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How does the grassroots drive just transition? Evidence from an alteration of resettlement sites in China

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Dam-induced resettlement is a typical pattern of development-induced displacement and resettlement (DIDR), which concludes involuntariness and leads to injustice practices. Although the justice of resettlement is studied in existing works, few of them notice that the selection of resettlement sites might be holistically an opportunity for just transition, and the performance of this process is not totally a government arrangement. To address this gap, this paper takes the Multi-level Perspective (MLP) as the theoretical framework, and adopts mixed methods to examine a second selection case of resettlement sites for the Wuxikou dam in Jiangxi Province, China. Based on grounded theory, five categories of resettlees' demands for resettlement sites, namely agricultural production (AP), non-agricultural production (NAP), material life (ML), social life (SL), and reception of natural ecology (RNE) are identified. The multiple conjunctural causation between these demands and resettlees' actions for changing initial resettlement sites is analyzed by Qualitative Comparative Analysis (QCA). Four intermediate solutions as well as the core and peripheral conditions are found. Apart from the bottom-up petitions, how the political environment and governmental administration enabled the resettlees' request for altering resettlement sites is illustrated. It is found that, although the government and resettlees with different interests and action logics, the same result is promoted under the national policies, *viz*, the implementation of changing resettlement sites, process justice and outcome justice are therein realized. Relative policy implications and outlooks on just resettlement practice are remarked.

KEYWORDS

dam-induced resettlement, resettlement site selection, just transition, MLP, grounded theory, QCA, Wuxikou reservoir, China

Introduction

China's dam-induced resettlement is one of the typical examples of regional iterative development and structural transition around the world (World Bank, 1994; Rogers and Wilmsen, 2020). In the early stage of contemporary China, large-scale water conservancy and hydropower infrastructure were constructed to promote economic and

social development, and dam-induced resettlement covering millions of populations set a precedent for development-induced displacement and resettlement (DIDR) in China (Mcdonald et al., 2008). Since the reform and opening up fasten the step of modernization, the Chinese government has carried out massive Poverty Alleviation Resettlement (PAR) projects from roughly (the 1980s—2014) to precisely (2015–2020). In this process, the relatively complete theoretical system of dam-induced resettlement that was established based on tens of years of practice provided references for poverty alleviation resettlement, and made experience contribution to addressing the vulnerability of people's livelihoods domestically and knowledge contribution to understanding poverty alleviation resettlement globally (Zheng, 2022).

The involuntariness of resettlement is along with unjust practices (Cernea, 2000; Zhao et al., 2019). Existing literature provides evidence and insights mainly from the dimensions beneath. First, scholars discussed the manifestations of inequity in resettlement, such as unfair compensation (Cui, 2003; Chen et al., 2016), the imbalance of rights and interests between female and male resettlees (Shi et al., 2018), differences between long- and short-distance resettlees (Feng and Zhu, 2021), and between resettlees and "stayers" (Jiang et al., 2021), and the inequality between resettlement and non-resettlement areas (Fujikura and Nakayama, 2019). Second, the reasons for injustice in resettlement are analyzed, such as interactions of resettlement with politics and inequality (Wilmsen and Rogers, 2019), and power and wealth (See and Wilmsen, 2019). Third, scholars have also prescribed paths to justice in resettlement, such as inclusion and quality during resettlement (Xu et al., 2022), infrastructure as a carrier to realize justice (Otsuki, 2021), procedural justice that ensures resettlees' rights to know and participate (Feng et al., 2021), and reform of the human rights framework (Blake and Barney, 2022).

The concept of just transition comes from the United States and Canada's *trade union movement* in the 1990s, aiming to overcome a union perception of "Environment vs. Jobs" (Burrows, 2001). The definition of just transition is contested (Goddard and Farrelly, 2018). In this paper, we take just transition as a standard to examine the quality of democratic decision-making, which emphasizes citizen participation, grassroots-driven and the cooperation of stakeholders, and the purpose is to avoid new injustices and addresses persistent inequalities (Barry, 2019).

In dam-induced resettlement, a good resettlement site is a precondition that carries development opportunities (Wilmsen and Wang, 2015; Yan et al., 2016), avoids the injustice of relocation (Cernea, 2000; Xu et al., 2022) and contributes to achieving outcome justice of resettlement. For instance, sufficient environmental capacity not only facilitates resettlement in centralized sites by allowing resettlees to maintain their social relations but also ensures that they are allocated enough land to meet their livelihood needs (Wilmsen, 2018). In addition, a resettlement site with good economic promotion policies, traffic infrastructure, industry clustering, and other external conditions is helpful to realize regional prosperity after relocation (Du Plessis, 2005; Mcdonald et al., 2008). Furthermore, the community condition of the resettlement site influences the resettlees' social adaptation and integration, and highly homogeneous lifestyles and social customs may avoid cultural lag and the social distinction between resettlees and host communities (Feng and Zhu, 2021). However, a poor resettlement site might deepen the degree of resettlement injustice. Previous studies have shown that unsuitable locations usually increase resettlees' difficulties to restore their livelihoods, thus leading to double displacement (Fiona et al., 2022) and long-term negative effects (Joshua, 2022).

The resettlement site selection is the most critical step in the resettlement process (Smyth and Vanclay, 2017), which includes the balance of justice. First, the conditions of the resettlement site should be better than the non-relocated area, and the resettlees should be equally treated as the indigenous people instead of being "special citizens" (Chen et al., 2022). Second, land resources, infrastructure and services, and inhabited environment, etc. should be guaranteed to meet the resettlees' livelihoods and their sustainable development opportunities through the resettlement site selection. Third, the negative impacts of fragmented social networks and elapsed cultural customs (Li et al., 2011) arising from far-distance relocation are supposed to be considered (Vanclay, 2017).

