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Research on the relationship between social capital and sustainable livelihood: evidences from reservoir migrants in the G Autonomous Prefecture, China

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Although hydropower serves as a clean alternative energy source, the global challenge of resettlement due to dam construction underscores the importance of sustainable livelihoods in achieving the targets of the Sustainable Development Goals (SDGs). In recent years, the sustainable livelihood theory has offered a new perspective for examine the development of livelihoods of reservoir migrants after relocation. However, in-depth relationship between social capital and sustainable livelihoods has not been explored. In this study, three hydropower resettlement areas were selected in the G Autonomous Prefecture of China as an example. Our investigation delved into the influence of social networks, social norms, and social trust on the livelihoods of reservoir migrants. Study employed semi-structured interviews, participant observation, and qualitative analysis to explore this impact. The results show that the traditional social capital stock of reservoir migrants, dominated by family, neighborhood and religious networks, has declined. Therefore, the structural function of modern social capital should be strengthened by increasing the social trust of reservoir migrants in institutions and civil society organizations. The contribution of livelihood diversification in poverty reduction by 2030 (SDG-1) was realized by focusing on the role of social capital to promote infrastructure, improve living conditions and increase employment opportunities for migrants. The findings further point to the need to fully respect the customs and lifestyles of ethnic minorities during the resettlement process of reservoir migrants in order to preserve the role played by their traditional social capital, thereby promoting the sustainable development of the livelihoods of reservoir migrants.

KEYWORDS

reservoir migrants, social capital, sustainable livelihoods, livelihood capital, ethnic minorities

1 Introduction

As a clean and renewable energy source, China has the richest hydropower resources, and the development of hydropower is crucial to alleviating the energy crisis and achieving carbon neutrality (Huang and Zheng, 2009). The construction of hydropower plants is inevitably associated with large-scale land acquisitions, which usually involve involuntary resettlement (Chen et al., 2016). In the context of China, hydropower plants have led to the

relocation of approximately 22 million reservoir migrants across 31 provinces and municipalities that fall directly under the purview of the central government (Chang et al., 2010). Resettlement projects can advance social goals and modernity (Xu et al., 2022a). However, it resulted in migrants' loss of land and homeland, unemployment, social and psychological marginalization, and social structure collapse (World Commission on Dams, 2000; Wilmsen, 2018), and without proper livelihood rehabilitation and reconstruction, the resettlers are at a high risk of impoverishment (Xu et al., 2022b). As a result, studying reservoir migrants' sustainable livelihoods has a high practical importance.

Sustainable livelihood consists of the assets that support the maintenance or enhancement of resource productivity from the outset, the assurance of ownership and access to property, resources and income activities, reserve and consumption of sufficient food and cash to meet basic needs (Lei et al., 2022; Bao et al., 2023). According to Singh and Gilman (2000), livelihood systems are structured by a complex and diverse set of economic, social and material strategies practiced by the individual and represented in his/her behaviors, properties and rights to earn a sustainable living. Stable livelihoods are achieved when people take advantage of opportunities and resources without compromising others' current or future opportunities to earn a living (Singh and Gilman, 2000). In the explanatory framework, the Sustainable Livelihood Guide published by the British Department for International Development (DFID) provides an elaborate discussion of the sustainable livelihood framework which summarizes the core principles that make a systematic analysis with the established DFID model (Li et al., 2020; Hu and Wen, 2021). The sustainable livelihood theory provides a new perspective to observe and explain the livelihood of reservoir migrants, which organically combines the natural resources, environmental protection, social economy and long-term development of migrants in the land expropriation area of hydropower station construction.

