The Four Models of Commons--the Tragedy of the Commons, the Tragedy of the Anti-Commons, the Tragedy of the Semi-Commons and the Comedy of the Commons

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Abstract: This paper systematically sorts out the four development models of the commons theory - the tragedy of the commons, the tragedy of the anti-commons, the tragedy of the semi-commons and the comedy of the commons, and explores the evolution of public resources under different governance models and their practical. The tragedy of the commons originates from the excessive consumption of resources caused by non-exclusivity and non-competitiveness, individual rationality and collective interests leading to potential conflict; the tragedy of the anti-commons is caused by the fragmentation of property rights, which manifests itself as institutional inefficiency and collective inaction; the tragedy of the semi-commons is caused by the coexistence of the tragedy of the anti-commons and the tragedy of the commons due to the mixed property rights; the comedy of the commons relies on community autonomy and institutional design to achieve sustainable governance. The study points out that the governance of the commons needs to go beyond the "Leviathan-privatization" dichotomy, and the study aims to provide diversified solutions for public resource management and global public domain governance by exploring the development of the commons.

Keywords: Commons; the Tragedy of the Commons; the Tragedy of Anti-Commons; the Tragedy of Semi-Commons; the Comedy of the Commons

1. Introduction

Commons, which is not only the theoretical framework of learning the relationship between human and resource, but also plays a crucial role in pushing nowadays social, economic and environmental governance, has expanded to digital space, urban public infrastructure, knowledge sharing and other fields, shifting from the agriculture system to the governance method.

The implication of the commons has been enriched by globalization, which leads to the increasing awareness of the shared future of mankind and the deep connection based on the worldwide natural environment and trade activities. At this stage, numerous academics are trying to explore how to

overcome global crisis and improve global resource management. The discussion on the commons has also promoted the concept of "global commons".

The United Nations defines the global commons as "areas and assets outside national jurisdiction" or "resource areas or areas outside the political jurisdiction of any country". The global commons is a resource area that all countries can legally enter. The commons is often used to refer to a resource-rich area (Resource Domain) on a small scale and small range, while the public domain is a space with vague scope and involving multiple countries, such as the universe, atmosphere, and the Internet. The global commons focuses more on cooperation between countries and whether those countries have the right to enter or develop freely. Although the global commons is derived from the commons, it is not equal to "large commons", and it involves greatly complicated actors.

This study intends to reveal the complexity of commons governance and its diversified development model, and expand the theoretical perspective of commons research. By integrating scholars' relevant research on the development path of commons, this paper constructs a more comprehensive analytical framework, providing a theoretical basis for subsequent research, which helps systematize commons theory and provide new ideas for global commons governance. Meanwhile, it is beneficial for public resource governance, sustainable development, mixed property rights optimization, grassroots governance innovation and global cooperation.

In addition, studying the commons issue has profound significance for regional, national and global governance. Its core lies in revealing the inner dilemma of public resource governance, and providing key support for sustainable development at different levels. From the perspective of regional governance, good governance of the commons helps to stimulate community vitality and promote innovation in grassroots governance; from the perspective of national governance, the basic attributes of the commons can help the government promote institutional design; from the perspective of global governance, the mature commons governance regional or national experience will become the supplement to the global governance knowledge, also being conducive to global public domain governance.

2. The Discussion of the Commons

Before the emergence of the theory of commons, Aristotle had discussed the dilemma that public resources might face, and he proposed that public things are often the least cared for and people tend to ignore public affairs, only paying attention to their own property.

2.1 The Commons Based on the View of History

Conventionally, commons refer to the public space of urban and rural areas, which are open for organizing group activities. Commons appeared in ancient Roman law between the 8th and 6th centuries BC, and according to the law, part of the land belonged to the state, while the law also distinguished between public and private land, and which public land contained undistributed arable land, pastures, wasteland, etc. Roman law also spoke of the ideal of "usufruct", which means the rights of non-owners to possess, use and benefit from property owned by others on the condition of not doing harm to the

poverty. Usufruct has urged that even if the user does not have property rights, as long as the property is not damaged, the user has the right to benefit from the property of others.[3] For example, Roman tenants could earn income from land or other forms of property owned by their landlords, but only if they did not damage it.

The common field (open field) was the system developed in medieval England, and it referred to the field which was uniformly distributed, managed by the community and used by the community, and it allowed local peasants and herders to freely make use of the crop stubble left after harvest and the weeds grown during the slack season.

