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Article

The practice of protecting agricultural land in Jiangsu Province of China

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Abstract: The safeguarding of agricultural land is rooted in national land surveys and remote sensing data, which are enhanced by contemporary information technology. This framework facilitates the monitoring and regulation of unauthorized alterations in cultivated land usage. This paper aims to analyze land policies at the national, provincial, and local levels, investigate the cultivated land protection strategies implemented within the research region, where the policies have gained societal acceptance, and propose recommendations and countermeasures to enhance the development and utilization of land resources. The central issue of this study is to identify the challenges in achieving a balance between human activities and natural ecosystems. To address this issue, the research employs a combination of literature review, semi-structured interviews, text analysis, and content analysis, emphasizing the integration of empirical fieldwork and theoretical frameworks. Key areas of focus include: (a) the current state of the farmland protection system, (b) the legal foundations for local enforcement, (c) the systematic mechanisms for implementing arable land protection, and (d) the coordinated oversight system involving both the Party and government. Notably, the practice of cultivated land protection faces several challenges, primarily stemming from two factors. Firstly, there exists a disconnect between the economic interests of certain illegal land users and the objectives of land management, which hinders effective enforcement. Secondly, environmental repercussions arise from misinterpretations of land policy or non-compliant land development practices aimed at profit, which contradict the goals of ecological sustainability. The study examines two approaches to address the issue: the distribution and effective use of land resources, and the capacity for monitoring and early warning systems. Findings indicate that Dongtai City in Jiangsu Province has rigorously implemented all national land management policies, while also preserving the adaptability of local townships in practical applications, thereby ensuring the consistency of both the quality and quantity of arable land.

Keywords: land resources; legal system construction; arable land protection; law and regulations; satellite images

1. Introduction

Jiangsu Province is an economic power house of social development in China and the destination of migrant population.

Under the tide of urbanization construction and in the process of industrialization, coupled with the development of agricultural industrialization, the utilization of land resources in Jiangsu Province has experienced dynamic and fluctuating changes.

At present, the land resources available for development and construction are very limited, and many construction activities have spread to the scope of cultivated land. In this case, theoretically, the demand for such land will still be strong in the future. This indicates that individuals, regardless of whether they reside in urban or rural settings, are eager to engage in the swift advancement of the market economy to

optimize the use of their surrounding environment. Nonetheless, in China, land is classified under socialist public ownership, meaning it is owned by the state, the protection of agricultural land is an ongoing work across the country. The use of agricultural land, which includes arable land, is strictly controlled. And individuals lack the authority to manage land independently. Consequently, it is imperative for the public to remain vigilant regarding the state and provincial policies governing land development and utilization. However, navigating these regulations can easily lead to conflicts with existing laws, which may not only hinder personal development aspirations but also result in severe repercussions for individuals and their families. Without faith from people, it's possible the policy of land resource utilization and cultivated land protection could be misunderstand by the public, among which the contradiction is prominent. In reality, Wu (2021), secretary of the Party Committee of Jiangsu Province, emphasized the writing of a new chapter of "strong, rich, beautiful and high" modernization in Jiangsu, which requires us to coordinate the relationship between the use of the space of land and economic and social development and ecological and environmental protection, keep the red line of cultivated land, optimize the layout of cultivated land, and realize the harmony between man and nature.

Concurrently, Wu's speech underscores the significance of human-centered governance. The fundamental objective of land development and utilization is to foster public acceptance of land management policies. Specifically, the language employed in land policy is notably precise. Policy documents accessible to the public often appear verbose; however, due to the extensive content they encompass, they are ultimately concise and thorough when addressing partial texts. This information is meticulously conveyed by policymakers through careful and repeated communication. Nonetheless, the rigorous and standardized nature of these documents, along with their inherent logical structure, sometimes necessitates external clarification to enhance public comprehension. Furthermore, during the dissemination of land policy information, both the market and the public may experience confusion regarding certain terminologies, highlighting the need for involvement from market institutions and academic experts in the interpretation process. However, it is important to note that these entities may possess a limited perspective when it comes to policy interpretation.

Professionals from market institutions and academic settings may lack experience in policy formulation. Even when examining similar issues, their observations and interpretations can lead to divergent conclusions, particularly when influenced by different linguistic frameworks. For instance, construction firms are particularly interested in understanding how land policies specifically affect their operations, the effectiveness of these policies, and their potential repercussions on real estate development. Upon reviewing analysis reports, policy authors may be surprised to discover that a particular statement they made could significantly influence real estate outcomes. Such interpretations can often be unforeseen. Ultimately, after certain policies are proposed, critical information intended for dissemination may not effectively reach the market, while less significant details are often exaggerated. In some cases, this exaggeration can lead to negative repercussions on public sentiment, confidence, and market expectations. When documents and policies are misinterpreted due to a narrow focus, it can instill a sense of apprehension regarding the policy, which

may inadvertently hinder its implementation.