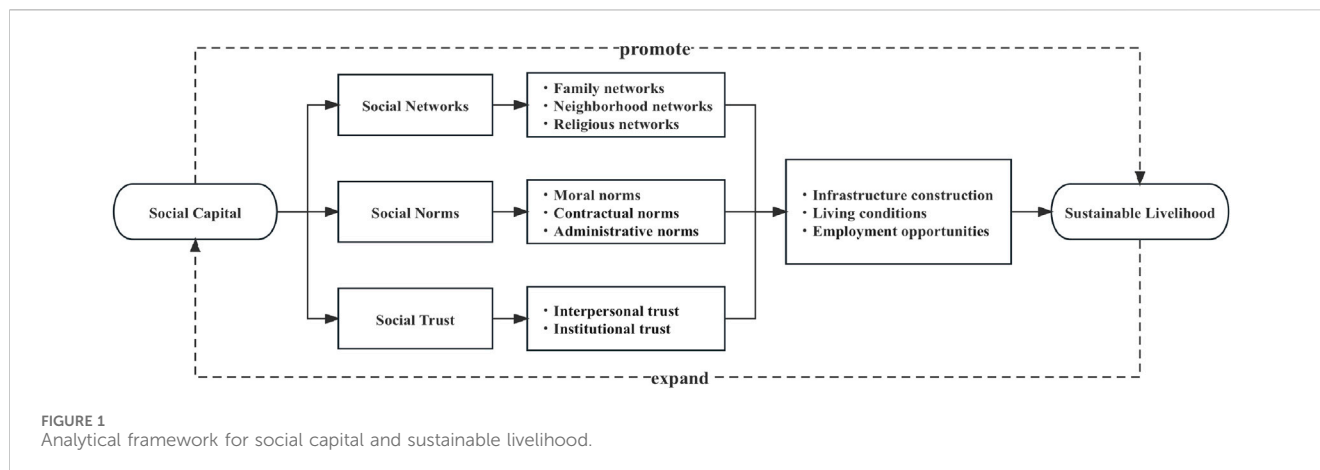
Hanifan (1916) defined social capital as "the goodwill, friendship, empathy, and social interaction between a group of individuals and families." Scholars have since interpreted social capital from various viewpoints and undertaken relevant research. The perspective of relational networks defines social capital as "the collection of actual or potential resources associated with a persistent network of mutually tacit" or acknowledged relationships that are more or less institutionalized (Bourdieu and Richardson, 1986). Later, Coleman (1994) proposed that social capital is the capital property owned by individuals, manifested as the resources of social structure, composed of the elements that constitute social structure within interpersonal relations that facilitate individual actions. According to the World Bank, social capital is the third greatest capital after physical and human capital in the anti-poverty process. Imbalances in the social resources available to individuals, that is, differences in social resources, can have a significant impact on the probability of living in poverty, and upward linkages can help households overcome constraints in accessing various economic resources (Zhang et al., 2017). Social capital is also the stock of capital that households can utilize in the face of adversity and can reduce the vulnerability of rural household livelihoods (Mbiba et al., 2019).

Although most studies agree that social capital can reduce poverty vulnerability, enhance income, and have other beneficial impacts, but impact on poverty remains debatable. There is an obvious threshold effect of social capital on farm household income; when social capital is lower than the threshold, the effect on increasing farm household income is not significant; and when social capital is higher than the threshold, it can significantly contribute to farm household income increase (Liu et al., 2014). According to some experts, social capital does not belong to the poor and has no major impact on enhancing low-income households' ability to alleviate poverty and sustain their livelihoods (Zhou, 2012). Lack of necessary social capital will limit families' access to necessary information and opportunities, and this will lead to subjective and objective poverty in the absence of social support (Chang et al., 2020), thus social capital has practical significance for sustainable livelihoods.

Literature reveals that there is a lack of micro research on the relationship between social capital and sustainable livelihood, and the impact of social capital on the capacity for sustainable livelihoods is unclear, in particular, there are few studies on the reservoir migrants. Notably, problem of reservoir migration is complicated and has a strong duration, and the resettlement of migrants in different periods and regions. In studies on sustainable livelihoods, researchers have focused on the study of the holistic framework of sustainable livelihoods, but limited micro-studies have investigated the impact of social capital on sustainable livelihoods from the standpoint of social capital. In this study, we examined three hydropower stations in G Prefecture, Sichuan Province, China, to i) analyze the changes in social capital due to the relocation and resettlement of reservoir migrants, ii) to explore the internal logical relationship between the social capital owned by migrants, and iii) sustainable livelihood aligned with understanding the influence of social capital on the relocation and resettlement of reservoir migrants.