However, there are few studies on resettlement site selection to discuss just transition, and some of them broadly regard resettlement site selection as a process dominated by the government (Habich, 2015; Yan et al., 2016; Habich and Rousseau, 2020). Indeed, resettlement site selection is a game process of multiple stakeholders, in which differentiated expectations are either dominant or compromised under external forces, and finally frozen by a definite resettlement site. However, the question of how the resettlement site selection process reflects justice in resettlement and how this process is driven remains unanswered. To answer this question, a multi-level action perspective is employed in our case analysis instead of focusing on the decision-making and action logic of one single group. The study on the Wuxikou Reservoir area in the hinterland of southeastern China was conducted, which is an interesting case for two reasons. First, the resettlement sites of Wuxikou underwent a second choice triggered by resettlees. Second, even though this is a tortuous resettlement site selection process, it was highly approved by multiple stakeholders. For example, the satisfaction level of resettlees reaches 90%, most frontline resettlement officials were promoted, and the World Bank rated it as a "highly satisfactory" project (China Water, 2020).

The remainder is divided into five sections. First, this paper introduces the MLP analysis framework for social-technical transition, and explains its adaption to analyze resettlement site

selection. The Methods section describes the study case and data collection process. The Results section identifies Wuxikou resettlees' expectations to change resettlement sites, analyzes them through QCA, and introduces the whole process in which resettlees promoted resettlement site change from the bottom up. The Discussion section discusses why resettlees wanted to change resettlement sites, the justice transition reflected in this process, and the reasons for successful change. The Conclusion section summarizes this paper and proposes some suggestions and research prospects.

Theoretical framework

Resettlement site selection is indeed a justice perusing process against the injustice risks resulting from relocation. This process is synergistically driven by stakeholders of grassroots governments (including hydropower enterprises) and resettlee communities under the direction of national resettlement policies. Specifically, grassroots governments tend to conduct robust administration on resettlement selection to smoothen the mission promotion while resettlees are concerned about minimizing expected maladjustment through their selection. Although there is a differentiation between governments' and resettlees' considerations on selecting resettlement sites, consensus exists in the purposes of reducing risks during resettlement and providing development opportunities to resettlees. Admittedly, apart from engineering changes, the contradiction of stakeholders' considerations becomes another reason that leads to repetitive resettlement site selections which show a greater internal tension than those one-decision choices.

The MLP framework for social-technical transition analysis is diagnostic for understanding resettlement site alteration. Geels's classical MLP framework sets three interconnected dimensions, which are niches, regimes, and the landscape (Geels, 2010, 2012). This framework supposes that transition results from dynamic interactions of these three levels, in which niches represent innovative forces on the microscopic level, regimes represent factors promoting innovation in a social system on the intermediate level, and the landscape refers to the broader social environment, such as social values and ideology (Verbong and Geels, 2007). The relationship among niches, regimes and the landscape can be construed as an intermeshed multi-layer structure, in which niches build internal drivers, the destabilization of regimes creates windows of opportunity for niche innovation (Geels, 2012), and the landscape puts pressure on regimes directly and affects the activity of niches indirectly. Just transition is the process of overcoming the contradictions and frictions between different levels and groups, the dam-induced resettlement is an involuntary displacement driven by the multi-level government and grassroots. Therefore, the MLP provides a basis for understanding just transition.

During the transition of China's resettlement, the landscape is the state's overall philosophy on dam-induced resettlement and corresponding policies. Historically, the landscape on resettlees generally appears as the gradual process from maintaining basic survival, to attaching equal importance to living and production, and then to balancing "living-production-ecology". During 1949–1953, the national philosophy emphasizes engineering and overlooks the resettlement stage after relocation. In the mid-1950s, the slogan that "resettlees' production level and living standard should not be lower than the pre-relocation levels" was proposed, and relative safeguard measures were strengthened after the development-oriented resettlement philosophy in the early 1980s. Thereafter, the binary pattern of "production and living" has evolved into the core content for assessing resettlement outcomes (Chen et al., 2020). Although the concept of the environmental capacity of resettlement sites was imported in the late 1980s, it was oriented to a bottom-line of development rather than ecological remediation and nourishment. In the 21st century, in addition to the restoration of production and living conditions, the resettlement-related ecological impacts were requested to be in line with the national "Ecological Civilization Construction" and "Beautiful China" strategies. Since then, the inter-coupled resettlement philosophy of "production-living-ecology" showed a prototype and landed in increasing cases.

Regimes are an administrative connecting link in China's resettlement site alteration, which refer to the government agencies that bear pressure from higher authorities and shoulder responsibilities for resettlees. Governing resettlement is based on an interwoven bureaucratic organizational system consisting of provincial, municipal, county and township governments vertically, and their functional departments related to resettlement activities horizontally. Although there exists competition for resources and voice among same-level organizations, regimes show a high level of consistency to the outside under the performance pressure from the landscape. In dam-induced resettlement, except for ultra-large projects, provincial and municipal governments play a management and supervision role mainly, while county and township governments are key implementers of concrete resettlement practices. Under the supervision of provincial governments, the performance of grassroots governments is strongly linked to the efficiency and quality of resettlees' sustainable development. Therefore, the action logic of grassroots governments in resettlement is balancing administration missions from higher authorities with the general satisfaction of resettlees.

