



Research on Land Resource Management and Land Use Transformation in the Context of Territorial Space

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Abstract: The comprehensive establishment of the territorial spatial planning system has provided a new institutional framework and practical guidance for land resource management, while driving the transformation of land use into a new phase characterized by “spatial coordination, efficient intensive use, and ecological priority.” However, during economic development and urban construction, some regions have exhibited unscientific management and utilization of land resources, leading to a sharp decline in land availability and escalating ecological pollution. In light of this, the article begins by addressing the necessity of land resource management and land use transformation within the territorial spatial framework. It systematically analyzes the challenges currently faced in land resource management and utilization, and proposes targeted practical strategies. The aim is to provide practical references and theoretical support for resolving the imbalance between land use and spatial development, as well as enhancing the sustainable utilization of land resources.

Keywords: territorial spatial planning; land resource management; land use transformation

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1. Introduction

As China’s urbanization enters a phase of high-quality development, the core value of land as a spatial carrier has become increasingly evident. The transformation of land resource management and land use models has emerged as a critical issue in adapting to the new landscape of territorial space development and protection. The issuance of the “Several Opinions of the CPC Central Committee and the State Council on Establishing a Territorial Space Planning System and Supervising Its Implementation” in 2019 marked the formal establishment of China’s territorial space planning system. The “integration of multiple plans” institutional design has broken down barriers between previous planning categories, incorporating land resource management into a comprehensive spatial control framework that encompasses all elements. This provides mandatory institutional safeguards and systemic reform opportunities for land use transformation. Therefore, in-depth exploration of land resource management and land use transformation pathways under territorial space planning plays a vital role in promoting orderly and stable land use transition, thereby achieving high-quality development of territorial space.

2. Necessity of land resource management and land use transformation under the territorial space

2.1. The strategic necessity of modernization of territorial space governance

The modernization of territorial space governance constitutes a vital component of China's national governance system and capabilities, with its core mission being to coordinate land development, conservation, and utilization. As the fundamental spatial carrier, land resources' management models and practical applications directly determine the effectiveness of territorial governance. Traditional land management approaches, plagued by fragmented planning coordination and rigid control mechanisms, have become inadequate for comprehensive spatial governance. By optimizing land resource management and transforming land use patterns, we can shift from fragmented control to systematic governance. This transformation ensures land utilization aligns with the rigid constraints and developmental objectives of territorial spatial planning, facilitating the creation of a spatial framework characterized by "intensive and efficient production spaces, livable and moderate living spaces, and pristine ecological spaces." Such progress will advance the reform of territorial spatial planning systems, solidify the material foundation for modernized governance, and provide robust support for implementing national spatial development strategies.

2.2. The realistic need to solve the deep-seated contradictions of land use

As China's socio-economic development progresses, deep-seated contradictions in land use have become increasingly evident, manifesting as spatial imbalances, inefficient land utilization, and mounting ecological pressures. The traditional development model, which prioritized quantitative expansion, has led to fragmented urban-rural construction layouts, escalating conflicts between farmland protection and development projects, and frequent encroachment on ecological spaces—all of which hinder sustainable land resource management. To address these challenges, optimizing land resource allocation mechanisms and transforming land use patterns are crucial. Strengthening the guiding role of territorial spatial planning can drive the transition from extensive to intensive land use, ensuring rational distribution across urban-rural, regional, and industrial sectors. Meanwhile, refining land use zoning regulations helps balance development needs with ecological conservation^[1], mitigating spatial conflicts and removing land use barriers to support high-quality socio-economic development.

2.3. The intrinsic requirements of improving the sustainable utilization capacity of land resources

The concept of sustainable development requires land resource utilization to meet the needs of current generations while preserving the capacity of future generations to meet their own needs. Traditional land management models, lacking long-term spatial planning perspectives, often prioritize short-term gains. This leads to overexploitation of land resources and ecological degradation, directly threatening sustainable land supply. To advance land resource management and utilization transformation, the core lies in establishing a full life cycle management philosophy, integrating sustainability requirements into every stage of land planning, allocation, use, and supervision. On one hand, optimizing land use structures shifts focus from quantity to quality and efficiency, enhancing resource utilization efficiency and reducing waste. On the other hand, strengthening ecological land protection and restoration improves ecosystem services and enhances land carrying capacity. This transformation not only boosts current land utilization efficiency but also ensures long-term stable supply, providing enduring land support for sustainable socio-economic development.