2 Analytical framework

Human capital, financial capital, social capital, material capital, and natural capital are the key components of the sustainable livelihood framework (Baumgartner et al., 2004). Social capital has drawn widespread attention from society as a significant entrance point for sustainable development research, particularly in rural development (Wu and Liu, 2020). Social capital, as opposed to physical and human capital, includes social organizational features such as trust, norms, and networks, which can improve social efficiency by fostering cooperation and action (Zhang, 2003). Social capital enhances the returns on investment in both physical and human capital due to collective behavior and long-term choice. As the study deepened, researchers reached a consensus on the core elements of social capital, which mainly include social networks, social norms, and social trust (Michelini, 2013; Saptutyningasih et al., 2020), and individuals or families can use social capital stocks to improve their lives or pursue common goals. To that purpose, we developed an analytical framework based on the characteristics of social networks, social norms, and social trust to understand the link between social capital and sustainable livelihood potential (Figure 1).



Social networks, as the cornerstone of social capital, are one of the most important variables influencing human cognition and behavior. They are separated into formal and informal networks (Bian et al., 2018). Several pieces of research have been performed on social capital, which indicates that the representative views mainly believe the manifestation of social capital is the social relationship network (Lu et al., 2018). Social capital is the connection between agents and society that can absorb scarce resources through social connection (He et al., 2017; He et al., 2019). Social capital is the sum of resources or capacities mobilized through social networks to achieve instrumental or emotional ends (Lei et al., 2022). Through information shared among friends and acquaintances, social networks can minimize information asymmetry and boost employment prospects, share livelihood risks, and achieve SDGs (Zhang et al., 2017). Based on the existing theoretical and empirical research results in the academic circle, the research theme of the social capital stock is owned by reservoir migrants and sustainable livelihood (Yang and Zhao, 2009; Xu and Shen, 2018). The social capital or resources that individual actors can mobilize to achieve instrumental or emotional purposes in the social relationship network as well as in the social public environment which could be conducive to their social behaviors in the region.

In the realm of social science, social norms can be aptly conceptualized as implicit social contracts that govern the behavior of individuals or groups within a shared network of social ties (Tiwarei et al., 2019). Moral norms (e.g., customs, ethics) and contractual norms (e.g., organizational regulations), administrative norms (e.g., laws) are examples of social norms. Considerably, the scale of the relationship network can be used effectively for the stock of various capitals owned by each member of the network, which can reflect the social network, reciprocity norms and the resulting trust. In scholarly discourse, social trust emerges as a pivotal manifestation of social capital, as posited by Bouma et al. (2008). This trust, woven into the fabric of human interactions, enables individuals to surmount social challenges and collaboratively pursue outcomes that benefit the collective. MacGillivray (2018) underscores its role in fostering cooperative endeavors, where shared trust lubricates the wheels of joint action. Moreover, social trust exerts a profound influence on individual risk perception and subsequent adaptive behavior, as expounded by Gong et al. (2018). Interpersonal trust and institutional trust are

two types of social trust (Baek and Jung, 2015). Rural China is a classic acquaintance society, with a high level of trust between families. Trust-based social ties can help to prevent dishonesty and free-riding concerns (Smith and Mayer, 2018). In summary, social capital largely responds to and sustains sustainable lives through these three features (Valenzuela et al., 2020).