Resettlees and their communities may be regarded as niches, and are the most important stakeholder in resettlement progress. In China, the period in which resettlees obeyed government calls unconditionally is gone, and nowadays, resettlees are striving to protect their interests during resettlement. Generally speaking,

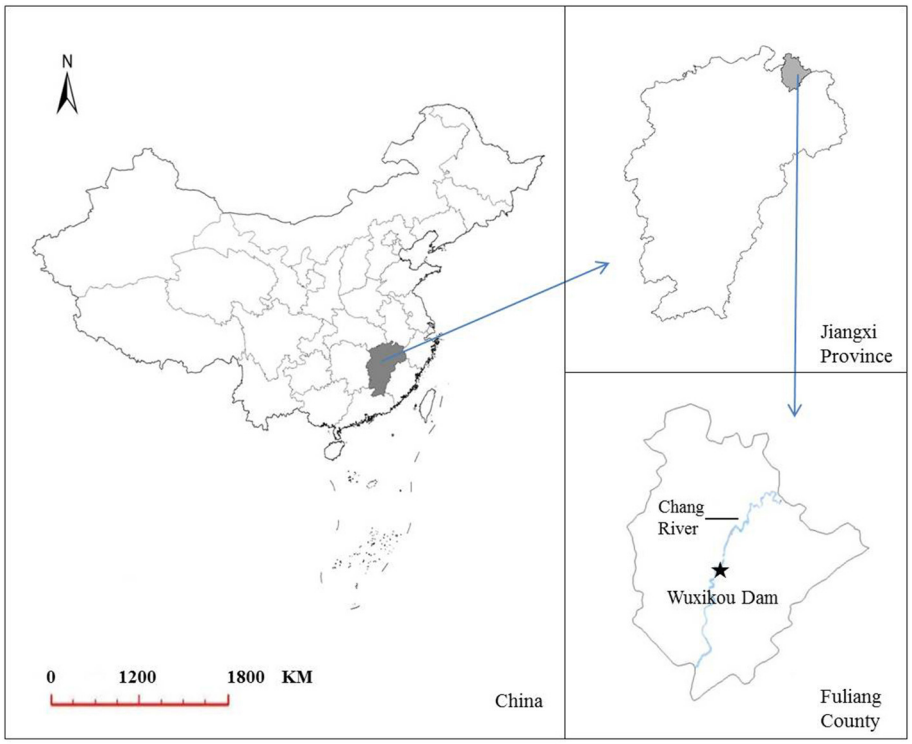

FIGURE 1
Case study area.

the government can make resettlees accept a resettlement action plan (RAP) prepared by it by various means, such as preaching and soft coercion (Habich, 2015). However, if the government's plan seriously misfits resettlees' expectations or harms their interests, resettlees would express rightful expectations for RAP change to the government; in extreme cases, they would even struggle for government concessions collectively.

Methods

Mixed methods are used in this study to examine the resettlement site change process of Wuxikou resettlement. We applied several data collection modes and designed specific analysis methods around the Research Topic.

Case study area

Wuxikou, a recently built (2009–2020) reservoir, is located in Fuliang County, Jiangxi Province in the hinterland of southeastern China. The terrain of Fuliang County (Figure 1) is mainly mountainous with a good ecological environment, as evidenced by its forest coverage rate of 81.4%. The Wuxikou dam is a World Bank-financed project to provide urban electricity and flood control throughout the basin. The 56-meter-high dam with an aggregate storage capacity of 427 million cubic meters led to more than 10,000 resettlees.

Wuxikou's resettlement sites underwent a major change. In 2012, the Fuliang County Government released the RAP. However, for some reasons, especially the resettlees' dissatisfaction with the resettlement sites planned by the government, the RAP was terminated once it was implemented in 2013. Six years later, as requested by resettlees, a renewed RAP with the resettlement sites changed released in 2019 was accepted by all parties, and resettlement was completed in 2021 according to the new scheme. Based on a comparison of the two versions, the resettlement site change mainly involves: (1) reducing remote and scattered resettlement sites, and building adjacent and centralized ones; (2) expanding resettlement sites, and reducing the number of resettlement sites from 64 to 29.

Data collection and analytical approach

First, basic expectations for resettlement site change of resettlees were identified through in-depth interviews, and an analysis was performed by using grounded theory. In-depth interviews were conducted on the basis that the authors' trust

with local officials during Wuxikou resettlement monitoring. In December 2019, we found the resettlees who dominated the resettlement site change in 2012 through village officials. We conducted semi-structured interviews with them to identify their expectations for the resettlement site change, and the main topics included the reasons for their dissatisfaction with the resettlement sites initially selected by the government, their bargaining process with the government, and their key considerations in resettlement site selection. We used the local language during the interviews, and interviewed resettlees at their homes or field bunds, as familiarity with space could reduce their tension in communication. Audio records were kept with the consent of the interviewees, and converted into text the same day, and the true names of the interviewees were replaced with initials. We achieved information saturation after interviewing 31 resettlees (male = 20, female = 11) and this survey was stopped by then. During information processing, if there was any doubt, we revisited the interviewee by cellphone or an instant messaging App (WeChat) for double checking. Here, we used grounded theory to identify the resettlees' expectations for the resettlement site change. The rationale was analyzing and refining interview contents continually, and finally deriving an independent, relatively formal theory from fragmented concepts in a theoretical saturation state.

Second, a questionnaire was designed based on the grounded analysis results to investigate the relationship between the resettlees' expectations and the action to drive the resettlement site change, and QCA (qualitative comparative analysis) was used for research. Specifically, based on the fact that the portfolio of the resettlees' differentiated expectations led to the resettlement site change, the researchers attempted to explore multiple conjunctural causation using csQCA. Another benefit of using QCA analysis was that the request for the resettlement site change was an action of the resettlees 7–8 years before, and it was difficult to obtain quantitative data with large sample size. QCA's Boolean algebra simplified the issue, and applied it to studies with a medium or small number of cases without sacrificing the penetrability and extensibility of analysis (Zhang and Du, 2019). Since the generally poorly educated resettlees were asked to recall a historical action, and the quality of information obtained might be low, this study used csQCA to convert the antecedent conditions to be analyzed (resettlees' expectations) and outcome (request for the resettlement site change) into dichotomous variables (0/1), and constructed a truth table to process contradictory configurations to obtain acceptable analysis results. The csQCA approach and grounded theory provided a basis for the questionnaire research plan. Based on the benchmark table of detection probabilities of numbers of conditions and cases given by Marx (2010), the authors distributed the questionnaire to 51 resettlee households at seven resettlement sites in March 2021, with one respondent per household, and obtained a valid sample of 40, with a recovery rate of 78.4%.

