

# Problems and Pathways for Developing Scientific Decision-Making and Consultation Mechanisms in National Parks: A Governance Perspective (Postprint)

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## Abstract

National parks are multi-element, multi-functional, and multi-dimensional complexes, making it difficult to follow traditional administrative control models and necessitating the exploration of modern governance system construction. Establishing rational and efficient scientific decision-making and consultation mechanisms serves as an important bridge for improving governance effectiveness. China has made significant progress in scientific decision-making and consultation for national parks; however, due to ambiguous delimitation of rights and responsibilities, departmental management path dependency, insufficiently smooth vertical information flow between decision-making and consultation, inadequate procedural norms and institutional constraints for decision-making consultation, and other reasons, problems still exist in national park decision-making mechanisms and their effectiveness. This article draws on the operational experience of national park decision-making consultation mechanisms in the United States and France under different governance systems such as centralized government management and pluralistic co-governance, and analyzes the key elements for establishing the boundaries of rights and responsibilities of national park decision-making consultation institutions in China. Based on the degree of potential ecological environmental impact, potential social impact, and practical constraints on decision implementation, the article proposes that 26 decision-making items, including the formulation of national park laws, regulations, and administrative rules, should grant scientific groups the right to deeply support decision-making or even exercise “veto power,” while 19 decision-making items, including the establishment of central and local government rights and responsibilities boundaries, require the initiation of multi-party demonstration mechanisms. The article also proposes countermeasures and suggestions regarding disciplinary coordination, linkage and coordination, and institutional

standardization of decision-making consultation.

## Full Text

### Preamble

#### Special Feature: Modernizing National Park Governance System

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## Abstract

National parks are multi-factor, multi-functional, and multi-dimensional complexes that cannot rely on traditional administrative control models and require exploration of modern governance system construction. Establishing a rational and efficient scientific decision-making and consultation mechanism serves as a crucial bridge for enhancing governance effectiveness. China has achieved remarkable progress in scientific decision-making and consultation for national parks. However, due to ambiguous definition of authority and responsibility, path dependence on departmentalized management, insufficient smooth communication of information between decision-making and consultation, and inadequate procedural norms and institutional constraints, problems remain in the decision-making mechanisms and effectiveness of national parks. This article draws on the operational experience of national park decision-making consultation mechanisms in the United States and France under different governance systems of centralized management and polycentric governance, and analyzes the key elements for establishing clear authority and responsibility boundaries

for national park decision-making consultation institutions in China. Based on the degree of potential ecological and environmental impact, potential social impact, and realistic constraints on decision implementation, the article proposes that scientific groups should be granted rights to deeply support decision-making and even “veto power” for 26 decision items including national park laws and administrative regulation formulation, while 19 decision items including the establishment of central-local authority boundaries should initiate multi-party demonstration mechanisms. The article also proposes countermeasures and suggestions regarding disciplinary coordination, linkage and coordination, and institutional standardization of decision-making consultation.

**Keywords:** national park governance, scientific decision-making, decision-making advisory, organizational forms, boundaries of authority and responsibility

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China is advancing its modern national governance system. As the main component of the protected area system and an important region for promoting ecological civilization institutional construction, national parks must take the lead in breaking through the constraints of traditional administrative control models and exploring the construction of a modernized national park governance system in China.

## 1. Decision-making and Consultation in National Park Governance

### 1.1 Complexity of National Park Governance

Governance differs from administrative control, characterized by diversified subjects, dynamic processes, and adaptability, emphasizing multi-party allocation of authority and responsibility and benefit sharing. National park governance is highly complex. Guided by the three principles of ecological protection first, national representativeness, and public welfare, national parks aim to protect the integrity and authenticity of important ecosystems and envision harmonious coexistence between humans and nature, while also serving functions such as scientific research, environmental education, ecological experience, and green development, making them multi-factor, multi-functional, and multi-dimensional complexes.