3 Materials and methods

3.1 Study area

G Autonomous Prefecture, located in the western part of Sichuan Province, with a total area of 153,000 km², is situated in the transition zone from China's highest terrace to the second terrace of the Yunnan-Guizhou Plateau and the Sichuan Basin. G is a multi-ethnic settlement region dominated by the Xizang people, who constitute 55.8% of the total population. Over time, the region has evolved means of subsistence based primarily on traditional agriculture and livestock raising. Droughts have intensified, snowstorms have increased, and grasslands have been degraded in recent years as a result of rising global mean temperature and human activity, all of which have increased the dangers to the livelihoods of farmers who have long relied on natural resources. G is rich in hydropower resources, with total water resources amounting to 139.8 billion cubic meters (BCM), of which 88.2 BCM are available for use. The arable land resources affected by the inundation of the L, Y, and Lu hydropower stations are mainly located at the bottom of the canyon and the river valley (Figure 2). Moreover, soil fertility of the arable land is relatively high, and it is also the most abundant arable land resources involved in the area of land requisition for the construction of the hydropower plants. L hydropower station is located in G Prefecture in the territory of the Yalong River main stream, for China's large hydropower energy base in the middle reaches of the Yalong River main stream of the controlling reservoir power station project. The construction of the requisition mainly involves all kinds of land 187,100 acres, the relocation of resettlement of the population of 7,200 people. The Lu hydropower station is located in the middle reaches of the main stream of the D River in the town of L County, G Prefecture, and involves the resettlement of 3,500 people. The Y

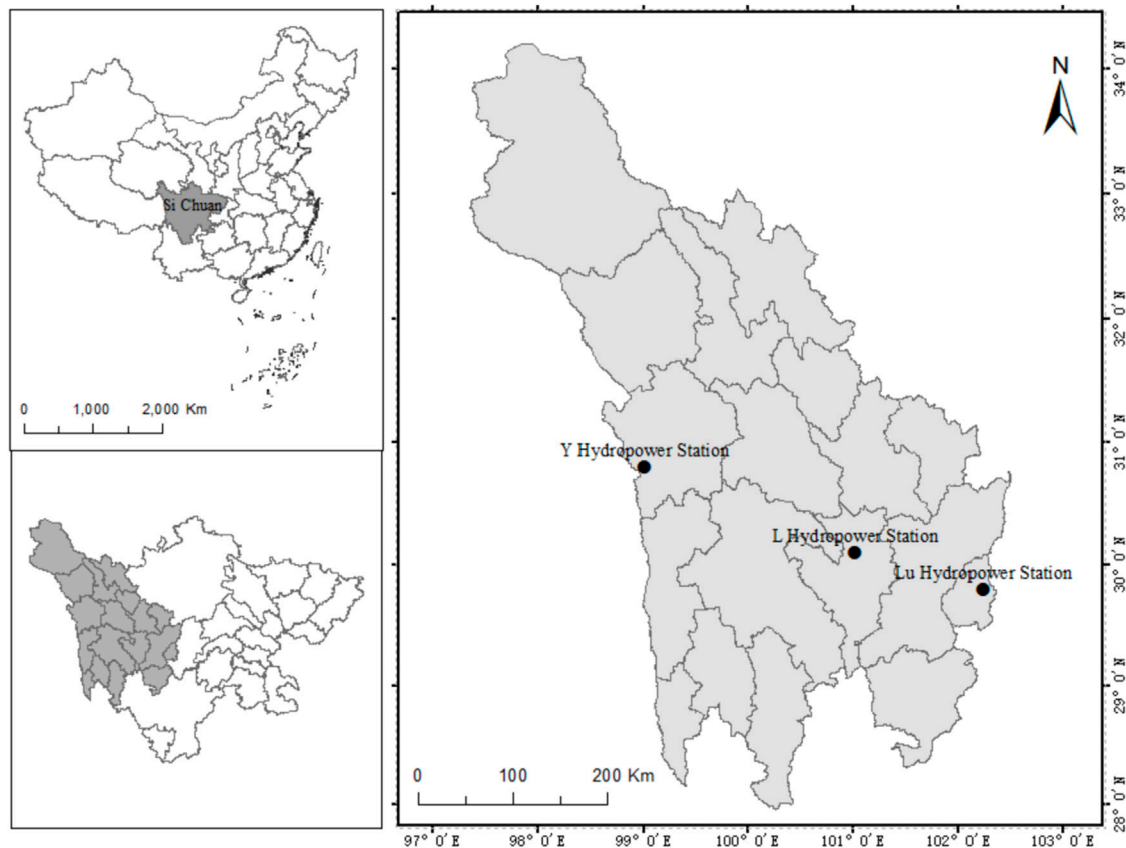


FIGURE 2
Study map of G Autonomous Prefecture, Sichuan Province, China.

hydropower station located in the upper reaches of the main stream of the J River, involved the resettlement of 72 people.