Finally, semi-structured interviews and secondhand data collection for officials formed the basis for analyzing multi-level interactions of the Wuxikou resettlement site change. In April 2021, we conducted semi-structured interviews with officials of the Fuliang County Government (n = 8), workers of the resettlement headquarters (n = 15), and township officials (n = 13) who had participated in the resettlement site change, covering such topics as the government's reasons for selecting the resettlement sites, the government's attitude to the resettlees' request to change the resettlement sites, and the government's considerations in the resettlement site change. As a large part of the interviews needed to be answered from memory, the interviewees were provided with relevant materials for recall. During the survey, we collected a series of secondhand information with the assistance of local officials, including policy documents promulgated by the provincial, municipal and county governments, resettlement monitoring reports, focus group discussion (FGD) records, summaries, etc. in the 9-year resettlement process. Such information reveals detailed data on the resettlement site change, and is an effective supplement to our fieldwork information.

Results

What are the expectations of the resettlees for the resource endowment of the resettlement sites?

According to the respondents' answers to "expectations for resettlement sites", we filtered the corresponding information based on repeated context reading without any preassumption or bias, then used ATLAS. ti 7.5 as the coding tool to process the paragraphs.

The preparation of the coding procedure was as follows: The raw information was first labeled sentence-by-sentence, and broken down and extracted based on maximum likelihood. Expressions repeating or overlapping in meaning were consolidated to obtain 1,309 numbered pieces of the original information. These pieces were generalized and processed qualitatively by 6 researchers in sextuplicate. When the internal consistency of double-blind coding was 80% or above, the coding results were deemed reasonable. Among the 695 codes obtained after correction, 564 had similar results of double-blind coding, with a consistency level of 81.2%, reaching the acceptability criterion.

Since there were a large number of initial concepts, concepts related to the same symptom in causality, similarity, type, etc. were put in one category. During categorization, initial concepts with less repetitions (<5) were eliminated. After categorization, over 170 initial concepts finally formed 13 categories. On this basis, the initial categories were further put back into the original information to analyze the interview texts. We

TABLE 1 Resettlees' expectations for resettlement sites.

Main categories	Initial categorization	Conceptualization	Information pieces
• AP • NAP • ML • SL • RNE (5 main categories)	• Agricultural operation conditions • Local business conditions • Local job opportunities • Living convenience • Traffic convenience • Social networking distance • Social activities • Flood safety • Geological safety • Farming radius • Centralized resettlement • Relocation distance • Flat terrain (13 categories)	• Land… • Environment… • Making money… • Geology… • Terrain… • Traffic… • Vicinity… • Ecology… • Employment… • Housing conditions… • Geomancy… • Slope gradient… • Infrastructure… • Water source… • The direction of the house… • Distance… • Centralization… • … (Over 170 categories)	• Sufficient land…… • Close to farmland…… • Convenient traffic…… • No separation from acquaintances…… • No outward relocation…… • Good living environment…… • Good geology…… • Flood control…… • Good infrastructure…… • Good environment…… • Good geomancy…… • Flat terrain…… • Doing business…… • Employment…… • Many ways to make money…… • Good water quality…… • Convenient clothes washing in the river…… • Convenient education • Close to hospital • Convenient shopping… • … (695 pieces)

analyzed the attributes of the categories in depth, classified them after many comparisons by interrelationship and logical order, and analyzed the 13 initial categories comprehensively of "expectations for resettlement sites", and finally formed five main categories, namely agricultural production (AP), non-agricultural production (NAP), material life (ML), social life (SL), and reception of natural ecology (RNE) (Table 1).

Generally, after the main categories were obtained, theoretical deduction should be further conducted to interpret the interactions between the main categories. However, this study did not pay attention to the direct connections between the main categories, but focused on if and how they conjointly stimulate the resettlees' request to change the resettlement sites. Therefore, the five main categories were taken as independent variables, and the resettlees' reactions (Yes/No) to changing the resettlement sites as the dependent variable to conduct subsequent questionnaire analysis.

How do the resettlees' expectations push them to change the resettlement sites?

Descriptive statistics and data verification

The questionnaire survey collected the expectations of 40 respondents (from R1 to R40) for AP, NAP, ML, SL and RNE, and whether they finally requested to change the resettlement sites. Twelve of the respondents did not make such a request while the other 28 did. The demographic characteristics of respondents are shown in Table 2.

The 40 recovered copies of the questionnaire were subject to a common method bias (CMB) test. In Harman's single-factor test using the SPSS software, three factors were extracted, with a cumulative variance interpretation rate of 67.15%, the variance interpretation rate of the first factor was 31.12%, conforming to the criterion in general social science studies (<40%), so it could be judged that the CMB problem in the self-evaluation questionnaire did not exist.

The reliability and validity of the questionnaire should be analyzed before QCA. Bentler and Chou (1987) suggest that as long as there is no missing data, exceptional value or other abnormities in data, a reliability and validity analysis can be performed in the presence of cases of at least 5 times the number of parameters. The research data volume met this requirement. The SPSS software was used for a reliability test, and Cronbach's α applicable to the scale reliability analysis of attitudes and opinions was selected to judge the consistency level of results when the same subject was measured repeatedly. AMOS v24.0 was used to analyze validity, and the confirmatory factor analysis (CFA) approach used to test the scale's internal structure. The results (Table 3) indicated that the scale had

TABLE 2 Demographic characteristics of respondents ($N = 40$).