Because of its narrow, long but varying-widths shape, sometimes it was called "strip field", and its management depended on the community members to pay wages to those who managed the commons. The commons used to be the method for farmers to share risks, because different micro-ecological conditions of different lands can hedge against crop failures caused by weather or pests; besides, farmers could not only graze animals on wastelands and grasslands, but also collect wood in the farming-slack season, without having to rely on sole food production.

A similar idea also emerged in medieval Poland, where residents carried out farming in "village communities" and implemented the "Two-Field System" (more fertile land was used for farming, and less barren land was used for grazing or planting crops during the fallow period of fertile land) or the "Three-Field System" (one field was used to plant winter crops, one field was used to plant spring crops, and the other was used for fallow and pasture). Later, with the advancement of production tools, the three-field system was widely adopted by medieval villagers. Under this land system, furrows were used to determine the boundaries of the land, and the villagers boasted of the right of utilizing the crop stubble and grass left after fallow for grazing. The conventional common land system usually has five characteristics: strips of uniform area, the right of village members to graze freely, collective use by the village, common rules, and institutions to enforce the regulations. German used to develop the "Markgenossenschaft", in which the land of the village was regarded as one "Mark" and its field, forest and grassland belonged to the public land, while only the land enclosed by walls around residents' houses was considered to be private. The users of "Mark" shared the land and its benefits together. There was also a similar system in Mongolia governed by the Qing Dynasty, which regulated that the land, grassland and wasteland belonged to the Emperor nominally and villagers could freely use public grassland.

In general, the commons is a land system based on common life or blood relations, and this practice is rooted in custom and history. There are two main reasons for the gradual reduction of the commons: first, with the development of industrial production, the demand for rural land in cities has increased, and agricultural production has gradually given way to large-scale grazing or industrial needs, such as the "Enclosure Movement" in the UK; second, the rising bourgeoisie was eager to possess land on a large scale, such as the Mongolian nobles who carried out large-scale land annexation and gradually disappeared the commons.

2.2 The Commons Based on the View of Public Governance

William Forster Lloyd (1833) proposed that as the number of partners increases, incentives will quickly decrease; as the number of people continues to increase, everyone will think that individual efforts have little impact on future output. In fact, there is a traditional Chinese idiom which was quite similar to his point of view-- "one monk carries water to drink, two monks lift water to drink, and three monks have no water to drink".

Economist Hardin (1968) proposed the theory of the commons based on Lloyd's views. In his opinion, every user of the commons has the right to freely enter the commons and utilize resources freely, and no one has the right to prevent others from using the commons. Driven by personal interests, users will consume common resources endlessly, so the commons will be greatly exhausted, which will cause the tragedy of the commons.

The commons is humanity's oldest interaction with the environment and has important contemporary relevance for humanity's path to a sustainable future, being rooted in ancient wisdom of land use concerning common use, autonomy, resource management, and the interaction between man and nature. The commons are natural resources from which any individual directly benefits while sharing the costs, and its dilemma lies in the conflict between individual interests and collective costs. Most studies on the theory of commons focus on community and local knowledge, and have a certain tendency to emphasize on the denationalization. For example, James C Scott, in his book "The State's Perspective: How Projects to Improve the Human Condition Fail" discussed how the modern German government used a single tree species to create a neat landscape for the convenience of management, which ultimately destroyed forest biodiversity.

Elinor Ostrom classified four types of products into public ponds, club products, private products and public property based on exclusivity and competitiveness. Public property is non-exclusive and non-competitive, such as the atmosphere; public ponds are competitive but not exclusive, in which people share the entire system but enjoy units in the system separately, such as grasslands and marine fish; club products are exclusive but not competitive, and their scope of benefit is relatively small, such as industry associations and members; private products are competitive and exclusive. Commons are born from resources in the region, and resources must be present before commons can be formed.错误!未找到引用源。

The commons based on the view of public governance used to emphasize that each user tries to maximize their own benefits while ignoring the sustainable development of the commons. Since the losses are already doomed, they must strive to gain more benefits with limited resources. Nowadays, the trend of abstraction and globalization of the commons arises the discussion of the commons' potential development, and different governance experience has enriched analysis.