Once all potential public misunderstandings regarding land policy have been addressed properly, the governments can achieve social acceptance of land resource management, this is essential for fostering a harmonious relationship with nature. This paper, drawing on the practices of cultivated land protection, examines the overall land use situation in Dongtai City, Jiangsu Province, evaluates the implementation of land policies and regulations, and offers recommendations aimed at enhancing territorial spatial planning, thereby providing a reference for provincial and national land use management strategies.

2. Materials and methods

2.1. International experience in developing arable land

The current state of agricultural arable land in various nations has motivated the exploration of this subject. Canada's international trade landscape has evolved to rely heavily on the global sales of agricultural products, many of which are exempt from customs duties. Under the CPTPP (The Comprehensive and Progressive Agreement for Trans-Pacific Partnership), Canadian agricultural exporters will enjoy immediate duty-free treatment for a broad range of products, including in: Japan for pet food, feed barley, blueberries and cranberries; Malaysia for sugar-containing products, baked goods, apples and prepared potatoes; and Vietnam for honey, canola seeds and food preparations (Government of Canada, 2018).

By expanding the international market for agricultural goods through the implementation of comparative policy strategies, Canadian agricultural producers gain enhanced market leverage, which encourages them to increase the area of land under cultivation.

As production costs decrease, it is anticipated that profit margins for farmers in the country will rise, thereby increasing their motivation to expand the area of land cultivated. The prospect of enhanced economic returns may lead farmers to invest more in land and resources, thereby facilitating the efficient utilization of arable land. This suggests that the implementation of tariff-free policies can effectively lower the export costs associated with agricultural products. Additionally, with a consistent rise in international market demand, farmers will be further encouraged to identify and cultivate crops that align with this demand. This indicates that the tariff-free policy enables farmers to offer their products at more competitive prices, motivating them to cultivate higher-value crops and optimize land use efficiency. Driven by the tariff-free initiative, agricultural institutions within Canada will provide essential technical assistance and market intelligence, enabling farmers to better understand market dynamics and fostering agricultural innovation and sustainable practices. Consequently, farmers can significantly enhance both the yield and quality of their produce. It illustrates that Canada's duty-free export policy not only enhances farmers' economic returns but also stimulates the overall advancement and development of the agricultural sector, thereby establishing a robust foundation for the future of sustainable agriculture.

In Japan, a country renowned for its extensive rice cultivation, the transformation of arable land into non-cultivated fields is a notable phenomenon. An examination of

the demographic composition of farmers reveals a significant trend: a considerable number of them are over the age of 50, particularly among male farmers, with a pronounced concentration of individuals aged 55 to 64. Similarly, female farmers predominantly fall within the age range of 55 to 79. This demographic shift has sparked serious concerns regarding the sustainability of agricultural labor, as the influx of workers under the age of 50 appears to be minimal. To enhance the agricultural landscape in Japan, it is imperative to cultivate interest in agriculture and rural life among younger individuals, thereby ensuring a sufficient influx of new talent into the agricultural workforce.

Furthermore, an increasing number of Japanese farmers are forming partnerships with distribution and sales companies, with some enterprises even engaging directly in agricultural production within Japan. This emerging model of collaboration has created new opportunities for agricultural development and enhanced the efficiency of land utilization. Nevertheless, if this trend persists, it may result in a rise in non-arable land, consequently diminishing the use of arable land. As the population of farmers working on arable land continues to decline, a reduction in the area of cultivated land appears unavoidable. This situation underscores the urgent need for Japan to implement effective agricultural policies to mitigate the adverse effects of the ongoing expansion of non-arable land, thereby ensuring the sustainability and productivity of its agricultural sector (Ichiminami and Dincsoy, 2013).

The ongoing currents of history reveal that rapid urbanization is not solely a characteristic of modern developed nations; it is also profoundly affecting less developed countries, including Egypt, which is witnessing an extraordinary transformation in its urban landscape. As a nation with a rich agricultural heritage and a lengthy historical narrative, research in Egypt increasingly focuses on the implications of this swift urbanization for the availability of arable land, particularly in light of the burgeoning small and medium-sized settlements. The growth of these populations brings forth a myriad of challenges, including environmental degradation, economic strain, social health issues, threats to food security, heightened traffic congestion, and difficulties in service provision. Investigations conducted in Egypt indicate that population growth significantly influences urban land cover. Nevertheless, certain factors typically associated with urbanization, such as proximity to major thoroughfares, the capital city of Cairo, and the Nile River, while exhibiting some positive trends, lack statistical significance in relation to the security of cultivated land.

The academic discourse in Egypt plays a crucial role in addressing the issue of cultivated land loss, particularly in light of the challenges posed by the lack of interdisciplinary dialogue. This absence complicates the coordination among various governance levels and regional authorities, necessitating a collaborative approach to policy responses. The detrimental effects of rapid urbanization and physical expansion on local food security cannot be mitigated by the efforts of a single group of decision-makers, whether they are involved in agricultural or urban policy formulation. Without the backing of other policy domains, these responses appear disjointed, akin to pieces of an incomplete jigsaw puzzle. In the realm of agricultural development, whether the focus is on promoting small-scale food production or safeguarding rural land, the tacit agreement of regional and municipal governments is essential.