Variable	Type	*N*	Percent	Variable	Type	*N*	Percent
Gender	Male	29	72.5%	Marriage	Unmarried	3	7.5%
	Female	11	27.5%		Married	31	77.5%
Age	<25	1	2.5%		Divorced/bereft of the spouse	6	15.0%
	25–40	10	25.0%	Employment	Agricultural	18	45.0%
	40–60	17	42.5%		Non-agricultural	9	22.5%
	>60	12	30.0%		Part-time	8	20.0%
Educational level	Primary school	12	30.0%		Unemployed	5	12.5%
	Junior high school	21	52.5%	Children	No child	5	12.5%
	Senior high school	5	12.5%		=1	11	27.5%
	Junior college or above	2	5.0%		2	24	60.0%

TABLE 3 Reliability and validity of questionnaire.

Reliability	Validity						
	NNFI	IFI	CFI	GFI	AGFI	RCF	RMSEA
0.812	0.912	0.933	0.924	0.903	0.871	2.783	0.062

excellent internal consistency, and the model fitness was within an acceptable range.

Data assignment and calibration

First, we used the median as the demarcation point to calculate the average of two variables among the five analysis factors of AP, NAP, ML, SL, and RNE as the threshold. Meanwhile, the average of variables of sample *R* in the same antecedent condition was calculated. When the sample's average was higher than the threshold, it was assigned 1, otherwise, it was assigned 0. After variable assignment, each case was coded and summarized to obtain a data combination of explanatory and outcome variables. After processing using the Tosmana software, a visualized truth table was obtained (Figure 2).

A contradictory configuration was found in the truth table. AP and RNE were considered for R2, R6, R10, and R32, but the outcomes of R2, R6, and R10 were opposite to R32. This means that resettlee households considering the same factors were not unified in requesting the resettlement site change or not. The existence of contradictory configurations did not mean the failure of QCA research (Ragin, 2014), which might be solved by adjusting the thresholds in the truth table. Tentatively, any value greater than the average plus a standard deviation was assigned 1, and those values lower than the average plus a standard deviation were assigned 0. After the threshold adjustment, the recalculated truth table (Figure 3) shows no contradictory configuration area, indicating that the contradictory configuration was solved.

Univariate necessity analysis

csQCA determines if any necessity or adequacy relationship existed between the analysis factors by analyzing each solution's consistency and coverage. Consistency means to what extent all cases included in the analysis share a certain condition that leads to the outcome, and coverage means to what extent these given conditions explain the occurrence of the outcome. If condition *X* is a prerequisite to outcome *Y*, the set corresponding to *Y* is a subset of the set corresponding to *X*, and the corresponding necessity and consistency indicator should be 0.9. On the contrary, if the necessity and consistency indicator is <0.9, *X* cannot be regarded as a prerequisite to *Y*.

In this study, whether a single antecedent condition could constitute a prerequisite to the "request to change the resettlement sites" was analyzed, and the results are shown in Table 4. The calculated prerequisite consistency of any single variable was <0.9, insufficient to constitute a prerequisite to the resettlement site change. This means that a single variable cannot explain the reason for the outcome, i.e., the outcome of the "request to change the resettlement sites" is formed by multiple factors acting together.

Condition configuration analysis

Configuration solutions were used to analyze how the resettlees' different expectations contributed to their action. The truth table analysis report (Table 5) describes three solutions—the complex solution, parsimonious solution and intermediate solution. Their differences lie in the processing

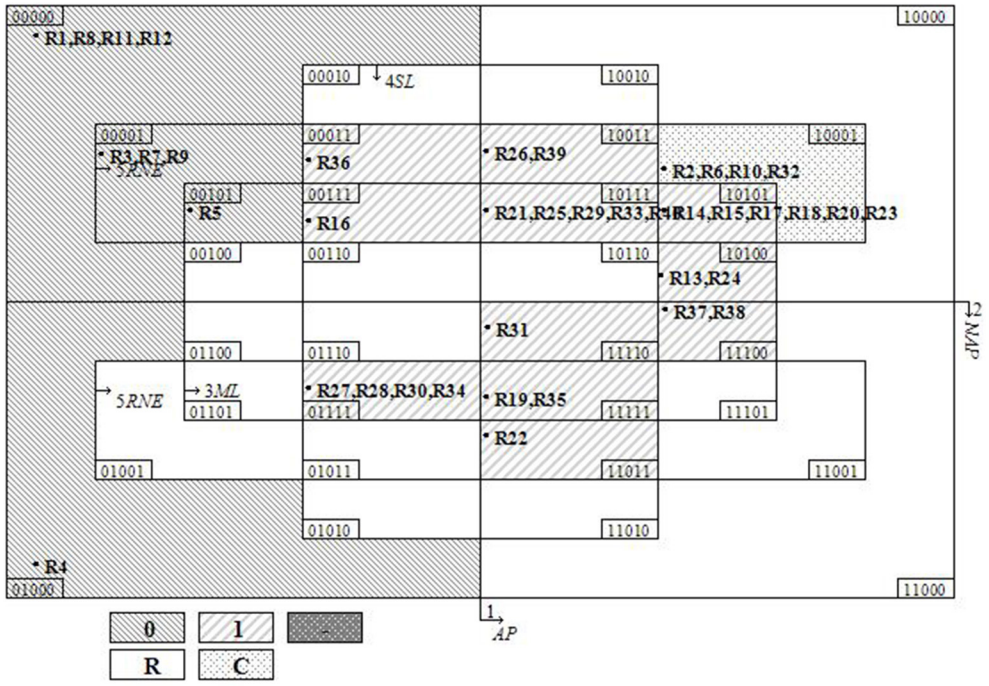

FIGURE 2
Visualization of truth tables under median thresholds. Data source: The result of this figure is reported by the Visualize function of Tosmana. "0" means that the result does not occur, "1" means that the result occurs, "R" means Logical remainders, and "C" means Contradictory solution.

