

Article

Understanding the Sustainable Mechanisms of Poverty Alleviation Resettlement in China's Developed Regions under the Background of Land Relocation: Drivers, Paths and Outcomes

Kang Cao ¹ , Ronglu Yang ¹, Pengyu Zhu ², Xingman Zhang ³, Keyu Zhai ⁴ and Xing Gao ^{3,*}

¹ Department of Regional and Urban Planning, College of Civil Engineering and Architecture, Zhejiang University, Hangzhou 310058, China; caokang@zju.edu.cn (K.C.); 3180101569@zju.edu.cn (R.Y.)

² Division of Public Policy, Hong Kong University of Science and Technology, Hong Kong, China; pengyuzhu@ust.hk

³ School of Humanities and Social Sciences, Beijing Institute of Technology, Beijing 102488, China; 3120231768@bit.edu.cn

⁴ School of Graduate Studies, Lingnan University, Hong Kong, China; colinzhai@ln.edu.hk

* Correspondence: xing.gao@bit.edu.cn

Abstract: In the context of land relocation, poverty alleviation resettlement (PAR) is considered an effective approach to improve the man–land relationship and development issues. However, current studies pay little attention to PAR and its spillover effects within developed regions. Furthermore, the complete mechanism chain has received little research concentration. Thus, employing a qualitative survey, this study aims to investigate the overall mechanisms of developed regions' PAR in the context of land relocation. The study will deal with the following questions: Why does PAR occur in developed regions? How does the resettlement approach to poverty alleviation (i.e., paths)? What are the effects of resettlement on poverty alleviation, including its own effects and spillover effects? Through answering these questions, this study will highlight PAR in developed regions and investigate the spillovers from social, economic and ecological perspectives. Particularly, a comprehensive mechanism analysis framework for PAR will be presented to motivate future studies. Results indicate that PAR is generally caused by ecological poverty alleviation, geological disaster prevention and county town urbanisation promotion and that emigration and resettlement are the paths to PAR. In addition, the direct outcome is the overall rise in the number of resettlers over time, and the spillovers show the sustainable collaboration of economic, social and ecological dimensions. These findings will influence future land reform and housing initiatives.

Keywords: poverty alleviation resettlement; land; developed region; spillover effect; sustainable mechanism



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1. Introduction

The man–land relationship, characterised by a large population and limited land, is a major challenge faced by countries worldwide. Especially in developing countries, large amounts of arable land are constantly being encroached because of the rapid development of the economy and the advancement of urbanisation [1]. Meanwhile, issues such as the inefficient use of construction land, soil pollution and land degradation have further imbalanced the regional man–land relationship, exacerbating regional poverty. In general, the majority of the poor are distributed in mountainous, hilly and plateau areas [2]. Owing to complex geographical conditions, fragile ecological environments and the scarcity of natural resources, among other factors, these areas find it difficult to obtain essential foundations for development, such as land and funding. However, the development of developed regions, especially their remote mountainous areas, is also constrained by the scarcity of land resources, resulting in these regions encountering enormous poverty alleviation challenges [3].

Connected to China's context, to address these issues, poverty alleviation resettlement (PAR) is considered an effective approach to realise poverty reduction and ecological environment improvement [4,5]. China was once the developing country with the largest rural poor population in the world [1], but over the past three decades, it has achieved widely recognised progress in PAR [6]. Specifically, regional PAR practices in China achieved good social, economic and ecological benefits at the end of the 20th century. Thus, China regarded PAR as a gradually comprehensive and systematic poverty alleviation project at the beginning of the 21st century [4]. Generally, the logic of poverty alleviation strategy for PAR is that the impoverished rural population is mainly concentrated in areas with backward public services, high construction costs and insufficient resource-carrying capacity or, in other words, underdeveloped areas. Therefore, farmers will move away from their original land to solve the development dilemma of local natural resources being unable to sustain livelihood [7]. The idea of relocating impoverished populations to more developed areas rather than considering small villages is also popular in the global south [8], such as Vietnam, Laos, Thailand, Sudan, South Africa and India [9–11]. These international practices motivate China to innovate land use policies to deal with PAR issues [12], and China's literature and practices since the Reform and Open policy also acknowledge the vital roles of land institution in PAR [13]. Note that the literature referred to in this paper not only pertains to the academic literature on PAR issues but also encompasses a broader perspective on government policies and practices.

Starting from the land use literature, previous literature with respect to PAR focuses on relocation motives, resettlement modes, practical effects, the subsequent development of immigrants and so forth. Relocation motives include the fragile ecological environment, frequent natural disasters and poor living conditions of impoverished populations [14]. Resettlement modes are divided into two categories based on their geographical location and resettlement characteristics [15]. The regional geographical perspective includes nearby village resettlement, central village resettlement and urban or industrial park resettlement [16,17]. Meanwhile, resettlement characteristics are mainly divided into concentrated resettlement and scattered resettlement modes. The resettlement in most areas mainly focuses on urbanisation and concentrated resettlement. Concentrated resettlement has advantages such as economies of scale and agglomeration and facilitates government support [18]. In terms of practical effects, most of the current studies that evaluate PAR believe that there are positive effects, including significant improvement in the ecological environment of ecologically fragile areas, production structure adjustment [19], enhancement in the livelihood capital of immigrants [20], improvement in the production and living environment of immigrants and the promotion of urban development and new rural construction. In the subsequent development of immigrants, existing studies discuss increasing funding and policy support [21], as well as industrial support and vocational training [20], among other aspects.

However, the previous literature may suffer from the following shortcomings. Firstly, given that impoverished areas and populations are mainly concentrated in mountainous, arid and semi-arid areas, most PAR studies at present focus on underdeveloped regions [22,23]. In comparison, there is limited literature on relatively developed regions, even though, due to significant spatial heterogeneity and social spatial differentiation in urban China, these regions also face issues of absolute and relative poverty and marginalised populations still face a certain risk of returning to poverty [24]. Accordingly, this paper is also a case study of Qingyuan county in Zhejiang province, a relatively developed province in eastern coastal China. Qingyuan is a typical mountainous and provincial-designated impoverished county. Since 2003, it has implemented numerous measures to alleviate poverty and protect the environment. Secondly, regarding the effectiveness of PAR practices, existing studies focus on the poverty reduction effects and improvement measures for income level, livelihood adaptation, production and living environment of relocated farmers [19]. However, in-depth and systematic analysis on the spillover effects of PAR is lacking. Thirdly, the previous literature only focuses on a stage of the mechanism process

in PAR, which cannot cover the whole process of PAR. An incomplete mechanism process analysis will be detrimental to the innovation of land use policies and will hamper the ability to design planning schemes that are in line with reality.

Thus, this study conducts a qualitative survey to understand the mechanisms of developed regions' PAR in the context of land relocation, focusing on the internal spatial heterogeneity in developed regions. Especially using the data of interviews and documents, this study addresses the following questions: (1) Why does PAR occur in developed regions? (2) How does the resettlement approach to poverty alleviation (i.e., paths)? (3) What are the effects of resettlement on poverty alleviation, including its own effects and spillover effects? Answering these three questions will help us reveal the overall mechanism of developed regions' PAR. This study contributes to the existing literature in several ways. Firstly, it highlights PAR in developed regions. Within China's official land relocation agenda, developed regions are considered as providers of assistance for PAR. However, the internal heterogeneity of developed regions also indicates their need for PAR. Thus, this study wants to understand whether the process mechanisms are different from those of traditional developing regions. Secondly, this study not only focuses on its own impact of resettlement but also investigates the spillovers from social, economic and ecological perspectives. Thirdly, this study will construct a comprehensive mechanism analysis framework for PAR in developed regions, including drivers, paths and outcomes. This framework will deepen our understanding of the spatial heterogeneity of land relocation and offer new insights into China's land reform.

The rest of this study is organised as follows. Section 2 offers a literature review. Section 3 presents the methodology, including the case, data and methods. Section 4 shows the empirical results and discusses the results. Section 5 presents the conclusion.

2. Literature Review

2.1. Why Does PAR Occur within Developed Regions?

Based on the previous discussion, this section expects to clarify the reason PAR occurs within developed regions and its effects by reviewing previous studies. PAR has often been adopted as a governance tool for sustainable development [25]. Sustainable development is a type of development that meets the needs of the present generation without compromising the ability of future ones to meet their own needs. Its connotation is summarised in three aspects: economically sustainable development, environmentally sustainable development and socially sustainable development [26].

Sustainable development that encompasses the economy, society and environment is generally considered as the rationale for PAR [25]. Thus, the existing literature considers PAR as development-induced displacement and resettlement [27]. These sustainable motivations include infrastructure construction, urban renewal, urbanisation, poverty alleviation, cultural integration and national construction [11], ecological restoration and environmental protection [28] and adaptation to climate change, among many others. From the economic perspective, infrastructure construction, including large-scale development projects such as dam construction, has become the primary driving factor for global PAR [27]. However, with globalisation, poverty alleviation and ecological environment restoration have gradually become the main driving forces for PAR [29]. This is because the areas affected by PAR predominantly share the following characteristics: no development conditions under natural resource constraints, development zones prohibited or restricted by national main functional area planning, weak infrastructure and public service facilities with high construction and operation costs and frequent geological disasters [1]. The fundamental logic behind this phenomenon is that poverty is closely related to ecological and geographical conditions. Poverty-stricken areas are usually concentrated in areas with fragile ecological environments, resource scarcity and frequent disasters. Therefore, this phenomenon is known as the spatial poverty trap [30]. In this case, PAR is usually carried out under the name of ecological resettlement (ER) [31]. PAR is defined as the phenomenon of population spatial mobility caused by environmental issues such as deforestation and

land desertification, which prevent people from surviving on the land. Some literature categorises it as the population-poverty-environment (PPE) cycle [32].