To safeguard agricultural land and associated physical support systems, urban policymakers must cultivate a mutually beneficial relationship with stakeholders across various policy sectors, which differ significantly from those related to transportation, food, water conservation, and housing. It is important to note that collaboration is not solely the responsibility of central government departments and their policy circles; local agencies must also engage with the central government. Policies must adopt an integrated approach that encompasses multiple areas, including agriculture, urban planning, and land reclamation, to effectively counteract the trend of urban sprawl and ensure the preservation of arable land (Robson et al., 2012).

2.2. Methods

This paper primarily employs a systematic research review, with the primary objective of elucidating the existing literature under the research topic category and, more significantly, highlighting the necessity and feasibility of the research topic, research problem, and research design (Su, 2024). The systematic review was initially developed in the medical field to identify all empirical evidence that meets predetermined inclusion criteria to address specific research questions or assumptions. By utilizing explicit and systematic methods to evaluate articles and all available evidence, bias is minimized, resulting in reliable findings from which conclusions can be drawn and made. Statistics are often used to integrate the findings from the included studies. However, to be able for data meta-analysis, the included studies must share statistics to compare results. Therefore, a meta-analysis of studies with different methods is challenging. This can be described as a method of comparing qualitative research results, namely using a rigorous systematic review process to collect articles and then using qualitative methods to evaluate them. The potential contribution of the systematic review tells us to determine whether factors that influence the theme remains unchanged in the studies and find which future studies are needed to demonstrate the factors, this includes the available literature study techniques, which can be used to discover which study levels or sample characteristics influence the phenomenon studied in the research, such as whether studies conducted in a cultural context show significantly different results from studies conducted in other cultural settings (Hannah, 2019). It can be seen that systematic review screening evaluation and systematic analysis and synthesis, so as to achieve knowledge integration and obtain more objective conclusions. On this basis, this paper uses the text analysis method (Textual Analysis) to some extent, that is, in the detailed interpretation of the content, formal rhetoric, ideology and other key points of the text, mining the deep meaning of the text. The textual analysis is indispensable to research in cultural criticism (Catherine, 2013). This includes the analysis of literary texts, and is also used to analyze other types of texts such as images, film and television. In view of the characteristics of the research area, specific methods such as narrative analysis, discourse analysis and rhetoric analysis are often used, with a certain color of literary criticism. When needed, focus on the content analysis method, this method emerged from studies of archived texts (Vogt et al., 2012), this definition is broad, generally refers to the analysis of various text content methods, can be both qualitative and quantitative. Specific methods include thematic analysis, classification analysis, etc.,

to reveal the social phenomena and laws of text representation. The quantitative orientation of content analysis method is often used in the analysis of high-frequency words, word frequency, word association, etc., which has similarities with text analysis.

In short, the literature review method is suitable for the macro sorting of the academic field. The text analysis law focuses on the micro interpretation of the specific text, while the content analysis law emphasizes the extraction and induction of the original data. This indicates that land policy researchers have the opportunity to leverage the advantages of diverse methodologies to refine the innovation of research inquiries related to land policy materials. They can identify prospects for the development and implementation of new technologies or techniques, as well as pursue innovative and effective research avenues that will substantially increase the academic significance of this paper. Consequently, the exploration of land resource development and utilization will become more thorough and comprehensive. This approach will introduce fresh perspectives and challenges within the academic realm and the field, fostering the innovation of research questions and facilitating the discovery of opportunities for new technological advancements or methodologies.

3. Result

3.1. Overview of current land use

Dongtai City, located in Yancheng, Jiangsu Province, is situated in the eastern coastal region of China. The area is characterized by a predominantly flat terrain and well-developed waterway transportation infrastructure. Furthermore, Dongtai boasts abundant natural resources, a rich cultural heritage, and a lengthy historical background. As of 2023, the population of the region is approximately 886,200, covering a land area of 3557.66 square kilometers (Yancheng Bureau of Statistics, 2023). The proportion of arable land in the area serves as a significant source of grain, positioning Dongtai as one of the counties (or cities) with the largest land area in China.

Between 1985 and 1997, China undertook its first national land survey. At that time, limitations in information technology and economic conditions influenced the process. The Land Survey Regulations specified that “a national land survey should be conducted every 10 years”. Consequently, in line with this tradition, the protection of cultivated land generally involves a comprehensive second national land survey (hereinafter referred to as the second survey). This survey categorized national land into eight distinct types. Conducted in 2007, the second survey, as the **Figure 1**, provided a thorough assessment of the national land use situation (Ministry of Natural Resources, PRC, 2016), it covers all types of land use, as the **Table 1**.

