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PROBLEMS OF LAND RESOURCES MANAGEMENT IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND MEASURES TO SOLVE THEM

ПРОБЛЕМИ УПРАВЛІННЯ ЗЕМЕЛЬНИМИ РЕСУРСАМИ В КОНТЕКСТІ СТАЛОГО РОЗВИТКУ ТА ЗАХОДИ ЩОДО ЇХ ВИРІШЕННЯ

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The article highlights the main problems of China's land management in the context of sustainable development. Land resources on the planet are limited, and therefore the implementation of sustainable land use practices is the key to reducing land degradation and ensuring food security. Among the main problems of land management, we have identified the following: lack of a reliable land management system, lack of legal awareness and environmental awareness, lack of advanced land management technologies. Analyzing the main problems of land management in the context of sustainable development, we propose effective measures to address them. It is noted that these are: creation of a reliable land management system; regulation of the land use structure and high-quality land planning; strengthening of land supervision to promote efficient use of land resources. The rationalization of management for environmental protection and efficient use of natural resources can also be realized through the development of information technologies that set clear requirements for the production process. The proposed measures to increase the level of land use can be used as a guide.

Keywords: management, land use, land resources, land management, land resources management, sustainable development, land surveying, use of land resources; problems of land management; effective management of land resources, effective measures of land management.

У статті висвітлюються основні проблеми управління земельними ресурсами Китаю в контексті сталого розвитку. Земельні ресурси на планеті є обмеженими, а тому впровадження практик сталого землекористування є ключем до зниження деградації земель та забезпечення продовольчої безпеки. Земельні ресурси є важливим стратегічним природним ресурсом країни і підлягають особливій охороні, що слід враховувати під час формування ефективного механізму управління у сфері їх використання. З прискоренням урбанізації в Китаї проблема відходів та нестачі земельних ресурсів стає все більш серйозною. Негативні кількісно-якісні зміни земельних ресурсів впливають також на життєзабезпечення людей (погіршення здоров'я, зниження доходів, порушення умов господарської діяльності тощо). Серед головних проблем управління земельними ресурсами нами виділено: відсутність надійної системи управління земельними ресурсами, брак правової обізнаності та природоохоронної свідомості, відсутність передових технологій управління земельними ресурсами. Наведено, що управління земельними ресурсами відіграє важливу роль у сприянні розвитку соціальної економіки Китаю. У процесі урбанізаційного будівництва в Китаї відділи землеустрою повинні визнати важливість раціонального використання землі, а з огляду на поточну ситуацію сформулювати відповідну політику, посилити земельний нагляд та сприяти ефективному використанню земельних ресурсів. Аналізуючи основні проблеми управління земельними ресурсами в контексті сталого розвитку нами запропоновані ефективні заходи щодо їх вирішення. Зазначено, що це: створення надійної системи управління земельними ресурсами; врегулювання структури землекористування та якісне планування земельних ресурсів; посилення земельно-

го нагляду для сприяння ефективному використанню земельних ресурсів. Раціоналізація управління щодо захисту довкілля та ефективного використання природних ресурсів може бути реалізована також за допомогою побудови інформаційних технологій, що встановлюють чіткі вимоги до процесу виробництва. Запропоновані заходи щодо підвищення рівня використання земельних ресурсів можуть бути використані як орієнтир.

Ключові слова: управління, землекористування, земельні ресурси, землеустрій, управління земельними ресурсами, сталий розвиток, землевпорядкування, використання земельних ресурсів, проблеми управління земельними ресурсами, ефективне управління земельними ресурсами, ефективні заходи землевпорядкування.

Problem statement. Land management is a complex process that requires consideration of the specifics of the object and a perfect legal framework. Improving the efficiency of land management involves increasing the turnover of the land market, utilizing the financial, economic and investment potential of land, improving governance mechanisms, and combining different types of land rights. As land resources on the planet are limited, the implementation of sustainable land use practices key to reducing land degradation and ensuring food security.

Land resources management is designed to perform a wide range of tasks, which under certain circumstances may conflict and even contradict each other. Therefore, the issues of coordination of economic activity in order to achieve the aggregate maximum effect require scientific and practical understanding.

Thus, the analysis of the main problems of effective land use and the development of proposals for improving the land management system are not only practical but also scientific. This fact determined the relevance and significant theoretical and practical significance of this problem, contributed to the choice of the research topic, and determined its purpose.