The complex natural attributes and human-land relationships further increase the difficulty of national park governance. Ecological environments possess multi-dimensional, dynamic, and complex characteristics, including: professional features arising from uncertainties in biodiversity and environmental elements; regional heterogeneity features caused by differences in territorial space and natural conditions; and systematic features resulting from the integration of various ecological and biodiversity elements through ecological processes such

as energy flow and material cycling. Under the goal of ecosystem integrity protection, national parks involve diverse ecological and spatial structural elements, complex industry and regional relationships, and superimposed visions of harmonious human-nature coexistence, resulting in a larger and more complex stakeholder network than other spatial entities. Additionally, China's large population base, long history of human-land symbiosis, and coexistence of state-owned and collectively-owned natural resources all increase governance complexity to varying degrees.

### **1.2 Necessity of Establishing Scientific Decision-making and Consultation Mechanisms for National Parks**

Decision-making is the prerequisite for all undertakings, and complex system governance requires scientific and democratic decision-making. A rational and efficient scientific decision-making and consultation mechanism is an important bridge for effectively coordinating the interactive relationships among public sectors, social forces, and private sectors, and for safeguarding the public nature and service orientation of public governance. It represents a key pathway for effective governance of complex systems.

National park governance decisions must be optimal choices that give full play to multiple functions under the premise of ecological protection first, “no-regret choices” that will not cause irreversible impacts on ecosystems, and wise choices that balance the interests of the vast majority of groups. By establishing scientific decision-making and consultation mechanisms, scientific communities and industry representatives can be fully engaged to provide consulting services and support decision-making and implementation, comprehensively leveraging collective wisdom advantages, coordinating relationships among different stakeholders, promoting social participation, balancing socioeconomic and resource allocation, avoiding path deviation under government “monopoly” management, and gradually guiding decision-making power from class privileges to public power based on scientific facts and objective social development needs.

## **2. Problems and Root Causes in National Park Decision-making Systems**

China's national park construction is a process of “simultaneous dismantling and construction.” At the beginning of the pilot phase, the National Development and Reform Commission led and jointly organized 12 ministries to carry out a series of decision-making consultation work, including establishing a core expert group covering multiple disciplines and relying on scientific groups to promote the issuance of documents such as the “Overall Plan for Establishing the National Park System.” After the 2018 State Council institutional reorganization, under the comprehensive coordination of the newly established National Forestry and Grassland Administration, the coverage of national park decision-making consultation work gradually expanded, with research and consultation

institutions at different levels being gradually established, and scientific research institutions such as the Chinese Academy of Sciences being engaged as technical support and decision-making consultation departments for legislation, planning, acceptance evaluation, and other work.

National park scientific decision-making and consultation work has progressed significantly, but problems cannot be ignored. Through interviews and questionnaire surveys with legislative representatives, experts and scholars, front-line management and staff representatives, and community residents, the author found that decision-making defects exist in multiple aspects of national park governance. While this is related to the incomplete reflection of opinions and suggestions from scientific groups and representatives from all sectors, the fundamental reasons lie in imperfect institutions and unsound mechanisms.

### **2.1 Specific Manifestations of Decision-making Defects in National Park Governance**

National park governance involves institution building, planning and layout, protection and restoration, public services, community development, and other affairs, with decision-making defects concentrated in four aspects. First, evaluation and demonstration of some major decisions such as selection and establishment are insufficient. The situation of emphasizing construction over management and pursuing quantity and speed still exists before national representativeness, ecological importance, and management feasibility have been fully demonstrated and before natural resource asset management plans and institutional mechanisms have been clarified. Second, disciplinary support for decision-making is insufficiently comprehensive. Experts from ecology, forestry, and related majors occupy mainstream positions in national park planning and management, while participation from management, sociology, economics, law, and other fields is insufficient, resulting in relatively narrow disciplinary coverage. Third, community rights and interests are not fully protected. Influenced by traditional nature reserve management models, the compatible development path between national parks and communities has not been clarified, and “one-size-fits-all” policies such as relocation, logging bans, and grazing bans have triggered negative emotions among community residents to a certain extent. Fourth, the paths and methods for social force participation are unclear. The willingness of community groups such as social organizations, enterprises, and individuals to express demands, offer suggestions, and even support decision-making consultation is rising, but participation channels are relatively singular, methods are not clear, and participation levels are insufficient.