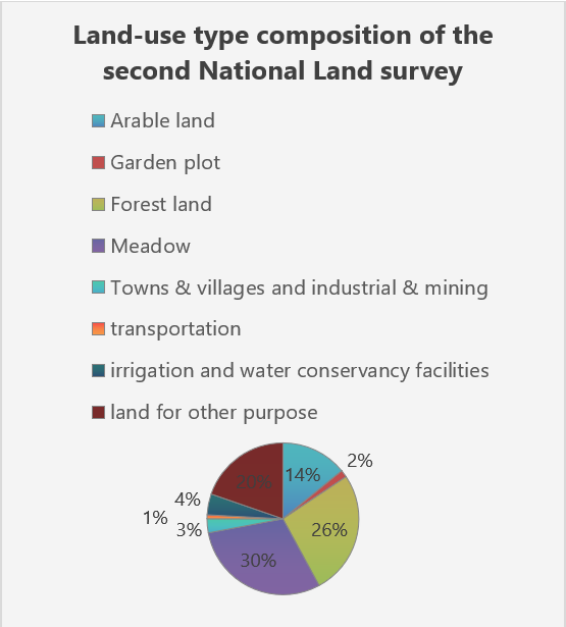

Figure 1. Land-use type composition of the second National Land survey.

Table 1. Land-use type composition of the second National Land survey.

Land-use type	Area (million hectares)
Arable land	135.385
Garden plot	14.812
Forest land	253.95
Meadow	287.314
Towns & villages and industrial mining	28.739
Transportation	7.942
Irrigation and water conservancy facilities	42.69
Land for other purpose	189.168

The data presented originates from the official survey detailing the primary results of the second national land survey. This document emphasizes the importance of utilizing the findings from the second survey in the formulation of plans by relevant departments. It aims to maximize the foundational significance of the survey results, enhance the functionality of the data platform associated with the second survey, and encourage the extensive application of its outcomes.

Thus, traditionally, the term “the second survey” refers to the essential adherence to the informatization of land resources by national departments at all levels, providing a critical basis for data pertaining to urban, rural, and fundamental farmland. Building on this foundation, the third national land survey, hereafter referred to as “the third surveys”, as the **Figure 2**, commenced in 2017 to address prior overlapping issues and to introduce new wetland categories.

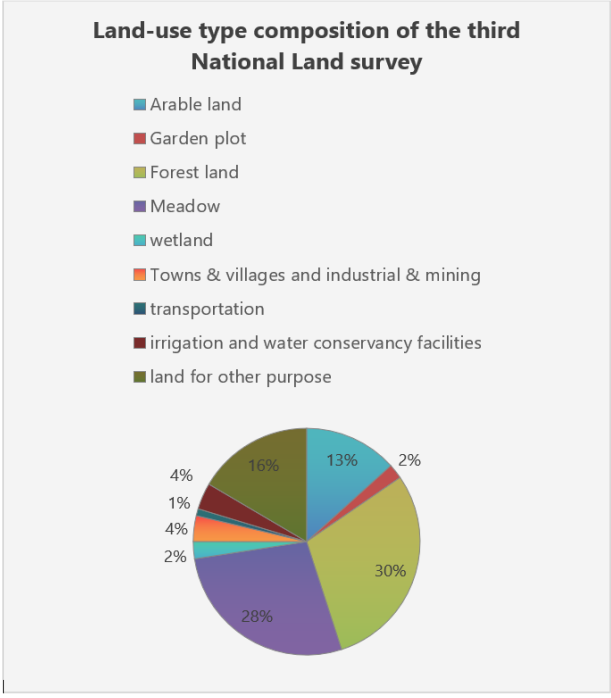

Figure 2. Land-use type composition of the third National Land survey.

Table 2. Land-use type composition of the third National Land survey.

Land-use type	Area (million hectares)
Arable land	127.8619
Garden plot	20.1716
Wetland	23.4693
Forest land	284.1259
Meadow	264.5301
Towns & villages and industrial mining	35.3064
Transportation	9.553
Irrigation and water conservancy facilities	36.2879
Land for other purpose	158.6939

This research reveals that, as the **Table 2** above, within the framework of national land surveys, land use classifications are distinctly organized according to their designated functions. The primary categories identified include “Arable Land”, “Garden Plots”, “Forest Land”, and “Meadow”, which together account for more than 50% of the total land area. In contrast, the lesser categories encompass “Wetland”, “Towns & villages and industrial mining”, “Irrigation and water conservancy facilities”. When these are aggregated with “Land for Other Purposes”, the overall land area of the country reaches 9.6 million square kilometers. It is crucial to recognize that the classification of “Land for Other Purposes” is intricate and varied, with its area likely exceeding that of the other specified land categories. Additionally, the data provided cover all essential dimensions of national land development and usage, although these statistics have not yet been formally compiled.

