistence between man (society) and nature, which necessitates different value cognitions, ethical attitudes and visions of civilization from those of today. Among others, a primary feature in a society of eco-civilization is that dealing well with relations between man and nature from an ecological perspective is regarded as the very basis of any progress in civilization and conscious pursuit for the whole society [31]. In this aspect, Marx and Engels' argument that man and nature are a dialectic unity "working together" is still instructive [32] p. 599. According to them, on the one hand, the ecological environment constitutes a fundamental constraint, even absolute "planetary boundaries" [33], for human and social existence or development, but in reality it often inheres in human civilizations as "human works and reality" with complex forms. On the other hand, human beings distinguish themselves from nature through conscious activities and improve their social life by understanding and transforming nature in material production activities, whereas their living foundation still lies in the adaptation and utilization of natural conditions and their inexorable laws. Thus, the essence of the relationship between human society and nature is indeed an interdependent community of life [34]. Arguably, the discourse of *eco-civilization progress* makes its own contribution to the thinking of community of life from the following two points. First, the protection and optimization of the ecological environment is primarily justified and should thus be guided by the increase in people's general well-being [27] (pp. 44–45). Second, the pursuit of material wealth by any individual or society is not allowed to be at the expense of damaging the balance of ecosystems: "We must protect boundaries and baselines of ecosystems to ensure harmony between humans and nature" [35].

On the level of sociopolitical orientation, *eco-civilization progress* points to the overall framework of socialist civilization to (re)build a harmonious relationship between man and nature, of which a core target is the conscious combination and mutual promotion of social justice and ecological sustainability [21,36]. As Marx and Engels have pointed out, the production of human life involves a dual relationship, that is, "on the one hand as a natural, on the other as a social relation" [37] (p. 43). Accordingly, changes in the relationship

between man and nature are always reflected in the adjustment of social interests among subjects of human society, and vice versa. In other words, the human–nature relationship in any civilization is essentially the societal relationship with nature during a certain historical period. Understandably, *eco-civilization progress* in a complete sense requires not only addressing serious ecological and environmental problems that are accumulating, but also about satisfying people’s living needs and safeguarding their rights to development, which are based on natural conditions. Therefore, the principle of reciprocal sharing and equitable distribution in socialism and its institutional framework should play an important regulating and leading role in the process of *eco-civilization progress* [38] (p. 234). Meanwhile, as common people are the real subject of socialist society, “Advancing *Eco-civilization progress* is a cause in which the general public participates and has a stake” [39]. In other words, as important as giving full play to the role of a socialist system as a guarantor of equity and justice, it is necessary to strengthen the people’s awareness of participation and responsibility in building a society of ecological civilization, to usher a new era for socialist civilization through innovative practices based on participation, joint governance and common interests of the general public.

On the level of modes of production and life, *eco-civilization progress* means a comprehensive transformation of modern society by constructing a new pattern of institutional framework and popular mindset, within which socio-economic development and ecological environment protection and governance are a win–win process of harmonious coexistence, or “an economy of eco-civilization” [40], instead of inevitable opposites. Such a new society will be the real embodiment of what Marx and Engels call “free society”, which manifests itself as “an existence in harmony with the laws of nature that have become known” [41] (p. 106). That is, the progress of human civilization means humane (social) and ecological regulation of the ways of production and living. Accordingly, a basic requirement for *eco-civilization progress* is to gain scientific knowledge of and keep a dynamic balance between socio-economic development and ecological environment protection and governance. As far as China’s *eco-civilization progress* is concerned, on the one hand, ever increasing scientific knowledge and ethical consciousness are needed in order to follow the laws of nature and respect nature, gradually establishing a sound modern system of ecological environment protection and governance. On the other hand, great efforts and various measures need to be taken to adapt to the changes in the main social conflicts, producing more material and cultural wealth to meet the growing needs of the people for a better life and providing more high-quality eco-products for a beautiful ecological environment [27] (p. 50). Obviously, *eco-civilization progress* in the Chinese context does not deny economic and social modernization itself. Instead, it is committed to advancing the ecologicalization of the current model of modernization, which has gradually formed since reform and opening-up in 1978, or a comprehensive green transformation of modernizing society, moving towards a new stage of high-quality development that is characterized by prioritizing ecological conservation, fostering green development and benefiting the general public [21,30,36].