With regard to why PAR within developed regions is worth considering, compared to developing regions, exploring PAR in developed regions can help us understand regional integration development and the heterogeneity of poverty between inter- and intra-regions. The experiences of developed regions can also provide a reference for developing regions. Firstly, the spatial heterogeneity in developed regions slows down the regional integration process [33]. Owing to significant differences in socioeconomic conditions, institutional arrangements and resource endowments in different geographical locations, the issues of imbalanced economic and social development in developed regions are becoming increasingly apparent. In particular, the wealth gap in developed regions is even greater than that in underdeveloped regions [34]. However, both official practice and the scientific literature assume that developed regions are generally advanced economies, and there is no systematic examination of the development gap within developed regions [35]. As far as China is concerned, poverty-stricken areas in developed regions persist for a long time and constrain the overall sustainable development of developed regions [36]. Poverty-stricken areas in the eastern region are closer to the inland compared to the developed coastal areas. They are the connecting zone between the developed eastern region and the central region. If this poverty-stricken area in the eastern region is chronically in a relatively poor state, then it will be difficult for the economic advantages of the coastal areas to benefit the inland areas of China, which, to some extent, slows down the process of the rise of central China. Therefore, investigating PAR in developed regions is beneficial for promoting wealth and coordinating regional development.

Secondly, the overall prosperity of developed regions masks the poverty situation in some of their internal regions [37]. Since the 1980s, the huge economic gap between the mountainous and coastal areas in eastern China has led to large-scale rural population migration to cities, resulting in the hollowing out, aging and shortage of human capital in the rural areas of developed regions [38]. Furthermore, compared with poverty-stricken areas in the central and western regions, remote mountainous areas in the eastern developed regions have fewer permanent rural residents, more hollow villages and more severe resource scarcity [39]. Thus, the developed eastern region regards PAR as an effective channel to address the wealth gap and poverty issues between regions.

Thirdly, the outcomes of PAR between developed and developing regions are different [40]. The previous literature shows that, compared with underdeveloped regions, developed regions pay more attention to improving urbanisation and industrialisation levels, conducting quality training for poverty alleviation for immigrants, providing more post resettlement support and emphasising the utilisation of resources in the relocation areas and subsequent poverty alleviation construction in the process of PAR [41]. However, PAR in developing regions places greater emphasis on short-term economic growth and increase in resident income. Despite this result being in line with the local situation, its sustainability is lacking. As this is not the most anticipated outcome of PAR projects, developed regions will explore and innovate on common and forward-looking issues in PAR, providing reference for developing regions.

2.2. The Effects of PAR

For the outcomes of PAR practices, existing studies mostly focus on the self-effects of PAR, including the continuous decline in the scale of impoverished population, the improvement of income levels of relocated farmers and the expansion of employment channels [4]. As the practice of PAR deepens, its expected results are also constantly changing. PAR is no longer simply about helping impoverished rural populations relocate to achieve the expected policy goals of poverty alleviation but has transformed into comprehensive economic, social and ecological needs [42]. In addition to economic effects, poverty alleviation relocation may have some social or ecological spillover effects. However,

previous studies have overly emphasised economic outcomes and paid limited attention to the economics, society and ecology within the same system.

Existing studies on economic spillover effects, on the one hand, suggest that PAR can narrow the urban–rural income gap in impoverished areas and promote balanced urban–rural economic development [40]. It can also reset rural resources and promote the adjustment of rural production structure through land transfer management [19]. In addition, PAR increases the availability of cheap labour by accelerating capital accumulation [27]. On the other hand, there are also potential social and ecological spillovers in PAR. PAR brings rural populations from remote mountainous areas to cities, promoting the process of urbanisation. The living environment and public service guarantee of relocated farmers can also be significantly improved [4]. Through establishing new spaces, PAR enhances the ideological quality and development concept of relocated farmers and reconstructs their social and cultural lives [43]. These are all expected positive spillovers. Similarly, by organising, reclaiming and reusing abandoned homesteads in the relocation areas, PAR can improve the ecological environment of ecologically fragile areas [4]. However, few studies have focused on the subjective perceptions of individual residents towards these aspects. In other words, whether individual residents perceive PAR as a sustainable project is rarely systematically studied.

3. Methodology

3.1. Case Study

The study area, Qingyuan county, is located in the southwestern Zhejiang province, China. It borders Fujian province and is 488 km away from Hangzhou, Zhejiang's provincial capital (Figure 1) [44]. In terms of administrative role, Qingyuan is one of the eight subordinate counties of Lishui city, Zhejiang. It has a household registered population of 201,100, with 142,700 permanent residents and an urbanisation rate of 63.72% as of 2021 [45]. It inherits Lishui's geographic and economic features, namely mountainous and impoverished.



Figure 1. Location of Qingyuan county. (Source: self-drawn by the author).

The natural geographical situation of Qingyuan makes it a typical case for discussing PAR. It has a fragile ecological environment, and its mountainous areas are extensive and prone to geological disasters. Qingyuan covers a total area of 1898.8 km², with

approximately 49 km from north to south and 67 km from east to west [44]. A total 75.9% of Qingyuan consists of mountainous areas with a slope gradient over 25.0° , while 19.8% are prone to medium- and high-risk levels of geological hazards, such as landslide and debris flow (Figure 2). The proportion will be 98.8% if areas that have low-risk level geological hazards are counted [46]. Concomitantly, both arable and construction land are scarce in Qingyuan county. According to the Change Survey of Land Use Situation of Qingyuan County, the area of arable land in the county is 115.63 km², accounting for 6.10% of the total area, and the area of construction land is 42.14 km², accounting for only 2.22% of the total area [47]. The utilisation of natural resources is hampered by steep terrain, remoteness and insufficient transportation.

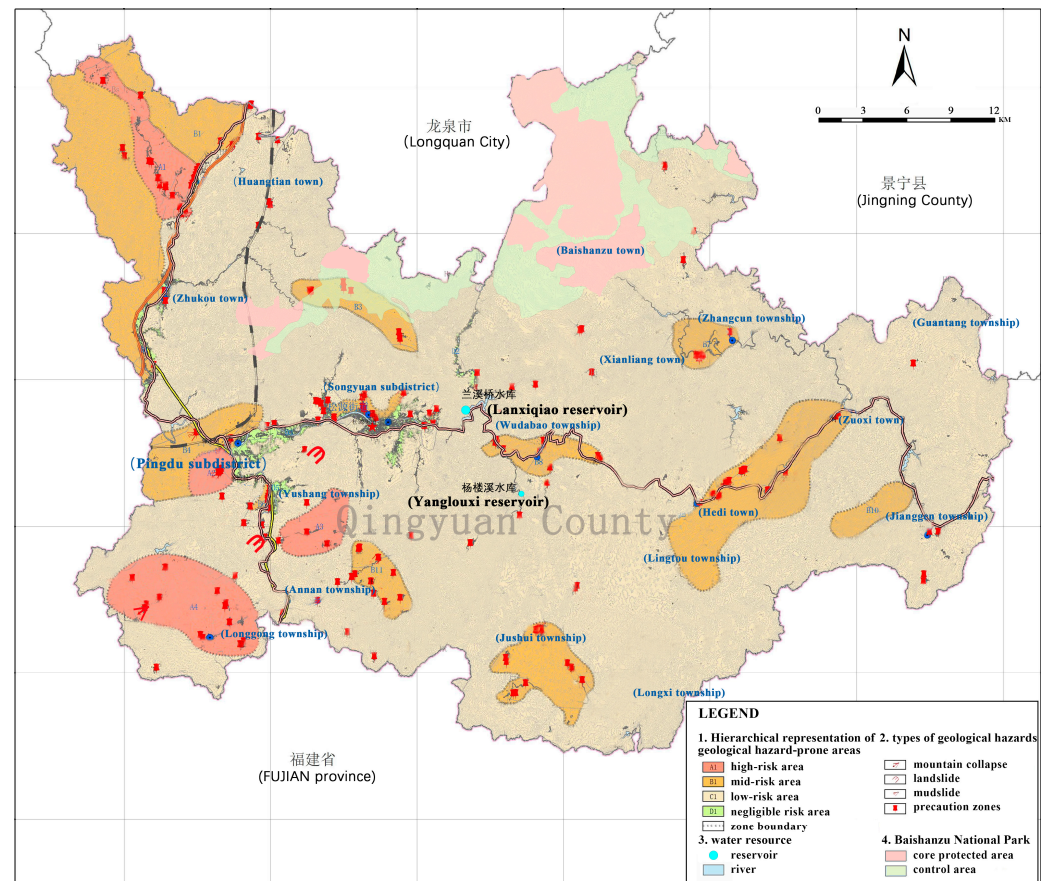


Figure 2. Geological hazard vulnerability zoning map in Qingyuan county. (Source: redrawn from the Qingyuan County 14th Five-year Plan of geological disaster prevention and control).