3. The Tragedy of the Commons

The "tragedy" results from all users noticing that consumption of the commons but they continuing to overuse resources in order to obtain greater benefits. Everyone knows what will happen, but no one

changes their behavior patterns. In Hardin's opinion, every rational shepherd wants to maximize his own benefits, so they will consume public resources endlessly and without bottom line. As the benefits of this group of shepherds increase, the increasing number of bystanders will choose to consume resources to obtain the same benefits, because if they do not consume, they will not get income. During the enclosure movement, villagers lost the right to freely use the pastures, and it made the land free of overuse and be recovered.

The cause of the tragedy of the commons is its non-rivalry and non-exclusivity; while non-exclusivity means that it is impossible to exclude others from consuming the product, and non-rivalry means that one user's consumption of the item does not reduce its supply to other users. It should be pointed out that non-rivalry generally has its limits, and most resources cannot withstand endless consumption. Take the grassland degradation problem in Inner Mongolia Autonomous Region in China in the 1980s as an example. After China implemented the contract responsibility system, the income from livestock began to be privately owned, and the local government also roughly divided the scope of grassland. However, grassland's non-exclusive and non-rivalry makes it difficult to be protected by blocking people from entering. Some herders overgrazed their own grasslands and caused them to degrade, and then they went to graze on other people's grasslands, aggravating the trend of desertification and even affecting regional economic development. This is consistent with what Hardin said, "If all people are angels, but in a world with limited resources the behavior of any 'non-angel' will destroy the environment for everyone... 'Non-angels' profit from competition with 'angels' causing some 'angels' to abandon their original code of conduct".

Some researchers have proved that the tragedy of the commons is not a universal phenomenon through observations of the Algonquins, and they believed that the exaggeration of the impact of rational choice by Hardin, urging that in some conditions users decide to maximize individual benefits due to lack of information. In the early 19th century, after mastering the use of firearms and castor oil, the Algonquins began to hunt animals indiscriminately and peel their fur to exchange for Western goods. They believed that dead animals would regenerate. Although the Algonquins noticed that the availability of resources was decreasing, their simple fatalistic beliefs led them to attribute the decline of species to supernatural forces and continued hunting without taking any measures.

Some researchers believe that Hardin misinterpreted the history of the commons, and they claimed that early pastures were well regulated and users did not have complete freedom of access. Hardin assumed that the situation of "humans will exhaust limited resources" often happens when no corresponding mechanism has been established to manage resources. Therefore, it is the tragedy of the failed commons, not the universal tragedy of the commons.

4. The Tragedy of the Anti-Commons

Frank Michelman (1982) divided property rights into three forms based on exclusive rights and use rights: commons, personal property, and anti-commons. In his definition, in common multiple users can use it but without the ability to exclude others; in private property only one person has the right to

use and the right to exclude; in anti-commons multiple rights holders have exclusive rights to a certain object. His theory is built on the basis of property rights, emphasizing the right to use and the right to exclude.

American scholar Michael A. Heller (1998) proposed "The tragedy of anti-commons" in his article "The Tragedy of the Anti-commons" and he divided commons into two types: one has open access, such as the ocean and parking lots; the other has group access, where a limited number of users can exclude outsiders, such as the fields of a village community. Heller believes that the tragedy of the commons is just a perspective that focuses on the over-consumption of resources, but it does not concern the power hierarchy within the commons may lead to resource users opposing others' use of resources.

Heller believes that the solution to the tragedy of the anti-commons is privatization, and he compares the emergence of anti-commons to "a door with more than a dozen locks", which indicates dozens of keys are kept by different people, and these people cannot be together at the same time, so it is difficult to open the door on time.

Anti-commons can be divided into two categories, one is legal and the other is spatial. The former is due to excessive exclusivity caused by institutional design, such as the strict one-vote veto system; the latter is caused by cutting resources into too small pieces during the joint management process. And both of them have the following characteristics: strong exclusivity, that is, any individual can exclude other individuals from the commons; users have the mentality of "no use, no destruction"; multiple rights holders jointly participate in management; relatively strict institutional arrangements. The cause of the anti-commons tragedy is that the commons are not fully utilized due to overly rigid, inefficient management and overly fragmented power distribution. Resource users know that this situation cannot effectively utilize resources, but they still choose to maintain the status quo for their own interests.

