

Ant Forest Protected Area Project (AFPA Project), China

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Is the project a case of...:

- State-initiated co-creation
- Entrepreneur-driven co-creation
- Grassroots-based co-creation (NGO initiated)

**For an elaboration of the typology, please consult the GOGREEN theoretical framework p. 25.*

Integrated case analysis

Before proceeding to the scoring of the GFs, please provide a 3–5 page case analysis in which you describe the background, history, and national, regional, and local contexts of the case, the problems and goals addressed by the local collaboration, the participating actors and their relationships, the unfolding of the co-creation process, the most important governance factors (this may include factors other than those in focus in this project), and the generated outputs and outcomes. The conclusion may specify a few lessons learned from the case study.

1) Background, history, and national, regional, and local contexts of the case

China is recognized as one of the most biodiverse countries globally. In 1956, it established its first nature reserve, and by 2020, a total of 9,190 protected areas of various kinds had been established, covering 185.35 million hectares. However, the distribution of natural resources in China is concentrated in the economically less developed western region. The unequal geographical, economic, and social conditions pose numerous challenges for nature conservation. This is particularly evident in the management of national-level nature reserves, areas with the highest conservation value, which receive limited local financial support. Simultaneously, over 80 percent of national-level nature reserves are home to large-scale indigenous communities, both within and around them. These communities, often economically disadvantaged, heavily rely on local natural resources. Consequently, nature conservation efforts are frequently met with significant conflicts with these communities.

In the 21st century, the rapid advancement of e-commerce technology, exemplified by Alibaba Group, has revolutionized approaches to biodiversity conservation. Alipay, Alibaba Group's e-commerce payment platform, stands as one of the world's largest electronic payment platforms, serving more than 1.3 billion users and 80 million merchants. In 2014, Alibaba Group strategically split its financial business to establish the independent Ant Group, subsequently transferring Alipay under the latter's name. Following this, Alipay expanded beyond its traditional payment functions, gradually evolving into an open platform encompassing life services, government services, financial management, and other features.

Simultaneously, Alipay has actively engaged in the public welfare, particularly in promoting low-carbon lifestyles. A notable initiative in this realm is the Ant Forest Project, officially launched in 2016. Participants in the Ant Forest Project can accumulate "green energy" by embracing low-carbon consumer behaviors, such as booking train ticket in the Alipay. Upon accumulating a substantial amount of "green energy," users can actively contribute to tangible tree-planting initiatives facilitated by Alipay. Subsequently, Alipay completes reforestation programs through financial donations and institutional partnerships. This groundbreaking project, involving 500 million people, received the UN Champions of the Earth award in 2019. According to the IUCN's assessment, by 2020, the Ant Forest project completed the afforestation of more than 223 million trees and an area of more than 204,000 hectares.

The Ant Forest Project goes beyond being China's largest private tree-planting program. Since 2019, Ant Forest users can use their green energy to invest specific protected land areas, known as the Ant Forest Protected Area Project (AFPA Project). After that, they could receive adoption certificates for AFPA Project. As of 2023, the Ant Forest project supports 24 protected areas. Some of these reserves are affiliated with state-owned forest farms, while others are linked to local communities. Ant Group has forged partnerships with nature conservation organizations to bolster funding for community-based conservation projects. Simultaneously, Ant Forest users now have increased opportunities to connect with nature, utilizing infrared cameras to monitor real-time forest conditions. This approach seamlessly integrates consumers' low-carbon behaviors, biodiversity conservation, and community development.

In order to examine the outputs of the AFPA Project and analyze stakeholder interactions, this study focuses on the AFPA Project at Fushun Village. As one of the 24 protected areas, the Fushou Village Community Nature Reserve in Sichuan Province has been part of the Ant Forest project since 2019. The project would be implemented from May 2019 to May 2028, with a total budget of 2.4 million RMB for a protected area of 18.81 square kilometers. Ant Forest has provided funding to the Paradise Foundation, an experienced nature conservation organization, for this project. The Paradise Foundation oversees community empowerment, project implementation, and supervision. Through the AFPA Project, the village receives an annual budget of around 200,000 RMB. Meanwhile, villagers, organized into a self-managed group, handle reserve patrolling, insurance against wildlife accidents, equipment procurement, and economic development. This community-based organization is obligated to engage with the public and regularly report to the Paradise Foundation, Ant Group, and the local government.

2) The aims of the project and the sustainability problems that it seeks to address

The Ant Forest Protected Area Project (AFPA Project) combines the strengths of the Ant Forest Project and community-based conservation programs, designed with two objectives. On one hand, the AFPA Project aims to encourage low-carbon behavior among consumers and, simultaneously, protect forests, grasslands, and related ecosystems. On the other hand, the collaboration between Ant Group and conservation organizations has added new objectives to the AFPA Project, including securing and enhancing community livelihoods, empowering communities, and guiding them to actively participate in and benefit from conservation efforts. This approach helps reduce conflicts between community development and conservation objectives.

Aligned with the goals of GOGREEN, the Ant Forest Protected Area Project places co-creation and SDGs at the forefront. It emphasizes SDGs 1 (No Poverty), 11 (Sustainable Communities), 12 (Responsible

Consumption), 15 (Life on Land), 16 (Peace, Justice, and Strong Institutions), and 17 (Partnerships for the Goals).

Fushou Village is located in the northern part of China's Sichuan Province, nestled among the Minshan Mountains. Pingwu County, its location, remains one of China's national poverty-stricken counties with extremely challenging transportation conditions, and it lacks a railroad. Historically dominated by forestry, the area saw a state-implemented logging ban in 1998 to mitigate soil erosion, pivoting mainly to hydropower and tourism development since then. Local villages, situated in long, narrow valleys, have extremely limited cultivable land. Consequently, villagers primarily rely on hunting, beekeeping, and harvesting understory resources for their livelihoods. Located at the heart of the Giant Panda National Park, Pingwu County is exceptionally rich in biodiversity. Despite decreased reliance on natural resources due to rural-urban migration and significant poverty alleviation funding, conservation and development continue to pose a long-term challenge.

The AFPA Project addresses the issue of local villagers' utilization of natural resources, which is not aligned with the goals of conservation. The conservation outlook in Fushou Village, situated adjacent to the Giant Panda National Park, is disconcerting as the residents partake in activities that pose ecological threats. These include deforestation, hunting, and the overharvesting of medicinal plants, contributing to environmental degradation in the area.

In this context, the state-owned nature conservation agency found itself in a predicament, facing challenges such as insufficient funds for conservation, inadequate staff capacity-building, and the absence of programs promoting participatory governance. Consequently, on one hand, the conservation actions of these agencies often amount to little more than pro forma patrols, lacking real coercive power. On the other hand, it is difficult for them to persuade local villagers to align with their conservation goals and to provide alternative livelihoods.

Meanwhile, social organizations have introduced community-based conservation strategies, they continue to encounter challenges, including financial support, organizing communities, and fostering collaborative efforts.

3) The participants and their interaction and communication in and between meetings

The AFPA Project **participants** are:

- a) **Core actors** who signed the cooperation contract and continuously provide resources to the AFPA Project:
 1. **Ant Group:** The Ant Group operates and maintains the Ant Forest e-platform, develops Ant Forest Preserve standards, and contributes to the AFPA project through donations. It actively promotes the AFPA project by collaborating with on-the-ground NGOs.
 2. **Paradise Foundation:** is a local environmental NGO initiated by Chinese entrepreneurs. This NGO has been dedicated to nature conservation in Pingwu County, Sichuan Province, since 2011. In 2016, the Paradise Foundation began experimenting with community-based conservation strategies. From 2019, the Paradise Foundation received a grant from Ant Group to assist Fushou Village in establishing a protected area. In the AFPA project, the Paradise Foundation is responsible for providing technical support, financial aid, and audit supervision for the community. This includes offering skills training for the rangers, assisting in revising

village rules and regulations, developing patrol plans, supporting the community in creating alternative industries, and auditing the use of funds. Simultaneously, it collaborates with the Ant Group to gather information on forest vegetation, the geographic location of the forest, and forest protection actions in the protected area. Additionally, it aids Alipay users in participating in nature conservation.

