

A Study on the Dynamic Mechanism of Community Participation in the Construction of Giant Panda National Park - Taking Longxi Hongkou National Nature Reserve in Dujiangyan Irrigation Project City as an Example

Xinxin Jia^{*}, Jiao Wei^a, Junjie Yu^b, Cheng Chen^c, Jiatong Wang^d

Sichuan Agricultural University, Chengdu 610000, China

^{*} Corresponding Author e-mail: 3544195825@qq.com, ^apingguojiaer@189.cn, ^b2446870079@qq.com, ^c1351231910@qq.com, ^d767223875@qq.com

Abstract. The report of the 20th National Congress of the Communist Party of China clearly proposes to "promote the construction of a natural reserve system with national parks as the main body". Community participation is an important way to achieve ecological protection and coordinated development of national parks, and it is essential to study how to mobilize the enthusiasm of community residents to participate in the construction of national parks. Therefore, this article conducted in-depth investigations in Longxi Hongkou Nature Reserve through methods such as interviews and questionnaires. Based on the research results and using push-pull theory for analysis, a driving framework for residents to participate in the construction of the Giant Panda National Park was constructed. Through analysis, it was found that: (1) the driving force is divided into external and internal driving forces; (2) Through the analysis of push pull theory, it is found that the driving forces for residents' participation include interests, systems, and identification; (3) Only by establishing a complete system, improving participation channels, and meeting the interests and needs of residents can we promote their participation in the construction of the Giant Panda National Park, thereby achieving sustainable development.

Keywords: Giant Panda National Park, Dynamic mechanism, Community participation.

1. Introduction

The Giant Panda National Park is a pilot national park system aimed at protecting the stable reproduction of giant pandas and promoting harmonious coexistence between humans and nature. It is currently the highest known species protection system for humanity. Foreign scholars such as Ni Jianwei (2020) [1] also believe that the construction of the experimental zone for the giant panda national park system has achieved good results in improving the management system, promoting ecological protection, strengthening natural resource management, promoting community participation, and popularizing education. Community participation, as an important force in the construction of the Giant Panda National Park, currently faces problems such as insufficient willingness to participate, limited number of participants, and low level of participation. Therefore, how to solve the contradiction between ecological protection and economic development, promote sustainable development of the Giant Panda Park community, promote rural revitalization, and achieve harmonious coexistence between community development and giant panda habitat protection is an important scientific issue that urgently needs to be solved, it is also an urgent practical issue.

Gao Yan et al. (2017) [2], Wang Yuqin (2018) [3], and Sun Jiqiong et al. (2021) [4] believe that national parks currently face problems such as excessive scope, difficult management, insufficient cross regional coordination, and difficulty in funding investment. At the same time, there are also common phenomena such as diverse types of natural reserves, departmental fragmentation, multi management, unclear public management responsibilities, and unclear property rights of land and other resources. The concept of "community participation" originated in Western countries in the 1950s, and due to differences in research objects and levels, there are multiple definitions of community participation in the academic community. For example, Xu Lin et al. (2016) [5] and Tian.

Shu (2018) [6], as well as Pan Zequan and Ouyang Xiaojuan (2022) [7], respectively, classify community participation into multiple different types based on the participation ability and willingness of residents at the micro level, the organizational form of community residents' participation, and the degree of initiative and behavior organization of community participants. Shen Jinyu et al. (2021) [8] believe that the establishment of China's Giant Panda National Park inevitably affects the livelihoods of residents living in the surrounding areas of nature reserves. Zhou Rui et al. (2017) [9] also pointed out that the livelihood of residents in the surrounding communities of national parks relies on natural resources to some extent, which conflicts with the protection goals of national parks. Therefore, based on this conflict, we believe that community participation will have a significant positive or negative effect in the construction of the Giant Panda National Park. Roddan (2019) [10] believes that community participation mechanisms are an important component of the national park management system, as well as an important measure to balance the interests of all parties and achieve the public welfare of national parks. From this, it can be concluded that guiding community participation in national park construction is an important factor for achieving good national park construction. Therefore, based on the problems in the construction of the giant panda national park mentioned above and the importance of community participation, this article will explore solutions to the existing problems and propose reasonable suggestions.