### **2.2 Fundamental Causes at Institutional and Mechanistic Levels**

Imperfect institutions and mechanisms are among the fundamental reasons for defects in national park governance decision-making, specifically reflected in four aspects. First, authority positioning is ambiguous, and the independent third-party support role of consultation institutions is not significant. In recent years,

various technical support and decision-making consultation institutions such as national park research institutes and expert committees have rapidly emerged at national and local levels, but their functional positioning is not yet clear—what work requires expert consultation, what authority scientific groups and other consultation institutions have in different affairs, and what consultation forms and pathways exist currently lack institutional clarity, leading to the concession of consultation institutions' rights to independent demonstration and neutral advice to decision-makers and affecting the objectivity and effectiveness of consultation.

Second, path dependence on departmentalized management has not been broken through, and decision-making consultation still suffers from departmental barriers. Influenced by long-term sectoral management of protected areas, national park decision-making consultation affairs currently focus mainly on natural science fields such as forestry and ecology, with insufficient disciplinary comprehensiveness in expert composition, consultation affairs, consultation processes, and decision-making models.

Third, the linkage mechanism between decision-making and research is not sound, and research results have not effectively played a decision-supporting role. Decision-making departments and consultation institutions have different functions, and current incentives for transforming research into decisions are imperfect; except at the national level, many national park research institutes or expert committees have not timely and fully converted research results into effective information needed for decision-making, making the decision-supporting role of scientific research insufficiently significant.

Fourth, institutional constraints on decision-making consultation are insufficient, procedures are not standardized, and consultation effectiveness is not significant. China has not yet issued special regulations on the scope of work, organizational forms, and operational procedures for national park decision-making consultation, resulting in the inability to incorporate the staffing and funding of consultation institutions into normalized management, frequent problems such as limitations, randomness, and temporariness in consultation work, and some consultation demonstrations becoming mere formalities with questionable rationality and effectiveness.

### **3. International Experience in Scientific Decision-making and Consultation for National Parks**

The definition of authority and responsibility for consultation institutions, multidisciplinary coordination of consulting experts, linkage and coordination between decision-making and consultation departments, and institutional standardization of decision-making consultation are effective means to remedy decision-making defects in national park governance, but China currently lacks sufficient practical experience accumulation. Considering that operational models of consultation mechanisms are inseparable from governance

systems and decision-making mechanisms, and that the United States and France represent typical examples of centralized management and polycentric governance models for national parks, their corresponding decision-making and consultation mechanisms are also completely different. This study focuses on these two countries' cases to gain insights into effective decision-making consultation models for the governance of public goods owned by all people and natural resources with complex property rights.

### **3.1 Organizational Forms of Decision-making Consultation in US and French National Parks**

**(1) US Model: Government-led Decision-making with Scientific Consultation Support.** The US national park system has 96% federal land ownership, making it a typical public good owned by all people. It implements a government-led decision-making model, with the National Park Service of the US Department of the Interior exercising sole decision-making authority according to law. As needed, the federal government legally establishes advisory committees with specific functions within its structure and coordinates with external experts to provide consulting services for national park decision-making, while also forming a check on government decision-making to avoid government monopoly.

**(2) French Model: Polycentric Governance with Scientific Groups Exercising Decision-making Power on Major Issues.** French national parks have complex land ownership, intertwined environmental, cultural, and economic elements, and parallel goals of biodiversity conservation and sustainable development, implementing polycentric governance. The French Ministry of Ecological Transition and Territorial Cohesion legally coordinates national-level national park management, while each national park is jointly governed by boards of directors, management committees, scientific expert committees, and economic, social, and cultural committees. Additionally, both central and individual national parks have chief scientists responsible for decision-making consultation.

### **3.2 Operational Models of Decision-making Consultation in US and French National Parks**

The operational models of national park decision-making consultation are matched with organizational forms, which largely determine the operational models.