The socioeconomic situation in Qingyuan also demonstrates the importance of PAR. Firstly, its poor circumstances and frequent natural disasters have led to persistent impoverishment. Qingyuan is one of the three provincial-level poverty-stricken counties of Lishui city. Several townships of Qingyuan are among the aforementioned 361 townships listed in Zhejiang's 2002 poverty alleviation programme [48]. Its economic development is relatively lagging behind, with an overwhelming duty of poverty alleviation. Its annual GDP in 2021 was CNY 8.52 billion, which was at the bottom of the 90 county-level administrative areas under Zhejiang province. In addition, Qingyuan county has a lower per capita disposable income of urban and rural residents than the national average, with an annual per capita disposable income of urban and rural residents of CNY 34,618 compared to the national average of CNY 35,128 in 2021 [49]. Secondly, the huge economic gap between Qingyuan's remote mountainous areas and the developed coastal areas has led to large-scale rural–urban migration. Qingyuan's population variation in recent years is characterised by an overall net outflow of the total population, which has eased during

the last few years. According to the Qingyuan Statistical Yearbook, Qingyuan reached its population peak in 2012 but encountered a population loss from then on due to population outflow. The number of outflow population, most of which are migrant business workers, accounted for about 30% of the household registered population during the last decade [50]. This population outflow has further exacerbated Qingyuan's local poverty. Meanwhile, the number of permanent residents also declined sharply from 2006 to 2011. As the number of Qingyuan's permanent residents expanded, the loss of household registered people became more rapid and led to the overall population outflow since 2015.

Thus, considering the mentioned conditions, Qingyuan started up its resettlement initiative, which mainly involved its eastern region residents, and accumulated extensive practical experience in PAR. The initiative was originally designed for poverty alleviation in 2003 when it launched its first Mountainous Area Resident Displacement Project. Ecological restoration and other factors were also included in other projects that followed. Qingyuan county has experienced five large-scale resettlement projects since 2003, including the downhill PAR (2003–2008), post-disaster reconstruction resettlement (2008), ER (2016–2020), geological disaster prevention resettlement (2017–2019) and 'Resettlement and Agglomeration Project Toward Prosperity and Livability' (RAPPL, 2019–present). The analysis focuses on the RAPPL carried out since 2019, which was designed for relative poverty alleviation and population agglomeration. Overall, the case study is typical for studying drivers, paths and outcomes of PAR and can provide rich experience for other similar land reform and urban development efforts.

3.2. Data and Methods

This study mainly uses semi-structured interviews, text analysis and fieldwork. The collaborative application of the above three methods enables this study to have more dimensions in the process of data collection and analysis. Text analysis can compensate for the insufficient understanding of official policies by respondents, thereby obtaining more comprehensive and objective information. Semi-structured interviews can compensate for the lack of in-depth reflection of individual subjective perceptions in textual data, making the study more practical [45]. Fieldwork provides an empirical basis, providing strong support for the richness and credibility of the data [46].

Semi-structured interviews are informal interviews based on a rough interview outline. Specifically, before the interviews, a pilot study was conducted to verify the feasibility of the study design. This study obtained the preliminary data by contacting government officials and relocated farmers about PAR in advance. The pilot study was also used in the attempt to foresee an accurate sample size for semi-structured interviews. Through this, this study determined the number of interviewees and whether there were any issues while collecting the data required for future analysis. Further, the interview outline was designed according to the research aim. During the interviews, a total of 10 interviews were held through a combination of online and face-to-face interviews. Six of these were relatively standard semi-structured interviews, and four of these were participatory qualitative interviews as a supplement to former interviews. The interviewees represented diverse stakeholders, such as the government officials of Qingyuan, the planners engaged in PAR and relocated people. The semi-structured interviews focused on Qingyuan's PAR, primarily asking thorough and detailed questions about its specific progress, the impact of its implementation and its distinguishing characteristics (see Appendix A for specific inquiries). The interview questions could be flexible and adapted to the situation. The interviews occurred in two phases, beginning with an online interview in August 2022 with a government official in charge of the resettlement through instant messenger (e.g., WeChat). Follow-up interviews were conducted offline in April and May 2023 with two government officials of the resettlement functional department of Qingyuan and a plan-maker of Qingyuan's 2019 resettlement planning (Table 1). Data organisation and fact-checking were carried out after the interviews. This study eventually compiled a 2000-word transcript of the interviews for

the follow-up study. The data specifically derived from the semi-structured interviews in the following text have been annotated with footnotes.

Table 1. Semi-structured interviews.

Serial Number	Time	Interviewee	Content	Location	Form
1	August 2022	A government official in charge of the resettlement	Specific progress of PAR	Online via Tencent Meeting	Online interview
2	April 2023	A government official in charge of the resettlement	Specific progress of PAR	Zhejiang Women's Cadre School, Xihu District, Hangzhou	Face-to-face interview
3	April 2023	A plan-maker of Qingyuan's 2019 resettlement planning		Zhejiang Women's Cadre School, Xihu District, Hangzhou	Face-to-face interview
4	May 2023	A government official in charge of the land reclamation	Reclamation conditions of homestead	Online via Tencent Meeting	Online interview
5	May 2023	A government official in charge of the resettlement	The impact of its implementation and its distinguishing characteristics	The resettlement functional department of Qingyuan	Face-to-face interview
6	May 2023	A plan-maker of Qingyuan's 2019 resettlement planning		The resettlement functional department of Qingyuan	Face-to-face interview

To supplement the interviews, the study also includes textual analysis and fieldwork in conducting empirical analysis. For the textual analysis, this study collected relevant books and journals through the CNKI and ScienceDirect databases. The study likewise gathered national and provincial governmental policies and achievements on PAR, including government regulations, national plans, regional programmes and official statistics, through relevant national-, provincial-, municipal- and county-level official websites (Table 2). For the fieldwork, this study went to Qingyuan county on 16 May 2023 to conduct a two-day field research. Direct observation and photo documentation were combined to investigate two resettlement communities, namely Tongxin and Dakeng. This study focused mainly on the completion of the resettlement community projects and the transportation and sanitary conditions of the living environment. It also acquired photographs, CAD drawings, Excel spreadsheets, text and other related materials from the resettlement functional department of Qingyuan.

Table 2. Relevant government agencies' official websites and data collection.

	Institution	Data Collected	URL
National level	China State Council	National PAR and ER policies	www.ndrc.gov.cn (accessed on 13 February 2023)
	The National Rural Revitalization Administration	Rural area PAR policies	nrta.gov.cn (accessed on 13 February 2023)
Provincial level	The People's Government of Zhejiang Province	Zhejiang PAR and ER policies, announcements, statistical data	www.zj.gov.cn (accessed on 13 February 2023)
	Zhejiang Provincial Department of Agriculture and Rural Affairs	Zhejiang rural area PAR regulations	nynct.zj.gov.cn (accessed on 13 February 2023)
	Department of Natural Resources of Zhejiang Province	Zhejiang land use policies	zrzyt.zj.gov.cn (accessed on 13 February 2023)
Municipal and county level	The People's Government of Lishui	Lishui PAR and ER policies and programmes	www.lishui.gov.cn (accessed on 13 February 2023)
	The People's Government of Qingyuan	Qingyuan PAR and ER policies and programmes, annual government work reports	www.zjqy.gov.cn (accessed on 13 February 2023)

4. Results and Discussion

4.1. The Drivers of Developed Regions' PAR

On the basis of Qingyuan's geographical, economic and population conditions, China's national policies and Zhejiang's local policies towards poverty alleviation, this study argues that Qingyuan's resettlement is induced by three factors: ecological poverty alleviation, geological disaster reduction and county town urbanisation promotion.

Regarding ecological poverty alleviation, Qingyuan's PAR was initially induced by extreme poverty eradication, which is always entangled with ecological conservation. From 2003 to 2008, its eco-migration-oriented PAR was executed under different local policies. Against the 2003 local policy of 'Poverty Shake-off by Displacing Farmers Down the Mountain' [51], Qingyuan launched its initial project towards mountainous area resident displacement, which was part of Zhejiang's 2002 provincial poverty alleviation programme, and began to build its first resettlement community, the Yangdun New Village, in the county town. A total of 876 households with 3600 mountainous area residents were displaced from 2003 to 2005¹. As most mountainous area residents were involuntarily resettled because of their unfamiliarity with the resettlement policy and its consequences, the county government assigned a resettlement quota to the related mountainous villages to achieve the resettlement goal of the 2003 project.

Against the 2008 local policy of 'new village construction for eco-migration' [52] under Qingyuan's ecological county development initiative, the county continued eco-migration-oriented PAR after 2008, which was combined with the geological disaster prevention resettlement correlated with the second inducement. Tongxin New Village in Qingyuan county town, then the largest eco-migration community in Zhejiang province, began its first-phase project construction in 2011 and was completed in 2015. The other four resettlement communities in the county town were completed during this stage, including the second-phase project of Tongxin New Village. As a result, about 9000 mountainous area impoverished residents were relocated through monetised resettlement from 2011 to 2015².