Between the two surveys, the social economy of the country has continued to progress, the urbanization process is intensifying, and the industrial sector is

experiencing rapid improvement. These developments have significantly increased the demand for land use, resulting in a substantial expansion of the relevant land area, for example, Towns & Villages and industrial mining. Other areas will need to be compensated for it, such as arable land. It is evident from the data that the government maintains the cultivated land area at over 1.8 billion mu (approximately 120 million hectares) to ensure food security.

In the decade, the advancement and widespread implementation of scientific and technological innovations, alongside agricultural knowledge, have notably enhanced land productivity in China. This is particularly evident in the northeastern and central-western regions, where grain production is concentrated (Wei and Wang, 2023). Such improvements have not only led to increased efficiency in agricultural production and enhanced quality of agricultural products in these key grain-producing areas but have also elevated overall agricultural productivity. Furthermore, there is a concerted effort to promote the efficient utilization of agricultural resources. For instance, the introduction and utilization of molecular breeding techniques have facilitated the creation of new crop varieties that exhibit improved pest resistance, greater adaptability, and higher yields. This advancement has contributed to a reduction in the reliance on pesticides and fertilizers while simultaneously boosting crop yields per unit area. Consequently, these developments have effectively mitigated the impact of the reduction in total cultivated land area observed between the two surveys, indicating a decreased reliance on land resources for the cultivation of substantial crop quantities.

According to the "the third surveys", cultivated land is defined in a narrow sense as land specifically used for planting crops, while in a broader context, it encompasses all forms of artificially modified land with production and harvesting capabilities, a well-developed tillage layer, as well as various ditches of differing widths, unpaved roads, and natural obstacles. The current classification of cultivated land utilization is primarily divided into three categories: paddy fields, irrigated land, and dry land (Ministry of Natural Resources, PRC, 2021).

Cultivated land is found all over the city's vast plains. Dongtai City benefits from abundant rainfall throughout the year and a sufficient supply of river water, resulting in large areas primarily designated as paddy fields. Commonly referred to as rice planting fields, the local rice production is predominantly concentrated in Wulie Town and its coastal areas. Due to its unique geographical location, soil characteristics, and climate conditions, the "Dongtai Rice" has gained national recognition (Dongtai Daily, 2020). In Dongtai City, the rice cultivation area is extensively distributed, particularly in some coastal regions where the soil is deep and fertile. The soil texture varies from medium to light viscosity, comprising high-quality rice soils such as red sandy soil and binding soil. Furthermore, the soil pH is neutral to slightly alkaline, offering excellent water and fertilizer retention, good aeration, and ease of cultivation, leading to high effective fertility. Additionally, Dongtai City resides in the transition zone between the northern subtropical region and the warm temperate zone, characterized by a warm and humid monsoon climate that is highly conducive to rice growth.

3.2. Legal system construction of cultivated land protection

Currently, with enhancing legal framework by prioritizing the needs of its citizens

and improving the quality of administrative law enforcement, the province is committed to addressing significant issues within the realm of the rule of law.

Under the guidance of provincial leadership, the Dongtai Natural Resources Planning Bureau diligently enforces relevant land management laws and regulations. To this end, it emphasizes raising societal awareness of national spatial laws by disseminating various land planning documents and management strategies for comprehensive understanding. The bureau also produces accessible educational materials to inform the public about legal matters. Concurrently, the Dongtai Natural Resources Planning Bureau is focused on the strict enforcement of laws related to the protection of cultivated land. This includes rigorous enforcement and verification processes, which are supported by daily regulations that encompass monthly assessments, quarterly evaluations, and annual reviews. The bureau's dedication to high-quality verification and standardized supervision effectively addresses illegal activities and implements corrective measures. Additionally, it is developing strategies to manage rural land that has been occupied.

The Natural Resources Department of Dongtai City has formed a specialized law enforcement unit tasked with the continuous monitoring of compliance with land use regulations. This unit employs satellite imagery to assess adherence to these regulations and collects intelligence on possible unlawful activities through multiple sources. When such intelligence is obtained, the unit undertakes comprehensive investigations, which may involve field inspections and the issuance of cease-and-desist orders for any detected illegal actions.

Subsequent to the preliminary investigation, a verification report is generated to assess the appropriateness of initiating a formal case. In instances where a case is not advanced, the investigation will be deemed terminated. On the other hand, if a case is initiated, the investigative team will engage in the collection of evidence and conduct additional inquiries. Ultimately, the law enforcement team will submit the case to the department's leadership for a conclusive decision. If fines are deemed necessary and the illegal land user fails to cooperate, they may be subject to administrative penalties imposed by the court (refer to **Figure 3**).

Alternative sources of information regarding unlawful activities may encompass media coverage, findings from departmental audits, and insights from other divisions. The inquiry uncovered that two clerks were tasked with validating information pertaining to satellite imagery and overseeing land utilization in real-time. Following this, a specialized team was appointed to take measures against the unlawful appropriation of agricultural land based on the investigation of satellite imagery's suspected outcomes. Additionally, in alignment with applicable policies and regulations, the municipal government conducts annual seminars on legal education and guarantees that law enforcement personnel engage in these training programs.