**(1) Authority Boundaries of Decision-making Consultation Institutions.** Under the US federal government's unitary decision-making system, US national park consultation institutions mainly play an auxiliary role in decision-making and avoiding government monopoly. The Federal Advisory Committee Act stipulates that advisory institutions only have consulting functions and do not participate in decision-making. For national park action plans that may

have significant environmental impacts or potential major economic and social impacts, independent environmental assessment institutions and external experts must conduct environmental impact assessments and peer reviews, with results serving as important bases for decision-making.

French national park decision-making is public decision-making based on public choice. The French National Park Scientific Expert Committee has stronger functional positioning and influence on decision-making, mainly including pre-establishment leading decision-making consultation and major issue decision-making consultation during park operation. For example, before establishment, it has authority over scientific solutions for optimal joining area boundaries, core area scope, and charter terms; during operation, it reviews protective or ecological restoration engineering projects in core areas, projects that may cause environmental impacts, and charter update-related terms. The Economic, Social, and Cultural Committee only provides consulting services on economic and social issues in joining areas.

**(2) Multidisciplinary Coordination of Consulting Experts.** US national parks attach great importance to the professional and industry composition of advisory committee experts. Taking the national-level “National Park System Advisory Board” as an example, its 12 members have backgrounds in natural sciences, social sciences, national park management, finance, and other disciplines, skills, and geographic regions. Environmental impact assessment systems and peer review mechanisms also require interdisciplinary analysis methods to ensure comprehensive and impartial evaluation and demonstration conclusions. The same requirements apply to France. French national park scientific committees consist of authoritative scientists in life and earth sciences, humanities and social sciences, while economic, social, and cultural committee representatives consist of relevant institutions, NGO representatives, scientific professionals, local community representatives, industry association representatives, and well-known social figures.

**(3) Linkage and Coordination Between Decision-making and Consultation Institutions.** US national park advisory committees have clear business scopes, including regulation formulation, special planning, natural and cultural resource protection, land property management, human activity authorization, and vehicle management, with each committee linking and coordinating with competent authorities within its business scope. French national park advisory committees conduct scientific demonstrations and debates on economic, social, and cultural issues through meetings convened by national park competent authorities. Some national parks (such as Écrins National Park) also build information technology platforms between decision-making and consultation institutions, where documents requiring scientific committee advice are shared on the platform, relevant experts provide corresponding responses, and external experts can choose to participate or not.

**(4) Institutional Standardization of Decision-making Consultation.** The US has a complete legal system and directive system to ensure the stan-

standardized operation of decision-making consultation mechanisms. The National Environmental Policy Act requires all federal agencies to conduct in-depth studies on the impacts and alternatives of proposed “major federal actions,” decide whether to proceed based on research results, and make public participation a prerequisite for decisions with potential environmental impacts. The National Historic Preservation Act regulates consultation work in cultural resource protection and management. The Federal Advisory Committee Act clarifies the legal status of advisory institutions. To implement congressional act requirements, the US National Park Service has formulated a series of directive policies to specify decision-making consultation regulations.

French laws and regulations include three levels: the Environmental Code, the National Park General Law, and administrative orders. The Environmental Code clarifies that national park boards of directors need to rely on the professional skills of scientific expert committees and the debate results of economic, social, and cultural committees to make decisions. The National Park Reform Act, as the general law, clarifies the organizational structure of national park governance and the authority boundaries of national park management committees, boards of directors, scientific committees, and economic, social, and cultural committees. Based on this, State Council orders (a form of administrative command) further clarify the basic composition and operational mechanisms of the two major advisory committees.

In summary, US national parks are typical public goods with prominent public welfare attributes and strong government dominance in decision-making mechanisms, where consultation institutions mainly play an auxiliary consulting function. Various experts assist decision-making through multiple external review mechanisms to avoid monopoly by a single government decision-making entity. French national parks have weaker public goods attributes than US parks, with major decisions based on collective or public choice, and consultation institutions tend to play functions of pre-decision scientific support and in-depth decision support. This difference is illustrated in Figure 1 [Figure 1: see original paper].