Analysis of recent research and publications. The modern aspects of land management in the context of sustainable development and the peculiarities of implementing management decisions in practice are paid attention to in the studies of such scholars as: Chen Chao [1], Ding Rui [2], Feng Lei [3], Huang Zhengxue [4], Kong Weidong [3], Lin Jian [5], Liu Shuchen [11], Liu Songxue [5], Luo T. W. [7], Ming T. F. [7], Pan W. [6], Shen L. Q. [7], Wang S. S. [8], Xiaoye [9], Yang Ling [5], Yang Shuai [10], Yu Feng [11], Zhang Di [11].

Identification of previously unresolved parts of the overall problem. Despite the large number of scientific publications on this issue, it should be noted that the issue of land management in the context of sustainable development has not been studied sufficiently.

Formulation of the objectives of the article. The purpose of the article is to substantiate the theoretical provisions and develop practical

recommendations on effective instruments of land management in the context of sustainable development.

Presentation of the main material. Land management refers to the comprehensive measures that the state adopts a series of policies to regulate China's land and ensure the legal development and utilization of land. Relevant departments need to clearly delineate the land boundaries and clarify the ownership of land according to China's land regulations and standards; they need to formulate reasonable regulations and make reasonable planning for land development and utilization, so as to effectively improve the utilization rate of land resources. With the accelerated urbanization in China, the problem of waste and shortage of land resources is becoming more and more serious. Most of the enterprises, while developing the economy, neither protect the land resources properly nor make detailed and reasonable planning for land utilization, which leads to the lower utilization rate of land, which also limits the development of China's economy and society to a certain extent.

Negative quantitative and qualitative changes in land resources affect people's livelihoods (deterioration of health, reduced income, disruption of business activities, etc.). The study of sustainable land use has become increasingly important since the term «sustainable development» was introduced in the Brundtland Report in 1987. Sustainable land use was defined by the UN Summit on Environment and Development in 1992. Therefore, sustainable land use is the use of land that is managed taking into account the natural and economic conditions and properties of the territory. Rational use ensures the interests of society, achieves efficiency of production and other activities, and ensures the reproduction and protection of productive and other soil properties of the land. Figure 1 shows the main problems of land management in China. Let us consider them in more detail, as sustainable land use is an important factor in economic development.

First, it is the lack of a reliable land management system. A sound land management system is a

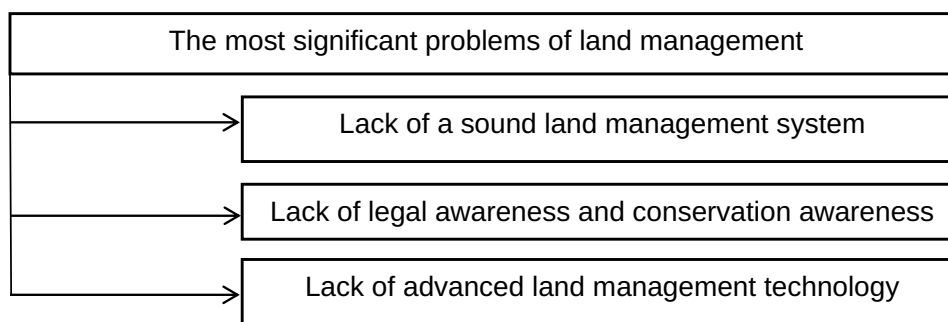


Figure 1. Current problems of land management in China

Source: own development

prerequisite and guarantee for strengthening land management [5]. However, China has not yet created a sound land management system, and the effect of land management is not very satisfactory. The imperfection of the land management system often leads to problems such as illegal land occupation. Under such circumstances, the maximum utilization of land resources cannot be achieved. In addition, China also lacks a sound training system, and the relevant departments do not provide scientific, systematic and standard training for land management staff. Under such circumstances, it is difficult for land management staff to fully grasp the methods and techniques of land management, which in turn leads to lower efficiency of land management.

Secondly, there is a lack of legal awareness and environmental consciousness [10]. For land management, China has introduced a series of laws and regulations. However, in the actual operation process, some land development subjects have a weak concept of rule of law and do not carry out land development in accordance with national laws and regulations. In particular, there are some irregularities in rural land use, and a few land development subjects do not make effective use of the land according to the law, which, together with the insufficient supervision of land use by some departments, has led to the occurrence of problems such as illegal sale of land and non-compliance with land use regulations.