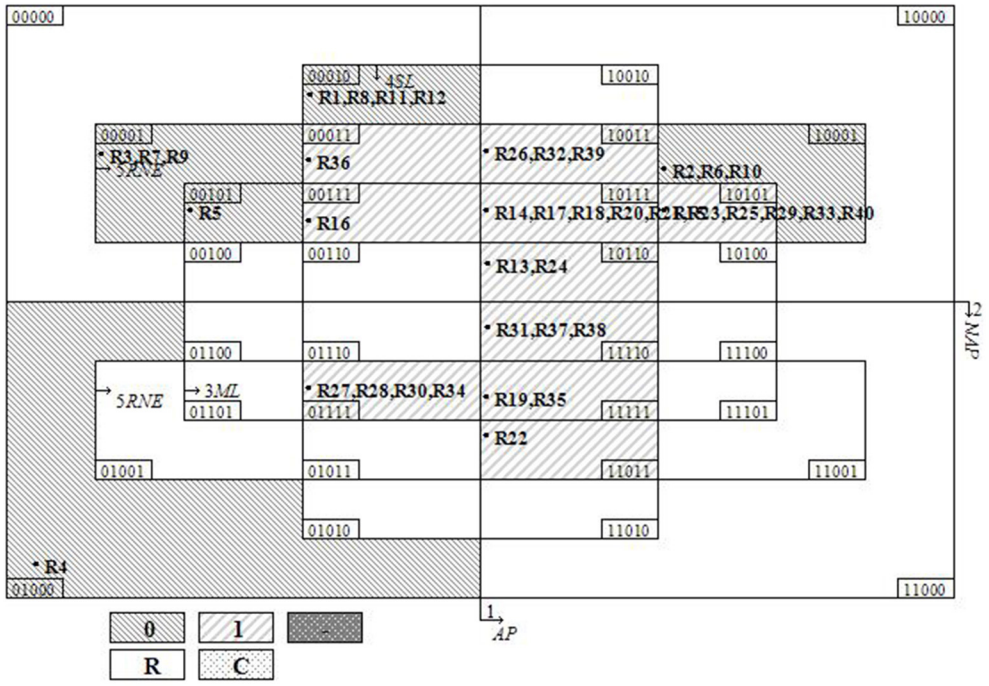

FIGURE 3
Visualization of truth tables after threshold adjustment. Data source: The result of this figure is reported by the Visualize function of Tosmana. "0" means that the result does not occur, "1" means that the result occurs, "R" means Logical remainders, and "C" means Contradictory solution.

TABLE 4 Univariate necessity analysis test.

Antecedent condition	ERP		~ERP	
	Consistency of prerequisites	Coverage	Consistency of prerequisites	Coverage
APAP	0.785714	0.880000	0.250000	0.120000
	0.214286	0.400000	0.750000	0.600000
NAPNAP	0.357143	0.909091	0.083333	0.090909
	0.642857	0.620690	0.916667	0.379310
MLML	0.821429	0.958333	0.083333	0.041667
	0.178571	0.312500	0.178571	0.312500
SLSL	0.607143	1.000000	0.000000	0.000000
	0.392857	0.478261	1.000000	0.521739
RNERNE	0.821429	0.766667	0.583333	0.233333
	0.178571	0.500000	0.416667	0.500000

TABLE 5 Antecedent condition configurations for resettlees' request to change the resettlement sites.

	Raw coverage	Unique coverage	Consistency
Intermediate solution			
AP*ML	0.642857	0.392857	1
AP*SL*RNE	0.357143	0.0357143	1
~NAP*SL*RNE	0.321429	0.0357143	1
ML*SL*RNE	0.428571	0.142857	1
Complex solution			
AP*ML*NAP*~RNE	0.107143	0.107143	1
AP*ML*~NAP*~SL	0.285714	0.285714	1
Parsimonious solution			
SL	0.607143	0.321429	1

Solution coverage: 0.964286.
Solution consistency: 1.

of logical remainders. The complex solution analyzes the actually observed case without using logical remainders; the parsimonious solution includes all possible logical remainders, but such simplification is not evaluated based on theory or practical knowledge, the intermediate solution includes the configuration of the actually observed case and "logical remainders" only (Ragin, 2008). Usually, compared to the complex and parsimonious solutions, by reporting the intermediate solution, and differentiating core and marginal conditions along with the parsimonious solution, we can perform a causality analysis effectively. Any condition that is included in both the parsimonious and intermediate solutions is defined as a core condition, and any condition that appears in the intermediate solution only is defined as a marginal one.

It can be seen from Table 5 that the overall consistency of the four configuration solutions is one, and the consistency of each is also one, greater than the standard model value of 0.8. It can be assumed that the four configuration solutions can explain the reason for the resettlees' request to change the resettlement sites effectively, and have causal equivalence. The configuration solutions are explained as follows:

The AP*ML solution reports that the resettlees' expectations for AP and ML constitute sufficient conditions that cause them to request to change the resettlement sites, it has the highest coverage level among all configuration solutions. The AP*SL*RNE solution reports that the resettlees' expectations for AP, SL and ecological security constitute sufficient conditions that cause them to request to change the resettlement sites, in which the SL expectation is a core condition, while the expectations for AP and ecological security are marginal ones. The ~NAP*SL*RNE solution reports that when the resettlees disregard NAP, the expectations for SL and RNE constitute sufficient conditions that cause them to request to change the resettlement sites, in which the SL expectation is a core condition, while the expectations for NAP and RNE are marginal ones. The ML*SL*RNE solution reports that the resettlees' expectations for ML, SL, and RNE constitute sufficient conditions that cause them to request to change the resettlement sites, in which the SL expectation is a core condition, while the expectations for SL and RNE are marginal ones. In sum, the Wuxikou resettlees' request to change the resettlement sites was caused by the multiple conjunctural expectations of the resettlees.

How was the resettlees' request to change the resettlement sites realized in multi-level interactions?