3. **Pingwu County Nature Resource Protection and Industry Development Association:** is a NGO established by the villagers of Fushou Village on their own initiative. At its establishment in 2019, the association comprised 6 directors, including the village CPC secretary and the head of the Villagers' Committee, along with an additional 54 villagers. In 2020, the association entered into a donation agreement with the Paradise Foundation for the AFPA project. The association's responsibilities encompass organizing eight rangers, creating patrol plans, formulating village rules and regulations, installing infrared cameras, collecting image data, and engaging in environmental advocacy. Additionally, the association performs functions such as compensating for wildlife accidents and developing alternative industries.
 4. **Local villagers:** are restricted from hunting, deforestation, and digging for medicinal herbs. Meanwhile, they have been presented with additional opportunities for alternative livelihoods, including engagement in ranger activities, beekeeping, fruit cultivation, and eco-tourism. Villagers actively participate in festivals organized by associations and NGOs.
 5. **Laohegou Center:** is an on-the-ground nature conservation organization in Pingwu County supported by the Paradise Foundation. It operates China's first nature reserve initiated, organized, and managed by an NGO, which is also adjacent to Fushou Village Community Nature Reserve. The Laohegou Centre assists the Paradise Foundation by providing technical support to the community, along with an annual evaluation of the AFPA Project.
 6. **Pingwu County Forestry Administration:** is the sponsoring institute of the Pingwu County Nature Resource Protection and Industry Development Association and the Laohegou Centre. The sponsoring institute is part of the Chinese management system for social organizations, where each organization needs support from a department according to its business scope before being registered with the civil affairs department. This support provides legitimacy to the AFPA project. Furthermore, it grants the Pingwu County Forestry Administration the right to oversee project implementation, participate in project evaluation, and obliges them to provide operational guidance for project implementation.
- b) **Other actors** that are mostly involved in the implementation of projects:
1. **Alipay users:** accumulate green energy by purchasing public transport tickets on Alipay to 'adopt' a certain area of protected land. Upon doing so, they will receive an e-certificate. All users can view wildlife footage from patrol routes and infrared cameras on the Alipay platform, with footage of treasured species such as giant pandas and Sichuan snub-nosed monkeys being particularly popular.
 2. **Civil Service Department:** registers Pingwu County Nature Resource Protection and Industry Development Association.
 3. **Other Nature Reserves:** holds bi-annual joint patrols with the Fushou Village Community Nature Reserve.

4) How often do they meet and do they communicate between meetings?

First, the local stakeholders would design regular meetings. Under the terms of the agreement, the Pingwu County Nature Resource Protection and Industry Development Association is required to submit an annual report reviewed and evaluated by the Paradise Foundation. Secondly, the Association is obligated to conduct joint patrols with partners, including the Laohegou Centre, at least twice a year. Thirdly, the association is also required to share infrared camera footage with Ant Group on a monthly basis to be used as material for the AFPA project platform.

Additionally, there are some random meetups. The Association has maintained very close contact with the Laohegou Centre and Paradise Foundation, involving skills training, learning visits, and occasional meetings. From 2020 to 2021, they organized four skills training sessions, including GPS use and wildlife identification. They also held 27 non-regular meetings to consult and formulate next year's work plan, learn about project progress, understand the villagers' aspirations, and even simply make friends with the villagers. Topics covered in these meetings included recent human disturbances, infrared camera operation, and sightings during patrols. During this period, the Paradise Foundation provided support to the Association by facilitating visits to alternative industries and other community preserves.

5) The role and forms of knowledge sharing, coordination and joint problemsolving

Knowledge sharing, coordination, and joint problem-solving played a crucial role in the AFPA project in Fushou Village. Building strong collaborative relationships not only ensured channels for knowledge sharing. Sharing-knowledge expanded the possibilities for joint problem-solving, fostering increased trust among participants.

At the collaborative level, the Paradise Foundation recognized the importance of community empowerment from the outset. One of its core objectives in the AFPA program is to motivate community actors in nature conservation. The Pingwu County Nature Resource Protection and Industry Development Association's autonomy is evaluated annually, and upon receiving positive feedback, the community organization is promoted in the next year's program.

In terms of knowledge sharing, both the Paradise Foundation and Laohegou Center provide technical support to the association and share alternative livelihood programs. The Association reciprocates by offering information on wildlife, human activities, and other local knowledge through regular and occasional meetings. Since 2020, the Association has proficiently used Alipay to interact with the public, sharing videos and pictures of wildlife, thereby enhancing public awareness of environmental protection.

Regarding joint problem-solving, the main challenge for the Association and other NGOs is balancing the relationship between villagers' use of natural resources and conservation. This involves focusing on three key aspects: patrolling and monitoring, exploring livelihood alternatives, and fostering villagers' attitude change. The Association and other NGOs have co-designed and received budgetary support for projects like watchtower construction, learning visits for alternative livelihoods (beekeeping, fruit growing, etc.), village festivals, nature education, and eco-tourism. These initiatives aim to promote nature conservation and sustainable development in Fushou Village.

At Fushou Village, the meeting room of the Association serves as a crucial venue for knowledge sharing and joint decision-making among stakeholders. This one-story brick building features a concrete platform

outside, which facilitates both regular and ad hoc exchanges for NGOs and the Association. These exchanges include annual report surveys, summaries, discussions, patrol planning, and exploring alternative livelihoods. Additionally, the platform acts as a vital space for communication between the Association and local villagers, promoting the AFPA project and facilitating the organization's decision-making process. In the outdoor area, a communication mechanism exists between the stakeholders. NGOs and the Association, often near the villagers' residences or in the farmland, conduct interviews and communicate with villagers about village dynamics, wildlife conditions, and perspectives on the AFPA project. Additionally, amidst the mountains and forests, NGO members patrol alongside the Association's rangers. Their activities are not only aimed at deterring poachers and clearing hunting traps but also at jointly planning patrol routes.

Alipay also provides an online e-platform for the association and its 'Ant Forest' users. Members of the Association can share photos and videos of wildlife, and update external stakeholders on the status of their conservation efforts.

6) The relation between consensus and conflict and the handling of the latter

Collaborative relationships among core actors play a pivotal role in forming and strengthening consensus. This collaboration is rooted in their shared understanding and commitment to nature conservation issues. However, due to the diverse backgrounds of the actors, a significant gap exists in the standards of work, particularly evident between the Pingwu County Nature Resource Protection and Industry Development Association and NGOs.

Deepening consensus depends not only on end-of-year evaluations and summaries but, more importantly, on frequent small ad hoc meetings between the Paradise Foundation, Laohegou Centre, and the Association. These meetings gradually brought together the actors' concerns on common issues, eventually becoming the core topics of the annual summary and future work plan. For example, financial disclosure, records of meeting contents, and communication with the public.

Additionally, points of conflict between the core actors and Fushou villagers were present. The implementation of the AFPA project means that local villagers need to be prohibited from hunting in the mountains and restricted from fishing, deforestation and collection of herbs. To reach consensus with the villagers, reliance on coercion and financial compensation alone is insufficient. It is more crucial to enhance the villagers' sense of identity and motivation towards sustainable development by organizing colorful cultural and recreational activities, providing ecological publicity, as well as technical support for alternative livelihoods, such as subsidized rangers; beekeeping; guided eco-tourism; and compensation for crops destroyed by wild boar and deer. The villagers' recognition is also reflected in the annual evaluation reports. This step-by-step approach has strengthened the resilience of the AFPA Project.

7) The role and form of leadership: lead actor, steering group and/or collective leadership

For the AFPA project, in the early stages, it was more of a Paradise Foundation and Ant Group leadership, indicating a form of a steering group. Among the core actors, the role of the Paradise Foundation is unique as it connects actors at various levels. However, with the implementation of the community empowerment strategy, the importance and initiative of the Association have been steadily growing and recognized, indicating a potential shift to collective leadership at the local level. With support from the Paradise

Foundation, the villagers self-organized the Association and participated in the review and signing of contracts, reflecting their collective decision-making. Through establishing bylaws, village rules and regulations, annual plans, and budgets, the members of the Association not only became acquainted with and endorsed the principles of democratic participation but also acquired a standardized understanding of actions such as account disclosure, auditing, and planning. As the members of the Association developed a mutual understanding of nature conservation, the organization became more structured and cohesive. They collaborated with the Paradise Foundation and Ant Group on more equal terms, including joint patrols, designing annual work plans, budgeting, and creating alternative livelihoods.

8) The temporal unfolding of the co-creation process: major shifts and ups and downs

The AFPA project in Fushou Village spans from May 2019 to May 2028. Based on the annual evaluation reports and work plans, the AFPA project in Fushou Village can currently be divided into two phases.