The lack of awareness of land conservation among some land development subjects has led to occasional waste of land resources. In this context, China has put forward higher requirements for land management, aiming to control the increase and deepen the degree of intensification. However, because a few land development subjects neither fully recognize the importance of land conservation nor make

reasonable planning before using land, the probability of land resource waste problems increases significantly. In addition, urbanization construction will occupy a large amount of arable land, and this will result in a continuous reduction of land resources.

The rural areas outside the planning area are mainly natural villages with disorganized and scattered layouts, lagging planning, low level of intensive land use, old houses and broken houses, which are more difficult to rectify. Some villagers build new houses and do not return the old ones, resulting in the village becoming a «hollow village». Therefore, it is very important to enhance the villagers' awareness of land conservation.

In short, the land is not reasonably planned and the citizens' awareness of land conservation is not strong, which will seriously reduce the utilization rate of land in China.

Third, it is the lack of advanced land management technologies [4]. With the development of society, the country's requirements for land management work have become higher and higher, and higher requirements for land resource utilization have been put forward. However, in the actual land management work, the traditional land management techniques used by the staff can no longer meet the current requirements. Currently, many advanced technologies can be applied to land management, such as remote sensing (RS) technology and global positioning system (GPS). The staff can use these advanced technologies to plan and utilize the land in order to improve the land utilization rate.

In rural areas or some remote mountainous areas, influenced by the level of local economic development, staff members have less access to advanced technologies, and they often lack the professional knowledge to skillfully apply new technologies. Therefore, the local land management work is more difficult. The lack

of professional talents as well as professional technology leads to the hindrance of land management work in China.

Analysing the main problems of land management in the context of sustainable development, we propose effective measures to address them and present them in Figure 2.

First, it is establishing a sound land management system. Establishing a sound land management system is one of the effective measures to improve the utilization rate of land. China's land management system includes land spatial planning system, arable land protection system, agricultural land conversion and land acquisition system, land use system with compensation, land supervision and inspection system, land reserve system, land property rights system, etc. These systems are the basis for land management in China. Social and economic development is easily influenced by the outside world, therefore, in order to effectively promote land management in China, relevant departments need to establish a sound land management system, improve the utilization rate of land, and avoid problems such as waste of land resources and illegal occupation of land.

In terms of rural land management, China needs to adopt an integrated urban-rural approach to realize the legal use of rural land [9]. At present, the use of a few rural lands does not strictly follow the national laws and regulations. Therefore, in establishing a sound land management system, the relevant departments need to develop regulatory measures for rural land use and promote the development of rural land management toward the rule of law.

In addition, the relevant departments need to continuously increase law enforcement, strengthen the supervision of land, crack down on land violations, and make sure that violations are investigated and enforced strictly to ensure the legitimate rights and interests of land owners. In the specific practice process, land management departments should also strengthen communication with relevant local departments to punish units and individuals who violate the legitimate rights and interests of land, so as to effectively solve the problem of wasting rural land resources.

In addition, the establishment of a sound land management system can regulate the behavior of land management personnel and is conducive to increasing the importance of land management personnel to modern land management. On the one hand, land managers need to learn from advanced management experience at home and abroad and strengthen the application of advanced technology in their actual work; on the other hand, relevant departments need to train land managers so that they can establish correct land management concepts and have modern management consciousness, thus promoting the development of land management in the direction of modernization.

Secondly, it is to regulate the structure of land use and do a good job of land planning. Applying advanced technology is the key to ensure efficient land management work [8]. The managers should adjust the land use structure so as to ensure that the land is fully utilized. Managers also need to make reasonable arrangements for the current situation of land and develop it with the actual