More integrated measures were taken to reduce the ecological poverty and reverse the negative factor of Qingyuan's ecological condition into a positive one. ER was often carried out to promote this reversal. During China's 13th's Five-year Plan (FYP) period (2016–2020), Qingyuan began its 'China's number one ecological environment county' development under Lishui city's policy, which emphasised the integrated ecosystem and environment management. As part of this development, Qingyuan started the water resource conservation resettlement in 2019 because Lanxiqiao Reservoir, the county's water resource, required conservation and the reservoir area required enlarging. Lishui city also established Baishanzu National Park in 2020, and part of the park was in Qingyuan county. To protect the ecologically fragile area within the park, the county launched the 'Ecological Resettlement Implementation Plan for the Baizushan National Park in Qingyuan County (2020–2023)' in 2020.

The second driver is geological disaster prevention. Considering Qingyuan's geological condition, natural and geological disaster prevention is another critical inducement. Two of the five large-scale resettlement projects, namely post-disaster reconstruction resettlement and geological disaster prevention resettlement, served as major ways for Qingyuan to conduct PAR. One course-changing natural disaster event was the super typhoon Saomai (No. 0608) that landed on 10 August 2006. The typhoon caused 38 deaths and 8 disappearances and a direct economic loss of CNY 710 million in Qingyuan³. A key component of the county government's post-disaster redevelopment was the post-disaster reconstruction resettlement. Two communities in Qingyuan's county town for housing the affected were built from 2005 to 2008, namely Tongji New Village (housed 1658 households with 6860 people) and Tongde New Village (housed 1286 households with 5200 people). Meanwhile, the government built a few communities in some townships and central villages outside the county town for more than 3000 displaced residents in the disaster areas. Qingyuan's geological disaster prevention resettlement was carried out as part of Lishui city's 'Three-Year Action Plan of Resettlement and Management for Comprehensive

Measure of Geological Disaster’ in 2017 [53] and as part of the integrated ecosystem and environmental management. Qingyuan overfulfilled Lishui’s plan a year ahead, relocating a total of 9654 people and eliminating 210 risk points of geological disasters⁴. Meanwhile, to improve its flood prevention and disaster mitigation system, the county created the ‘Qingyuan County 13th Five-year Plan of Water Conservancy Development’ to manage the creeks and streams, such as Songyuan Creek and Zhukou Creek. The river channel regulation project mentioned above involved land acquisition and resettlement work in the townships bordering each stretch of the river.

The third driver is county town urbanisation promotion. Urbanisation and industrialisation promotion also induce Qingyuan’s resettlement. As a result of the population agglomeration resettlement, the urbanisation rate of the county town increased from 27.05% in 2000 to 63.72% in 2021 [54,55], in spite of the constant depopulation of the whole county. The RAPPL project, launched in 2019, was aimed towards county town urbanisation promotion by recognising the intricate relationships among traditional PAR, geological disaster resettlement, ER and so on. This project highlighted a natural-village-based resettlement and targeted relative PAR. In confirming the list of villages to be relocated under consideration, a threshold value of village population size for relocation, that is, 50 or fewer permanent residents, was established⁵. By agglomerating population to the county town, the RAPPL project looked forward to achieving dual purposes. On the one hand, the agglomerated population can have better access to education, health care and other urban services, as well as more job opportunities, than when they dispersedly lived in the mountainous areas. On the other hand, the agglomerated population were considered as human resources for the ecological and service industries of the county town. The project planned to build two new resettlement communities. And the project would resettle 20,000 farmers, with 100 villages to be relocated and 134 hectares of land to be recultivated [56].

4.2. The Paths of Developed Regions’ PAR

PAR has two paths. The first is the emigration path. Qingyuan adopted a natural-village-based resettlement as the primary emigration path to promote the ex situ relocation of farmers. Specifically, relocation was organised for whole natural villages rather than for persons or households. This path was different from the traffic-based poverty alleviation [2], which highlighted rural highway construction and was conducted in some other rural areas of Zhejiang [57] and other provinces of China. China has long been using highway construction to leverage local economic development. During the 11th FYP period (2006–2010), poverty alleviation in Chinese rural areas also adopted highway construction and formed the traffic-based poverty alleviation path. Through this path, local governments improved the traffic conditions of impoverished rural areas by developing roads to connect the towns and administrative villages and optimising the rural highway networks to allow public resources to be shared in these areas.

In terms of the policies collected and analysed and the interviews conducted, however, this study argues that the reasons Qingyuan county prefers the emigration path rather than the traffic-based poverty alleviation path are as follows. Firstly, the population or household size of many Qingyuan’s mountainous villages does not meet the minimum threshold value of the traffic-based poverty alleviation path. Generally, this value is equal to a village of more than 10 households according to the regulations of rural highway construction; otherwise, the benefits of road construction would be limited. However, villages with fewer than 10 households account for about 65% of Qingyuan’s approximately 120 villages [58]. Secondly, the cost of road construction in mountainous areas is higher than that in plain regions. Mountainous areas in the east of Qingyuan consist of complex topographies and fragile ecological environments. Road-building activities may increase the frequency of geological disasters such as landslides, mudslides and avalanches [59] and further push up the road construction cost. Local finance could hardly afford such high costs as rural road construction funds are mainly self-financed by the county and township and subsidised by the province and city [60]. Villagers may return to poverty due to the constraints of natural

conditions and natural disasters even if they rely on the government and other forces to achieve poverty alleviation [15]. Thirdly, infrastructure and public service construction is challenging. Those villages of Qingyuan's eastern mountainous areas are small in population size and scattered in layout, with outdated public infrastructure and living conditions that are costly to improve. Additionally, public service facilities are difficult to share among the villages due to their scatteredness.

The relocation rate of the village-based resettlement was 80% in 2019. The rate increased to 90% after the implementation of the RAPPL project⁶. A key reason for the rate increasing was that the villagers could be relocated at a low cost. Qingyuan is among the bottom three of Lishui city's counties in terms of the relocation subsidy. However, its villager relocation cost is also the lowest in all Lishui city's counties, which largely offsets Qingyuan's low relocation subsidy.

The second is the resettlement path. Various rural resettlement methods have been followed since the RAPPL project was launched in 2019. The methods that were documented in the policies, such as concentrated resettlement, monetary resettlement, self-built housing resettlement, subsidised resettlement, 'house ticket' resettlement and price-limited housing resettlement, were offered for the relocation households who met the eligibility requirements to select in terms of their conditions and requirements [58]. However, all the households were given a basic relocation subsidy. The main reason for finely categorising these methods was the divergent needs of ex situ PAR groups in terms of housing area and household type during the relocation process. This study classified the various resettlement ways into two paths, namely concentrated resettlement and scattered resettlement, according to the classification mentioned in relevant policy documents and research articles (Table 3).

Table 3. Resettlement paths in Qingyuan county.

Category	Resettlement Methods Documented in the Policies	Explanations	Compensation Standards
Concentrated resettlement	Concentrated resettlement	Resettlement of farmers in the government's unified planning and construction of resettlement communities to buy apartment houses	A subsidy of CNY 30,000 per capita to low-income farmers and CNY 15,000 per capita to other non-low-income farmers [58]
	Subsidised resettlement	The government builds a certain percentage of rent-free and low-cost housing in the resettlement communities for low-income farmers who cannot afford to buy or build houses in the village-based resettlement	A subsidy of CNY 15,000 per capita
	Monetary resettlement	Resettlement of farmers to purchase their own homes or stay with relatives; once they provide proof of resettlement, they are given a disposable monetary subsidy for resettlement	One-time monetary subsidy of CNY 30,000 per capita
Scattered resettlement	Self-built housing resettlement	Relocated farmers voluntarily apply to the nearest designated resettlement site, which grants new houses for resettlement. The area of resettlement houses is determined in accordance with the area of the homestead, which is uniformly allocated by the state [61]	A subsidy of CNY 30,000 per capita to low-income farmers and CNY 20,000 per capita to other non-low-income farmers
	'House ticket' resettlement	Relocated farmers can purchase any commercial housing within the county with a 'house ticket' [62], i.e., a certificate of settlement for re-purchasing a house	A subsidy of more than CNY 60,000 per capita for the purchase of a house within a specified year
	Price-limited housing resettlement	Relocated farmers can purchase government-designated commercial housing with limited prices	

Concentrated resettlement referred to a resettlement path through which the relocated purchase apartments are in the integrated-planned resettlement communities constructed by the government [58,63]. As opposed to self-built housing resettlement, in which the villagers had to spend money, the integrated-planned urban resettlement communities were built by the government and cost the villagers nothing. The majority of apartment

building types for concentrated resettlement were land-saving and high-rise residential buildings [17], which could transform the scattered rural settlements into unified and planned urban forms. This resettlement path, together with the village-based emigrant path for remote mountainous villages, could achieve poverty alleviation and elimination at a lower cost without causing more ecological problems. Considering ecological protection, natural geography, urban and rural infrastructure, population layout and financial security in Qingyuan county, the concentrated path is the most appropriate.

Scattered resettlement means that farmers can relocate in any of the existing villages or communities depending on their own will [6] and are entitled to choose one of the resettlement methods, from self-built housing to house buying and even to resettling to villages where their relatives live [58,63,64]. The following is how different villagers opted for different means of resettlement. Most of the villagers who opt for the self-built housing resettlement are those who prefer maintaining their rural living and working lifestyle to manage their farmland as before. However, their self-built houses, which are mainly row houses or individual houses, should be built in the designated settling site, such as the Tongji New Village resettlement community in Qingyuan county. The means of monetary resettlement, “house ticket” resettlement and price-limited housing resettlement mentioned are all one kind of house buying resettlement. Most of the villagers who choose “house ticket” resettlement and price-limited housing resettlement are farmers with good economic conditions who do not want to be settled in the resettlement community or who cannot enjoy the preferential treatment of the resettlement community due to some policies.