In this study, the hydropower station in G is chosen as the investigation site to understand the relationship between social capital and sustainable livelihoods. The reason for being selected is that G Prefecture is an area where ethnic minorities mainly gather and live, and the social system of reservoir migrants has characteristics that are different from those of other resettlement areas, and the relationship between social capital and sustainable livelihoods of migrants after relocation is representative.

3.2 Methodology adopted

This study focuses on qualitative research methodology to analyze in detail the relationship between social capital and sustainable livelihoods of reservoir migrants by selecting three hydropower stations in G Autonomous Prefecture as case studies. Case study research as a methodology is increasingly being used to study complex problems because it functions beyond data collection and mechanism analysis (Dinour et al., 2017). Case studies are used to address “how” and “why” research questions (Yin, 2018). They can be used to meet the descriptive and explanatory goals of research and can deal with a variety of evidence, such as documents, interviews, observations, and archival data. In summary, the case study research methodology was chosen in anticipation of

discovering “how” and “why” social capital can be a tool for sustainable livelihoods for migrants, to highlight the voices of resettlers.

The three selected cases cover resettlement areas in different locations in the east, center and west of G Autonomous Prefecture. They are Lu Hydropower Station induced resettlement; L Hydropower Station induced resettlement; and Y Hydropower Station induced resettlement. In 2022, a field survey was conducted in the three Hydropower Station resettlement of the G Autonomous Prefecture. The authors interviewed a total of 50 reservoir migrants, and participated in the daily lives of some of the reservoir migrants, collaborating with them in cooking and cleaning, in order to understand the reasons underlying these observations and to engage directly in a better understanding of the livelihoods of the reservoir migrants after their relocation.

4 Results of the case study

As involuntary migrants in the process of forced population migration, the migrants have to face many challenges due to changes in lifestyle and the reconstruction of social relations networks (Lu et al., 2018). The social capital of migrants affects their adaptability in the process of social change, which restructures the economic system and social system conversely affects the stock of migrants’ social capital (Du and Li, 2018).

4.1 Traditional social capital

Homogeneous social capital consists of blood and geographical relations as the core, and their acquaintances as the main body, which integrates people with common family, neighbors, and religious relations into a close community. This type of social capital reflects traditional characteristics.

4.1.1 Kinship

Natural dependent kinship reflects a strong blood relationship. In a stable society, geography gives a projection of blood relatives (Tang and Chen, 2012; Yin, 2018). The resettlement work procedure of reservoir migrants from the selection of the methods solicits the migrant's will for mutual help in the relocation process. The recovery and development of production in life at the resettlement place mainly depends on the existing kinship bond, i.e., "strong relationship". The consanguinity network has always been the most important social capital of migrants. The migration planning, design and relocation of three hydropower stations in G Prefecture show that migrants strive to maintain the integrity of the consanguinity network which does not depend on the kind of resettlement method they choose.

"When we build a new house after relocation, we look for relatives who have free time to help us build it together. This is mutual help and it is volunteer work, and we also go along to help when they need help in building their homes. They are also happy to lend us money if we don't have enough money to build our house." (Interview record: 202205G)

According to the survey, migrants generally have the behavior of over-scale and over-standard housing construction. When the housing compensation cannot be met, the most frequent money-borrowing relationship occurs in the immediate family, followed by the temple. Noticeably, no migrant families obtain financial credit from banks or credit unions. Due to the characteristics of strong cohesion and high degree of social integration of traditional homogenous social capital such as blood and geography, kinship provides social resources and opportunities for migrants in a certain social structure after resettlement (such as picking wild resources such as cordyceps and sinensis in a fixed area). Resettlement plays a social security and social support function that is incomparable to physical and human capital (Yue et al., 2011). The continuous dynamic process of migrant resettlement through the preservation and emphasis of kinship in the social structure of Xizang areas has realized the flow and distribution of resources in the social relationship network to a certain extent.