Figure 3. Flow map of processing illegal acts of land use.

3.3. Mechanisms for the protection of cultivated land

As a forefront of developing a comprehensive management framework for permanent basic farmland, the Jiangsu Province operates across four administrative levels: province, city, county, and township. This framework provides essential information for the identification, regulation, safeguarding, quality improvement, and spatial optimization of designated boundaries for permanent basic farmland protection. Consequently, it supports a detailed, process-driven, and adaptive closed-loop management approach. In terms of oversight, the province aims to refine daily monitoring practices, consolidate data for quantitative assessments, and track conditions in real-time, thereby ensuring accountability in farmland protection efforts. Thus, for the province to maintain adherence to regulatory standards, it is crucial to

swiftly update pertinent data and rectify any violations of law of basic farmland. Concurrently, initiatives from the provincial level have been focused on enhancing management accuracy, progressively improving the status of permanent basic farmland reserves, and optimizing the configuration of cultivated land in relation to basic farmland. Equally, in pursuit of an objective of safeguarding cultivated land, the Dongtai Municipal Government prioritizes proactive strategies—a system of protection responsibility certificate has been formally established with multiple towns and districts. This initiative incorporates the evaluation of cultivated land protection into the annual assessments conducted at the village level and introduces a comprehensive array of management systems pertaining to the regulation of cultivated land use, agricultural management, and land reclamation. A five-tiered network for the protection of cultivated land has been created, enhancing oversight and protection through a robust mechanism that includes task refinement across the entire process, continuous real-time monitoring, extensive dynamic tracking, and cooperative interactions among various governmental departments. Stringent regulations are imposed to manage the use of arable land, particularly concerning permanent basic farmland, strictly adhering to the principle that "for every unit of land occupied, an equivalent area must be compensated, with a preference for the occupation of arable land and compensation occurring prior to any occupation". The mandate for "balanced access to and from cultivated land" is thoroughly enforced, and rigorous actions are taken to prevent the conversion of ordinary cultivated lands into other types of agricultural land. Concurrently, there is a strong commitment to initiatives aimed at minimizing rural construction land, ensuring a balance between land occupation and compensation, and executing various land improvement projects, ultimately resulting in the addition of tens of thousands of acres of arable land. In light of this, and to strictly adhere to the delineated boundaries for cultivated land protection, the local natural resources department has instituted an organizational framework that promotes interdepartmental collaboration. For example, the Regulation Supervision Department is tasked with organizing and coordinating efforts alongside other departments to oversee and inspect the principles, policies, decision-making processes, and deployment of natural resources and spatial planning laws and regulations to promote lawful administrative practices. The Ecological Restoration and Cultivated Land Protection Section specializes in the organization and execution of assessments pertaining to cultivated land protection responsibilities and the specialized safeguarding of permanent basic farmland, and it is tasked with overseeing the demarcation, occupation, and rezoning of permanent basic farmland. According to the established plan, law enforcement teams operating in proximity to two designated maritime routes will be formed to conduct lawful real-time monitoring. The Marine Law Enforcement Group primarily focuses on maritime operations. The Land Law Enforcement Group is regarded as the principal battleground for farmland protection, wherein land law enforcement teams have developed a systematic monitoring mechanism that encompasses aerial to ground-level observations. At the Dongtai Natural Resources Department, land surveillance and law enforcement teams deploy daily dynamic satellite imagery to monitor lands across various townships from an aerial perspective, while ground-based cameras are strategically installed to ensure round-the-clock surveillance of cultivated lands. Furthermore, real-time detection

software is utilized to regularly generate written reports detailing the monitoring status of the areas of responsibility as per the city and township requirements.

In relation to the monitoring outcomes, this paper examines the interlinkage of local protected paddy fields and associated facilities within law enforcement cases through dialogue, particularly concerning the degree of hardening of arable land, with a focus on the spatiotemporal dynamics and procedural developments involved in investigations, while concurrently analyzing and assessing potential issues that may emerge during this process, and documenting the procedural aspects of the cases accordingly. YL, the captain of the land law enforcement brigade, remarked: "The province has recently released a series of satellite images that highlight significant encroachments upon paddy fields in xx Village, Anfeng Town, Dongtai City, where approximately 200 acres have been occupied. Please investigate the situation carefully and report any discrepancies."

WH, the Director of the Anfeng Town Institute of Natural Resources, responded: "Understood. It is possible that xx Village has recently undergone renovations; I will immediately consult with the local authorities."

A few hours later, WH communicated with YL, the Chief of the Land Enforcement Team, to clarify the circumstances.

WH: "I have just inspected the area. The renovations in xx Village utilized a white film to cover certain portions of the land, and there are other similar activities affecting relatively large areas; however, these spaces are currently undergoing demolition processes."