Inception Phase (May 2019 to December 2021)

This phase mainly consists of meso-level system construction and micro-level implementation of established issue: (1) Organization and Registration of the Association: Promoted by a group of local elites, including village cadres, the Association received a broad response. With support from the local Forestry Bureau, it was subsequently registered with the Civil Affairs Bureau. (2) Signing of the Donation Agreement: The Association signed a donation agreement with the Paradise Foundation on behalf of Fushou Village. (3) Ecological Baseline Survey: The Association and the Paradise Foundation conducted a comprehensive survey of Fushou Village's socio-economic status, biodiversity, and natural resource utilization. (4) Recruitment of Rangers: After a public announcement, the Association openly recruited rangers from among the villagers. (5) Grant Agreement: The Association signed a grant agreement with the Paradise Foundation on behalf of Fushou Village. (6) Institutional Construction and Facility Installation: With the assistance of the Paradise Foundation, the Association carried out institutional construction activities such as work planning, fund management, and information disclosure. Additionally, infrared cameras were installed in the forests surrounding the village.

Expansion phase (after January 2022)

The opening of this phase is marked by the empowerment of the Association, whose autonomy has significantly increased. Consequently, the activities in this phase encompass meso-level institutional strengthening and micro-level co-driven experimental initiatives: (1) Shift in NGO Strategy: The Paradise Foundation has gradually adapted its approach from guiding the Association to accompanying it—a strategic shift from leadership to partnership. (2) Alternative Livelihood Development: The Association has started exploring alternative livelihoods, such as ecotourism centered on nature education. (3) Learning Visits: With the support of the Paradise Foundation, members of the Association visited other villages engaged in community-based nature conservation to learn about their industrial developments, aiming to generate at least three alternative industry visions. (4) Leadership Development in Industries: The Association is following a plan to develop leaders in at least three industries, experimenting with new economic opportunities. (5) Collaboration Expansion: The Association is now collaborating with more nature conservation agencies, including activities such as joint patrols.

9) The most important governance factors (may include factors other than those in focus in this project)

In the AFPA Project, the most important governance factors cover:

5. Mechanism for ensuring top-down government and bottom-up social accountability.
6. Strategic agenda setting by means of translation
7. Construction of narratives about successful multi-actor collaboration
9. Provision of access to blended financing
11. Inclusion and empowerment of relevant and affected actors
12. Clarification of interdependence vis-à-vis common problem and joint vision
13. Trust-building and conflict-mediation
14. Use of experimental tools for innovation
15. Ongoing critical self-reflection and learning
16. Facilitative leadership

10) The generated outputs and outcomes

As measured by the actors' own assessments, researchers' observations and interviews, the collaboration coordinated by the AFPA project appears to have stimulated creativity and innovation, while most green goals have been achieved or are on track to be achieved.

SDG 1 (No Poverty): The most direct compensation for livelihoods under the AFPA program is the ranger subsidy. Additionally, the Association is exploring alternative livelihoods like beekeeping and ecotourism. Although these industries are not yet large-scale, they lay the groundwork for future industrial development.

SDG 11 (Sustainable Cities and Communities): Wildlife populations, such as wild boars and deer, have recovered and are causing crop damage to local villagers. The AFPA program supports the Association's wildlife insurance policy, which compensates villagers for their financial losses.

SDG 12 (Responsible Consumption and Production): 650 million people have participated in the Ant Forest program, accumulating green energy credits through public transportation, walking, and reducing food waste.

SDG 15 (Life on Land): Fushou Village and surrounding protected areas have effectively safeguarded the local ecosystem. Hunting and logging have ceased, and rare species like giant pandas and antelopes are now frequently seen in nearby mountains and forests.

SDG 16 (Peace, Justice, and Strong Institutions): The Association, Paradise Foundation, Ant Group, and consumers have established an effective information-sharing mechanism. This includes joint development of community programs and sharing of wildlife and patrol route data through an e-platform.

SDG 17 (Partnerships for the Goals): The AFPA program has bolstered democratic participation in Fushou Village through community empowerment and enhanced transparency in community governance. It also

provides new funding sources and communication channels for participatory development, leveraging technologies like electronic payment platforms. Furthermore, the project has expanded to include more stakeholders, such as local nature reserve management organizations, through joint patrols and other collaborative efforts.

11) Lessons learned about the conditions for co-creating green solutions

The AFPA project successfully connects two relatively prosperous initiatives, fostering a more effective and balanced co-creation endeavor.

First, operating within an extensive collaborative network, AFPA projects bridge the gap between urban consumers and rural communities. Urban dwellers opt for low-carbon lifestyles to benefit wildlife and distant compatriots, while rural residents choose to transform their livelihoods for the common good. To bring this fantastical story to life, the first essential step was the development of experimental tools. Alipay, the largest electronic payment platform not only in China but also in the world, has rapidly extended its reach beyond the geographical border separating urban and rural areas, enabling the creation of collaborative networks. Alipay, however, evolved beyond a mere payment tool into a super app encompassing life, government affairs, finance, and more, thereby expanding the interaction modes of users on the electronic platform.

Secondly, the success of the multi-actor initiative and the innovation of solutions hinge on the presence of an authoritative and reflective leader, a role effectively fulfilled by the Paradise Foundation. This team maintains both personal and institutional connections with Ant Group, earning the trust of entrepreneurs and actively participating in solution design. Simultaneously, the Paradise Foundation keeps the local community engaged, accumulating project experience in community empowerment and nature conservation through the implementation of CBC projects. Thus, the Paradise Foundation serves not only as a bridge but also possesses the ability to simultaneously recognize issues in different fields and reflectively promote project renewal.

12) Points of interest in subsequent studies

Maintaining customer enthusiasm. Ensuring sustained customer enthusiasm poses a challenge for Ant Forest, an Ant Group product with an 8-year history. Commencing in 2019, the AFPA project represents a revitalization of Ant Forest, capturing the interest of consumers. Continuous updates to the AFPA program, ongoing enhancement of interaction between protected area management bodies and the public, and the promotion of nature education are essential to maintain consumer appeal. This aims to further encourage consumers' adoption of low-carbon behaviors.

Experimenting alternative livelihoods. On the flip side of the AFPA project, local communities play a crucial role. Community-based conservation projects require not only external donations but also sustainable alternative livelihoods. However, as alternative livelihoods are still in the exploratory stage, finding and consistently supporting a suitable industry remains a significant challenge. For now, nature education is a potential solution.

Sustaining government support. China is promoting the development of national parks—a reform with distinct Chinese characteristics that could enhance the authority of functional departments while

potentially diminishing the coordination abilities of local governments. It will be crucial to assess whether this reform will impact AFPA projects and potentially undermine community-focused solutions.

Preserving community autonomy. Community empowerment is a systematic undertaking that demands long-term collaboration to stabilize community organizational capacity and a sense of ownership. Ensuring community autonomy requires strengthening the construction of community organizations, enhancing project transparency, and identifying common goals and visions among communities and NGOs. The relationship between government and communities, the development of alternative livelihoods, and public participation and communication will collectively influence community empowerment.

Scoring and analysis of governance factors

1. Perceived importance of biosphere conditions

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The consensus on the importance of biodiversity and forest ecosystems, voiced by interviewees and documented sources, serves as a pivotal support for the creation and implementation of the AFPA project. The Chinese public has a strong passion for wildlife conservation, particularly for flagship species such as the giant panda. However, before the economic reforms and opening up, nature conservation was predominantly managed by the government, with public participation often limited to roles within the administrative system. Post-reform, the public has increasingly become an autonomous actor in conservation efforts. Notably, the rise of environmental issues in China during the 1990s boosted public enthusiasm for preserving nature.

The concept of a low-carbon lifestyle is a relatively recent environmental issue. It gained prominence particularly after ecological civilization was adopted as a national strategy in China in 2012. The G20 summit in Hangzhou in 2016 was another milestone, where China highlighted low-carbon green development as a major agenda. This focus significantly influenced both the public and the business community.

The success of the AFPA project is largely attributed to extensive public participation and active support, evident in their engagement with the project and interactions with conservation organizations on the platform. Simultaneously, the Ant Group acknowledges the value of environmental protection to society and the company's development. Biodiversity conservation and sustainable development are emphasized in their public materials. Through collaborations with various NGOs, such as the Paradise Foundation, the Ant Group mobilizes additional resources and power to promote environmental protection. This cross-

border cooperation not only expands the scope and depth of environmental protection work but also provides a valuable reference for collaboration between society and enterprises.