To sum up, *eco-civilization progress* is becoming the most influential green theoretical and policy discourse in today’s China that goes through multiple aspects and issues of “building socialism with Chinese characteristics for a new era”. Of course, it also covers the policy area of ecological poverty alleviation, which is committed to combining the protection and restoration of ecosystems with poverty alleviation.

### 3.2. The Development of Ecological Poverty Alleviation Policy

Poverty relief or anti-poverty has been a long-term policy target of the CPC and government over the past decades [42,43]. After its reform and opening-up in 1978, China successfully organized and implemented a large-scale strategic action of development-oriented poverty alleviation, and the implementation of “the Seven-Year Program for Lifting 80 Million People out of Poverty (1994–2000)” marked the beginning of a crucial stage of China’s poverty alleviation efforts. Notably, this seven-year program described overcoming



ecological imbalance as one of the main tasks in the process of poverty alleviation and proposed to “speed up re-vegetation, combat wind and desertification, reduce forest resource consumption and improve ecological environment” [44] (p. 783).

Since the beginning of the 21st century, combining poverty alleviation and sustainable development gradually evolved as the guiding principle for China’s poverty alleviation and development. For example, “the Outline for China’s Rural Poverty Alleviation and Development (2001–2010)” issued by the State Council clearly expounded the policy measures of sustainable development in poverty alleviation and development. This program emphasizes that “all solutions to the poverty problem should be based on the principle that it is conducive to improving and protecting ecological environment and achieving sustainable development” [45] (p. 1880). Ten years later, the Central Committee of CPC and the State Council jointly released “the Outline for China’s Rural Poverty Alleviation and Development (2011–2020)”. This new program explicitly describes the improvement of the ecological environment as one of the main tasks in the new stage of poverty alleviation and development, requiring “to combine poverty alleviation and development with ecological restoration and environmental protection, give full play to the advantages of resources in poverty-stricken areas, develop environmentally friendly industries, enhance disaster prevention and reduction capabilities, promote a healthy and scientific lifestyle, and boost the coordination between economic development and population, resources and environment” [46] (pp. 357–358).

Another milestone in the evolution of China’s poverty alleviation strategy is the 18th National Congress of the CPC in 2012. The ambitious national goal of “building a moderately prosperous society in all aspects” was approved at this congress, which includes several index requirements such as substantially reducing the impoverished population, achieving an overall improvement in the people’s living standards and enhancing the stability of ecosystems [26]. In 2013, Xi Jinping, the Secretary-General of the CPC, proposed his idea of “targeted poverty alleviation” for the first time, which emphasizes the importance of combining poverty alleviation, development and ecological environment protection. In 2015, he further elaborated a package plan of five-key-measures for poverty alleviation and development; “relocation” and “ecological compensation” are included, stressing that “We can explore a new path of ecological poverty alleviation by integrating environmental protection and governance with poverty alleviation” [47] (p. 65). Shortly after that, the Central Committee of the CPC and the State Council jointly issued “the Decision on Winning the Tough Battle against Poverty”, which prioritizes ecological protection in poverty alleviation and development and systematically expounds the policy requirements for realizing poverty alleviation through improving ecological environment protection [48].

In the working report to the 19th National Congress of CPC in 2017, “targeted poverty alleviation” was defined as one of “the three tough battles” to secure a decisive victory in finishing the building of a moderately prosperous society in all aspects [27] (pp.27–28). On this basis, at the beginning of 2018, the National Development and Reform Commission [49] together with five other ministries jointly formulated “the Work Plan for Ecological Poverty Alleviation”. This document highlights the notion of *eco-civilization progress* that “lucid waters and lush mountains are invaluable assets”, and enumerates manifold policy tasks and initiatives to increase farmers’ income and ecological progress such as implementing ecological conservation projects, ecological public-welfare compensation and ecological industries development, strengthening the coordination between poverty alleviation, ecological environment protection and the mutual promotion between poverty alleviation and sustainable development. Later that year, “the National Strategy for Revitalizing the Rural Areas (2018–2022)” was jointly issued by the Central Committee of the CPC and the State Council, calling for “fully implementing the national strategy of targeted poverty alleviation and building a new pattern of rural development in which man and nature coexist in harmony” [50] (p. 4).