A total of 20,000 people will be relocated in Qingyuan County town during the period of the 14th FYP (2021–2025) [56]. Statistically, about 60% of the resettlers will be relocating through concentrated resettlement and the remaining 40% through scattered resettlement (with monetary resettlement accounting for 35% and self-built housing resettlement and other resettlements accounting for 5%)⁷. Therefore, concentrated resettlement will be the main resettlement path, and two reasons can explain why. The first reason is the affordable relocation costs. The government encourages financial institutions to provide mortgage loans for resettlers to effectively solve the problem of financing the purchase and construction of houses. Qingyuan’s resettlement housing price, which is slightly lower than the cost price, has been kept at 40% of the price of commercial housing in the same urban area⁸. Resettlers can basically obtain new houses with the same floor area as their old ones while not spending much. The second reason is the superior location of resettlement communities. The government’s general principles for selecting resettlement locations are the accessibility and convenience of employment. Specifically, the locations of resettlement communities would be in urban areas with convenient transportation, better service facilities and easy accessibility to the industrial zone. In terms of convenient transportation, the (resettlement community) location is no more than 7 kilometres away from the urban centre of the county so as to realise the “15 min” mobile transport accessibility from the resettlement community to the county urban centre⁹. In terms of the service facilities, the communities have community service centres, markets and other supporting facilities for the resettlers to have full access to the county’s well-established public resources. In this way, the resettlers can adapt to their new urban lifestyle and livelihood as quickly as possible.

Qingyuan has built four large resettlement communities in its county town, namely the Yangdun, Tongji, Tongde and Tongxin communities. It has also built two resettlement communities, the Putan and Anxi communities, and 14 resettlement points in Qingyuan county’s central villages (Figure 3). The county government has carried out several rounds of demonstration meetings and modifications to decide the location of the resettlement communities. The more superior the locations are, the larger their appeal to the resettlers.

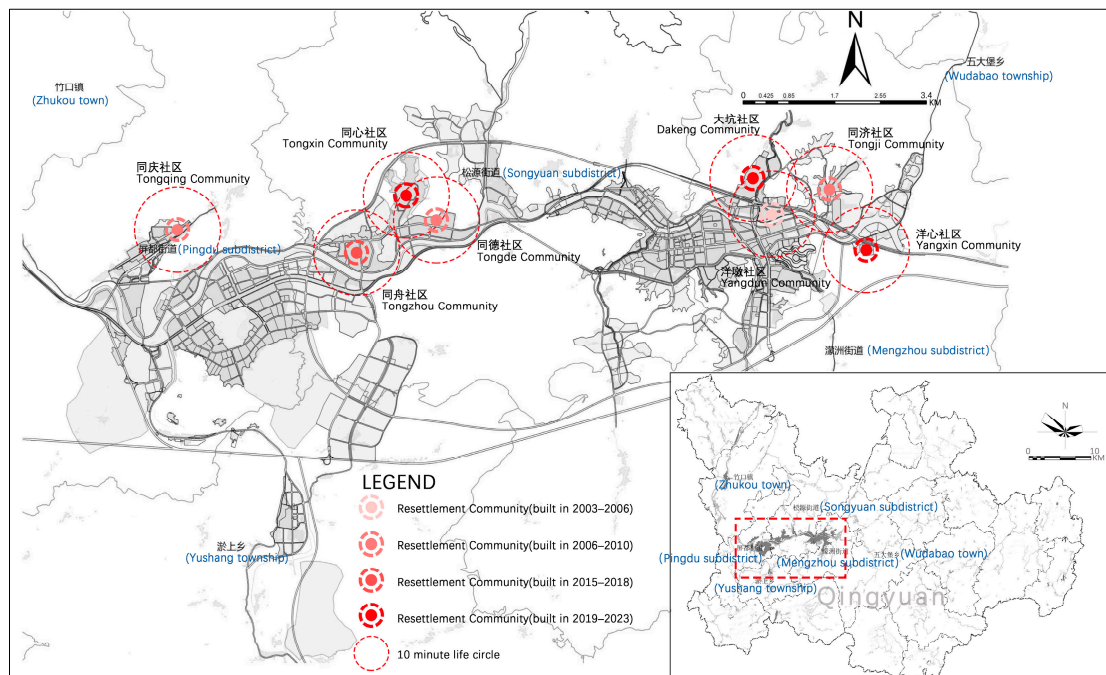


Figure 3. Location of resettlement community. (Source: self-drawn by the author).

4.3. The Outcomes of Developed Regions' PAR

(1) Direct outcomes

This study first discusses the direct outcomes of PAR. These outcomes include economic impacts, such as the increase in the number of resettlers, the creation of new employment options and income growth for those resettled. In terms of the number of resettlers, Qingyuan county has experienced five large-scale resettlement projects since 2003, which also constituted its five resettlement stages. The number of resettlers has generally been on the rise during these stages (Figure 4). By the end of 2022, 51,000 people, accounting for about one-fourth of the county's household registered population, had been relocated. Specifically, during the first to fourth phases of the RAPPL project, which spanned from 2019 to the end of 2022, 16,198 people were relocated. This accounts for an 81% completion rate of the project's fifth stage. Approximately 4000 people are relocating each year [65], and this duty is also being finished in a timely manner [55]. The relocation target areas are Qingyuan's remote mountainous areas in the eastern and part of the western countryside and the reservoir area of Lanxiqiao Reservoir during the fifth phase of the RAPPL project (Figure 5). The Tongxin and Dakeng communities will serve as the primary concentrated resettlement sites in this phase.

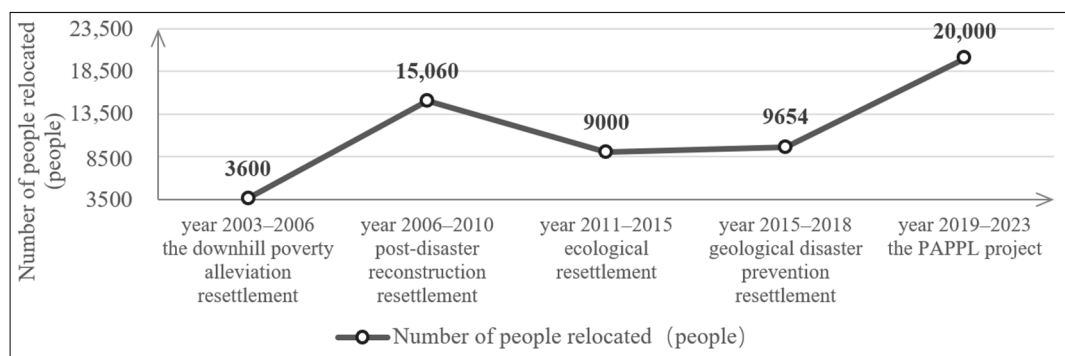


Figure 4. Changes in the number of people relocated in Qingyuan County since 2003. (Data source: interviews with the government officials of the resettlement functional department of Qingyuan).

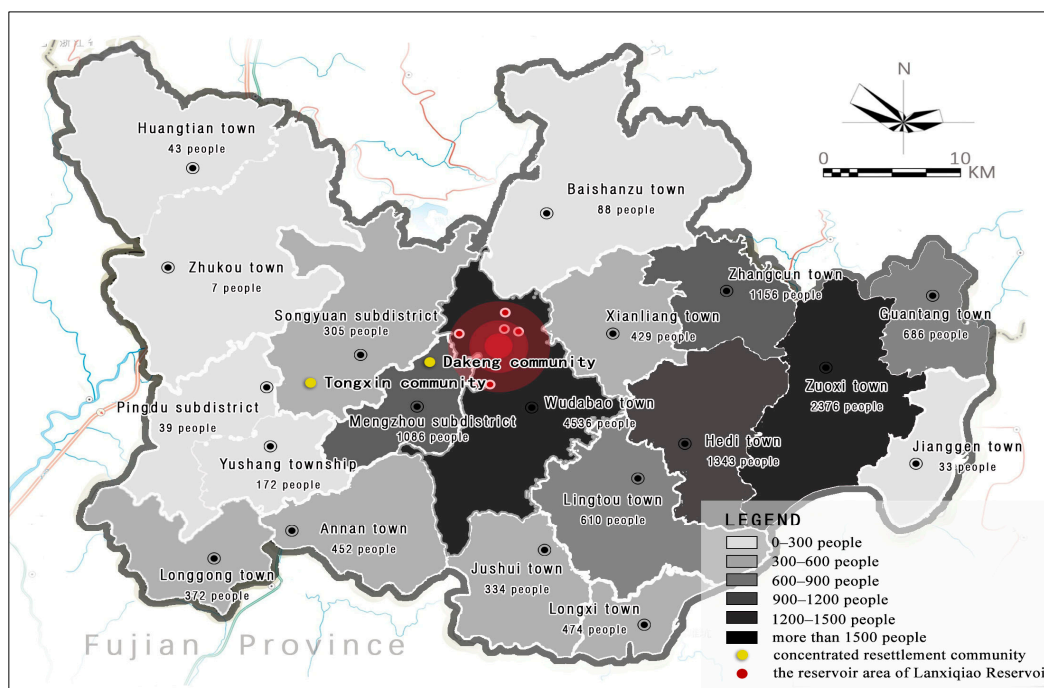


Figure 5. Distribution of the relocated population in concentrated resettlement of the PAPPL project (until the end of 2022). (Source: self-drawn by the author).