4.1.2 Neighborhood relations

Neighborhood relationship is not only the coexistence of each other in spatial position but also signify social connection, neighborhood relationship, which can be regarded as an external extension of family relationship in a sense (Zhang, 2022). There is no doubt that the relocation of migrants will have a significant impact on the neighborhood relationship, showing a double change, i.e., harmony and contradiction coexist (Liu, 2015). In the planning and design stage of resettlement, the investigation content and method of physical indicators will derive the connection of resettlement compensation standards of upstream and downstream cascade hydropower stations.

The selection of resettlement methods and information transmission or sharing depends on the investigation of hydropower station construction areas in X county and L county. It is found that in terms of economic interests, the problem of "not suffering from shortage but suffering from inequality" exists but is not effective. For example, migrants generally have no objection to the standard and amount of subsidies defined as poor households for the issuance of housing difficulties.

"Although the neighbors have changed, the new neighbors are also from our original village, we knew each other before and communicate well, so we can call each other when we need help. We also inform each other if there are job opportunities or job training." (Interview record: 202205D)

On the whole, the spatial location relationship of migrants' neighborhoods will break down, whether it is distributed or centralized resettlement. However, the improvement of harmony, with increment in social capital between neighbors has become the main aspect of distributed resettlement relative to retaining neighborhood during the overall relocation of villages under centralized resettlement neighborhood. According to the interviews with migrants, the main reason revealed relies on the simple feelings of living in harmony and helping each other, which is more inspired by relocation and resettlement away from their native land, as well as the bond of religious belief (Wu et al., 2017).

4.1.3 Relationship between religious organizations

G Autonomous Prefecture is a multi-ethnic and multi-cultural area with Xizang as the main ethnic group and Xizang culture as the main culture following the Buddhist religion. Working as a migrant in the hydropower station in G Prefecture, one can deeply understand that the teachings of Xizang Buddhism run through all aspects of Xizang people's thoughts, life, customs and ethics. The social influence of religion plays an important role in the various stages of the design and implementation of resettlement planning (Zhang and Xu, 2019). The relocation of migrants has little influence on religious relations in the construction area of the hydropower station. On the contrary, the whole resettlement work should give great importance to the influence of religious organizations with temples as the carrier on the planning and implementation of resettlement. Through the investigation of three hydropower stations in G Autonomous Prefecture, it is known that there are many sects of Xizang Buddhism involved in the hydropower station construction area, and almost every village believes in different sects. All believers are loyal to their sects and have a high degree of piety that forms a very close relationship with the temples and lamas. The spiritual support and offering the relationship of religious belief cannot be broken because of relocation and resettlement. On the contrary, when it comes to temple relocation or resettlement, the two must be closely linked. Once this kind of support relationship is broken, it is not only detrimental to the smooth development of migration work but also has a more important impact on the spiritual blow of believers (Lin, 2019).

4.2 Modern social capital

Social capital is a multi-perspective concept and has many manifestations that divide into governmental social capital, which

represents the various governmental institutions that affect people's ability to cooperate for mutual benefit and civil society capital. It includes institutional factors such as shared values, norms, informal networks, and community membership that affect individuals' ability to cooperate for common goals.