In short, after more than two decades, “ecological poverty alleviation” as a policy tool has gradually developed into an integral part of China’s national strategy of “tar-

geted poverty alleviation” as well as a practical approach full of political imagination for advancing *eco-civilization progress* in the New Era.

#### 4. The Three Modes of Implementing Ecological Poverty Alleviation Policy

Given China’s huge local variation in physical geography and socio-economic development, to achieve the double policy targets of poverty alleviation and ecological preservation at the same time, more important than the policy text itself, but also challenging, are that regional governments can formulate scientific work plans, explore effective policy measures, create comprehensive and long-term systems and mechanisms, and so on, depending on their own surrounding conditions. Thus, the following part of this article will examine three cases of implementing the national policy of ecological poverty alleviation, which are mainly based on the authors’ field visits to those places conducted in 2015, 2016 and 2018 respectively [51,52]. These best-performed examples arguably represent the three major policy innovation modes or paths of ecological poverty alleviation in today’s China: green development, ecological public-welfare compensation and ecological relocation.

##### 4.1. Green Development: Kang County, Gansu Province

The green development mode refers to the idea and practice that some regions can eradicate poverty through developing ecological agriculture and forestry, ecological tourism and ecological industries based on scientific or wise exploitation and utilization of abundant natural ecological conditions of the regions; in other words, by effectively converting natural ecological endowments into green product advantages, industrial advantages and economic advantages. While maintaining the current or high quality of ecological environment is one of the basic goals that should not be sacrificed as a cost for improvement of people’s material living standard, the constituents of natural world like ecological landscape in poor areas are considered as “natural assets” that can be operated and managed economically like other factors of production such as land, labor and industrial and commercial assets. In other words, through proper institutional design and innovation, natural resources can be converted into assets, funds into shares, farmers into shareholders, and “lucid water and lush mountains” into “invaluable assets” [47] (p.30). Given that most poverty-stricken areas in China are abundant in natural ecological resources, developing green industries compatible with local natural conditions is understandably a primary path of ecological poverty alleviation. In this aspect, Kang County in Gansu Province is a good example [52].

Kang County is located at the Qinling-Daba Mountains, a conservation area of water sources in the upper reaches of the Yangtze River and the region where Shaanxi, Gansu and Sichuan border each other. This county is blessed with a forest coverage of 67% and abundant natural resources. Based on these conditions, Kang County has adhered to the core idea of “integrating economic development with ecological progress” in recent years, driven the establishment of a regional ecological industrial system by developing ecological agriculture, ecological tourism and electronic commerce [53–55]. As a result, it has successfully converted the achievements of building a beautiful countryside into the advantages of economic development. By the end of 2019, this county had reached the official standard of “shaking off poverty”.

At a specific level, firstly, the guiding principle of “prioritizing ecological conservation and boosting green development” is steadfastly implemented in all respects and throughout the process of Kang County’s strategic action of “building beautiful countryside”. Typical measures in this regard include encouraging the use of local materials and the adaptation to local conditions to build original ecological villages, and continuously advancing the projects of constructing a green and clean, rubbish-free county, with beautiful countryside and scenic areas, with a long-term aim to make the county a natural, pleasant and beautiful tourist attraction. By 2019, 97.7% of the villages in this county have been awarded the title of “beautiful villages” by governments at different levels [55].

Secondly, based on its advantage of landscape resources, Kang County vigorously promotes the development of ecological tourism, integrating it into the societal endeavors

of building a beautiful countryside. In this regard, the county governments have taken measures such as working out a regional plan for the construction of a county-wide ecological scenic area, encouraging multiform institutional innovations in ecological poverty alleviation, giving a leading role to famous tourist attractions and strenuously marshalling resources to improve the reception capacity and services of rural tourism. From 2012 to 2019, the county's comprehensive tourism revenue quadrupled [55].