Villagers, whose production and life are closely tied to biodiversity conservation, recognize the significance of nature conservation. With the widespread awareness of environmental protection and policy pressures, villagers are beginning to comprehend the impact of their actions on the ecological environment. This realization sparks a desire for development transformation, seeking a more sustainable path. This transformation not only contributes to the protection of the ecological environment but also enhances villagers' quality of life and opens up broader avenues for development.

2. Legislation, programs, and formal goals

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Firstly, China's legal and national policy framework plays a crucial role in supporting biodiversity conservation. The most direct legal backing includes the Forest Act, enacted in 1984, and the Wildlife Protection Act, enacted in 1988. These laws introduced regulations on forest ecosystems, prohibited illegal hunting, mandated the creation of wildlife protection registers, and facilitated the establishment of nature reserves. Following the introduction of the Ecological Civilization concept in 2012, these conservation measures were further strengthened. Enhancements included tighter restrictions on the trade of wild animals and related products, as well as the establishment of national parks.

Secondly, existing legislation at the national and provincial levels offers continuous legal support for the AFAP project. This support is derived from key laws such as the Charity Law, the Regulations on Foundation Management, and the Regulations on the Management of Sichuan Nature Conservation Communities.

Thirdly, Ant Group actively aligns projects and goals with national initiatives to garner and expand political support. The Ant Forest project originated from the 'green finance' theme of the 2016 Hangzhou G20 Summit, and Ant Group further developed this idea. Additionally, the revised Forest Law, aimed at 'mobilizing the whole society to promote large-scale land greening,' led to a 2018 contract between the State Forestry and Grassland Administration and the Ant Forest project. Ant Group also secured local government contracts with the shared objective of 'increasing forest carbon sink.'

Fourthly, at the local level, the Paradise Foundation's community-based conservation projects receive support from documentation provided by provincial, municipal, and county governments.

3. Relative openness of public governance paradigms

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

China stands as the longest-running one-party state. Nevertheless, since the economic reforms and opening up in the 1980s, its governance has been characterized by political centralization and administrative decentralization. Within the hierarchy of "state - province - city - county - township," Chinese administrative power has developed a system akin to "de facto federalism." Local governments enjoy significant discretion and often experiment with policy approaches under broad directives from the center. At the village level, the most grassroots rural governance unit in China, villagers can elect their own leaders and operate with greater independence from the government.

Over the past four decades, the flourishing of social forces has introduced a more open governance paradigm, evident in grassroots democratic autonomy and the active management and expansion of social organizations. In the realm of biodiversity conservation, the government and social organizations have gone through a phase of mutual adaptation. In 2020, the Chinese government advocated the principle of 'extensive consultation, joint contribution, and shared benefits; co-construction, co-governance, and sharing,' which further supports the participation of social organizations. This approach promotes the continuous improvement of the ecological governance system, characterized by the Party's guidance and active social participation.

At the local level, the Pingwu County government has collaborated with environmental NGOs for over 30 years, establishing robust, long-term relationships with the social sector. This policy experimentation style of local governments is the basis for green innovation. Through long-term interactions, the mutual trust between the local government and social organizations has provided a window of opportunity for community-oriented nature conservation projects. The Paradise Foundation, deeply embedded in Pingwu County, acts as a bridge for broader participation and cooperation. The involvement of Ant Group has facilitated the integration of community projects with the Ant Forest projects, leading the government to further recognize this cooperation by providing the Association with a certification of legality. With the successful operation of the AFPA project, endorsed by the government, more tourism companies and reserve management bodies have begun to engage and cooperate with the Association.

4. Formalized institutional channels for citizen participation and community mobilization

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The evidence of civic engagement at the village level in China is clear. After the founding of New China, the main administrative authority in villages came from the Village CPC Committee, authorized by the government. However, following electoral reforms introduced in the 1980s, village secretaries began to be elected by party members, and directors by ordinary villagers. In 1987, the Organic Law of the Villagers' Committees of the People's Republic of China was officially promulgated, marking the beginning of formal recognition of village-level electoral processes. Over the past 40 years, villagers in China have grown familiar with the principles of civic engagement. Village committee elections, implemented since the 1980s, represent a long-standing learning process for citizen engagement and community mobilization.

In the AFPA project, the participation and support of villagers are crucial to the project's design. This engagement confronts the current challenges of rural governance amid economic development. Although villagers have adapted to the decision-making methods based on elections and transparency, the cohesion of the village is rapidly declining due to economic growth. The outflow of most of the young labor force, the decline in collective modes of production, and the loss of traditional culture have diminished villagers' enthusiasm for participating in collective affairs. Therefore, AFPA projects need to not only empower communities but also rekindle villagers' enthusiasm for nature conservation and community development.

The Paradise Foundation, on one hand, assists communities in forming associations, establishing statutes and work plans, holding regular general meetings, and maintaining close informal contacts. The democratic nature of the association's operation is affirmed through events such as the amendment of the constitution.

On the other hand, other villagers utilize formal mechanisms to participate in the AFPA project, including villagers' meetings, financial disclosure mechanisms, and the open selection of rangers. While the enthusiasm of villagers for project participation is yet to be verified, survey reports indicate that villagers' understanding and acceptance of the AFPA project deepen each year. Therefore, we are optimistic about its progress.

5. Mechanism for ensuring top-down government and bottom-up social accountability

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

In the AFPA Project, accountability mechanisms play an irreplaceable role, with three primary targets: the government, the public, and local villagers. Together, these three entities constitute the framework of the accountability mechanism for ant forest protected areas.

Firstly, for the government, the success of the ant forest reserve is intricately tied to its role as the supervisory authority of the Association. Given China's politically centralized governance system, local

governments face many political risks in sharing governance space with other actors. This top-down accountability, therefore, gives the government the necessary confidence to build partnerships with other stakeholders, including certification of the Association's legitimacy and sharing of coercive power with the Paradise Foundation. At the same time, Ant Group, Paradise Foundation, and the Laohegou Center supervise the project to ensure that all parties can cooperate according to the same goal. They regularly monitor the AFPA project through various means, including site visits, progress reports, and financial disclosures. This monitoring not only ensures compliance with the project but also identifies and corrects potential issues promptly, ensuring the smooth progress of the project.

Secondly, the public can access the latest images of the protected areas through map software, Alipay, and other channels to assess the project's implementation effectiveness. This transparency encourages the project team to carry out their work more responsibly. Simultaneously, the Paradise Foundation and Ant Group promote interaction between local associations and the public, fostering transparency and credibility and thereby enhancing the social impact of the project. On the one hand, this kind of information exchange enhances the enthusiasm of the public to participate in the AFPA project and promotes their green consumption behavior. On the other hand, in their interactions with the public, local villagers felt recognized by other stakeholders, which in turn increased their support for nature conservation goals.

Finally, for local villagers, the success of ant forest protection relies on their active participation and support. With the assistance of external NGOs, the local Association provides systematic training on public disclosure and financial mechanisms, helping villagers adapt to the system. This enables villagers to actively participate in monitoring and managing the project, ensuring that the project's benefits truly reach the local community. Villager participation also enhances the social responsibility and sustainability of the project, establishing a solid foundation for its long-term development.

6. Strategic agenda-setting by means of translation

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

China officially supported the SDGs in 2015, and the goals were formally adopted at the UN Sustainable Development Summit in September of that year. Demonstrating its commitment to the global sustainable development agenda, the Chinese government regularly publishes progress reports on the implementation of the SDGs, showcasing its achievements and challenges in meeting various goals.

In line with its commitment to the SDGs, Ant Group initiated the Ant Forest project in 2016, aligning with the broader environmental and sustainability goals set at the global level. This initiative coincided with the 2016 G20 Summit held in Hangzhou, where Ant Group is headquartered. During the summit, global leaders

emphasized the importance of achieving economic growth and sustainable development. They discussed supporting the SDGs through enhanced policy coordination and the implementation of innovative strategies, prompting Ant Group to launch the Ant Forest project in response to these global objectives.

While China actively supports the SDGs and integrates them into its domestic development strategy, it has also developed its own parallel sustainability agenda, emphasizing ecological civilization, Beautiful China, rural revitalization, coordinated regional development, and high-quality development. These national policies often overshadow the UN's discourse, especially at provincial levels and below, where China's official sustainability narratives hold more sway. These narratives are not only widely adopted by governments at all levels but also by NGOs and businesses.