## **4. Building Scientific Decision-making and Consultation Mechanisms for China’ s National Parks**

### **4.1 Future Development of China’ s National Park Decision-making System and Consultation Mechanism**

The attributes of public affairs determine the operational model of the decision-making system. China’ s national park decision-making system should be an evidence-based decision-making system with government as the main body and leader, multi-party linkage, and full respect for science. Under this decision-making system, national park consultation institutions must not only perform conventional consulting service functions but also need to provide in-depth support for major issues and undertake dual functions of general consultation and

supporting evidence-based decision-making on major issues.

## **4.2 Organizational Forms of Scientific Decision-making and Consultation for National Parks**

What organizational forms should provide consulting services is the first problem to be solved in implementing decision-making and consultation mechanisms. It is recommended to adopt a combination of research institutes and expert committees to leverage their respective strengths and jointly support scientific decision-making for national parks.

**4.2.1 Clarifying Differentiated Functional Positioning of Research Institutes and Expert Committees** National park research institutes are physical institutions, usually established relying on certain research institutes or universities, such as the National Park Research Institute co-built by the National Forestry and Grassland Administration and the Chinese Academy of Sciences. Due to their physical institutional attributes and professional characteristics, such research institutes usually have their main business areas, such as spatial layout and planning, biodiversity investigation and research, ecological protection and restoration, making it difficult to cover comprehensive consultation business for national parks. Expert committees are not physical institutions but are composed of expert representatives from different institutions and professional backgrounds convened by competent authorities, with consultation affairs covering multiple fields including natural and human dimensions.

In terms of consultation forms, national park research institutes can provide systematic research results and consultation suggestions by undertaking specific projects in addition to daily consultation, while expert committees, lacking physical institutional status, typically provide group consultation opinions on specific affairs.

National park decision-making consultation needs to rely on both types of organizational forms. Research institutes should provide consultation for decision items requiring strong professionalism and systematic research support, while for interdisciplinary and comprehensive affairs involving more stakeholders, expert committees should play a group decision-making consultation function based on relevant institutional research support. This “research institute + expert committee” organizational form can balance the professional depth and breadth of national park scientific consultation work, as well as the professional stability and flexibility of organizational institutions, thereby improving decision-making scientificity and rationality.

**4.2.2 Establishing Comprehensive Expert Committees with Multi-disciplinary Backgrounds at National and Park Levels** The national-level national park expert committee focuses on providing decision-making support for macro policy formulation, international cooperation and exchange, and

national-scale work effectiveness evaluation for competent authorities. The expert committee secretariat or office can be located in the National Park Administration, with director and member selection following diversification principles that balance ecology, forestry, environmental science, geography, geology, sociology, economics, management, law, and other disciplines. Individual national park expert committees focus on implementing national policies, designing local policies and institutions, and specific execution of management and supervision. Member composition should not only adhere to diversification but also consider practical-level professional skills and absorb more social force participation. Both levels of expert committees can establish special groups in different fields to submit collective opinions to decision-making levels in formal documents.

### **4.3 Authority and Responsibility Boundaries of Scientific Groups in National Park Decision-making Consultation**

The clear establishment of authority and responsibility boundaries for consultation institutions such as scientific groups during decision-making consultation is key to effectively realizing their organizational forms and improving decision-making scientificity and rationality.

#### **4.3.1 Consideration Factors for Establishing Authority and Responsibility Boundaries**

Experience from the United States and France shows that: (1) the degree of potential ecological and environmental impact is the primary consideration for scientific groups supporting evidence-based decision-making. Policies and measures with major potential impacts on the ecological environment must undergo the most stringent statutory decision-making demonstration and grant core scientific groups voting rights. Impact degree can be considered from whether core ecological characteristics will experience positive or negative deep-level impacts after decision implementation. (2) The degree of potential social impact is an important factor determining the decision support level of scientific groups and other consulting experts. Whether decision implementation may lead to social structural changes and significant positive or negative changes in community residents' livelihood structures and industrial forms must be considered as important decision-making factors, with opinions sought from consultation institutions. (3) Realistic constraints on decision implementation must also be incorporated into consideration factors for establishing consultation institutions' authority and responsibility boundaries. For decisions requiring high government financial investment and involving complex stakeholders, multi-party consultation and demonstration are necessary to assess decision feasibility based on risk predictions of economic impacts and social conflicts, thereby improving decision feasibility, effectiveness, and sustainability.