Thirdly, Kang County has made great efforts to construct its system of specialty industries, especially the cultivation of commercial brands that can substantially improve the overall development of new countryside and increase the revenue of local people. Other than continuously supporting the development of traditional specialty and competitive industries—crops such as wheat and corn and cash crops such as pepper and walnut—the county governments have also worked very hard to promote green industries such as circular agriculture, traditional Chinese medicine and energy-conserving and environmentally friendly industries. In addition, they have accomplished a lot in support of the development of data and information industries such as smart city and telecommunication services, the combination of production and processing with product promotion and the integration of industry development with entrepreneurship promotion. By 2019, Kang County's agricultural specialty sector had achieved great advancement, having successfully cultivated several well-known brands such as Kanger and Cuizhu, and the annual e-commerce sales volume reached CNY 320 million, helping 23,000 people in poverty achieve a stable and sustainable income increase [55].

#### *4.2. Ecological Public-Welfare Compensation: Sanjiangyuan National Park, Qinghai Province*

The ecological public-welfare compensation mode refers to the idea and practice that poor people in some regions can shake off poverty and live a well-off life, mainly or partly through receiving transfer payments of ecological public-welfare compensation from the state treasury. The reason behind such a mechanism is that these regions undertake a responsibility of maintaining national and/or global ecological security by participating in the construction and operation of the national ecological conservation system. The beneficiaries from this mode are mainly the people who work for, or live in, national key ecological functional areas, nature reserves and the surrounding communities. They make contributions in one way or another to maintain and improve the stability and diversity of ecological environment systems while giving up or sacrificing their opportunities of economic development through exploiting natural resources of the regions. Therefore, such financial compensation or incentives funds are often justified from the perspective of social and environmental justice [56,57]. In recent years, Sanjiangyuan National Park, one of the first five established national parks in China, has carried out extensive practical explorations focusing on the application of ecological public-welfare compensation mechanisms in poverty alleviation [58–60].

Located in Qinghai Province in West China, Sanjiangyuan National Park sits in the central area of the Qinghai–Tibet Plateau, which is known as “the roof of the world”. This region is an important river source conservation area in China, as well as the area with the most intensive biodiversity among high-altitude areas in the world. At the same time, due to its sensitive and fragile ecological conditions, as well as the traditional nomadic mode of production and life, people in the Sanjiangyuan area have been living in poverty for a long time. Therefore, Sanjiangyuan region is identified as one of China's key areas for poverty alleviation. Accordingly, a crucial issue in establishing Sanjiangyuan National Park is to create a scientific and effective mechanism of ecological public-welfare compensation and other ecological poverty alleviation policy tools, targeting a win–win result for better ecological protection and improvement of local people's livelihoods [57,61].

Since 2008, China has been exploring and implementing the transfer payment system for key ecological functional areas. In 2016, the State Council issued “the Opinions on Improving Ecological Protection and Compensation Mechanism”. This document listed the Qinghai–Tibet Plateau as a key area for exploring the policy and mechanisms of ecolog-



ical protection and compensation, emphasizing the coordinated advancement of targeted poverty alleviation and ecological protection and compensation. On this basis, the government of Qinghai Province has set up a “six-in-one” input guarantee mechanism that integrates various kinds of financial funds in relation with poverty alleviation, environmental protection and sustainable development [57,59]. In addition to implementing national policy initiatives such as the natural forest protection project and the project of returning more farmland to forests and grasslands, Sanjiangyuan National Park has carried out many investigations to establish a sound mechanism for poverty alleviation through ecological public-welfare compensation [62–64].