At the village level, the focus shifts from strict adherence to official discourses towards practical goals such as the sustainable use of natural resources and wildlife protection. These local priorities, which align with both the SDGs and China's ecological civilization framework, are actively promoted by NGOs and local governments. By embracing these discourses, stakeholders at the grassroots level form a consensus that supports projects like the AFPA, demonstrating a localized approach to global sustainability goals.

7. Construction of narratives about successful multi-actor collaboration

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The success of the AFPA is largely attributed to a narrative of multiple collaborations. This project was not created from scratch but was the result of merging and reinventing two already successful initiatives. This synergy not only combines the strengths of the respective project resources but also stimulates new vitality and creativity in the collaboration.

Firstly, before 2019, the Paradise Foundation and other NGOs had implemented two community-based conservation projects in the region, effectively protecting the local ecological environment through active participation and self-management by community residents. This narrative of multiple collaborations has enhanced the experience and confidence of cooperation among different actors. These successes have been shared informally among local communities. Further, supported by the Paradise Foundation and Laohegou Center, members of the Association 15fficially visited the two villages and participated in symposia. These achievements have also bolstered local government support for AFPA projects, demonstrating the great potential of communities in ecological protection and providing valuable insights and references for the Ant Forest protection projects. As a result, concerns about political risks are diminished.

Secondly, since its launch, the Ant Forest project has attracted a large number of users with its unique public welfare model. Users accumulate green energy through low-carbon behavior in daily life, and then plant trees in reality, realizing the organic combination of personal behavior and environmental protection. This model not only raises public awareness of environmental protection but also provides tangible financial support for ecological conservation efforts. The success of the Ant Forest project has laid a solid foundation for subsequent multi-component collaborations.

When these two projects are combined, powerful synergies emerge. The Ant Forest project provides more funding and resources for community-based conservation projects, allowing conservation efforts to be carried out more thoroughly. The latter, with its deep community roots and rich practical experience, offers a grounded implementation plan and an effective protection strategy for the Ant Forest project. This cross-project collaboration not only expands the influence and coverage of the project but also inspires more innovative thinking and solutions within the narrative of diverse collaboration.

8. Building or harnessing institutional platforms and arenas

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The success of the AFPA (Ant Forest Protected Area) project is attributed to its unique collaborative approach, as seen in the integration of human, material, and financial resources, and the organic combination of physical and electronic platforms.

Firstly, Alipay, as a leading electronic platform, plays a crucial role in the AFPA project. This super app has been instrumental in establishing a communication bridge between the public and local villagers. Through Alipay, the public can stay informed about local conservation efforts, and the flora and fauna, while enabling local villagers and NGOs to exchange information efficiently. This platform not only enhances information transmission but also provides a convenient and effective method for promoting the project.

Secondly, utilizing technology such as infrared cameras and GPS, the project team can access real-time data, including patrol networks and wildlife images. These technologies create a shared information database for NGOs and local associations, and offer the public insight into local conditions.

Thirdly, WeChat, China's counterpart to WhatsApp, has also established a communication platform that connects NGOs, the Association, and even other villagers. This application is used to share photos, discuss the impacts of wildlife on farmland, and plan future activities. The Paradise Foundation utilizes WeChat to coordinate with local villagers and schedule interviews with them.

Fourthly, at a physical level, a dedicated meeting room supports the AFPA Project. This room serves as a space for open discussions among association members and as a communication hub with villagers. Here, members delve into discussions on planning, management, and conservation strategies of the reserve, while villagers can voice their opinions, needs, and expectations. This dual-purpose communication setup enhances the connection between the association and the villagers, providing actionable suggestions and solutions for project implementation. During visits from NGOs, government departments, and other external stakeholders, the conference room transforms into a showcase for the association's achievements and a platform for exchanging experiences. It also displays wildlife photos, group pictures, and honors, turning into a space that not only promotes the association's visibility but also bolsters its cohesion. Each new member or visitor is drawn to these displays, gaining a deeper appreciation of the association's efforts and achievements.

9. Provision of access to blended financing

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The diversified financing channels themselves are also of demonstrative significance for the AFPA project. In areas rich in natural resources in China, local governments often face a shortage of funds, making it difficult to effectively promote nature conservation. Simultaneously, although NGOs are passionate about environmental protection, they often struggle to raise sufficient funds to support conservation work due to their non-profit nature. This funding predicament jeopardizes the effective protection of many precious natural resources, putting the ecological environment at serious risk. The arrival of the Ant Group has provided robust financial support for these areas. Through an innovative public welfare model, the Ant Forest project has attracted the participation of a large number of users, bringing widespread attention and support to neglected nature conservation work. At the same time, Ant Group, with its robust financial resources and influential brand, has provided a stable source of funds for the project, enabling continuous and deep protection work.

It is worth mentioning that the diversified financing channels of the Ant Forest project do not solely rely on external public welfare donations. In the project, although consumers did not directly participate in the investment, their behavior of purchasing public transportation tickets on Ant Forest actually increased Alipay user engagement. This enhanced Alipay user engagement further motivates Ant Group to promote this public welfare initiative, forming a virtuous circle. This model of combining business interests with public welfare actions not only improves the sustainability of the project but also provides new ideas for the future combination of business and public welfare.

Although the government does not provide financial support to the AFPA project, it does offer specific administrative resources. With assistance from the Forestry Administration, the Association was officially

registered with the Civil Affairs Bureau and received government endorsement. Additionally, Wanglang Reserve, the local Forestry Bureau, and the state-owned forestry company participate in joint patrols of Fushou Village.

Regarding alternative livelihoods, besides regular poverty alleviation funds and subsidies for converting farmland back to forest, local governments have also actively facilitated connections with external enterprises to help villages develop eco-tourism industries.

However, while the Ant Forest project provides strong financial support for conservation efforts, we simultaneously recognize that finding sustainable and profitable alternative livelihoods for communities is a huge challenge. The existing experience of community-based conservation has not been very successful in demonstrating that communities can achieve sustained profitability. This means that the current source of funding is still mainly dependent on external public donations. Addressing the challenge of finding more funding sources in the future, particularly ensuring the community can establish a stable alternative livelihood program, is a problem we must confront and solve.

10. The capacity to leverage support from authorities to enable local collaboration

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

In the case of the AFPA in Fushou Village, the role of the government, although not as active as other actors, should not be overlooked. Considering China's political and administrative system, government support is the cornerstone of the success of the whole project. However, the AFPA project only has the support of the county level government, but the higher level government is not involved in the work.

Firstly, the government provides the necessary legitimacy for the project. The endorsement of the government not only provides a legal basis for the project but also offers a political guarantee for its implementation. For communities like Fushou Village, collaborating with the government means that the feasibility and sustainability of the project are officially confirmed, increasing the confidence of community residents and other partners in the project.

Secondly, the government has provided ongoing support for project monitoring through its participation in operations such as joint patrols. Regarding the protection of natural resources and the ecological environment, the government has strong law enforcement forces and regulatory mechanisms. By participating in joint patrols, the government can keep abreast the project's progress and existing problems, using its resources and powers to combat and correct violations. The establishment of this supervision mechanism ensures the standardized operation and sustainable development of the project.

In addition, the government has created a favorable environment for the project to advance in the past by providing background support. This is reflected in the collaboration between the State Forestry and Grass

Administration and Ant Group, as well as the support of provincial forestry and grass bureaus in Ant Forest projects. Simultaneously, the government has increased public awareness and support for nature conservation and sustainable development through publicity and promotion programs. This background support provides a strong guarantee for the smooth progress of the project.

However, the AFPA project is at a delicate stage in Sichuan Province. The construction of the giant panda National Park has introduced some degree of complexity into the management system, and different levels of government have blurred their responsibilities for nature conservation. Some interviewees mentioned that there may be certain obstacles to government support.

11. Inclusion and empowerment of relevant and affected actors

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The success of the AFPA Project as a community-based nature conservation project lies not only in the efforts of the core actors but also in the comprehensive inclusion and empowerment of all relevant or affected stakeholders.