In 1998 the two-level steamed bread offices of Zhengzhou City and the districts were established, while in 2000 the Zhengzhou Municipal Government decided to transfer the approval authority for steamed bread production licenses from the original municipal and district levels to the municipal steamed bread office, which triggered contradictions and a series of conflicts between the two levels of management departments. In order to regulate the order of steamed bread production and share the profits of steamed bread production, Zhengzhou set up one municipal steamed bread office and four district steamed bread offices, in which the overlap of management led to double fines and conflicts over the right to punish. Finally, these units have little contributions to regulating production. Here is another example. Since multiple government departments and local organizations have tried to gain benefits from the management of shops on the streets of Russia, the constraints and confrontations between users have not only failed to protect vendors, but also caused vendors to abandon the government-built shops and choose to sell on the streets, resulting in a huge waste of resources.

Shelby Porton believes that the tragedy of the anti-commons exists in the artificial intelligence (AI) field and intellectual property (IP) field. Generative AI models require large amounts of data for training, while the upstream AI training process is highly dependent on the intellectual property rights of others,

and it will cause resources not to be used effectively when the owners of intellectual property rights try to exercise their exclusive rights. Shelby believed establishing relevant rights protection organizations and clarifying the boundaries of property rights could be used to overcome this tragedy.

However, critics believe that the correlation between the complexity of patent approval and the tragedy of the anti-commons proposed in Heller's article is not convincing enough. Heller claimed that numerous potential drugs have not been commercialized due to the complexity of the patent approval process. After conducting a questionnaire survey, some researchers found that this problem is not prominent in the reasons for the decline in interest in developing new drugs.

The focus on the tragedy of the anti-commons is relatively less studied, and this is because the tragedy of the anti-commons is more likely to be secretive, which means the unused resources are usually not considered waste, and will not be depleted for the time being, being difficult to attract attention. Besides, excessive privatization can easily lead to multiple users competing for the right to use, while sometimes the excessive complicated system in socialization leads to inefficient management, and both of them can result in the tragedy of anti-commons, indicating that privatization and socialization are not the direct cause of the anti-commons. The harm of the tragedy of the anti-commons makes it difficult to solve the problem in substance, and even difficult to discover. Excessively dispersed use rights and cumbersome institutional design may lead to the unwillingness of users to solve problems, and the underuse of the commons, will bring huge waste of resources.

4. The Tragedy of the Semi-Commons

The Tragedy of the semi-commons refers to the commons having both the tragedy of the anti-commons and the tragedy of the commons. Smith (2000) proposed that semi-commons is a property system combining private property and common property. He also believed the open field system in medieval England was a typical semi-commons. Those villagers used to have private property rights to their own narrow one-acre plots of land for growing grain, which were distributed in two to three large fields around the central village, and the animal husbandry during the slack season was permitted, while they had to engage in the agriculture during the busy farming season. Meanwhile, herders also had the right to use the commons during the slack season, and the manure left by livestock can also improve the fertility of the soil, so every herder wanted to graze in others' fields and leave the manure of livestock in their own fields. In this circumstance, owners tend to gain benefits from common property other than their own private property, leaving damages to others, which leads to the tragedy of the semi-commons. When the two attributes of private and public use coexist in a property or resource system and both occupy an important position, the boundary between public and private will be blurred, which gives rise to the tragedy of the semi-commons.

The essence of the tragedy of the semi-commons is overly subdivided commons leading to overlapping problems in management, which makes it more fragile and more difficult to solve than the tragedy of the commons and the tragedy of the anti-commons. Take the pastures in Kyrgyzstan as an example. After the collapse of the Soviet Union, the animal husbandry of Kyrgyzstan began to be

privatized, but the pastures remained state-owned. Subsequently, the government began to promote the pastures privatization and issued a decree to allow individual families to use pastures through leasing. Due to the complexity of the pasture leasing system, by 2007, only about 14% of Kyrgyzstan's pastures were formally leased, and most pastures actually became open commons; moreover, high-quality pastures were usually leased by large farmers or well-connected businessmen. Most small farmers could not obtain high-quality pastures, hence they grazed in public areas near villages, causing the commons to degrade sharply. In order to protect pastures, the government strictly controls leasing activities, in which complicated procedures weaken herders' willingness to lease pastures and the high threshold restricts small producers from leasing pastures, resulting in producers who are unable to lease choosing to graze on low-cost public land and land which is used for leasing remains underused.