To be more specific, firstly, given the multiple difficulties and high economic cost of ecological conservation on the plateau, Sanjiangyuan National Park has created a certain number of public-welfare positions or jobs for local people for the purpose of ecological conservation. After receiving necessary training, the recruited workers are engaged in ecological public-welfare works such as ecological experience guiding, ecological protection facilities maintenance and data monitoring and law enforcement assistance. Accordingly, they receive a certain amount of subsidy and enjoy accident insurance. In recent years, the Sanjiangyuan administration has continuously taken measures to improve the operation of this institution. For instance, it has made great efforts to implement the established policy target of “one position for one household” on the one hand, and to improve the regular, specialized and information-based management of this ecological conservation-assisting team on the other by creating a more concentrated patrolling network, working out more strict operation standards and establishing a management database for all the team members. By 2020, a total of 17,211 ecological conservation-assisting workers (about 27% of all nomads) are recruited by the National Park, and their living standards are improving steadily [59,61].

Secondly, due to its ecological vulnerability, the Sanjiangyuan area is not suitable for large-scale industrial development. Thus, following the principles of protection first, proper development and sustainable utilization, Sanjiangyuan National Park adopts the concession-based operation and management system for profit-oriented projects, concentrating on the green industries that are compatible with the local ecological environment, integrated with native ethnic customs and consistent with peoples’ needs. Most of all, the Sanjiangyuan administration welcomes and encourages local people to participate in environmentally friendly concession projects, such as ecological experiences and natural education, pastoral tourism and ethnic cultural performances, boosting local employment and sustained income growth. Meanwhile, it is attempting to gradually shift from contracted pasture operation to concession-based operation in its extent of jurisdiction, to promote the development of such green industries as ecological (organic) and high-end animal husbandry, Tibetan medicine and ecological tourism. By 2020, the first batch of pilot concession-based eco-experience projects has brought in more than CNY 1 million to local communities, of which 45% is earned by host families, another 45% is transferred to local community funds and the final 10% is used for ecological protection [59].

#### *4.3. Ecological Relocation: Songjiagou Village, Kelan County, Shanxi Province*

The ecological relocation mode refers to the idea and practice of relocating residents in impoverished or remote areas with barren natural ecological conditions and building resettlement communities to help these people to shake off poverty. Although it seems like a “once-and-for-all” solution, ecological relocation is a complicated systemic engineering approach involving various aspects and concerns of society. Relocation sites should be livable and rich in natural resources on the one hand, and necessary living facilities, conditions for employment and entrepreneurship and sociocultural facilities must be prepared in advance for the relocated residents on the other. In this regard, Songjiagou Village in Kelan County, Shanxi Province, is an appropriate example, for which relocation has fundamentally changed the natural environment and the conditions of production and living of resettlement residents [51,65,66].

Kelan County is located at the middle of the Loess Plateau, deep in the Lu-liang Mountains. Nearly half of its villages are scattered along the edges of ravines. In 2014, Kelan was one of the first national key counties targeted for poverty alleviation and development, and within it, Songjiagou was a village deep in poverty. To implement the national strategy of “targeted poverty alleviation”, Kelan County started to carry out the project of whole-village relocation in 2016 and Songjiagou Village is one of the eight relocation sites. In the following years, the government of Kelan County made great efforts to advance the project of whole-village relocation in an organized and planned manner, especially carrying out several relocation village upgrading projects to promote the industry development of the resettlement communities and improve residents’ living standards and employment opportunities. By 2018, all the 116 poor villages of Kelan County successfully achieved the goal of “shaking off poverty” [65]. Songjiagou is now becoming a nationally well-known rural scenic spot and a demonstration village of rural governance.

More precisely, first, the relocation of the whole village and subsequent new community building have fundamentally changed the living conditions of resettlement residents. Kelan County has drawn up a well-planned system of relocation sites composed of the county center, eight central towns and 41 central villages. Planned resettlement residents choose the new location to live according to their own will and receive the corresponding relocation subsidies. Since 2017, Songjiagou has built 265 new resettlement rooms of 5300 square meters in total to accommodate 265 people of 145 relocated households from 14 administrative villages, which are decorated and furnished in advance [67,68]. As far as the relocation fund is concerned, the Songjiagou project has received support from various sources, including policy funds, relocation funds, government financing and local self-financing for the improvement of the landscape. For an ordinary family of three, there will be no debt incurred as a result of relocation. In the construction of resettlement villages or communities, the government of Kelan County encourages the utilization of local materials and makes full use of such policies in the reform of rural homesteads, to strenuously create convenient modern living conditions for the residents. By 2019, the per capita disposable income of Songjiagou reached CNY 8816, doubling that of 2014 [65].