Firstly, the project's most distinctive feature is the empowerment and inclusion of local communities. Fushou villagers have long faced economic challenges and have relied on the extraction of natural resources for their livelihoods. Ensuring ecological justice while reducing their impact on the ecosystem has become key to the project's success. The open selection of rangers and transparent accounting in the AFPA project have built trust among the villagers. Additionally, the Paradise Foundation and Laohegou Center conduct monthly interviews with village residents and members of the Association to assess the project's empowerment impact. These interviews cover understanding of the AFPA project, attitudes toward nature conservation, and views on the democratic nature of the Association. Furthermore, empowerment focuses on developing the Association's autonomy, encouraging and supporting members to independently explore alternative livelihoods through leadership training. These methods include organizing visits to other communities, conducting interviews, and helping design work plans. For this purpose, the project has developed a series of strategies, such as finding alternative livelihoods, open recruitment of patrol teams, and organization of cultural and recreational activities, to actively involve villagers in conservation efforts. This not only improves the economic income of the villagers but also enhances their awareness of environmental protection, achieving a win-win situation between ecology and the economy.

Secondly, the project has succeeded in involving the wider public and users of Ant Forest. Through electronic authentication and online viewing of photos and videos, the public can truly participate in nature conservation and experience the joy and value of the ecosystem. On this electronic platform, the public can communicate with members of the Association, just like on Twitter. This participation not only

increases public awareness and support for ecological conservation but also raises more resources and funds for the project.

Thirdly, the project also focuses on cooperation and inclusion with other adjacent nature reserves and community nature reserves. Through the integrated conservation concept and network cooperation, the project ensures the continuity and integrity of nature conservation and avoids the disadvantages of fragmented management. This mode of cooperation not only promotes resource sharing and experience exchange but also provides useful reference for future cross-regional nature conservation.

In addressing the conflict between ecological protection and community livelihood, empowering the community has allowed the conservation program to move beyond traditional compensation schemes. This empowerment has helped reorganize the fragmented community by cultivating internal democratic institutions and leadership. As a result, the community has developed a self-driven motivation for green development and a stronger willingness to collaborate with NGOs and the government. Moreover, empowering the public has not only increased attention and financial support for the AFPA project but also expanded the potential for further cooperation. This includes not only existing partners like the government and Ant Group but also potential engagements with tourism companies.

12. Clarification of interdependence vis-à-vis common problem and joint vision

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The success of the AFPA Project is based on a close network of cooperation between many actors centered on common goals and their distinct resource advantages.

Firstly, Common goals form the foundation of project cooperation. The core objective of the AFPA Project is to protect the ecological environment and promote sustainable development. In Pingwu County, due to strict control over local natural resources, Fushou village leaders have increasingly recognized the importance and urgency of sustainable development. This commitment is evident not only in interviews but also in the contracts and work plans of the AFPA project. Conversely, governments and NGOs, after two decades of conservation efforts, have realized the limitations of both coercive measures and compensation strategies. For mandatory programs, neither the government nor NGOs have the resources to effectively monitor the extensive mountainous and forested areas. Without community empowerment or strong enforcement, the Paradise Foundation's compensation plan in another village has become bogged down in endless negotiations, disputes, and conflicts. Thus, the government and NGOs have come to understand that the essence of nature conservation lies in fostering the community's awareness and capabilities for green development. This goal unites various stakeholders, including governments, social organizations, and entrepreneurs, providing a foundation for their collaboration. With these shared objectives, all parties can create synergies to collectively tackle challenges in ecological protection. This

alignment enables the various actors to support and enhance each other's efforts, ensuring the project progresses smoothly.

Secondly, distinct resource advantages are the key to project cooperation. In the AFPA Project in Fushou Village, NGOs and entrepreneurs possess unique resource advantages. NGOs have sufficient expertise in nature conservation and local knowledge to provide scientific and effective conservation strategies for projects. Entrepreneurs, on the other hand, have a broad consumer base, strong electronic platform capabilities, and robust financial resources to provide the necessary financial support and public participation channels for projects. This complementary set of resource advantages enables the various actors to cooperate and support each other, thus achieving the comprehensive advancement of the project.

In addition, an attitude of empowerment and equality toward the community is also an important manifestation of project cooperation. In the AFPA Project, all actors consistently adhere to the community-based principle, fully respecting and protecting the interests and rights of the community. They actively involve the community in the project management and decision-making process through the open recruitment of patrol teams and the organization of cultural and recreational activities, enhancing the sense of participation and belonging in the community. This attitude of equality and empowerment promotes community input, such as human resources and local knowledge.

13. Trust-building and conflict mediation

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

Ant Group recognized the importance of trust from the beginning of the project and made it one of the core principles of the Ant Forest project. Through the principle of openness and transparency, Ant Group allows the public to visually see the forest it is planting through green energy, resulting in the public's trust and support. This building of trust not only enhances the public's sense of participation and belonging in the project but also garners more resources and funds for the project.

Trust is also crucial for the Fushou Village Association and NGOs working on local protection. Not only do they actively seek to be open and transparent with the public to gain their trust and support, but they also need to build trusting relationships with local villagers whose livelihoods are directly affected. To this end, they have taken three key steps to ensure that trust is built.

Firstly, NGOs actively seek to build a long-term cooperative relationship through both regular and sporadic exchanges with local villagers. The Paradise Foundation and the Laohegou Center maintain very close personal contact with the leaders of the Association, not only through face-to-face meetings but also via WeChat. The Association's leaders have become familiar with the NGOs' commitment to community

autonomy and sustainable development goals. For ordinary villagers, NGOs strive to cultivate an image of good neighbors. They have gotten to know the villagers well through face-to-face interviews and by participating in festival celebrations to establish a harmonious relationship, gradually helping the villagers to accept the presence of conservation organizations. This continuous interaction not only enhances mutual understanding and trust but also provides a strong guarantee for the smooth implementation of the project. Long-term cooperation has enabled NGOs and villagers to develop mutual understanding and trust, ensuring active participation and support for the projects.

Second, the Fushou Village Association, with assistance from NGOs, has restructured the community's management approach and now presents financial and other relevant information openly and transparently. This enhancement of transparency not only strengthens the villagers' trust in the association but also ensures the fairness and sustainability of the project. Open and transparent financial management and information disclosure demonstrate the association's integrity and responsible attitude, resulting in the villagers' trust and support. The Association's annual budget must be submitted at the beginning of the year for review by the Paradise Foundation, and a report on specific expenditures is required at the end of the year. This information is posted in a visible area outside the meeting room, reminding villagers to conduct audits and supervision. Additionally, the Paradise Foundation are developing their professional skills in financial roles such as accountants.

Thirdly, with the help of NGOs, the Association is also developing skills in conflict coordination, especially regarding wildlife. The villagers' farmland is very close to the mountains, and animals such as wild pigs and deer frequently come down to eat crops like corn. In 2020, the Association included an insurance expense in its budget to compensate villagers for losses due to wildlife damage, after verification. This conflict coordination has garnered more villagers' support for the AFPA project. Finally, the network of cooperation between the community and external NGOs is based on such mutually beneficial collaboration. Although this cooperation may not bring very rich returns, it has brought expectations and aspirations for the future livelihood development of local villagers. Such mutually beneficial collaboration not only promotes the sharing of resources and the exchange of experience but also provides more development opportunities and possibilities for local villagers.

14. Use of experimental tools for innovation

QCA score:

- 0
 0.33
 0.66
 1

Scoring confidence:

- Low confidence
 Medium confidence
 High confidence

Data sources:

- Interviews
 Documents
 Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

The AFPA project seeks input from various stakeholders through continuous interaction and prototyping to achieve iterative improvements. This approach ensures that solutions are timely and responsive to the community's and environment's needs.

Opportunities to support community-based nature conservation in Pingwu County are being enhanced by Ant Group's Alipay platform. Playing a crucial role in daily life, Alipay also leads innovations in promoting social welfare and ecological protection. It provides an array of tools and channels for the AFPA projects, significantly strengthening the connection between the public and local protection agencies. Through Alipay, the public can visually engage with the forests they have helped to plant and the protected areas they have created using green energy. This intuitive and participatory experience not only bolsters the public's sense of identity and belonging to the project but also fuels their enthusiasm for active participation in ecological conservation.

Progress is being made in improving community development issues within the AFPA projects. Initially, there is a focus on the progressive identification of alternative livelihoods. Communities are encouraged to identify and implement at least three alternative livelihoods, reducing dependence on and damage to natural resources. This strategy of "crossing the river by feeling the stones" not only minimizes risks but also expands the possibilities for community development. By exploring different lifestyles, communities can gradually carve out their own development paths, achieving both ecological and economic wins. Furthermore, the program prioritizes training industry leaders. Through their leadership and exemplary roles, these leaders propel their communities forward. This training mechanism not only boosts the community's self-development capacity but also establishes a solid foundation for the project's sustainable development.