#### **4.3.2 Authority List for Scientific Groups and Other Consultation Institutions**

Based on the above considerations, this study proposes an authority list for scientific groups and other consultation institutions to support decision-making: if there is high potential ecological and environmental impact

or potential social impact, statutory procedures must ensure effective scientific group support for decision-making; for affairs with high potential social impact or high realistic constraints on decision implementation, multi-party demonstration mechanisms must be initiated (Figure 2 [Figure 2: see original paper]).

To refine the authority list, the author conducted a survey from May to July 2022 of experts who have worked in national park and protected area management, national park research and planning, and related fields for more than five years, and whose research teams enjoy high reputations in national park research. The survey proceeded in two steps: first, interviewing experts on decision-making affairs types in national park governance, and through summarization and combination with previous research results, proposing 8 business scopes and 34 specific decision contents from top-level design such as laws and regulations formulation to specific work links such as planning, protection, and development; second, soliciting opinions from interviewed experts on the potential ecological and environmental impact, potential social impact, and realistic constraints of decision implementation for the 34 decision contents. A total of 12 questionnaires were distributed, with 10 returned, including 4 young scholars aged 35 and below, 5 scholars aged 36-50, and 1 scholar over 50. Except for one respondent with a master's degree, there were 8 respondents with doctoral degrees and 1 doctoral candidate. Survey results were marked with numbers "1," "2," and "3," corresponding to "low," "medium," and "high" potential impact or realistic constraints. After removing one maximum and one minimum value for each item from the 10 respondents, the average of the remaining 8 values was taken, with values above 2.00 considered as relatively high potential impact or realistic constraints, and specific authority was determined accordingly (Table 1).

According to Table 1, for 26 decision contents including national-level national park laws and regulations formulation, establishment of central-local and inter-agency authority boundaries, and ecological monitoring network construction and implementation, national park competent authorities should issue relevant management systems and measures granting scientific groups rights to deeply support decision-making, and even veto power on particularly major issues. For 19 decision contents including national-level national park laws and regulations formulation, environmental education and ecological experience planning, and community development planning, multi-party demonstration mechanisms must be initiated to ensure decision-making rationality.

## 5. Safeguarding the Operation of Scientific Decision-making and Consultation Mechanisms for National Parks

The effective implementation of decision-making consultation organizational institutions and authority-responsibility positioning requires institutional safeguards. The author proposes: (1) Establishing regulations and norms for national park decision-making consultation work. The 议事 norms and procedures of national park research institutes and expert committees should be regulated,

with their functions, responsibilities, authority lists, and term scopes clarified in top-level designs such as the “National Park Law” and “Protected Area Law” currently being formulated. National park master plans and relevant special plans also need to make overall arrangements for corresponding organizational institutions. The role and positioning of expert committee secretariats or management offices should be explicitly proposed in the three-designation scheme (定职能、定机构、定编制) of national park management institutions, clarifying the nature and functions of committees. It is recommended that directors of national park research institutes and expert committees be included in the leadership group list of the National Park Administration to participate in various regular meetings of the national park decision-making level. (2) Establishing a normalized linkage mechanism between national park decision-making departments and consultation institutions. A joint meeting mechanism should be established between national park decision-making departments and consultation institutions, combining regular work dynamic sharing with irregular information exchange, while building an information technology sharing platform for national park decision-making consultation to form a two-way information sharing mechanism between decision-making and consultation departments, promoting effective information docking and timely and efficient transformation of research results.

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