The Telecommunications Act of 1996 by the Federal Communications Commission of the United States stipulates that existing local communications operators must lease all or part of their network units to newly joined competitive communications operators in the form of classified pricing. However, the Act also stipulates that the bids of newly joined competitive communications operators do not need to consider the total cost of building and maintaining network units, and only need to consider marginal costs, so new operators' bid often fails to satisfy local operators. When the two parties cannot reach an agreement on the price, the Federal Communications Commission will give an arbitration price to force a deal. The final result is that excessive use of public network unit resources due to the inability to reach an agreement on leasing prices between existing communications operators and new operators, resulting in a decrease in the development enthusiasm of existing operators. This situation will have a negative impact on users who want to make rational use of resources, and it will also be more difficult for them to obtain high-quality resources. And it can be solved by a comprehensive governance model of personal information centered on government supervision or a legislative model centered on the protection of private rights, which protects personal information from the perspective of private rights. Shared bicycles is also a typical example: some users who try to own the bike by adding private locks tend to overuse the public bike. Patent holders block core technology (private), but free ride on open source code (public), which is not rare in the IP field.

In the semi-commons model, the public and the private appear to be in conflict with each other, but they are also greatly interdependent, the coexistence of both of them making the public resources semi-commons. Take personal information as an example. When personal information is governed by the public, some organizations and individuals tend to illegally profit from others' information and protect their own information. Defending against the unlawful use of personal information requires high cost, which is much more than the benefits of violating others' information, so users tend to ignore those illegal behaviors and only care about the safety of their own information. Through the careful design of property boundaries and other mechanisms will be helpful to enhance supervision, and the solution to semi-commons tragedy requires designing a reasonable mechanism to balance the use of public and

private resources and prevent problems such as overuse, insufficient supply, and targeted abuse, concerning law, economy and technique.

5. The Comedy of the Commons

The comedy of the commons mainly refers to good governance under the balance between local community autonomy and government vertical management; and it can be achieved by clarifying the power distribution, eliminating the vague and fragmented power distribution, and establishing an effective supervision mechanism. Moreover, the positive factors bring spillover effects leading to a virtuous cycle.

Elinor Ostrom opposed Hardin's binary opposition between public and private property rights in commons and her opposition to the tragedy of the commons became one of the theoretical foundations of the comedy of the commons. From the perspective of institutional design, organizations need to complete institutional supply, credible commitments and mutual supervision; the commons should also have institutional designs such as minimum recognition of organizations, democratic decision-making, clear boundaries, conflict resolution mechanisms, sharing of responsibilities in proportion to benefits, supervision and sanctions, and graded sanctions. Once a group has well-functioning rules, it can promote more people to participate in cooperation. Conventional customs will also form internal norms of the community, which is conducive to promoting participation in resource sharing within the community. The core of the comedy of the commons lies in whether there is a mechanism that enables users to cooperate with each other, whether it is explicit laws or implicit social norms, which prompts actors to adjust their behavior according to the reward and punishment system. The core of the comedy of the commons maintains a certain optimism about human nature, and its supporters believe that they have to cooperate in order to obtain better personal interests when resource endowments face trouble. Cooperation satisfies common interests, and the enthusiasm for cooperation also increases. Rational people no longer only consider maximizing individual interests, but also spontaneously cooperate based on rational choices.

Zimbabwe's Campfire program is seen by some scholars as an example of the comedy of the commons and in this institutional design revenue from hunting and tourism on public lands is transferred to district councils to encourage communities to hunt illegally. Zambia's ADMADE program trains locals to become wildlife rangers and then delegates wildlife management responsibilities and welfare to community committees. In fact, many rural governance practices in my country fall into the category of comedy of the commons. Villagers in Tangwan, Anhui Province, divide public hills into four categories: public hills that cannot be planted, which are usually accessible to residents of the village; public hills with slightly better soil, which are used by villagers to cut firewood and are managed by special personnel; public hills with better soil, where the village uniformly plants trees, which are cut down and sold after they grow up to pay for common expenses; public hills with very good soil are allocated to one or several families for use, but users must provide corresponding labor services. The

public hills management in Tangwan Village has achieved fair possession, fair use, fair distribution and fair disposal, and has achieved good governance.