Second, the relocation project and its implementation attach great importance to the protection, restoration and sustainable use of natural ecosystems, exploring the practical paths of ecological poverty alleviation according to local conditions. Kelan County has taken or strengthened various ecological environment governance measures at the original sites of relocated villages, such as overall demolition of the buildings, returning farmland and hills to forest. Meanwhile, it has tried to increase employment and income among the resettled people through carrying out ecological conservation projects. In 2019, all forest plantation projects in Kelan were undertaken by the professional afforestation cooperatives for poverty alleviation, which have helped local poor people to increase their income. For another example, Songjiagou has performed well in planning and building new socialist countryside. Through various efforts, the former run-down and desolate village was transformed into a new village suitable for living and working and a well-known ecological rural scenic area for recreational tourism, with strong local customs and the style of northwest Shanxi. From 2018 to 2020, Songjiagou organized two rural tourism festivals, which have received 480,000 tourists and helped relocated or poor families increase their income by CNY 15,000 on average [65].

Arguably, the descriptive analysis above reflects the overall development and implementation of ecological poverty alleviation policy in China today [43,69]. By and large, as a public policy, ecological poverty alleviation can be understood as a thinking and practical approach to help very poor people in regions with or without abundant natural resources and favorable environmental conditions to shake off poverty and live a well-off life, in the Chinese context of “finishing the building of a moderately prosperous society in all aspects” by 2020 [27]. This requires a synergy of precise national policies, allocation of various resources and effective organization of local governments at all levels. Under the guidance of national political consensus and major strategy of “winning the battle against

poverty”, ecological poverty alleviation has gradually developed into a discursive and policy system with rich theoretical implications, comprehensive policy tools and multiple practical approaches, constituting an important dimension of contemporary China’s poverty alleviation theory and practice [61], or a complete eco-innovation.

Green development, ecological public-welfare compensation and ecological relocation are the three typical modes or paths of ecological poverty alleviation. From a perspective of public policy formulation and implementation, the major advantage of green development measures is that they can stimulate the economic drive of local governments and people for a good life; the principal advantage of ecological public-welfare compensation mechanisms is that they can provide a legitimate channel of steadily allocating public financial resources in a win-win manner of ecological protection and local development, while the best advantage of ecological relocation projects is that they can solve the problem of the few once for all, highlighting the social-ecological welfare safeguard for the most vulnerable social group by society. By the end of 2020, China succeeded in lifting all rural or remote poor people out of poverty in accordance with applicable standards, having eradicated the long-lived phenomena of absolute poverty and regional overall poverty. Among them, ecological poverty alleviation projects have been productive, with over 20 million poor people shaking off poverty [60,70]. Moreover, what are in common for these major modes or approaches is that they attach great importance to integrating the goals of targeted poverty alleviation and ecological environment protection. Notably, even for the regions characterized by the approach of green development, the principle of prioritizing ecological environment protection has been well adhered to and implemented. As such, China’s ecological poverty alleviation policy is undoubtedly a historic achievement.

## 5. Some Further Theoretical Reflections from a Perspective of Eco-Civilization Progress

As stated earlier, ecological poverty alleviation policy and its implementation in today’s China is a remarkable success of eco-innovation, which is very difficult to imitate in other countries and regions in the world. From a theoretical perspective of *eco-civilization progress* or sustainability, though, there are at least the following three issues that need to be further discussed.