4.2.1 Governmental institutions

As an important way of social control, grassroots government organizations in G Prefecture play an important role in maintaining social order and ensuring social operation. The social environment of G Autonomous Prefecture has strong ethnic and religious color with remarkable characteristics. The grass-roots political power organizations show their uniqueness under the working operation system, i.e., traditional religious organizations; Xizang social and historical traditions affecting the operation of grass-roots political power organizations. On the one hand, a series of national and industrial policies and norms related to migration needs to be framed in connection with the local policies of G Autonomous Prefecture in actual work. On the other hand, in specific matters in the planning, design and implementation stage of migration resettlement, under the premise of maintaining social stability, economic and social development in the reservoir area and resettlement area, local organizations should reasonably discuss the planning with civilians. Grassroots organizations also seek more reasonable suggestions from religious organizations on issues related to the relocation and construction of religious facilities and temples and give full play to the positive guiding force of temple groups (He, 2015; He, 2017; Ai, 2018). During the field investigation, it was observed that the influence of religious belief has penetrated every level of social institutions, major festivals, weddings, funerals and other daily life, temple monks play a vital role, playing a key role.

“Before relocation, the government part came to ask about our needs, took into account our living habits and unique minority culture, improved the infrastructure around the resettlement area, such as schools and roads. Later, we are often provided with skills training to improve our abilities and enable us to be better employed.” (Interview record: 202205C)

Through interviews with migrants, it is learned that local governments provide affordable policy support for migrants in the planning, design and implementation of resettlement. The government has made active efforts to provide tangible and intangible social public services such as the restoration, and improvement of living standards of migrants, the preventive measures to overcome secondary poverty, the reconstruction and improvement of roads and Bridges, water, electricity, communication infrastructure, and the construction of social security systems. For both individual and centralized resettled migrants, the policies and assistance organized by grassroots governments have benefited migrants, significantly. Government organizations have truly played a leading and dominant role, which won the trust of migrants. Therefore, when migrants encounter difficulties in the process of resettlement and their daily life after resettlement, relevant government departments have become the inevitable targets for help, reflecting the characteristics of the social capital of the organization network. This has been significantly different from the pattern of migrants seeking help in the primary social relations network before relocation.

4.2.2 Civil society organizations

No matter before and after relocation, the survey found that there was a serious lack of various intermediary organizations in the three hydropower stations, i.e., construction, land requisition areas, and lack of local public organizations spontaneously formed by migrants based on public welfare or industrial interests (Jin and He, 2008). The development level of social organizations was low, and it was difficult for social capital to integrate regional social trust through social organizations (Huang, 2007; Jin et al., 2012).

5 Discussion

G Autonomous Prefecture residents inevitably show social phenomena and social problems that are different from other regions in the course of social operation due to the complexity of the social system (Zhang and Sun, 2019). This section covers the discussion over the following inevitable areas of research findings.

5.1 Social relationship network in G Prefecture

The social relationship network of the reservoir migrants showed an obvious weak correlation, which could be due to the differences in the selection of resettlement methods by individuals or families. Our findings are consistent with recent research that resettlement, whether centralized resettlement or dispersed resettlement, resettlement will always weaken or even collapse the connection degree of migrants' existing social relationship networks (Egze et al., 2023), adversely affecting their livelihoods. But they still maintain their circle of acquaintances and sustain their social relationship networks (Tang et al., 2023). For example, it is difficult to form a stable social relationship network between migrants and resettlement residents in a short period of time due to the differences in Xizang Buddhist beliefs and sects, which has been fully verified in the process of resettlement and resettlement of migrants in three hydropower stations in G Prefecture. Considering the existing social reality, the design of resettlement planning should be improvised to provide good facilities to the resettling beneficiaries. Moreover, the social relationship network is the most direct carrier of social capital, which directly influences the survival of individual social capital of reservoir migrants. Despite different reservoir migrant's resettlement, social capital weakens and disperses the social relationship network structure due to a lack of civil public organizations. Unstable social capital creates difficulty for reservoir migrants to obtain external resources and support through social relationship networks. Meanwhile, individual migrants separated from the modern social relationship network have limited ability to life-threatening resist risks, which is one of the foremost reasons for migrants fall into poverty after relocation (Ji, 2016). In such a situation, those migrants could not contribute to industry organizations. To deal with this problem, monastery organizations work in close association with the reservoir migrants through the way of religious and cultural inheritance, which bear the functions of religious inheritance, economic functions and knowledge education. Based on the historical development of monastic organizations, as well as the cultural bond function of Xizang Buddhism in connecting Xizang believers and monasteries in the long history, monastic organizations show the characteristics of traditional social capital, it is ascertained that monasteries play an

important role in the process of migration work together with grass-roots government organizations.