The authors chronologically sorted out the key influencing events of the Wuxikou project's resettlement site change (Table 6). It can be seen that 1 year after the release of the

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TABLE 6 Events overview and their basic attributes determination.

Sequence	Events	Time	Event description
A	The Fuliang County Government released the RAP.	2011.8-11	After a series of preliminary investigations, the Fuliang County Government released the draft RAP of the Wuxikou project.
B	**The resettlees requested to change the resettlement sites.**	2012.12	After the beginning of resettlement, the resettlees who moved to other towns strongly requested to be resettled nearby, and those who were scattered expected centralized resettlement.
C	Dam construction began.	2013.4	On April 9, the Wuxikou Project Management Office held a mobilization meeting for dam construction.
D	Officials of Jingdezhen proposed centralized resettlement.	2013.6	According to the requirements of new-type urbanization, the officials of Jingdezhen suggested expanding the resettlement sites during a visit to Wuxikou.
E	The Fuliang County Government submitted the adjustment report.	2013.12	The Fuliang County Government submitted the report on adjusting the RAP of the Wuxikou project to the Jingdezhen Municipal Government.
F	The Jingdezhen Municipal Government reviewed the report.	2014.4	The Jingdezhen Municipal Government approved the adjustment report submitted by the Fuliang County Government.
G	The environmental capacity review of the resettlement sites was conducted.	2014.6	The design agency completed the environmental capacity survey of the resettlement sites.
H	The Jiangxi Provincial Government proposed the construction of central villages.	2015.5	The Jiangxi Provincial Government proposed to build central villages and required that central villages should be planned in coordination with nature and rural development.
I	The Fuliang County Government held a resettlement program adjustment meeting.	2015.5	The Fuliang County Government fully considered the expectations of the resettlees and combined them with the requirements of higher governments to prepare a preliminary plan for the resettlement sites.
J	The Fuliang County Government planned to develop tourism in the resettlement sites.	2015.7	The Fuliang County Government prepared a post-relocation development plan, which aimed to turn the resettlement area into a tourist area and build Hui-style housing for the resettlees.
K	The Yangtze River protection strategy was promulgated.	2016.3	The strategy stressed that the Yangtze River Economic Belt must adhere to ecological priority, green development, and protection rather than large-scale development.
L	Fuliang County leaders inspected the ecological and environmental situation of the resettlement sites.	2016.8	Fuliang County leaders pointed out the importance of ecological construction in the resettlement area, and introduced plans to build eco-tourism scenic areas.
M	The rural revitalization strategy was promulgated.	2017.10	The 19th CPC National Congress put forward the rural revitalization strategy.
N	The State Council issued a new policy on follow-up support for dam-induced resettlement.	2018.8	The Ministry of Water Resources issued the Notice on Further Strengthening Follow-up Support for Large and Medium-sized Dams.
O	The design agency completed the resettlement site change report.	2018.5	The resettlement site change report for the Wuxikou project was completed.
P	The Jiangxi Provincial Government reviewed and approved the report.	2018.9–2019.3	The Jiangxi Provincial Government organized experts to review the report and approved it.
Q	The Fuliang County Government proposed to increase the area of artificial farmland.	2019.10	The Jiangxi Provincial Government held a meeting and proposed to increase the area of artificial farmland in the resettlement area.
R	The government began to organize mass relocation.	2019.11	After the new RAP was approved, many resettlees began to relocate to the resettlement sites where infrastructure had been largely completed.

Data Source: The authors sorted out the relevant data on the resettlement activities of the Wuxikou project.

RAP by the Fuliang County Government in August 2011, some elites among the resettlees requested to change the resettlement sites, which was taken into account by the Fuliang County Government. Afterward, the Fuliang County Government escalated the newly prepared RAP to the Jingdezhen Municipal Government and Jiangxi Provincial Government. During their review of the new RAP, the central government promulgated some policies, such as the Yangtze River protection strategy in 2016, the rural revitalization strategy in 2017 and the updated policy on post-resettlement support in 2018. The resettlees' request to change the resettlement sites was intrinsically consistent with these national policies. Therefore, in 2019, the Jiangxi Provincial Government approved the resettlees' request.

It can be seen from Table 6 that the Wuxikou project's resettlement site change was realized in multi-level interactions, and the Fuliang County Government, Jingdezhen Municipal Government and Jiangxi Provincial Government were all driving it, but with different considerations. The Fuliang County Government drove the change for two reasons: First, it was the main implementer of resettlement. If the resettlees were dissatisfied with the government's RAP, resettlement could hardly be promoted on schedule, so it did not object to the resettlees' request to change the resettlement sites, but reported it to the higher-level governments. Second, reducing outward relocation and conducting centralized resettlement could realize rural population gathering, which would not only convenient for the Fuliang County Government to implement national policies such as rural revitalization, central village construction, and new-type urbanization, but also be beneficial to their plan to implement the tourism development plan at the resettlement sites. An official in Fuliang County said,

"To be honest, we think that the resettlees' request to change the resettlement sites is feasible. If they are dissatisfied with the resettlement sites, relocation could hardly proceed, and in case a protest occurs, we would be punished. In addition, merging the resettlement sites helps us to implement policies of higher authorities. For example, this is a good opportunity to implement the 'central village construction' project … Since we plan to develop tourism here, merging the resettlement sites will reduce environmental destruction and tourism infrastructure construction expenses" (ZSL, 202104).

Although the Jiangxi Provincial Government and Jingdezhen Municipal Government were not involved in the resettlement site change process as core decision-makers, their work influenced the overall direction of resettlement site change externally, because they were supervisors other than implementers of resettlement, and their role was to deliver national policies to the county government and set assessment standards. During the review of the new RAP submitted by the Fuliang County Government, several policies issued by the central government covered resettlees' requests to change the resettlement sites. For instance, the core content of China's rural revitalization strategy (2017) is "rural civilization, ecological livable, industrial prosperity, effective governance, wealthy life", which highly overlaps the five main requests (AP, NAP, ML, SL, and RNE) of resettlees. Consequently, to some extent, these state policies facilitated the resettlees' request to be approved by the Jiangxi Provincial Government.