Regarding new employment, the options of the relocated farmers have been expanded to encourage labour income growth. The government perfects the follow-up supporting policies and measures concerning employment for the concentrated resettlement. It also promotes farmers' re-employment in nonagricultural industries by organising special offline recruitment fairs for the agricultural transfer population and creating employment platforms, such as an online recruitment centre [66]. These measures largely increase the employment opportunities for farmers who have relocated to the county town or central villages. For example, there are many labour-intensive enterprises around the Tongxin and Tongde communities that can assist the relocated farmers with their employment issues. Young adults with advanced survival skills can opt to work in the nearby enterprises. Left-behind women, elderly people or other low-income groups can choose to work in the furnished raw material processing workshops established in the resettlement communities, which provide an average monthly salary of CNY 1500–3000¹⁰. The furnished raw material processing workshops with low employment threshold and flexible processing time expand the resettlers' channels of income. Some can also engage in the following industries depending on their specialties, such as catering, supermarkets, transportation or community cleaning.

The third direct outcome is income growth, with the resettlers experiencing a consistent increase in their per capita annual income. According to the statistics, resettlers earned a per capita annual income of around CNY 35,000 in 2020, which is CNY 15,000 higher than the income of those who were not relocated¹¹. The amount is CNY 13,000 above the county's average, CNY 9000 above Lishui city's average and CNY 3000 above the Zhejiang provincial average [67]. Both Qingyuan's per capita disposable income and per capita consumption expenditure of rural permanent residents dynamically rose between 2015 and 2021 (Figure 6). With an average growth rate of 9.7%, the per capita disposable income of Qingyuan's rural permanent residents rose from CNY 13,000 in 2015 to CNY 23,000 in 2021, which is CNY 2000 above the average level in the eastern region and CNY 6000 above the national average [68]. A comparison of the per capita income of rural permanent residents with consumption expenditure reveals that the per capita income grew more rapidly. The

per capita consumption expenditure accounted for about 70% of income in 2019, which fell by 3.5% after resettlement.

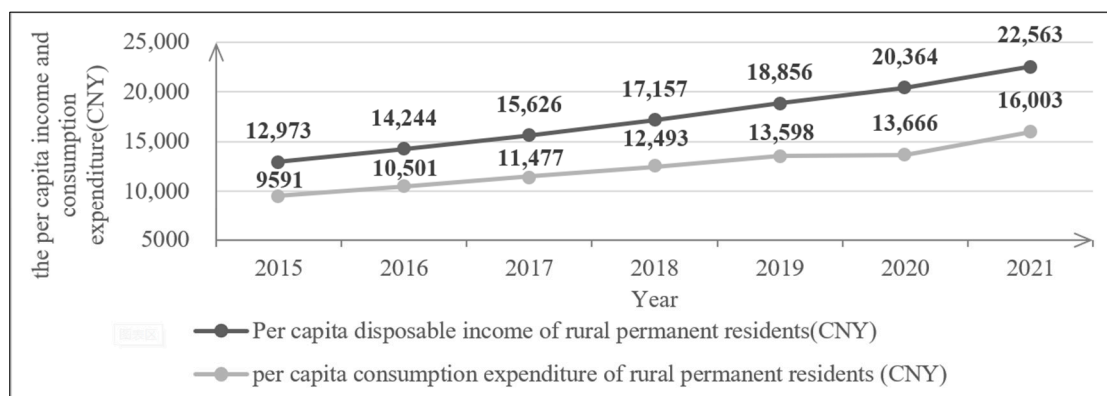


Figure 6. Comparison of per capita disposable income and consumption expenditure of rural permanent residents in Qingyuan county from 2015 to 2021. (Source: statistical bulletin on national economic and social development of Qingyuan county in previous years).

(2) Spillover effects

The economic spillover is boosting agricultural prosperity through land transfer. Two basic forms of land ownership exist in China: state-owned land and collectively owned land. Rural land is generally owned collectively. In 2014, the Chinese central government advocated to deepen the institutional reform of the rural land tenure system to boost the efficiency of land resources and initially proposed the ‘Separation of Three Rights of Land’, namely land ownership, contract right and management right [69]. In contrast to the individual farmers enjoying contract and management rights, non-farmer individuals can obtain management rights, enabling them to optimise land resource allocation through transferring land management rights after the rural land institutional reform. The reform also functions as an institutional guarantee and driving force for the PAR and ER. The issue of farmers having no land to cultivate while a large amount of arable land is left idle after relocation is addressed through the transfer of land management rights. Thus, the transfer can break through land location restrictions and provide a stable source of property income [70]. On the premise of protecting the interests of farmers, the relevant departments of Qingyuan county encouraged the relocated farmers to circulate their land management right to a variety of new business entities, such as leading agricultural enterprises, professional cooperatives and local family farms, thus developing large-scale agricultural operations in diverse forms. The village collective and farmers could receive the dividends or capital gains from this circulation. In response to some of the land that no one would contract, the Qingyuan government actively took measures to hire farmers to cultivate the land at a price of CNY 9000 per hectare to prevent the tendency of ‘non-grain production’ of arable land [71] and land abandonment.

Almost all stakeholders could gain considerable economic benefits through the land management right transfer. For new business entities, such as cooperatives that operate large-scale and intensive land, their agricultural production cost could be decreased, ensuring their financial benefits. For villagers, some of them can work in new business entities to realise local employment. For example, the arable land of the Red Land Professional Cooperative in Baishanzu town may generate roughly CNY 3000 per hectare, with a 15% return on investment. Daigen village in Zuoxi town had more than 60 hectares of land under circulation in 2020. The establishment of three family farms provides more than 30 employment opportunities with an annual per capita wage income of about CNY 30,000¹². For villagers who circulate their land management right and are no longer engaged in agriculture, the average annual land circulation income in Qingyuan is CNY 4500–7500 per hectare [72,73].

The annual land circulation income per person would be about CNY 300–500 based on the local per capita arable land of 0.067 hectares.

The social spillover effects are boosting urbanisation and enhancing living conditions through population agglomeration. This study analyses the change of the rural permanent resident population and urbanisation rate in Qingyuan county (Figure 7). The rural permanent resident population has gradually decreased since 2006, while the urbanisation rate has risen over the years and accelerated. The county's urbanisation rate has increased by nearly 25% in 2021 compared to the rate in 2006 [55]. A positive correlation also exists between the county's increasing urbanisation rate and the scale of PAR. Specifically, the urbanisation rate grew faster from 2006 to 2010, which was substantially impacted by Qingyuan's post-disaster reconstruction resettlement at the time. Similarly, the urbanisation rate grew rapidly in 2020 from 56.8% in 2019 to 63.5%, which was impacted by the steady progress of the RAPPL project. However, even though Qingyuan county's urbanisation rate in 2021 was 1.2% higher than Lishui city's average rate, it still lagged behind Zhejiang province's average rate of 9% [74]. The urbanisation process is expected to be further accelerated, and the urbanisation rate will exceed 68% if Qingyuan succeeds in relocating 20,000 people during the 14th FYP period¹³.

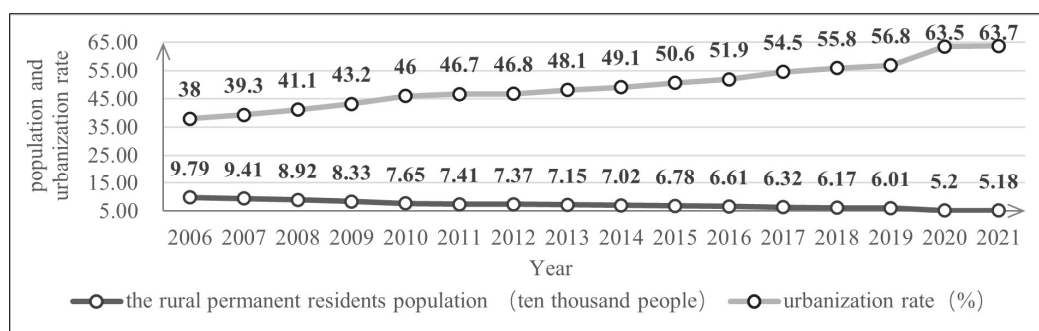


Figure 7. Changes in the rural permanent resident population and urbanization rate in Qingyuan County since 2006. (Data source: Zhejiang Provincial Statistical Yearbook, Lishui City Statistical Yearbook in previous years).

As seen by the obvious improvement of living conditions for resettled farmers, the agglomeration of population to the county town centre through PAR has not only boosted the urbanisation rate but also considerably enhanced the living environment. Specifically, traffic, sanitary conditions of the living environment, greening facilities, infrastructures and public services have been significantly improved before and after resettlement. In the Tongxin community, for example, an open activity square is planned and will be constructed at the centre of the community to enhance social contact among the locals. The community is rich in green landscape, with a greening rate of 46.1% (Figure 8)¹⁴. Tongxin Park is designed and built with a square of rigid pavement, a resting pavilion and relatively simple plant landscape arrangements. Furthermore, nearly 40% of the resettlement communities, including Tongxin, Tongde and Tongji, have well-constructed infrastructure and are surrounded by education facilities such as elementary schools and kindergartens, medical facilities such as hospitals and community health service stations and commercial service facilities such as food markets (Figure 9).