Secondly, feedback and enhancement of community empowerment and conflict resolution programs are ongoing. Based on annual reports, the Association and NGOs identify necessary improvements each year. For example, the insurance system was introduced in 2020, and the accounting system in 2022. After reviewing the annual reports, the Paradise Foundation evaluates the year's progress and pinpoints significant challenges. NGOs then collaborate with the Association to publicly announce planned improvements and gradually develop specific enhancements in the subsequent quarters.

Thirdly, the methods of communication between the Association and the public have gradually diversified. From initially sharing simple photos, the Association has expanded to sharing more videos and even New Year greetings, enriching the community's engagement.

15. Ongoing critical self-reflection and learning (i.e., process and/or developmental evaluation):

QCA score:

0

0.33

0.66

1

Scoring confidence:

Low confidence

Medium confidence

High confidence

Data sources:

Interviews

Documents

Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

In the AFPA Project, the Paradise Foundation played a crucial role—not only as a leader in the self-reflection process but also as a bridge between different levels of stakeholders. They have taken a cautious approach to the entire project, consistently reflecting on the outcomes of their work within the community

and the feedback from the association and other villagers. This reflective leadership ensures the steady progress of the project and the ongoing development of the community.

The leadership of the Paradise Foundation is evident in several key areas. Firstly, the Foundation evaluates and reflects on the implementation and outcomes of the AFPA projects through regular meetings, interviews, and questionnaires. This process involves gathering feedback from villagers to promptly adjust project strategies and directions. During interviews, three staff members are typically involved: one asks questions, another records the responses, and a third observes. The collected data is then organized and discussed by the Paradise Foundation and Laohegou Center to assess villagers' attitudes towards the AFPA project and to gather their suggestions.

Additionally, the Paradise Foundation conducts an annual comprehensive assessment of the Association's operations and the socio-economic situation in Fushou Village before the Spring Festival. This evaluation includes reviewing villagers' attitudes towards nature conservation, adherence to the Association's rules, the effectiveness of patrol operations, incidents of poaching, and the development of alternative livelihoods. Based on these assessments, the Association receives guidance and collaboratively discusses the work plan for the upcoming year, including elements such as insurance compensation plans, conference room design, and patrol strategies.

Secondly, the Paradise Foundation provides weekly online training for its staff, led by a senior community work expert. During these sessions, staff members from the Laohegou Center and other NGOs share and critique community interview examples. The senior expert then discusses the principles of community empowerment and practical work techniques based on these examples.

Thirdly, fostering the Association's capacity for self-reflection is a focal point of the Paradise Foundation's efforts. In designing annual plans, the Foundation assists the Association in identifying challenges encountered by AFPA projects and encourages them to design their own work plans. Moreover, the Paradise Foundation supports the Association in mastering nature conservation skills, which include effective communication, data collection and analysis, and the development and adjustment of strategies. These training sessions not only enhance the professional capabilities of the Association but also deepen their understanding of the project's objectives and significance, fostering more active participation in its implementation.

16. Exercise of facilitative leadership:

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this governance factor:

In the AFPA Project, the Paradise Foundation and Laohegou Center serve not only as core leaders but also as crucial promoters and strategists in nature conservation efforts. This unique organizational relationship enables them to connect actors at both high and low levels, demonstrating their distinctive leadership and authority in project implementation.

First and foremost, the Paradise Foundation and Laohegou Center have garnered extensive trust and authority in conservation work due to their long-term experience and accumulated expertise. This trust and authority stem not only from their professional competence but also from their deep understanding and ongoing commitment to the project. This solid foundation allows them to take a leadership role effectively, driving project implementation and coordinating the interests of all parties.

Secondly, their close collaboration with Ant Group provides a stable source of funding for the project, ensuring sufficient resources to address potential conflicts and solidify their leadership position. This collaboration not only enhances the project's financial strength but also guarantees its sustainable development.

More importantly, the Paradise Foundation and Laohegou Center go beyond their roles as leaders; they serve as facilitators of collaborative relations and conflict resolution. Throughout project implementation, they actively coordinate relationships among all parties, promoting effective communication and cooperation at different levels. They focus not only on short-term project results but also on the long-term conservation impact and sustainable development of the community. Additionally, they engage in active reflection and lesson-learning, continuously adjusting and improving the project strategy. This reflective approach not only enhances project implementation but also provides valuable insights for future conservation efforts.

Ultimately, the goal of the Paradise Foundation and Laohegou Center is to cultivate communities into institutions with leadership capabilities. Through training and mentoring, they aim to assist communities in enhancing their capacity for self-management and protection, transforming them into crucial partners and allies who can collaboratively promote and co-create conservation solutions.

Outcome variable: Successfully co-created green transitions

The outcome variable 'co-created green transitions' will be scored in two parts. First, 'co-creation' will be scored based on an assessment of whether the participants in the initiative, project or process engaged in collaborative problem-solving that fostered creative ideas and innovative solutions (data will consist of survey data combined with interviews and documents). Next, 'green transitions' will be scored based on an assessment of whether the initiative, project, or process has fulfilled or is expected to fulfill its green goals, ambitions and aspirations (data will consist of survey data combined with interviews and internal and/or external evaluation reports, including scientific publications).

The scoring of this variable is done in two parts:

- 1. Is the developed solution based on collaborative problem-solving spurring creativity and innovative solutions?*
- 2. Does the developed solution engender a green transition?*

This scoring should be conducted based on both the survey and complementary green outcome evaluations. Please consult Sections 4.4 and 6.10 in the Research Protocol for more details.

1. Is the developed solution co-created?

QCA score:

- 0
- 0.33
- 0.66
- 1

Scoring confidence:

- Low confidence
- Medium confidence
- High confidence

Data sources:

- Survey
- Interviews
- Documents
- Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring.

The AFPA project aligns with the principles of co-creation, showcasing collaboration among multiple actors and highlighting innovative practices in both social and technological domains. Its synergy is primarily evident in three aspects: Firstly, through the AFPA project, the public has gained a new channel to actively participate in nature conservation, fostering increased enthusiasm for green lifestyles. Secondly, Chinese enterprises and environmental NGOs have established closer collaboration to leverage each other's strengths and provide their respective comparative advantages. Finally, the organization and empowerment of local communities are also fully reflected, further stimulating the community's autonomy and enthusiasm for nature conservation.

This innovative solution successfully integrates ant forest projects with community-based conservation efforts. This integration has not only achieved remarkable breakthroughs at the social level, attracting investments and public attention from China's giant tech companies for local actors, but it has also provided opportunities for the public to actively engage in nature conservation. Moreover, at the technical level, thanks to the continuous development of the Chinese electronic platform, the solution has been consistently optimized. This cross-field innovation and cooperation have jointly propelled the solution to achieve satisfactory results in practice.

The survey received responses from ten interviewees, comprising four representatives from Fushou Village, two from the Paradise Foundation, and four from Laohegou Center. As evident from the table, a significant majority of the respondents concurred or strongly concurred with all the questions posed. Notably, the mean score across all survey items stands at a conspicuously positive level, surpassing the mark of 2.

n = 10	Strong. dis.	Dis.	Slight. dis.	Neither agr/dis	Slight. agree	Agree	Strong. agree	Mean score
1. Problem-solving mobilized different experiences, and/or ideas and/or forms of knowledge to develop new perspectives	-	-	-	-	10%	30%	60%	2.5
2. Through the collaborative problem-solving process, different experiences and/or ideas and/or forms of knowledge have been mobilized to search for unconventional solutions	-	-	-	-	10%	30%	50%	2.2
3. The collaborative problem-solving process mobilized different experiences, and/or ideas and/or forms of knowledge to search for solutions that go beyond standard/text-book solutions	-	-	-	-	20%	30%	50%	2.3
4. The co-created solution breaks with established practices	-	-	-	-	40%	10%	50%	2.1
5. The co-created solution disrupts conventional wisdom	-	-	-	-	40%	20%	40%	2
6. The co-created solution offers new ideas to address the green transition problem	-	-	-	-	40%	20%	40%	2
7. I'm supportive of the co-created solution	-	-	-	-	-	-	100%	3
8. I'm content with the overall collaborative process of the project	-	-	-	-	-	-	100%	3
9. I feel the multi-actor collaboration process was a prerequisite for the success of the project	-	-	-	-	-	-	100%	3
10. I'm satisfied by the results of the co-creation effort in terms of expected impact on the welfare of the community	-	-	-	-	10%	60%	30%	2.2

11. The collaborative interaction in the project has led to an innovative solution	-	-	-	-		50%	50%	2.5
12. The actors involved in the project are engaged in collaborative interaction that stimulated creative problem-solving	-	-	-	-		50%	50%	2.5
13. The co-created solution meets the proposed goals of the project	-	-	-	-		10%	90%	2.9
14. The co-created solution will be durable and robust in the long run	-	-	-	-	10%	60%	30%	2.2
15. The co-created solution is expected to significantly improve sustainability for the whole community	-	-	-	-		20%	80%	2.8

The distribution of responses to the initial question signifies a strong consensus that diverse ideas, resources, and knowledge forms have been leveraged in the pursuit of novel perspectives. Specifically, 90% of respondents concurred or strongly concurred that diverse experiences, ideas, and knowledge forms were mobilized to address problems. Thus, the NFPA Compact is unequivocally a collaborative problem-solving initiative.