5.2 Scale of social capital in sustainable livelihood

The low social capital stock suggests that the livelihood recovery of resettled farmers has been affected (Tilt and Gerkey, 2016), but traditional social capital based on blood and geographical relations plays an important role, in industrial development and improvement of living standards after relocation. Traditional social capital can be recognized as an effective way to promote sustainable livelihoods, such as cooperation, collective action (Karunarathne and Lee, 2019). This strong homogeneity of social capital determines that the migrants facing difficulties after relocation are generally relatives, neighbors, families, friends, temple disciples, and local government employees (Wu and Xia, 2012). It shows that migrants are still more accustomed to seeking solutions to problems in the low-level human network. Although, the breakdown of the social relationship network and the overall weakening of social support function are inevitable, but the relationship between religious organizations, believers and temples, and the Xizang religious belief are the major factors that maintain this “strong relationship” structure. This study suggests that enhancing livelihood diversification through improved access will certainly improve the availability of livelihood assets which will be vital in reducing rural poverty in developing countries.

5.3 Function of modern social capital

In the planning, design and implementation stage of resettlement, complicated affairs, especially related to the sustainable development of livelihood after resettlement can no longer meet the actual needs of migrants by relying solely on the relatively closed primary social capital with small functional extension. However, support from formal networks, such as governmental organizations or other organizations, is the main source of enhanced social capital for migrants after relocation (Bian et al., 2018). Considering the power of social resources and relationships, the individuals’ ability to use their “weak ties” affects their ability to communicate with high-status individuals. As individuals increase their work experience, they rely more on structural rather than pre-established relationships. Grass-roots government organizations provide rich resources to migrants with “strong ties”. Besides, monastic organizations and monastic groups play an indispensable role for believers in the religious world and social life. Therefore, under the dual role of grassroots government organizations and religious organizations, the sustainable livelihood of migrants after relocation, social stability and economic development of the reservoir area and resettlement area will present a harmonious situation (Karunarathne and Lee, 2019; Hu and Wen, 2021).

6 Concluding remarks and ways forward

This study explores two key research questions, firstly how has the social capital of reservoir migrants changed after

relocation; and secondly, how does the social capital of reservoir migrants play a role in their sustainable livelihoods? Our research found that the traditional social capital based on consanguinity and geography is supported by material assistance and spiritual comfort. Although the stock of traditional social capital of reservoir migrants, dominated by family, neighborhood and religious networks, has declined and its supportive function has weakened, it still plays a dominant role in livelihood restoration. Whereas modern social capital has a huge development space and the integration function of social capital for changing the weak predicament of other capitals. These findings and future perspectives will be useful in understanding the expansion of social relations network resources of reservoir migrants to form a stable, mature and long-term livelihood strategy which will further help to achieve the target of SDGs. Further recommendations are as follows:

- (1) The customs and lifestyles of ethnic minorities need to be respected in the planning and implementation of resettlement in order to preserve the role played by their traditional social capital.
- (2) The sustainable livelihood of migrant relocation needs to take social capital as the core perspective to improve the fragile external physical and geographical environment by reforming the inappropriate organizational structure and procedures.
- (3) It is necessary to improve the comprehensive literacy of migrants by providing knowledge to develop skills and abilities.
- (4) Although this study contributes to a deeper understanding of the relationship between social capital and sustainable livelihoods, but still has some shortcomings that require further exploration.

Author contributions

HZ: Writing—original draft, Formal Analysis, Methodology. ZC: Writing—review and editing, Resources. KZ: Writing—review and editing, Investigation. YJ: Writing—review and editing.

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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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