2. General Situation

2.1. Regional Distribution

Longxi Hongkou National Nature Reserve is located in the north of Dujiangyan Irrigation Project City, bordering Wenchuan County of Aba Tibetan Autonomous Prefecture in the northwest, Pengzhou City in the east, and Longchi Town of Dujiangyan Irrigation Project City in the south. It is located in the middle of the narrow strip arc of modern natural distribution area of giant pandas. It is an important habitat for the B population of giant pandas in the Minshan Mountains, which directly connects the two wild populations of giant pandas in the Minshan Mountains and Qionglai Mountains, it is a key area and "natural corridor" for the survival and reproduction of giant pandas. The protected area was established in 1988, only 60 kilometers away from Chengdu City; The total area is 310 square kilometers.

2.2. Community and Residents

The communities around the nature reserve include Longchi Town and Hongkou Township of Dujiangyan Irrigation Project City, with a total of 7 natural villages, involving many communities such as Feihong, Hongkou, Plateau, Red, Shenxi, Nanyue and Guangrong. The residents of towns and villages around the protected area mostly rely on tourism, planting, and going out to work for a living. The majority of elderly residents with over 50 community residents have a low level of education and are mainly engaged in farming at home. Due to the hot summer in the Sichuan Basin, many tourists from the center of Chengdu come to the nature reserve for recreation, and then stay in homestays and enjoy farming. But except for summer, other times are off-season, and almost no one comes to the community for consumption. Due to the fact that only summer has an objective source of income, most young people choose to work outside, resulting in a weaker overall labor force in the community.

Table 1. Interview situation

Interviewees	participants	participation content	participation questions	participation expectations
Feihong Community	Grassroots government organizations Community neighborhood committee Individual residents	Preaching policies Patrol forest area	Incomplete system Fuzzy land ownership Insufficient economic compensation	Increase economic income Providing employment opportunities Allow the logging of <i>Magnolia officinalis</i>
Shenxi Community	Grassroots government organizations Community neighborhood committee Individual residents	Preaching policies Patrol forest area	Incomplete system Fuzzy land ownership Insufficient economic compensation	Increase economic income Increase economic compensation Allow economic forest logging

3. Current situation of the research area

3.1. Low participation of residents and insufficient internal and external driving forces

During the on-site visit, it was learned that most residents only have a slight understanding of the construction of the Giant Panda National Park and are not clear about the specific purpose and scope of the park. However, local residents also expressed willingness to contribute their personal efforts to the construction of the Giant Panda National Park if given the opportunity. The existence of the aforementioned information gap problem to some extent affects the participation of local residents in the construction of the Giant Panda National Park, resulting in a lack of enthusiasm for participation among local residents.

3.2. There is a shortage of participation channels and the form is too single

After conducting on-site investigations of residents in Feihong Community, Plateau Community, and Shenxi Community, it was found that there are no specific channels for local residents to participate in the construction of the Giant Panda National Park. At the same time, some residents have reported that residents in the community usually passively receive arrangements to listen to the promotion and training of the education base, and do not understand the significance of receiving education and training and how to apply them to the construction of the Giant Panda National Park. Therefore, it is very important to broaden participation channels, enhance community residents' sense of ownership, and encourage active community participation in the construction of the Giant Panda National Park.

3.3. Ambiguous land ownership leads to forest land disputes

The forest land disputes in the Longxi Hongkou Nature Reserve are mainly caused by unclear, incomplete, and unreasonable land boundary division, resulting in disputes over mountain forest property rights and usage issues. The residents of Feihong Community, Plateau Community, and Shenxi Community in the protected area mainly use their original forest land for large-scale planting of slow growing and high return on investment Houpu. However, the establishment of the protected area forcibly removes the original land of local residents, which will inevitably affect their living standards and the economic development of the community. At the same time, this impact is to some extent long-term for local residents.

Currently, for land with forest land rights disputes, if only forestry bureau managers, protected area managers, and villagers conduct face-to-face mediation and coordination, it will incur a high administrative cost. If only through coordination between the government and farmers, without relevant preferential policies and compensation facilities, it is not conducive to the effective resolution of conflicts and disputes.

3.4. Unclear management rights and responsibilities

During the on-site investigation of this project, it was learned that the National Park Management Bureau of China has not issued a clear allocation of management rights and responsibilities in the construction of the Giant Panda National Park, resulting in unclear community management rights and responsibilities and the lack of a top-down effective management and operation mechanism. Moreover, there are multiple management processes in the management of national parks and regulatory agencies, with each other shifting blame when encountering difficulties. Farmers do not know who to turn to and what to do when encountering problems.