### 5.1. “The Original Aspiration” of Ecological Poverty Alleviation Policy—Ecological Protection and Conservation or Shaking off Poverty

In theory, it is not hard to understand that ecological poverty alleviation itself is a comprehensive and holistic way of thinking, policy and practice. It evolves various elements and aspects from natural geography, economic and social development to historical and cultural conditions, and these elements and aspects must be managed in a balanced way. Thus, a basic requirement or test for ecological policy measures of poverty alleviation is that whether they are conducive to preserving “the lucid water and lush mountains” or truly being ecologically friendly or frugal. On the positive side, various green development demonstration areas and pilot areas for ecological public-welfare compensation mechanism and resettlement projects, which have been set up by governments at different levels in the past years, are to a large extent consistent with the principle of prioritizing ecological environmental protection. For example, of the 364 national eco-civilization demonstration cities and counties awarded in the first five rounds by the Ministry of Ecology and Environment (MEE) since 2017, most of them are the “model students” of promoting green high-quality development and better environmental protection in a coordinated manner [71].

However, it should also be noted that the top priority in actual implementation of ecological poverty alleviation policy is poverty eradication, rather than ecological conservation and protection. In fact, economic indicators such as annual per capita income are still the determinant index for identifying one region remaining in or out of poverty [72]. Therefore, such poverty alleviation endeavors could hardly avert or transcend the conflict between environmental protection and socio-economic development. For those impoverished people, while joining ecological poverty alleviation projects can make them more

ecologically educated, what best drives them to get involved in these projects is the wish to improve their living standards, instead of promoting ecological environment protection. A conceivable risk is that the people who are no longer poor will care more about ways of enjoying life and/or becoming rich, and should not be expected with a distinctive consumer awareness and behavior [73,74]. In addition, ever expanding penetration of capital into rural areas in the name of ecological poverty alleviation may fuel the culture of economic primacy [75] and mass consumerism [76]. Thus, it is still not safe to say that ecological poverty alleviation is, or will remain to be, an ecologically sustainable or civilizational policy in its strict sense.

### *5.2. The Composite Structure of Major Players and the Orientation of Socialist Politics in Implementing the Policy of Ecological Poverty Alleviation*

Major actors of ecological poverty alleviation in China include the CPC and governments, enterprises with social responsibilities and the common people, and an ideal composite structure among them is a coordinated one in which these actors coordinate their efforts and cooperate with each other. The elements of ecological poverty alleviation policy that have been put in place, though, are largely characterized by top-to-down sociopolitical mobilization, which highlights the undisputed predominance of CPC and the governments. This is reflected in the input of funds and human resources and the organization of large-scale projects, as well as the decisive measures such as the dispatching of cadres at all levels, paired cooperation in departments and localities, partnered assistance between the east and the west, and local cadres stationed in poor villages [77]. Undoubtedly, for those impoverished areas with infertile natural conditions, deep intervention and coordination of CPC and the governments at all levels is necessary, which can bring socialist politics' strengths into full play in meeting people's basic needs, protecting people's long-term interests and safeguarding environmental justice [21,78]. It is especially noteworthy that developing cooperatives or collective enterprises, as a way to fuel the sharing of resources for and gains of economic development, is a concrete embodiment of the strength of socialist collectivization in ecological poverty alleviation. A persuasive example here is the collective tour company founded by Fenghuanggu Village, Kang County, which follows a share-based dividend policy to lift poor families out of poverty [52]. As stipulated by the policy, a family, after being lifted out of poverty, should transfer its shares to other impoverished families, ensuring that more poor people can share the gains of economic development.

Nonetheless, it should never be neglected that the subjects of ecological poverty alleviation must be the common people. In this sense, enabling and institutionalizing their real participation has fundamental implications. Accordingly, great efforts need to be made to foster sufficient self-development capacity and will across poverty-stricken regions, and develop a sound system to resolve the unstable and unsustainable effects of former ecological poverty alleviation measures for achieving the targets in a very limited time [69]. Thus, for ecological poverty alleviation in a new stage, political consideration of socialism with Chinese characteristics is still indispensable, if not more important, but it is in the sense that it should pay more attention to the specific needs and actual conditions of local people, a better combination of support in funds, knowledge transference and the confidence building of local people, the establishment of a harmonious, solidary and energetic system of social grassroots organization, and so on. As far as the relocated people are concerned, a primary focus should be their difficulties of adaptation and integration into the new communities, helping them overcome the feeling of spatial imbalance and psychological loneliness caused by relocation from their hometowns [79]. This requires a broader social and cultural vision, rather than just the perspective of economic development, to observe livelihood improvement or ecological restoration of these communities.

