

Analysis on the Effectiveness of Common Property Regimes in Common Resource Pools

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Abstract

This paper aims to observe and ascertain the effectiveness of common property regimes in managing natural resource pools. The first objective is to interpret the bundles of rights used and managed by a series of resource users and understand what role each user has in managing common resource pools. The paper also determine through several case studies of different common resource pools the effectiveness of implementing common property regimes in maintaining and using the resource at a sustainable level. We argue that common resource pools are the best property regimes for natural resource management. We also mention that they are under the threat of private property regimes, because such private property may lead to overexploitation and eventual degradation of a natural resource. Finally, we use several case studies to demonstrate the effectiveness of common property regimes.

Keywords: common pool resources (CPRs), natural resources, property regimes, property rights, public goods.

Introduction

The 21st century has been marked by a tremendous surge of private property ownership. While there was a greater spread of people owning their own land and having the freedom to be securely confined in a private space, this has caused many environmental and socio-economic problems around the world. Large companies have been able to get a hold of ownership to natural resources, possibly affecting the surrounding bioregion and depriving a local population of a resource they once had the freedom and autonomy to use. On top of that, the growth in ownership of natural resources has caused an excessive use of them, which has triggered some of the effects of climate change appearing today. Whether it is desertification caused by irrigation or the air being polluted by our obsessive use of fossil fuels, environmental damage is apparent everywhere. This has caused us to question the dynamics of private property ownership, and whether there is a better approach to property rights that does not cause environmental harm and socio-economic injustice.

In order to argue for or against the use of private property ownership, it is important to understand what a property right is. The term property right refers to an owner's right to use a good or asset for consumption and income generation (referred to as "use rights"). It also includes the right to

transfer it to another party, in the form of a sale, or a gift. In general, a property right also conveys the right to contract with other parties by renting, pledging a good, or allowing other parties to use it.

Classical economists, such as Adam Smith and Karl Marx, have written about the role of property rights in economic growth and development, but it was only until recently that mainstream economic theory has implicated property rights regimes in the economy. Based on the rules and dynamics of competitive markets, property rights must be well defined and enforced at no cost in order to produce efficient economic results. North (1990) highlights that a new institutional approach in development economics is emerging, putting deeper emphasis on the effectiveness of property rights in stabilizing the economy.

According to the definition of Edella Schlager and Elinor Ostrom, "Political economists' understanding of property rights and the rules used to create and enforce property rights shape perceptions of resource degradation problems and the prescriptions recommended to solve such problems." This implies that property rights comprise far more than titles and pieces of paper indicating "ownership" of a specific piece of land or natural resources. They also include a broad set of rules and principles associated to the

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access and use of these resources. According to Bromley (1991), our understanding of property rights consists of an individual's capacity to call upon the collective to stand behind his or her claim to a benefit from this property right. This indicates that property rights illustrate and describe the relationships and interactions between people in their local setting. Based on this consensus, one can denote that the success of any policy, whether designed to prevent further depletion or degradation of the natural resource, ensure sustainable resource utilization, enhance the resource base, depends on successfully anticipating the responses of individuals.

However, there are other forms of property rights, such as communal property rights, that are quite important in many societies. Besley and Ghatak (2009) describe the case of common properties like a forest or a lake. In such cases, individuals have the rights to use common properties, but they legally cannot exclude others from using the same property. Furthermore, property rights also serve as social institutions that delimit or define the range of rights and privileges granted to individuals of specific resources, such as parcels of land, water and forest. A huge variety of property rights may imply private ownership of these resources, giving the individuals the right to exclude others from access. In addition, private ownership might include the right to obtain a suitable stream of economic rents from the use of the resource, as well as the rights to sell or transfer resources to others.

Through this understanding, it is evident that private property rights grant ownership to a select few of the population, undermining the rights and even the welfare of a vast majority of the population. The ability to own, exploit at free will, and sell a resource gives dominant power to the owner, and this creates social and economic imbalance. In addition, there is no way to enforce an owner to stop over-exploiting or abusing a resource, and the environmental harm resulting from such practice can prove to be incredibly costly to society. In this paper we essentially try to challenge private property ownership as a just and efficient system to property rights, and we aim to provide a solution to promoting property rights in a way that implicates all stakeholders of a natural resource. Before we present our argument and solution, it is important to look at the historical implication of property rights in order to challenge and change the current property rights system properly.