3.5. Lack of institutional constraints, multiple details unclear

The establishment of the Giant Panda National Park system is an important measure to build a national park that promotes harmonious coexistence and modernization between humans and nature. Unlike traditional protected areas, national parks aim to protect the protected areas and their indigenous peoples as a whole ecosystem.

Among the surveyed communities, only a small portion of the villagers have a good understanding of the construction of the Giant Panda National Park. The majority of the villagers have only heard of the Giant Panda National Park and are not clear about the specific purpose and scope of the park's construction. Additionally, the communities within the protected area do not have specific standardized management documents, and their understanding of the national park is mainly through village officials Publicity by the management department of the protected area, forestry workstations, or the government.

3.6. There is a conflict of interest and there is no solution yet

The main conflict between the Giant Panda National Park and community residents is the conflict of resource acquisition interests or the use of economic forests (*Magnolia officinalis*). The amount of *Magnolia officinalis* felled by community residents cannot exceed the allowed amount, otherwise it will be reported by the local national park management agency and face punishment. But how to compensate residents for the benefits of *Magnolia officinalis* Forest, which initially belonged to the local indigenous people and sought profits, and how to handle it? There is still no explanation to this day.

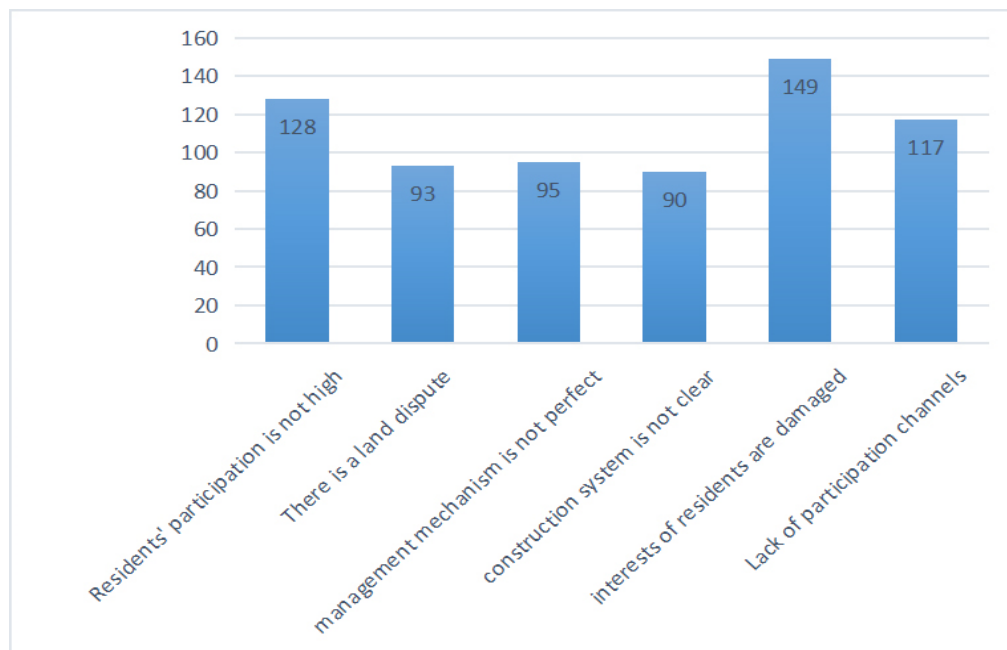


Table 2. Questionnaire survey results

4. Building a dynamic framework

Due to the lack of environmental awareness among Chinese citizens and their weak awareness of participating in giant panda national parks, this study will analyze the thrust, pull, and obstacles of residents' participation in giant panda national parks from the perspective of push pull theory, and construct a dynamic mechanism framework for residents' participation in giant panda national parks. The Push and Pull Theory was proposed by E. G. Ravenstein in the late 19th century in his research on population migration. Its main viewpoint is that population migration is the result of the interaction of forces from two different directions. After being proposed, this theory has been widely applied in many fields. The push comes from the inner motivation to encourage residents to voluntarily participate in the construction of the Giant Panda National Park, while the pull comes from the external environment inducing residents to participate in the construction of the Giant Panda National Park.