However, the west side of Qingyuan county town still lacks supporting facilities, as most of them are centred in the middle and east of the county town. Therefore, it is essential to strengthen the construction of supporting infrastructure of the Tongqing community, which is located on the west side. Additionally, there are problems waiting to be solved, including insufficient access to medical facilities in the Tongqing and Tongzhou communities as well as to education facilities in the Dakeng, Tongqing and Yangxin communities.

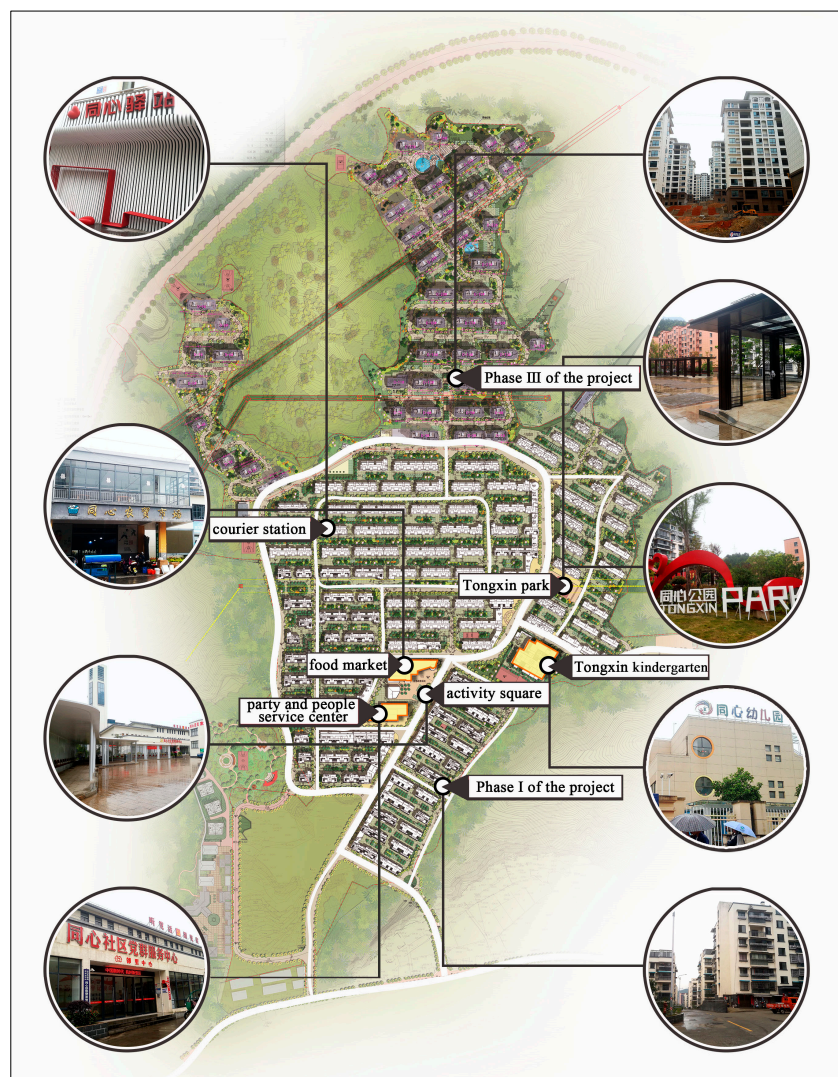


Figure 8. Comprehensive analysis of the current condition of the Tongxin resettlement community in Qingyuan county. (Source: self-drawn by the author).

The ecological spillover effect is promoting ecological construction through land reclamation. In the process of PAR, a substantial number of farmers in remote mountainous areas have been relocated out of ecologically fragile areas. On the one hand, this method has effectively mitigated the intensity of human activities in ecologically fragile zones, thereby significantly alleviating the environmental burden on the relocated villages. On the other hand, the demolition and reclamation of old homesteads have not only spurred economic advancement in rural areas but also played crucial roles in reinstating the natural ecosystem in these regions, augmenting the forest coverage in mountainous terrains. Consequently, this has catalysed the promotion of an ecological civilisation, concurrently reducing the vulnerability to natural disasters. According to the statistics from the resettlement functional department of Qingyuan, the estimated total area of land that the RAPPL project is expected to consolidate is 134 hectares. By the end of 2022, the project had successfully reclaimed and added 89 hectares of arable land (53 m² per person), achieving a 100% reclamation acceptance rate¹⁵. Apart from the year 2021, during which the project faced conflicts with other initiatives, the scale of land reclamation has consistently increased over the remaining three years (Figure 10). A comparison of before and after photos of village homesteads undergoing reclamation (Table 4) reveals that the implementation of engineering measures, such as land levelling, irrigation and drainage systems and field roads, has significantly improved the ecological environment in the demolished areas.

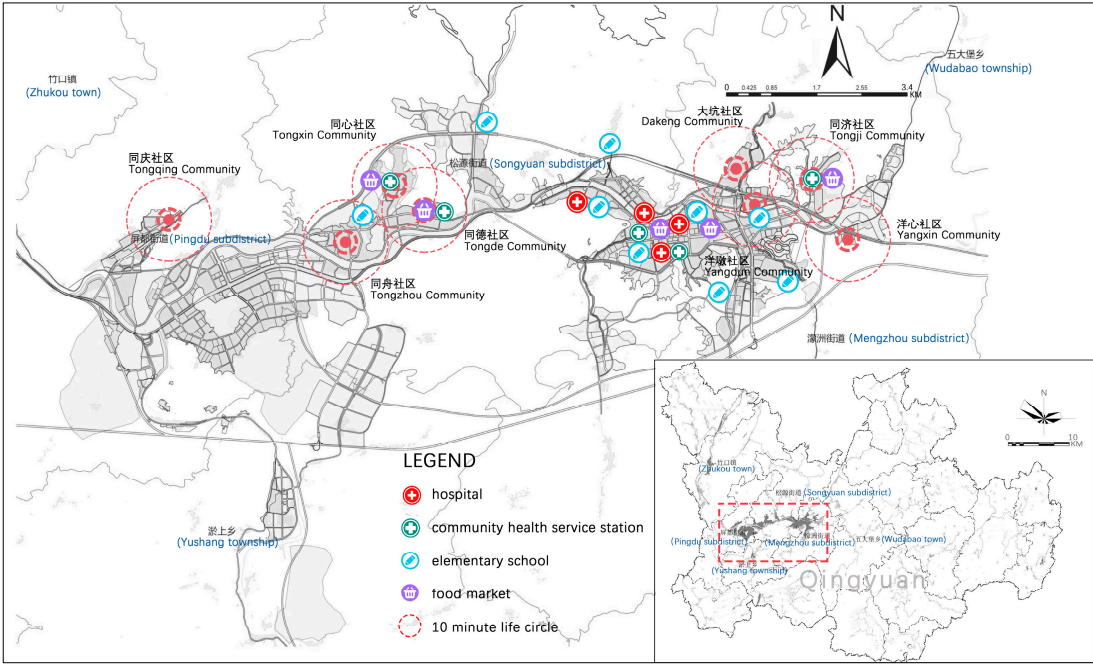


Figure 9. Distribution of public service facilities around the resettlement communities in Qingyuan county. (Source: self-drawn by the author).

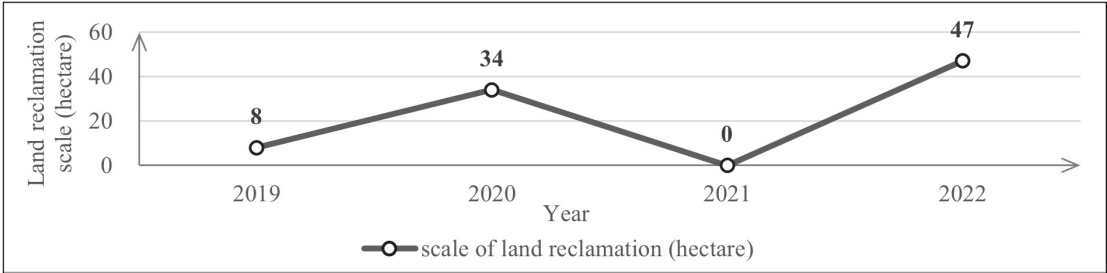


Figure 10. Changes in the annual scale of reclaimed new arable land of the PAPPL project. (Source: interviews with local officials).

Table 4. Comparison of the conditions before and after land reclamation in the PAPPL project.

Project Location	Before Land Reclamation	After Land Reclamation
Shichuan Village, Xianliang Township		
Huangxian Village, Zuoxi Township		

(Source: provided by the resettlement functional department of Qingyuan).