YL: "Please ensure timely removal of the covered areas, report any additional situations, and promptly submit the verified data to the clerk for compilation."

WH: "We have instructed everyone available to conduct a thorough verification and will ascertain the full situation by the end of today."

Following the collection and thorough analysis of the provincial health verification data, YL promptly called WH.

YL: "I have reviewed your tasks; the main issue lies with several large-scale operations. It is essential to ascertain the timeline for demolition and rectification, and to provide real-time updates to the brigade, particularly regarding the steps involved in demolition, ensuring compliance with reclamation standards while maintaining open lines of communication."

WH: "Rest assured; the involved parties have been notified concerning the demolition of the large-scale sites. We are in contact daily and will report any developments immediately."

Through the proactive efforts of the Anfeng Town Natural Resources Institute, several large-scale sites within xx Village have been successfully demolished. This land law enforcement process exemplifies the collaborative engagement among various agencies within the local natural resources department and the corporation of a supportive network encompassing all facets of cultivated land protection. Although the reports submitted by local towns and villages may not be exhaustive during the verification process, this structure provides the townships with the necessary flexibility to operate effectively in protecting cultivated land. The efficiency and punctuality of Dongtai's natural resources management in safeguarding local cultivated lands remain commendable.

4. Discussion

Several National Land Surveys have offered an extensive analysis of the allocation of land resources within the nation, and there is a societal expectation for a credible regulatory body to engage in the management and development of these resources. It is commendable that Dongtai City has effectively executed the state's initiatives against unlawful land utilization. The government functions as a comprehensive body, with both the local communist party leadership and governmental authorities sharing accountability. The oversight of this system's construction was conducted by the Party, establishing a basis for broad public endorsement of land policies and regulations.

Furthermore, there exists a stringent ban on the unauthorized appropriation of agricultural land for residential construction, alongside rigorous measures to curb "non-grain" (The scope encompasses a variety of elements, including but not limited to seedlings, turf, medicinal plants, mushrooms, fruit-bearing trees, and tea plants. And, it also incorporates certain specialized agricultural practices, such as field excavation for aquaculture and the rearing of livestock and poultry) and "non-agricultural" (Participating in non-agricultural endeavors on arable land, including the unlawful appropriation of such land for purposes like afforestation or the excavation of lakes for aesthetic landscaping, rather than utilizing it for crop cultivation). To optimize the advantages of land resource policies for the public and ensure that these policies are centered around the needs of the people, it is essential to maintain a "dynamic balance of total cultivated land". This entails preserving the overall stability of cultivated land through judicious planning and effective management strategies that prevent any reduction in cultivated land due to various factors. Additionally, efforts such as land consolidation and reclamation are employed to achieve this dynamic equilibrium. More importantly, the approach adheres to the principle of "reclaiming as much as is occupied", whereby any entity that occupies cultivated land is obligated to restore an equivalent area of land, both in quantity and quality. In instances where reclamation is not feasible or the land does not meet the necessary standards, a reclamation fee must be paid in accordance with established regulations. These funds are then allocated for the purpose of developing new cultivated land, a process referred to as "cultivated land balance". There exist additional strategies to foster public endorsement of land policies and to safeguard food security. The local authorities insist "double balance" principle (dynamic balance of total cultivated land and cultivated land balance) concerning cultivated, which land must be adhered to. Should there be approval for non-agricultural development on agricultural land, it is imperative to maintain a "cultivated land balance". When agricultural land is transitioned into forest, garden, grassland, or other agricultural uses, "The balance between the transfers of farmland" for cultivated land must be respected. Finally, a clear hierarchy for land use is established, with arable land primarily allocated for the cultivation of grain, cotton, oil, sugar, vegetables, and other agricultural products, while permanent basic farmland is chiefly reserved for food production. High-standard farmland is, in principle, designated solely for food production.

In alignment with these measures, the natural resources department of Dongtai City prioritized the preservation of both the quantity and quality of cultivated land and

permanent basic farmland. This involved meticulous oversight of management practices, leading to the successful attainment of protection goals and objectives. The investigation revealed that the local government implemented several key initiatives: Firstly, a rigorous system was established, accompanied by the enforcement of accountability measures. Under the auspices of the municipal government, a protection responsibility certificate was executed with each township, integrating assessments of cultivated land protection into the annual evaluations of villages. Additionally, protective signage for basic farmland was installed to delineate responsibilities and boundaries, while a variety of management systems were introduced to regulate land use, establish agricultural practices, and encourage land reclamation. Secondly, a robust supervisory framework and network were developed—this included the creation of a five-tier cultivated land protection network that spanned from the city level to grassroots entities. Enhanced oversight of cultivated land protection was facilitated through a "four-all" mechanism, which specified tasks throughout the entire process, provided continuous real-time monitoring, ensured comprehensive dynamic tracking, and promoted interdepartmental collaboration. Lastly, stringent regulations on land use were enforced to maintain ecological balance.