Based on the push-pull theory and comprehensive analysis of research results, it is found that the current income of residents is generally low, employment difficulties are difficult, and the compensation system is not perfect, which leads to the inability of residents to obtain good compensation. Moreover, residents hope to obtain spiritual communication while meeting their material needs. Therefore, residents have a strong motivation to solve the above problems through the construction of national parks. At the same time, the country's resources are tilted, calling on the people to participate in the construction of national parks, and providing bonuses, honors, and titles to meet the material and spiritual interests of residents, promoting their participation in the construction of national parks. However, there are still many obstacles in the construction of national parks that prevent them from being pushed or pulled up. Based on the above analysis, we have constructed a push-pull theoretical model diagram.

The "push" is the internal driving force for residents to participate in the construction of the Giant Panda National Park, mainly including the demand for compensation, the demand for a better life, and the demand for social interaction; The "pulling force" is the external driving force for residents to participate in the construction of the Giant Panda National Park, mainly including continuous investment in national resources, benefits that residents can obtain from it, and recognition of the country and community. The main obstacles faced by residents in participating in the Giant Panda National Park include incomplete institutional construction, unclear management rights and responsibilities, and low cultural literacy of residents.

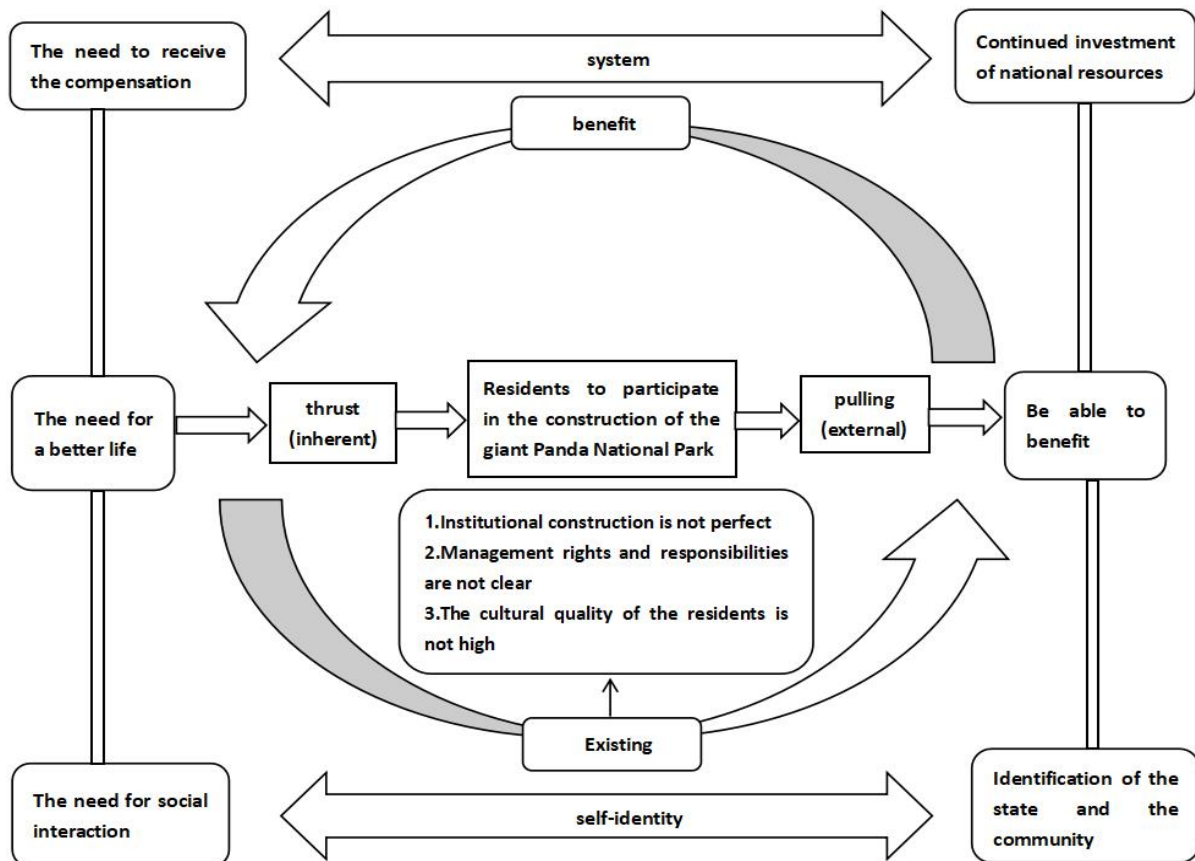


Figure 1. A Push-Pull Theory Analysis Framework for Influencing Residents' Participation in the Construction of Giant Panda Parks

Simply put, the motivation mechanism is the source of motivation, which is the root of development motivation. It mainly includes the following three parts: government promotion, interest driven, and social psychological activities. This article constructs a dynamic framework diagram based on the push-pull model and dynamic mechanism theory of the giant panda national park mentioned above.