Literature Review

The fore of the issue stems from the once popular neoclassical approach to property rights, which was based on pursuing economic growth by increasing private ownership that is profitable. Some of the dominant economic literature from the mid-20th century on property rights supported the popular trend of private ownership, arguing that it was the most efficient property system. For example, Demsetz (1967) argued that there were three important criteria for a maximum efficiency of long-lasting property right. They were (1) universality—all scarce resources are owned by someone; (2) exclusivity—property rights are exclusive

rights, and (3) transferability—to ensure that resources can be allocated from low to high yield uses. These three criteria are considered to be property rights that an owner can use to secure their own land and use of natural resources. Other well renowned economic literature, such as Coase 1960, Brazel (1989), and Eggertsson (1990) supported this neoclassical approach to property rights. This increasingly common trend of property rights linked to the neoclassic approach stirred an incredible amount of economic growth for the United States and several other developed countries.

However, several existing academic literature has pointed to the problem of private property ownership of natural resources being the cause of environmental mayhem. Libecap (1989), and mainly North (1990), argued against the notion of private property rights by providing historical accounts that challenge the neoclassical view of a foreseeable evolution of economically efficient property rights. Collectively, they state that private property rights run the risk of causing economic and social imbalances that lead to social and environmental harm.

As a result to some of the ideologies emerging out of such conflicting economic literature, other academic literature has introduced the idea of 'common property ownership' as an effective solution to provide property rights while resolving such imbalances. According to Schlager and Ostrom (1991), common-property rights to a resource pool is property owned by a community of multiple resource users working together to maintain and manage the resource.

These property rights are classified and organized in a hierarchical structure, from authorized user, to claimant, to proprietor, to owner.

Authorized users are defined as individuals who hold collective-choice rights of management and exclusion. They lack authority to devise their own harvesting rules, or exclude others from gaining access to the resource pool. They also lack the authority to participate in collective action to change operational rules.

Claimants are defined as individuals who possess the same rights as authorized users, but they also hold the responsibility to manage the resource pool while having the collective-choice authority to devise operational level rights of withdrawal. In addition, they have the rights to management, which means they have the authority to determine how, when, and where harvesting from a resource may occur and whether the structure of the resource may be changed. For example, a group of fishers who devise a zoning plan limiting various types of harvesting activities to distinct areas of fishing ground are exercising rights of management for their resource. However, claimants can't specify who may or may not have access to resource, nor can they alienate their rights of management.

Proprietors are defined as individuals who possess the collective choice rights to participate in management and exclusion. That means they can authorize individuals who may have access to resources and how the resource may be utilized. They decide who is authorized through qualifications that individuals must meet in order to access a resource. For example, fishermen who are proprietors may

limit access to their fishing grounds to males above a certain age who live in a particular community and who utilize particular types of gear, thereby exercising their right of exclusion. But they don't have a right to alienate either of these collective-choice rights.

Owners have all of the rights as proprietors, but they possess in addition the right of alienation allowing them to sell or lease their collective rights. When putting these arrays of rights together in a hierarchical order, it is possible to have entry rights without withdrawal rights, have withdrawal rights without management rights, have management rights without exclusion rights, or have exclusion rights without the rights of alienation. While owners have the full property rights of a natural resource, owners are not the only resource users investing in the improvement of resource systems in the long run. Proprietors and claimants are also keen on encouraging long term investments, particularly because they possess some kind of collect choice right to which they can participate in defining and exercising future rights that encourage maintenance and sustainable use of a resource. This makes the collective choice rights a powerful tool for exercising social justice and environmental sustainability.

In addition, these collective choice rights are established in a de facto property right system, which is based on resource use organized and enforced among individual users and not recognized officially by government bodies. De facto rights are different from de jure rights, because de jure rights are enforcements by governments in the form of formal and legal instrumentalities explicitly granting rights to specific individual resource users. This implies that any conflicts within property rights can be settled in a judicial setting. In such common property right regimes, there are several cases where de facto property rights work in conjunction with de jure property rights established by the government. In some cases, when governments do not have the means to fully enforce rules and sanction those that break them, de jure rights might be set up as a basis of ground rules to which resource users can appropriate de facto rights established around these ground rules. Such de facto rights could serve as mechanisms to protect a natural resource.

The establishment of de facto rights is particularly relevant to common property rights, because they create the motivation to create collective choice rights designed to implicate all resource users. De facto rights can become a particularly powerful tool when governments pay little attention to the resource, giving all resource users the opportunity to gain autonomy and define rules and operational rights within themselves. With workable arrangements in mind, collective de facto property rights set up within a common property rights system can lead to efficiency in using and maintaining a resource. It is within this theme of property rights where our paper promotes a new and effective solution to the socio-economic and environmental issues caused by the common notion of private property rights.