3. Problems in the management and utilization of land resources

3.1. Lack of coordination in territorial spatial planning and management

Although the "multi-plan integration" system for territorial space has been preliminarily established, insufficient coordination between plans remains a prominent issue in land resource management practices, directly affecting collaborative efficiency. Discrepancies exist between different levels and types of plans, including misaligned objectives,

overlapping content, and even conflicts. Lower-level plans often fail to accurately implement higher-level directives, while specialized plans lack rigid constraints when aligning with master plans. This coordination gap hinders the full realization of land use planning's guiding role, leading to ambiguous authority distribution and cumbersome approval processes in land resource management. The absence of regular interdepartmental coordination mechanisms and inadequate information sharing result in disjointed planning, approval, and supervision processes, making it difficult to form a cohesive management force^[2]. Additionally, the underdeveloped dynamic adjustment mechanism during plan implementation fails to promptly adapt to evolving socio-economic needs and ecological protection requirements, further exacerbating the disconnect between planning and actual management practices, thereby constraining overall land resource management efficiency.

3.2. The mechanism of use control is rigid but lacks flexibility and adaptability

Land use zoning serves as the cornerstone of land resource management. However, current implementation faces challenges such as excessive rigidity and insufficient flexibility, making it difficult to accommodate diverse land use demands and regional development disparities. Existing zoning policies primarily rely on rigid indicators, rigidly categorizing land use types without adequately considering regional resource endowments and developmental stages. This has resulted in mismatches between land use and actual development needs in some areas. The approval process for land use conversion is cumbersome and time-consuming, failing to meet urgent requirements like emergency construction or industrial upgrading. Additionally, the dynamic supervision mechanism for land use zoning remains inadequate, with delayed warnings and imprecise handling of violations. Some regions still experience “de facto conversion” of land use and “occupying first, compensating later” practices, undermining the authority and effectiveness of zoning regulations. Furthermore, measures balancing ecological conservation and development remain insufficient. While maintaining strict ecological space constraints, they fail to provide flexible adaptation pathways for reasonable development needs.

3.3. The efficiency of land resource allocation is low, and the level of intensive utilization is not high.

China currently faces challenges in land resource allocation efficiency, with extensive utilization patterns persisting without fundamental transformation, which hinders the advancement of intensive land use. The uneven distribution of urban-rural construction land creates a paradox: while some urban areas experience idle construction land, rural regions struggle with land scarcity. Administrative directives dominate resource allocation, while market mechanisms remain underdeveloped. Inadequate market-based pricing in land transfers and circulation further prevents resources from concentrating in high-yield industries. The absence of full lifecycle management systems weakens oversight, with some projects prioritizing approvals over supervision. Key indicators like land development intensity and investment efficiency remain unmet, resulting in inefficient land use. Many allocated plots remain underdeveloped for years, with issues like “land grabs without construction” and “construction without utilization.” In industrial land allocation, some regions prioritize short-term economic growth by blindly supplying land to low-value-added, energy-intensive industries, while high-tech and strategic emerging sectors face supply shortages. This mismatch between land resources and industrial development exacerbates supply-demand imbalances.

4. Land resource management and land use transformation strategies in territorial space

4.1. Strengthening planning coordination and building a collaborative management mechanism

To address the issues of inadequate planning coordination and management collaboration, the key lies in advancing the “integration of multiple plans” reform for territorial space. This requires a comprehensive approach covering the entire process from planning formulation to implementation and supervision, with strengthened coordination efforts to establish a collaborative management mechanism featuring clear responsibilities and efficient linkage. During the planning

formulation phase, it is essential to define the functional positioning and alignment standards between master plans and specialized plans at all levels. Higher-level plans should specify binding indicators and flexible guidance requirements to provide clear references for lower-level planning. Lower-level plans must strictly adhere to the core requirements of higher-level plans, ensuring aligned objectives, content coherence, and coordinated management. Additionally, a pre-review system for the alignment of specialized plans with master plans should be established to prevent content overlap and conflicting objectives at the source.

In the implementation phase of management, it is essential to dismantle information barriers between departments by establishing a cross-departmental and cross-level platform for territorial space information sharing. This platform should integrate management data and functions across land, planning, and ecological environment sectors, while creating a regular consultation mechanism and joint law enforcement system to ensure seamless coordination in land planning approvals, land use supervision, and enforcement actions. Additionally, the dynamic adjustment mechanism for planning should be refined, with a scientific evaluation system for planning implementation effectiveness. By aligning with evolving socio-economic stages and ecological protection needs, revisions to plans should be conducted through standardized procedures. This ensures that planning remains responsive to the practical demands of territorial space governance, thereby enhancing overall management synergy.