4.1. The main body of the driving mechanism

The main body of power can be distinguished through internal and external factors. The external main body of power is grassroots organizations such as the state and government, while the internal main body of power is residents.

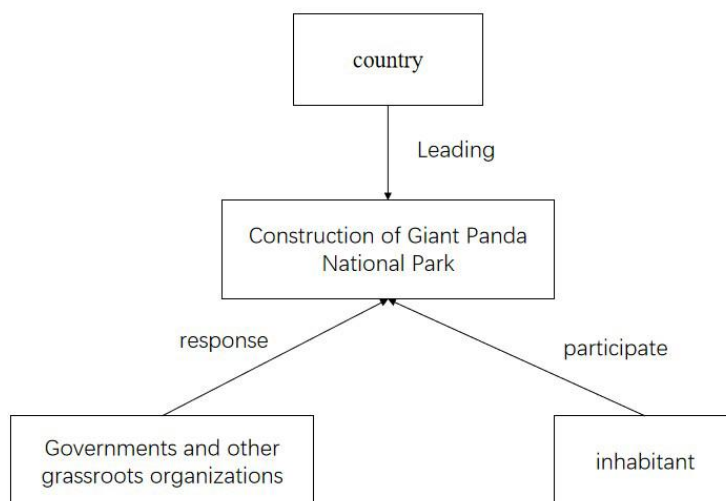


Figure 2. Power main body

4.2. Benefits-Source of Power

Based on the basic assumption of "rational humans" in economics, human behavior is governed by their needs and motivations, which are essentially the pursuit of interests. Interest driven is the source of human motivation. Therefore, interests are an important incentive for residents to participate in the construction of the Giant Panda National Park. Only by allocating residents' interests reasonably can they feel the significance and value of participating in the construction.

Interests can be specifically divided into material interests and spiritual interests. Material interests refer to the material means of life that people produce, create, and satisfy in their social practice activities to maintain their own survival. Spiritual interests refer to the total amount of self-awareness, conscious pursuit, self-satisfaction, self-realization, and related social environment and conditions that a person has towards their spiritual needs in a certain social life and relationships.

Table 3. Goals and expectations of relevant stakeholders

Core stakeholders	Core Interest Objectives	expectation
government	Obtain economic and social benefits	Increase government revenues Enhance the image of the region
Community residents	Improve quality of life Meet psychological needs	Increase income levels Increase jobs Meet social needs
country	Protecting the diversity and integrity of natural ecosystems Establishment of a national park system Building a beautiful China	Increase jobs Improving the well-being of the people Protect ecosystem integrity

In the investigation and research, it was found that residents' attention to interests during the participation process mainly lies in the direct and indirect impact of the implementation of the giant panda national park construction plan on residents' lifestyle, social relationships, family economy, etc. Therefore, the driving force of residents' participation mainly includes their internal demand for a better life and the material benefits obtained externally. Specifically, it includes direct or indirect economic benefits such as the rational allocation of resources, improvement of the environment, enrichment of cultural activities, and improvement of the living environment in rural or urban areas where residents reside, that is, the actual benefits gained by residents in the process of participation.

4.3. Institution-Motivation Preconditions

The system is the foundation of the participation mechanism in the construction of the Giant Panda National Park. Only by establishing a sound institutional mechanism can the enthusiasm of residents for this participation behavior be effectively mobilized. In terms of system, relevant government policies and measures, support and guarantees from local governments, and the formulation and implementation of laws and regulations will all have an impact on residents' participation. Whether it is the national central policy or the regional policy system of local governments, the more perfect the system, the more beneficial it is for local residents, and the higher the incentive level for residents to participate in the Giant Panda National Park, and vice versa.