The comedy of the commons is difficult to directly be applied on the global level. First, the comedy of the commons is based on small commons, some of which are still related by blood, with the trust foundation of community members helping supervision and making it easier for all parties to reach a consensus on institutional design. Countries and other actors in the global commons lack community recognition and trust foundation, and it is difficult to replicate the small-scale governance model. Secondly, the limited scope gives the commons clear property rights, while the global commons transcends the boundaries of the country, and it is almost impossible to complete the property rights definition, and sometimes it even relies on supranational institutions for supervision. Third, the commons within the community almost do not need to consider cultural heterogeneity and institutional diversity, but the national actors in the global commons have gaps in institutions, culture, economic development levels and governance concepts, which complicates the formation of a unified institutional framework more difficult. Although the small-scale governance experience of the comedy of the commons cannot be directly applied to the global commons, it highlights the importance of attaching importance to local knowledge and culture and reducing negotiation costs in institutional design, which provides valuable experience for the governance of the global commons. At the same time, it also implies an assumption: good institutional design can arouse expectations for cooperation.

Table 1: The Classification of the Four Models

Type	Contradiction	Resource	Results	Typical example	Method
The tragedy of the commons	Individual rationality conflicts with collective interests	Overuse	Resource exhaustion	Public grassland	Community autonomy, public ownership, or privatization
The tragedy of the anti-commons	Fragmented property rights lead to collective inaction	Underuse	Resource waste	Abandoned storefronts on Russian streets, three monks don't have water to drink	Simplify the system and integrate property rights
The	Mixed	Overuse	The private	The	Clarify the

tragedy of the semi-commons	corporate ownership leads to competition among users	and undersuse	factor is protected but the public factor is ignored	desertification of the Kyrgyzstan grassland, shared bicycle, patent	boundaries between public and private sectors and introduce third-party supervision
The comedy of the commons	Institutional design considerations based on community experience	Reasonable use	Resource sustainable development	Tangwan public hill protection Zimbabwe's Campfire program	——

Source: Made by author based on the article.

6. Conclusion

Exploring the commons development model helps us expand the theory of commons from traditional land resources to the global public domain, and provide a new research direction for public resource governance. The discussion of specific commons is directly related to sustainable development such as environmental protection and rational use of resources, and can also provide reference for policy making in global climate change and biodiversity conservation. As global issues become increasingly complex, commons remain an important part of global governance.

The tragedy of the commons, the tragedy of the anti-commons and the tragedy of semi-commons have different theoretical emphases: the tragedy of the commons focuses on the abuse of public resources by individuals under rational decision-making in pursuit of maximized interests; the tragedy of the anti-commons emphasizes the waste of resources caused by the failure of institutional design or excessive dispersion of rights; the tragedy of the semi-commons reveals the vicious cycle formed by the superposition of the tragedy of the commons and the tragedy of the anti-commons; the comedy of the commons pays attention to the efficiency and activeness brought by self- organizing governance.

To sum up, their academic value lies in expanding the existing research perspective and promoting a deeper theoretical reflection on governance. This article defines the above four types of theories as four development paradigms of the commons, which almost completely cover the dilemmas and possibilities of the commons: fragmented property rights lead to collective inaction; rational calculation leads to resource depletion; users in public-private mixed arrangements may erode public interests to

supplement private interests; perfect institutional design promotes cooperation and thus promotes good governance.

Hardin's theory has triggered a systematic discussion of governance paradigms in academia, and the other three types of commons can be regarded as the response to the tragedy of the commons. More importantly, all of them try to answer the question "what possibilities the commons are facing". Supporters of the tragedy of the anti-commons are based on the idle resources caused by the fragmentation of property rights. Scholars who focus on the tragedy of the semi-commons point out that contemporary social development has spawned a large number of common resources with mixed property rights, breaking through the "Leviathan-privatization" classification method, and their discussions are mostly focused on abstract fields, which are of great significance at a time when science and technology are developing rapidly and the connotation of the global public domain is expanding. Advocates of the comedy of the commons have insight into the potential of self-organizing mechanisms and community governance, and advocate the importance of local knowledge, institutional design, and the belief that cooperation can promote a virtuous cycle. As a direct theoretical response to the tragedy of the commons, the comedy of the commons underlines that the synergy between institutional design and self-organizing mechanisms. Even if the idea is difficult to be applied to all countries, it still brings enlightenment for common users who are eager for good governance and sustainable development.

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Conflicts of Interest

The authors declare that they have no conflicts of interest to report regarding the present study.

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