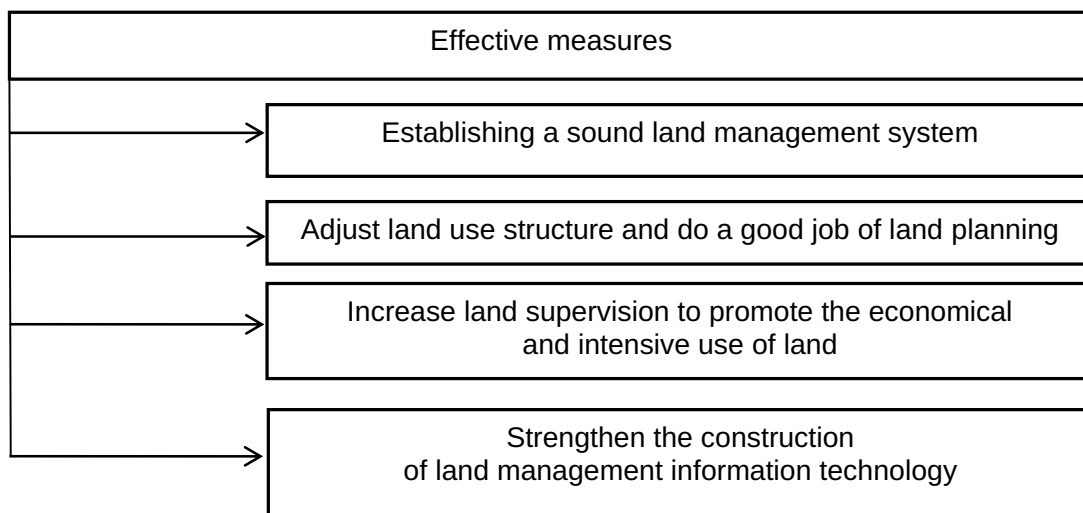


Figure 2. Effective measures to improve the utilization rate of land

Source: own development

situation of land, which can effectively reduce problems such as waste of land resources. At present, land resources are relatively scarce in China, and good planning before land utilization is conducive to the differentiated management of land. At the same time, before land use, the management personnel can make reasonable planning of land in space and time, which can also improve the utilization rate of land in China.

Third, it is to strengthen land supervision to promote economical and intensive use of land. The way of land utilization needs to be adjusted according to the changes of the times. Only by strengthening land management and promoting the economical and intensive use of land can the relevant departments effectively improve the utilization rate of land. Therefore, the relevant departments need to follow up and investigate the actual utilization of land, so as to strictly control the scale of land use as well as the scale of land development. In addition, in the process of land development, the relevant departments need to abandon the rough land use method and adopt the economical and intensive way to reasonably utilize the land, so as to meet the needs of economic development while ensuring the smooth urbanization of China and realizing the efficient utilization of rural land.

In terms of land supervision, relevant departments need to invest a lot of human and material resources, and they need to recognize the importance of land management before developing and utilizing land. In addition, the relevant departments need to increase the supervision of land management work, and establish and improve the long-term mechanism of land supervision. Only in this way can the relevant departments better restrain the land use behavior of land development subjects, so as to effectively reduce the waste of land resources. In addition, the relevant departments need to follow up and supervise the land development projects, make reasonable planning for the project sites, and strictly control the project progress. In this way, when problems occur, the relevant departments can effectively improve the status quo of land management.

In our opinion, the next measure to solve the problems of effective management is to strengthen the development of information technologies for land management. At the present stage, with the rapid development of science and technology. The traditional land management model has been difficult to meet the needs of the new era. If the managers still adopt this model, it will lead to the reduction of land management efficiency

and make it difficult to improve the land utilization rate. In China's land management work, land management informatization has become a trend [6]. Therefore, relevant departments need to continuously strengthen the construction of land management informatization so as to ensure the smooth implementation of land management work. When carrying out the construction of land management informatization, land management personnel need to do the following tasks.

Firstly, land managers need to change their mindset, fully understand the importance and necessity of land management, and use advanced information technology management mode to manage and utilize land, so as to effectively improve land utilization rate. Second, land managers need to use a variety of information technology, such as computer technology, big data technology, positioning technology, navigation technology, sharing technology, drone technology, sensor technology, communication technology, etc., to manage land dynamically. For example, land managers can use big data technology to collect, organize, analyze, and store land data information, and then use data sharing technology to upload these land data to a sharing platform for use by various departments and various land managers, thus ensuring the effectiveness of land management and utilization [1].

Land management departments can use modern information technology to quickly obtain relevant information, grasp land use and changes, ensure the legality of land use and orderly land management work, and improve the utilization rate of land. Therefore, land management departments need to cultivate professional information technology talents and create a team of information technology talents with strong professional ability and high technical level.

Conclusions from this study and further prospects in this direction. To sum up, land management plays an important role in promoting the development of China's social economy. In the process of China's urbanization construction, land management departments should recognize the importance of rational use of land, and in view of the current situation of land management in China, formulate relevant land management policies, establish a sound land management system, increase land supervision, strengthen the construction of land management information technology, and promote the economical and intensive use of land, so as to effectively improve the utilization rate of land.

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