This article believes that the continuous investment of national resources has played a positive external driving role in residents' participation, such as implementing the principles of "people-oriented" and "ecological priority", establishing residents' participation mechanisms, etc., which has improved the enthusiasm and initiative of residents' participation. The support and guarantee from local governments have also promoted the long-term stability of residents' participation in the

construction of the Giant Panda National Park. Although the inherent demand for compensation among residents drives their participation in the construction of the Giant Panda National Park, there are also institutional bottlenecks such as policy rationality disputes and inadequate supervision in practice, which affect residents' enthusiasm for participating in the construction of the national park.

4.4. Identity - Fundamentals of Motivation

In the early 1950s, the famous American psychoanalyst Ericsson put forward the "cultural identity theory", which means that members basically identify with the common things formed in their own nation. The identity system derived from this cultural identity leads to group dependence. In this study, identification is the core driving mechanism for residents to participate in the construction of the Giant Panda National Park. Only when the participating entities (residents) recognize the importance of national park construction in their minds can they actively participate in it and take on the responsibility of protecting the Giant Panda National Park.

The identification motivation mechanism mainly refers to the self-identity of community residents, their identification with the community, and their identification with the national government. Residents' self-identity mainly includes two aspects: one is their identification with their community residents' roles, and the other is their identification with their ability to participate in community affairs. The higher the degree of recognition of residents' roles in their own community, the more they can take a dominant position in community group decision-making, the stronger their sense of ownership, the more they support and participate in relevant decisions made by the community. Secondly, community residents have a higher sense of identification with their ability to participate in community affairs. The higher their sense of identification, the more confident they are in participating in most events in community affairs, and the higher their enthusiasm, the stronger their motivation. Residents' identification with the community is reflected in their attitude and participation in community affairs. The higher the residents' sense of identification with the community, the stronger their love and attachment to the community, the more positive their attitude towards community affairs, and their participation also increases. Conversely, it decreases. The identification of community residents with the country is more reflected in the corresponding degree of policies and systems introduced by the central government. The higher the sense of identity of community residents towards the country, the more positive their response attitude towards the policies introduced by the country, and the more willing they are to implement the policies and systems introduced by the country. Conversely, it decreases.

In terms of identity, residents' identification, trust in policies and measures, as well as the concepts and values advocated by residents, establish a cooperative relationship between residents and the government, generate a high degree of identification with the country and community, and further improve their awareness of ecological civilization and cultural quality to drive their participation in the construction of the Giant Panda National Park. At the same time, residents' need for social interaction also promotes their participation in the construction of the Giant Panda National Park.