### *5.3. A Gradual Integration of Ecological Poverty Alleviation Policy into the Discourse and Strategy of Eco-Civilization Progress or Sustainability*

Attributed to the current stage of modernization with Chinese characteristics, ecological environment protection and poverty alleviation have been naturally combined into

a “political match” in today’s China. This enables the CPC and the governments to pool a large amount of societal resources to solve the problem of absolute poverty of a huge number of people and in numerous geographical areas. This policy and its implementation are apparently a historic achievement in terms of anti-poverty governance, which has demonstrated the strong capability of sociopolitical mobilization and governance of the CPC and the governments. It is important to stay awake, though, that the legitimacy of such a political marriage is also historic. On the one hand, the existing knowledge about and efforts in ecological environmental protection and restoration are limited or imperfect. Accordingly, it takes much longer time to test social and ecological effects of ecological poverty alleviation policy measures that have been thus far implemented [80]. It means that China’s ecological poverty alleviation policy and its success is only a rudimentary or preliminary one, and stronger determination and more vigorous actions are needed in the years to come. Furthermore, from a perspective of *eco-civilization progress* or sustainability, ecological poverty alleviation is to a great degree only a policy strategy with a phased and transitional implication, which may lead to the establishment of favorable natural conditions and economic foundation for a harmonious relationship between man and nature. However, that does not mean that the phenomena of social injustice and ecological unsustainability caused by the traditional mode of production and life can be automatically eliminated by implementing such a policy, let alone that China can thus enter a future society in which man and nature live together in harmony.

On the other hand, as China has announced that it is entering into a new stage of building a socialist modern country in all respects since 2021, which is characterized by the all-round implementation of rural revitalization strategy, the ecological poverty alleviation policy is experiencing a process of self-adjustment and reconstructing. Arguably, what is most needed is the insights into what “ecology”, “poverty” and “development” are like and attributed to in poor regions and how reform will evolve there, from a new political and theoretical horizon. Based on the new thoughts, more measures need to be taken to bring the urgent or appropriate issues into actual politics and promote the institutionalization of those policies derived from them. Among others, a major issue is to persistently envision and foster a brand-new economy of eco-civilization [40]. This economy should be neither a return to the past times when people lacked the basic means of subsistence, nor a pursuit of “high material affluence” in the traditional sense. Instead, it is a new economy of resource saving and fair distribution driven by continuous ecologically frugal and socialist innovation [5,7,81]. In brief, in the authors’ opinion, though it is still too early to describe the general picture of such an economy of eco-civilization in detail and tell exactly when and how to make it, its core goals and basic principles are already there, for which the policy innovation of ecological poverty alleviation in today’s China has contributed a lot.

## 6. Conclusions

Our paper has examined the formulation and implementation of ecological poverty alleviation policy in contemporary China. We propose that this policy has been gradually developed into a discursive and policy system with rich theoretical implications, comprehensive policy tools and multiple practical approaches, and green development, ecological public-welfare compensation and ecological relocation are the three major modes or paths of implementing this policy, thus constituting a complete case of eco-innovation. As a public policy of eco-innovation, on the one hand, the Chinese case has been thus far a remarkable success in practice, from which other countries and regions in similar situations can obtain useful reference; for instance, integrating the policy goals and measures of poverty alleviation and ecological sustainability, adopting different implementation paths according to local conditions, and playing the planning and coordination role of governments and governing political parties—especially those actors at the national level. On the other hand, the Chinese model—if it is—is far from a universal one. Among others, what underpins this policy is clearly the huge input of various resources and the party-state political regime, indicating that the cost of its operation is definitely not cheap, or



“frugal”, in terms of the total expenditure. What determines the nature or future of this policy is not only its political-philosophical orientation towards *eco-civilization progress* or sustainability, but also the changing economic and political configuration in the New Era of “fully building a great socialist modern country” [27] (p. 11).

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