4.4. The Mechanism of Developed Regions' PAR

On the basis of the qualitative survey, this study constructs a comprehensive mechanism analysis framework for PAR in developed regions, including its drivers, paths and effects (Figure 11). In terms of drivers, PAR is generally caused by three aspects: economic, ecological and social, respectively manifested by ecological poverty alleviation, geological disaster prevention and county town urbanisation promotion. In terms of paths, in the aspect of emigration path, the primary approach adopted by the RAPPL project in Qingyuan county is the natural-village-based resettlement. In the aspect of the resettlement path, Qingyuan employs a flexible approach that utilises a combination of concentrated resettlement and scattered resettlement to address migration challenges through diverse channels. The predominant method is concentrated resettlement, driven by the lower resettlement costs and superior location of the resettlement communities. In terms of effects, this study elaborates on the effectiveness of Qingyuan's PAR in two aspects: its own (direct) effects and spillover effects. Concerning the direct effects, the focus lies on the overall rise in the number of resettlers in Qingyuan county over the years. Additionally, it has a positive impact on the resettlers' sustainable livelihoods, particularly as it relates to new employment options and income growth for the resettlers. Concerning the spillover effects, this paper addresses the economic, social and ecological dimensions. As for economic spillover effects, PAR has contributed to the agricultural prosperity and income generation of village collectives and farmers before and after the transfer of land management rights. As for social spillover effects, not only has the programme boosted the urbanisation rate, but it has also enhanced the living conditions of the resettlers. As for ecological spillover effects, the programme has promoted ecological restoration through land reclamation after resettlement. In general, Qingyuan has developed a comprehensive mechanism aimed at advancing rural revitalisation, eliminating relative poverty and achieving common prosperity. This initiative may signify a distinctive and pioneering approach to poverty alleviation in economically prosperous coastal provinces in the eastern region of China.

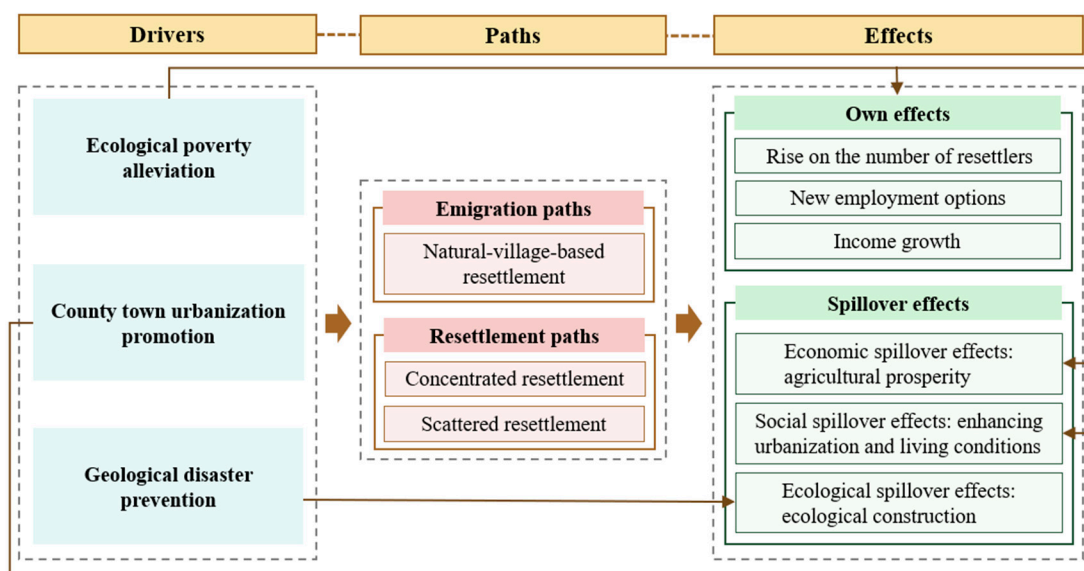


Figure 11. Mechanism of developed regions' PAR. (Source: self-drawn by the author).

5. Conclusions

The article takes Qingyuan as a case study of developed regions in China, aiming to explore the PAR mechanisms of other developed regions with similar characteristics. The findings of this study will help explain the implementation of PAR and its sustainable mechanisms in other regions or countries such as Guangdong province, China, the United States, Canada and Japan. For instance, the Canadian government's ecological resettlement program of the Inuit people was criticized because of its insufficient post-resettlement

support, which led to many social problems such as unemployment and lower living standards [75]. To achieve sustainable development, Canada and several other countries were in severe need of formulating and implementing strategies to offer useful nonagricultural employment guidance and post-resettlement support to relocated farmers. The lessons learned from China in this regard should be widely applicable. Although this study only involved one case to prove the sustainable mechanisms of PAR, the findings seem likely to provide beneficial references for other countries as they design their PAR strategies.

The results of this study demonstrate that the PAR of developed regions is generally caused by ecological poverty alleviation, geological disaster prevention and county town urbanisation promotion. The paths are the emigration path and resettlement path. In addition, this study has identified both direct and spillover effects. The direct outcome is the overall rise in the number of resettlers over time, and the spillover effects show the sustainable collaboration of economic, social and ecological dimensions. Few studies have paid attention to PAR and its spillover effects within developed regions, and less focus has been placed on the complete mechanism chain of developed regions' PAR. This study conducts an empirical analysis to summarise the overall sustainable mechanisms of developed regions' PAR in the context of land relocation to help narrow the research gap. Through in-depth analysis, this study deepens our understanding of the spatial heterogeneity of land relocation and offers new insights into China's land reform.

This study also has major policy implications broadly oriented towards coping with and adapting to challenges in the next phases of PAR. It finds that PAR has revealed numerous issues owing to the evident disparities between practical implementation and theoretical expectations. These issues include the need for improvement in the provision of public services and the planning of public spaces in resettlement communities. Challenges also encompass obstacles in the timely and effective demolition and reclamation processes, leading to a slow progress. To address these challenges, this study puts forward targeted recommendations based on the following findings: increase the overall rate of natural-village-based resettlement and the proportion of concentrated resettlement; encourage enterprises to build industrial parks to create jobs, which can assist resettled people in adjusting to their new lifestyle and livelihood; take clearer policy requirements in order to empower resettles to negotiate with other stakeholders on crucial concerns like land, income and living expenditures; formulate PAR policies that better reflect spatial heterogeneity and are more precise, thus avoiding a one-size-fits-all approach; tailor the scale and site selection of resettlement communities according to local conditions; and enhance the execution efforts in demolition and reclamation processes. These findings provide a practical way to promote the implementation of PAR in developed regions.

The limitations of this study mainly lie in the following: (1) Since this study relies on interviewees' viewpoints, a potential concern is that government officials may be subject to a range of biases and conceal some facts: particularly that government officials may be more likely to overstate the positive outcomes of PAR programs while understating the obstacles faced by the resettles, although this study has eliminated relevant content after the interviews by verifying and combining with other textual materials. To improve the completeness and accuracy of the research results, the article can be enhanced and broadened in the future by conducting open participatory activities with relocated farmers. Authors can also be engaged in the daily life of some relocated farmers to have a deeper understanding of post-resettlement livelihoods. (2) This study conducts a qualitative survey. Therefore, the findings lack analyses related to the outcomes of PAR on physical spatial alterations, which has led to limitations in the study of PAR effects. Subsequent studies could further strengthen the effect assessment of PAR by conducting quantitative research. For example, remote sensing technology and big-data analysis can be used for analysing the physical spatial alterations before and after the project area. (3) This study just focuses on the Chinese instance to prove the sustainable mechanisms of PAR. The findings and suggested mechanisms are based on the Chinese context. Therefore, subsequent studies could further expand the research objects using examples or comments from various

developed regions or countries so as to substantiate the sustainable mechanisms of PAR and obtain richer results.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available to protect the privacy of the study's participants.

Conflicts of Interest: The authors declare no conflicts.

Appendix A

This study designed different interview outlines according to the two identity types of interviewees. For the government officials, this study aims to explore the specific progress, impact and characteristics of Qingyuan's PAR. For the planners, this study aims to explore the preliminary work and time schedule of Qingyuan's PAR and the focus of the resettlement planning. The following is a section of the interview outline:

(1) For government officials

Q1: By the end of 2022, what was the cumulative number of relocated farmers under the RAPPL project? What was the number of relocated farmers in each resettlement community?

Q2: Have you encountered any difficulties and problems in the process of PAR? If so, what were the solutions? For example, is it likely that some impoverished farmers will find it difficult to afford the relocation costs and raise funds on their own?

Q3: Will there be cases where relocated farmers lack a stable source of income after resettlement and encounter difficulties in employment due to insufficient production skills?

Q4: In the process of PAR, what working experience does Qingyuan have for other cities and counties to learn from? Are there any innovative models and unique experiences?

Q5: What is the condition of rural construction land reclamation during the RAPPL project?

(2) For the plan-maker of Qingyuan's 2019 resettlement planning

Q1: What is the main content of the preliminary work and time schedule of Qingyuan county's PAR?

Q2: What are the planning priorities for PAR in Qingyuan county?

Notes

¹ The data above was derived from the semi-structured interviews, precisely i1.

² See notes 1 above

³ See notes 1 above

⁴ See notes 1 above

⁵ The data above was derived from the semi-structured interviews, precisely i2.

⁶ See notes 5 above

⁷ The data above was derived from the semi-structured interviews, precisely i5.

⁸ See notes 5 above

⁹ See notes 1 above

- 10 See notes 5 above
 11 See notes 7 above
 12 See notes 7 above
 13 The data above was derived from the semi-structured interviews, precisely i3.
 14 See notes 7 above
 15 The data above was derived from the semi-structured interviews, precisely i4.

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