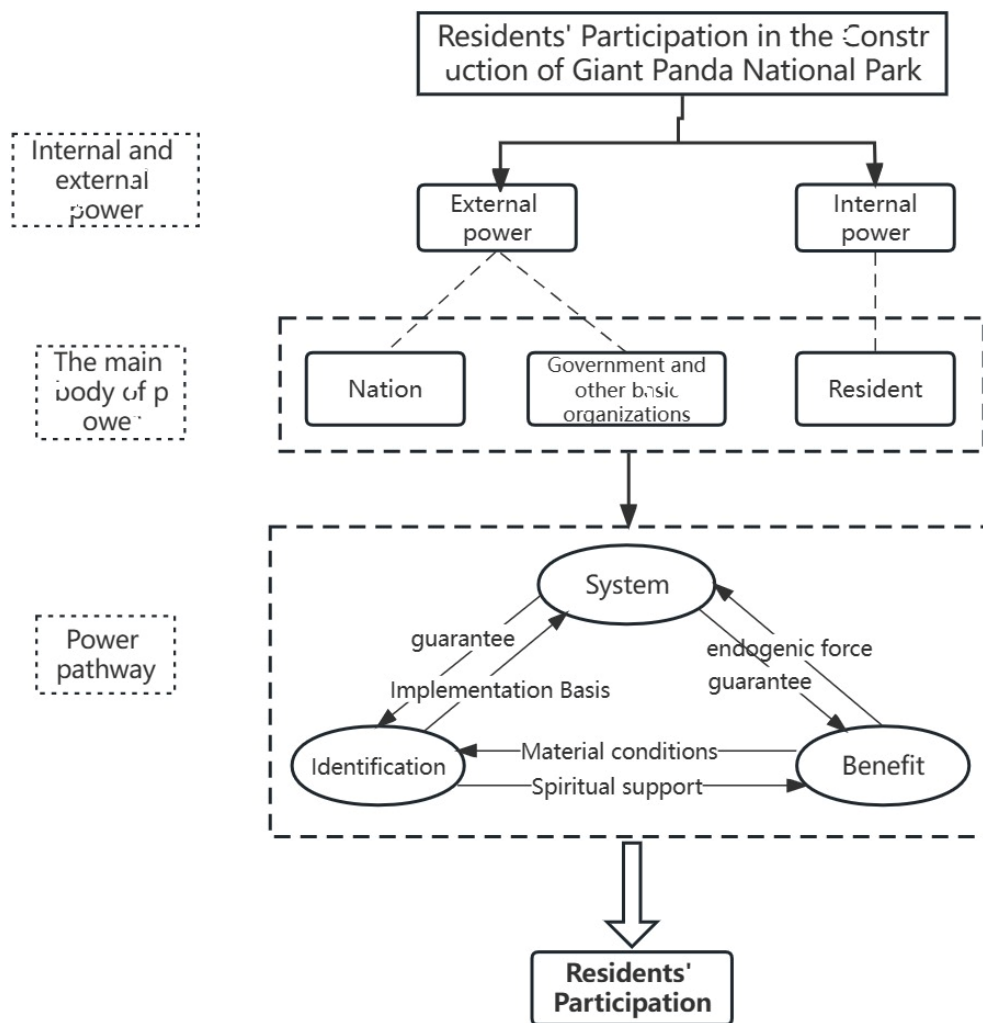


Figure 3. Power mechanism framework diagram

In short, the residents' participation in the construction of the Giant Panda National Park cannot be separated from the influence of three aspects: system, interests, and identity. The interaction and interaction among institutions, interests, and identity will make residents more actively participate in the construction of the Giant Panda National Park, promoting better results in park construction.

5. Related suggestions

5.1. Improve the motivation mechanism for community participation and increase residents' enthusiasm

According to the current survey results, the visited Feihong Community and Shenxi Community have been included in the scope of the Giant Panda National Park due to the planting of *Magnolia officinalis* and economic forests, so villagers are unable to harvest relevant medicinal materials or wood to increase their income. Moreover, it is precisely because such issues have not been properly resolved that residents do not have the motivation to participate in the construction of the Giant Panda National Park. Only when residents can clearly realize that the benefits, they can gain from participating in the construction of the Giant Panda National Park outweigh the costs they will have enough enthusiasm to participate. Therefore, the government must introduce relevant policies as soon as possible to reasonably resolve economic forest disputes, so that residents can receive effective compensation, and then generate motivation to participate in the construction of the Giant Panda National Park; At the same time, the government should also formulate relevant incentive policies, such as providing substantial rewards such as sufficient financial subsidies to residents participating in the construction of the Giant Panda National Park every day, in order to effectively stimulate

residents' motivation to participate; In addition, community management agencies can choose to issue relevant honorary titles to provide spiritual motivation to residents. In short, it is necessary to improve the diversified driving mechanism and provide sufficient incentives for residents from all aspects to generate sufficient motivation to participate in the construction.

5.2. Improve relevant policies to enable residents to have a comprehensive understanding of the details of the construction of the Giant Panda National Park

According to the survey results, there is currently no clear policy for Feihong Community and Shenxi Community to go on the wall. Most villagers have only heard of the Giant Panda National Park through oral propaganda (promotional meetings), but they are not clear about the specific purpose and scope of the construction of the Giant Panda National Park, which leads to a lack of awareness among residents about the construction of the park, When residents are completely unaware of this, it is naturally impossible for them to have the opportunity to participate in on-site construction, essentially lacking the operability of participating in construction. Therefore, the government must introduce relevant policies on the construction of the Giant Panda National Park as soon as possible, so that residents can obtain relevant information through specific documents, and only after obtaining sufficient detailed information can they comprehensively consider whether to participate in the construction.

5.3. Improve various channels for community participation, so that residents can participate in the field

To achieve substantive community participation, it is necessary to provide effective channels for community participation, that is, how and how residents can participate. However, according to the results of the current survey, although the residents of Feihong Community and Shenxi Community generally know about the construction of the Giant Panda National Park, they lack specific channels to participate. The only way is to join the public welfare patrol team and carry out regular mountain patrols. This leads to residents having no specific way to participate, even if they have a desire to do so. Therefore, the government should work with local community management agencies to jointly agree on specific participation channels, break the limitations of participation methods, expand the possibilities of residents' participation, and enable residents to have access to participate in the construction of the Giant Panda National Park.

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