The responses to questions 2-6 suggest that creative and innovative solutions were generated through the collaborative interplay of various stakeholders. When asked if the scheme significantly differs from mainstream protection schemes, interviewees provided somewhat varied answers. Those with higher ratings compared NFPA programs to government-led conservation initiatives, while those with lower ratings compared them to community-based conservation programs.

The replies to questions 7-10 reveal robust support for both the process and outcomes of the NFPA Project. The interviewees expressed strong backing for the collaborative process within the NFPA project and its favorable impact on nature conservation. However, many interviewees expressed a desire for the NFPA project to introduce more alternative livelihoods in Fushou Village in the future, as these are only beginning to emerge.

With regard to questions 11-15, there is strong endorsement for the assertion that the stakeholders were involved in collaborative processes that fostered innovative results, that the project has achieved its goals, and that the outcomes are robust.

2. Does the developed solution engender a green transition¹?

QCA score:

- 0
 0.33
 0.66
 1

Scoring confidence:

- Low confidence
 Medium confidence
 High confidence

Data sources:

- Survey
 Interviews
 Documents
 Observations

Please elaborate on the reasoning behind your scoring for this part of the governance factor, including the data sources used for the scoring.

The AFPA project, focused on nature conservation, community development, and the promotion of low-carbon living, has achieved significant milestones. Nature conservation, community development, and the advocacy of low-carbon living represent long-term goals that require ongoing efforts and evaluation. However, based on current materials, the AFPA project has made initial strides in achieving its set objectives. These achievements are documented in various sources, including the Ant Group's official report on the Ant Forest project, the annual evaluation report by the Paradise Foundation and the Laohegou Center, a third-party financial audit report, and the Association's self-evaluation report. To ensure the reliability of these findings, the data are corroborated with information from other sources, such as interviews with multiple actors and actual field trips.

For Low-Carbon Living, Ant Forest has evolved into an inclusive platform, engaging over 650 million users by the end of 2022. Participants have contributed to a cumulative emission reduction of over 26 million tons of 'green energy.' The platform introduces new green scenarios, with more than 60 low-carbon cooperation options. Additionally, the 'Online Protection of Protected Areas' campaign has garnered over 230 million participants, covering 24 protection sites across 13 provinces, safeguarding 1,600 species.

For Nature Conservation, since 2020, Fushou Village established a patrol team and devised a regular patrol plan. Following the real-time project, the patrol team reported no poaching incidents, and the practices of venturing into the forest for beekeeping and collecting medicinal materials have gradually been brought under control. These outcomes undergo annual scrutiny by the Paradise Foundation and the Laohegou Center, with additional assurance provided by joint government and NGO patrols

For Community Development, the AFPA project ensures the community empowerment and economic development of Fushou Village. The village established the Pingwu County Nature Resource Protection and Industry Development Association, which, with the support of NGOs, implemented an open and transparent financial approach. According to the annual survey, villagers are not only aware of the AFPA project but also express support for it. In the latest survey, a majority of villagers demonstrated awareness of ranger selection, financial disclosure, alternative livelihoods, and other related matters. In terms of economic development, Fushou Village receives an annual budget of approximately 200,000 renminbi. These funds contribute to the salaries of rangers and association directors, support alternative industries like beekeeping and fruit farming, and provide for wildlife accident insurance.

¹ By "green transitions", we mean objectives and aspirations that correspond to at least one of the Green SDGs (SDG 6, 7, 11, 12, 13, 14, 15). The project does not have to refer explicitly to the green SDGs, but the project's green objectives

A series of survey questions focus on whether the project has produced or is expected to produce a green transition aiming to avoid a worsening of the status quo, maintain the status quo or improve the status quo.

1. The project:	Yes	No	Don't know
...did not produce any green transition solution	100% (n = 10)		-
...has produced or is expected to produce a green transition solution aiming to avoid a worsening in the status quo	100 % (n = 10)		
...has produced or is expected to produce a green transition solution aiming to maintain the status quo	100% (n = 10)		-
...has produced or is expected to produce a green transition solution aiming to improve the status quo	100% (n = 10)		-

n = 10

The responses indicate that all participants concurred that NFPA projects align with the green transformation and enhance the status quo. Given the multifaceted nature of NFPA projects, the respondents believe that NFPA not only mitigates biodiversity loss and sustains community autonomy but also opens avenues for the green development of communities and green consumption by consumers.

Please list all the informants you have interviewed for the case study (list project role + interview date):

Two Chinese scholars led the research efforts for the AFPA project. In August 2023 and June 2024, the research team traveled to Pingwu County in Sichuan Province to conduct on-site interviews, as well as to Mianyang City and Chengdu City to interview government officials.

Furthermore, the focused research conducted in 2023 was complemented by ongoing observations and interview data spanning from 2018 to 2022. These previous interviews were conducted both in the field and via telephone.

List of informants:

Seven representatives from the Laohegou Centre.

Two representatives from Paradise Foundation.

Two representatives from Ant Forest.

Eight representatives from local communities.

Two officials from County Forest Administration.

Two officials from regional national parks.

One official from the Provincial Forestry Department.

Three consumers involved in the Ant Forest.

Please list all the observations you have made (type of meeting/workshop/etc. + observation date):

During the 2023 fieldwork, researchers examined the ecological environment surrounding the community, taking into account factors such as forest status and agricultural land distribution. On a social level, the study also delved into the organization of community meetings, the utilization of conference rooms, and the modes of communication between NGOs and the local communities.

Please list all the documents you have analyzed (document name + source + year):

- a) Paradise Foundation (2023) Annual assessment of the Fushou Village AFPA Project (2020-2023)
- b) Paradise Foundation (2022) Annual report on the work of the Foundation (2019-2022)
- c) Fushou Village (2019) Villagers' resolution on the establishment of a nature conservation district.
- d) Pingwu County Nature Resource Protection and Industry Development Association (2022) Annual work plan and budget for the AFPA project (2020-2022)
- e) Pingwu County Nature Resource Protection and Industry Development Association (2021) Community Fund Implementation Program
- f) Pingwu County Nature Resource Protection and Industry Development Association (2022) AFPA Project Annual Working Report (2019-2022)
- g) Paradise Foundation & Pingwu County Nature Resource Protection and Industry Development Association (2020) Donation Agreement for the Pingwu County Natural Resources Conservation Fushou Preserve
- h) Pingwu County Nature Resource Protection and Industry Development Association (2019) The management system of the patrol team of Pingwu County Fushou Nature Conservation District
- i) Pingwu County Nature Resource Protection and Industry Development Association (2019) The work plan for the patrol team of Pingwu County Fushou Nature Conservation District
- j) Pingwu County Forestry Bureau (2019) Approval Document on Pingwu County Fushou Nature Conservation Community
- k) Sichuan Public Accountants Limited Corporate (2021) Financial Audit Report of AFPA Project
- l) Paradise Foundation (2020) Baseline survey report on the society and ecology of Fukushima village
- m) IUCN (2020) Ecological value assessment of ant forest afforestation projects
- n) Ant Group (2022) Sustainability Report (2016-2022)
- o) Zhao, J., Jin, T., Zhang, P., Krott, M., & Liu, J. (2023). Political embeddedness in public-private partnership for nature conservation: A land trust reserve case from China. *Ambio*, 1-15.

Please note the response rate for the survey/measurement of outcome variable:

We conducted interviews with NGO representatives and village participants who were directly involved in the NFPA Project. The survey was administered to 10 individuals in person, in the form of a paper questionnaire, and we successfully received responses from all of them.