"Usually, it takes a long time for higher authorities to approve the RAP, during which the central government issued many new policies. Coincidentally, the new RAP we submitted matched with those policies, so higher authorities approve it rapidly" (BB, 202201).

Discussion

The request to change the resettlement sites was an embodiment of the resettlees seeking just transition by themselves. The results showed that the resettlees requested to change the resettlement site of the draft RAP with specific driving forces (AP, NAP, ML, SL, and RNE). On the one hand, the request to change the resettlement sites was promoted by elites among the resettlees with a broader vision. Because the elites realized that the conditions of resettlement sites are largely related to resettlees' livelihood level and development opportunities after resettlement. Therefore, the resettlement sites should not only basically satisfy the agricultural production for resettles, but also take non-agricultural production (NAP), material life (ML), social life (SL), and reception of natural ecology (RNE) into consideration. On the other hand, if resettlees were to protect their interests in resettlement, requests before resettlement would have a certain coercion effect on the government that valued resettlement progress, as post-resettlement support was driven by the government from top to bottom, and the resettlees just participated passively, and could hardly have a voice and autonomy. In a word, resettlement site selection is the only effective anchor for resettlees to seize development opportunities in resettlement.

The change of the Wuxikou resettlement sites is just transition, reflected in the event and procedural justice. The event itself was just because whether in terms of the resettlees' interests or the government's performance, the purpose of changing the resettlement sites was to create a favorable external environment to realize high-quality life and sustainable development after relocation (Otsuki, 2021). In general, this event was to compensate for the resettlees' opportunities and resources based on humanitarianism, and could evade inequalities brought to them by relocation, mitigate spatial deprivation for aboriginals and host communities, and help realize Pareto optimality in resettlement. From the perspective of MLP, the resettlement site change process of Wuxikou was also procedurally just. Procedural justice refers to a process in which participants make a bottom-top push and make a

decision together with other subjects (Lind and Tyler, 1988; Lake, 2016). As for Wuxikou, the resettlement site change was realized after the free actors—the resettlees (the niches level)—first submitted their expectations to the Fuliang County Government, and then such expectations were approved by the Jingdezhen Municipal Government and Jiangxi Provincial Government level by level (the regime level). In other words, the resettlement site change was the outcome of the joint action of the resettlees and local government. Although all actors had their interest considerations in this process, it was intrinsically consistent with Rawls's "veil of ignorance" (Rawls, 1971) in form. Meanwhile, the changed resettlement sites had much better comprehensive conditions than those before relocation, and the government's post-relocation support was being granted gradually at the resettlement sites, the non-movers were also incorporated into the development plan. It can be seen that event and procedural justice in resettlement site change has largely achieved outcome justice (Paavola et al., 2006).

The match of values between the niches, regimes and landscape level in MLP is the lubricant that accelerates just transition in resettlement. The Wuxikou resettlees finally succeeded in driving the change of the resettlement sites from bottom to top. Then, what is the potential mechanism for the government and resettlees to reach a consensus on the change of the resettlement sites? In our opinion, the root cause is that the resettlees' expectations are unified with the state's "production-living-ecology" (the landscape level). Specifically, as the resettlees' five main requests (AP, NAP, ML, SL, and RNE) on resettlement site echo with the concept of "production-living-ecology" in state policies, local government tend to accept the such request and drove the change smoothly. It is noteworthy that as a value idea not strictly bound by text, "production-living-ecology" leaves sufficient adjustment space for grassroots governments (the regime level) and resettlees (the niches level) to select resettlement sites, thereby effectively evading "dispensable citizens" (Jalais, 2010), reflecting the importance of resettlees in resettlement (Habich and Rousseau, 2020), and helping the local governments complete other state-level missions beyond resettlement activities. Through the MLP, the multi-tiered interactions in a resettlement site selection event are clearly portrayed. A just transition driven by resettlees promoted the stakeholders into a win-win situation without sacrificing the interests of any party.

Conclusion

To interpret the justice transition of dam-induced resettlement, this paper demonstrates how the Wuxikou reservoir's resettlees drove the resettlement site change from bottom to top from the perspective of MLP analysis. First, we identified the five main categories of this process (AP, NAP, ML, SL, and RNE) using grounded theory by reading the resettlees' messages repeatedly. Second, the resettlees' differentiated expectations in this process were analyzed using the QCA approach. Then, this paper details the overall process of the resettlement site change driven by the resettlees, and explains why the provincial, municipal and county governments drove the change actively as expected by the resettlees.

To a certain degree, the Wuxikou resettlement process realized it's just transition, which could provide a reference for resettlement activities in China and other developing countries over the world. First, the Wuxikou resettlees drove the change of the resettlement sites in line with the central policies, so their requests were accepted by the local government. However, this does not mean that all requests of resettlees should be fully approved by the government without distinction, as some requests are legitimate but "speculative" (Tian, 2010). Second, from the perspective of the local government, resettlees' requests are supposed to be concerned with the national policies organically which are helpful to alleviate the double pressure from higher-level governments and resettlees and create a win-win situation for all stakeholders. Lastly, the government's expectations on resettlement sites are overlooked in this paper. Whether and how these expectations differ from and interact with the resettlees' requests is worth of studying in the future.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author/s.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the participants was not required to participate in this study in accordance with the national legislation and the institutional requirements.

Author contributions

JG, TJ, and SC: conceptualization. JG and TJ: methodology, formal analysis, investigation, and writing—original draft preparation. JG, TJ, and YL: writing—review and editing. SC: supervision and project administration. All authors have read and agreed to the published version of the manuscript.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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