4.2. Optimize the use control system to enhance the coordination between rigidity and flexibility

To address the rigid and inflexible adaptation issues in land use control, it is essential to reconstruct a regulatory system that organically integrates rigid constraints with flexible adjustments. This requires enhancing adaptability to development needs while upholding ecological protection and farmland preservation as fundamental principles^[3]. On one hand, we must strengthen baseline management through rigid constraints by strictly implementing the “Three Control Lines” spatial regulations. This involves clarifying core control requirements for ecological protection redlines, permanent basic farmland, and urban development boundaries, establishing a tiered classification management mechanism, and imposing the strictest land use restrictions in core protected zones to resolutely curb unauthorized land use conversions. On the other hand, we should optimize flexible adjustment mechanisms by refining land use classification standards based on regional resource endowments, development stages, and industrial positioning. This includes establishing reasonable flexible land use spaces and transitional policies to accommodate legitimate demands such as strategic emerging industries and emergency livelihood projects. Simultaneously, simplifying approval processes for land use conversions and implementing tiered classification management models are crucial. Establishing green channels for public welfare and livelihood projects while shortening approval timelines is also vital. Additionally, building a comprehensive digital supervision system utilizing remote sensing monitoring and big data analysis enables dynamic tracking of land use. Establishing early warning and rapid response mechanisms for violations will reinforce the authority and seriousness of land use control. Furthermore, creating a balanced coordination mechanism between ecological protection and development requires measures like land use swaps and cross-regional indicator transfers to achieve reasonable alignment between conservation responsibilities and development rights.

4.3. Improve the market-oriented allocation mechanism and enhance the efficiency of intensive utilization

To enhance the efficiency and intensive utilization of land resources, the key lies in deepening market-oriented land reforms, improving market-based allocation mechanisms, and transitioning land use from extensive expansion to quality and efficiency-driven approaches. Specifically, it requires establishing a unified urban-rural construction land market system, breaking down barriers to the flow of land factors between urban and rural areas, and standardizing transactions such as land transfers, leases, and mortgages. A market-based pricing mechanism should be established, guided by market supply and demand and based on benchmark land prices, to fully leverage the market’s decisive role in land resource allocation^[4], thereby directing land resources toward high-yield, high-efficiency industries and key regions.

Implement differentiated land supply policies to optimize land allocation structures: Prioritize land supply for strategic emerging industries, scientific innovation projects, and public welfare initiatives. Strictly limit land allocation for high-energy-consumption, high-pollution, and low-output projects. Strengthen the linkage between land supply and core indicators such as development intensity, investment intensity, and tax revenue per mu (approx. 0.067 hectares), explicitly incorporating these requirements into land transfer contracts to drive efficiency improvements at the source. On this basis, relevant authorities should establish a full lifecycle land management mechanism, refine supervision systems for land development processes, and define clear timelines and quality standards for key project phases including commencement, construction, and completion. Develop dynamic screening and disposal mechanisms for idle and inefficient land use, revitalizing existing land resources through measures like idle land fees, legal reclamation, and land circulation guidance. Additionally, enhance incentive policies for revitalizing idle land, introducing supporting measures such as tax reductions, fiscal subsidies, and planning adjustments to encourage enterprises to improve land utilization efficiency through technological upgrades, industrial transformation, and asset restructuring. Simultaneously, streamline land circulation channels to promote efficient reuse of idle and inefficient construction land, alleviating supply-demand imbalances in land resources.

tag: In conclusion, scientifically formulating territorial spatial planning serves as a crucial safeguard for enhancing land resource management effectiveness and optimizing land utilization^[5]. To address existing challenges in some regions—including inadequate coordination of territorial spatial planning, rigid yet inflexible land use control mechanisms, and inefficient land resource allocation—we must strengthen integrated planning coordination, refine land use control systems, and establish market-oriented allocation mechanisms to achieve dynamic balance between conservation and development. Future land resource management practices should consistently adhere to territorial spatial planning as the fundamental guideline, continuously deepen land management system reforms, and promote deep integration of land use models with socioeconomic development and ecological conservation. This approach will ensure sustainable land resource utilization, thereby establishing a robust land security framework to fortify the safety barrier for territorial spatial development and protection, and provide reliable land support for high-quality development.

Disclosure statement

The author declares no conflict of interest.

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