The occupation of arable land, especially permanent basic farmland for engineering projects, was tightly controlled, with strict adherence to the principle of "one occupied means one compensated, and compensation must be addressed before any occupation". Many local land users fully implemented the requirement for this while strictly preventing ordinary cultivated land from being converted to other types of agricultural land. Fourth, emphasis was placed on quality and potential maximization. The city gov vigorously pursued a reduction in rural construction land, and implemented various land improvement projects. By this strict management for cultivated land, the local control of land use effectively heralded a system innovation that significantly curtails improper usage of cultivated land, forest land, garden land, and other agricultural areas. With the ongoing deepening of rural revitalization and the modernization of agricultural and rural processes in China, along with transformations in agricultural development modes and adjustments in industrial structures, these measures ensure the stability of both the quantity and quality of cultivated land.

However, despite the economic prosperity and development, some issues regarding cultivated land protection have been gradually revealed, even as the local government strictly adheres to national requirements. Follow-up studies should innovate practical methods to bolster cultivated land protection in the following aspects.

Firstly, when farmland is occupied to meet production and management needs, some local villagers have unauthorized changed the nature of land use, such as converting farmland into ponds or covering it with film or soil to process pickled products. Such processing plants often cause serious pollution, lack sewage systems, and result in surrounding land becoming salt-laden, leading to a decline in soil fertility due to alkalization. Additionally, some towns, in pursuit of economic development, overlook violations of environmental protection regulations. A typical example is the improper transportation of industrial waste, which does not meet coverage requirements, resulting not only in material waste and dust pollution but also transforming certain reclaimed lands into concentrated waste disposal sites, where

illegal operations often take place with no accountability due to problematic interests. Thirdly, the occupation of arable land for industrial use has become prevalent, as some construction materials companies have occupied arable land in local villages for new office space and raw material handling without proper approval. The large-scale hardening of these areas, coupled with prosecutorial limitations and other issues, frequently leads to local judicial disputes.

5. Conclusion

It is crucial to highlight that the protection initiative must ensure that the local community collectively recognizes their inability to occupy cultivated land. At the same time, it is essential to enhance political accountability and public awareness concerning the prevailing conditions and policies, while promoting adherence to established legal standards. Additionally, it is vital for all segments of society to acknowledge the importance and appropriate use of land resources. The local community should advocate for the scientific and rational management of arable land and commit to its rigorous protection. Strengthening the safeguarding of cultivated land and encouraging its economic and intensive use are imperative. Specifically, to preserve arable land, this understanding must be incorporated into local assessment frameworks. Effective territorial oversight should be established to ensure that the responsibility for land use is assumed by those who utilize it. Government agencies at all levels, along with departments responsible for natural resources, must actively protect cultivated land and adhere to the precautionary principle in their regulatory practices. As a vibrant residential zone comprised of individuals located within a specific geographic area, the local community could improve regulatory practices and foster a collaborative atmosphere where all stakeholders recognize their responsibilities in safeguarding these vital resources. The aim is to establish economic and intensive land use as a standard practice. Simultaneously, Dongtai's land use management should be firmly rooted in legal principles. This approach will facilitate the advancement of legislation pertaining to cultivated land, as well as other legal frameworks, to strengthen the lawful use of land. The introduction of more stringent penalties for infractions will enhance our dedication to protecting arable land during this new developmental phase. This paper finds local governments implement a framework or strategy that promotes the effective utilization of resources, recognizing it as a crucial necessity for safeguarding arable land, which necessitates the clear definition of development objectives and the establishment of key performance indicators aimed at promoting a more economical and intensive resource utilization.

Such an approach demands a commitment to the highest standards of cultivated land preservation, the investigation of a balanced ecological land use and compensation framework, and the assurance that both the quantity and quality of cultivated land remain consistent. Furthermore, it is vital to maintain a steady supply of grain and other essential agricultural products. Simultaneously, local authorities should implement a conservation-focused and intensive natural resource management system. This entails the establishment of a comprehensive regulatory framework governing all forms of land use, the strict enforcement and enhancement of a limited-use policy concerning the total area and intensity of construction land, and the creation

of a robust structure for the overall protection and systematic restoration of unsustainable natural resources. These measures are designed to enhance the efficient and rational allocation and utilization of land resources. In response to the need for accurate forecasting to mitigate significant risks, a thorough process of case analysis, problem-solving, task planning, and implementation should be undertaken. Targeted strategies must be employed to prevent or address uncertain risks, thereby bolstering early warning and monitoring capabilities and enhancing the security of farmland resources. Given the potential risks and vulnerabilities across various sectors, industries, and regions, the administration should engage in proactive planning, capitalize on existing opportunities, propose responsive strategies, and dynamically adjust objectives, tasks, and engineering projects in response to disruptive and illegal activities.

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