Campbell et al. (2001) and Beck and Nesmith (2001) have already tried to analyze whether resource management and exploitation under community-based property rights regimes is reasonable and unbiased, while also

having the prospective to trigger a positive impact on the livelihood of the poor. Their results were mixed, particularly because common property rights require some form of ownership, giving more autonomy to a select few of resource users. For example, Meinzen-Ruth and Sallow (1997) have shown that natural resource management has to some extent failed to consider that a single resource has multiple uses, and several sub-groups of a common property system may not benefit from de facto changes to property rights. This is particularly the case when socio-economically heterogeneous groups sharing common resources have radically different interests, causing a clash between sub-groups of a common property regime.

However, plenty of literature shows that common property rights can be an effective tool to manage resources. As a matter of fact, this paper will present case studies that demonstrate the effectiveness of common property rights regimes, particularly with natural resources that are crucial for the development of humanity, but have not received enough attention from government bodies. This is particularly the case with forestries and fisheries. Thus, this paper contributes to the body of literature supporting the growing confidence in common property rights regimes being the fairest, most sustainable, and most efficient way to manage property rights and natural resources.

Common Property Tax Regimes in Real Practice: Case Study of Lobster Fisheries on the Coast of Maine Presented by Schlager and Ostrom (1991)

In this paper, we use natural resource pools associated with fisheries and forestries to illustrate the effectiveness of common property rights regimes. Schlager and Ostrom (1991) were key academics in the literature recognizing common property tax regimes as a viable and tangible property system. Their article provided a clearly defined explanation to the inner workings of these new property regimes, and provided evidence showing the effectiveness of such regimes by analyzing a case study of lobster pools on the coast of Maine.

The lobster fisheries at the coast of Maine have been at the forefront of the issue, particularly because capture of lobster is profoundly profitable. The Maine coast is generally owned by the state government of Maine, and they enforce de jure rights based on issuing authorizations to users who obtain a license. De jure rights by Maine's state government have proven however, to be insufficient in ascertaining the protection of the lobster fisheries from over-exploitation while being used by fisherman in a sustainable manner. As a result, several fishermen from different separate harbors in the area have developed their own de facto proprietary rights among themselves. This organization worked, because the entire coast was divided into a series of lobstermen groups who would only fish on the ground associated with their own harbors. Each lobsterman group decided how each grounds would be used, what production techniques are allowed, and finally who had the right to extract a certain amount of lobster given the season. These were considered to be de facto property rights because lobstermen were forbidden from selling, leasing, or bequeath-

ing their rights of management and exclusion. Yet, many established rules of such grounds have emerged because of their formed dealings among themselves. The lobstermen enforced these de facto proprietary rights by sanctioning, through gear destruction, anyone who violated the communal rules. Sanctions would involve cutting the ropes of large wooden traps set on the ocean floor to catch the lobsters. The rope would attach the traps to the buoys, which were used to transport the wooden traps back to the boat. Lobsterman of a given harbor would cut any traps set on their territory by intruders from other areas.

The emergence of such de facto rights have given birth to a common property regime used for the lobster fisheries in the coast of Maine. But there is a historical context as to how these common property rights regimes emerged in the area. Lobster catches in the area were perceived as sustainable up until the 1920, when major technological advances and physiological changes occurred in the coastline, and therefore the common pool resource.

The introduction to the installation of motorboats allowed fishermen to extend their range of fishing grounds while also becoming more resilient to more intense weather patterns. Prior to this technological change, fishing was only feasible during the calmer waters of the summer. And because the coast of Maine is filled with convoluted and deep bays, making it harder to catch lobsters who dwell in inconspicuous hideouts, fishing in open water grounds increased the amount of lobster catches in a timespan that was much greater than three months a year. This resulted in significantly higher incomes for lobstermen and the ability to pay for more expensive and resilient motors for their boats. As a result, the more inland lobstermen gained more harvesting capabilities, the more territories got violated between harbors, which were an obvious cause of conflict in the region holding this common pool resource. Lobstermen decided to avoid an increase in trap cutting and gear destruction by working together to create a common ground on this resource pool. The lobstermen mobilized and established de facto proprietor rights, giving clearly defined boundaries between each group, and providing more possibilities for mixed fishing, where groups of men from different harbors collected managed fishing practices in the same territories. The success of such de facto proprietary rights was also highlighted in Wilson (1977).

As a matter of fact, the state government of Maine began to recognize the appropriability of these de facto rights, and granted lobstermen from different islands their own legal and formal rights to such a profitable resource pool. For example, lobstermen in Monhegan Island persuaded the Maine legislature to forbid the general public from fishing in Monhegan waters from June 25th to January 1st, which gave support to the de facto proprietary right of exclusion to the local fishermen of the island. The state legislature took action by recognizing the territory called Monhegan Waters, and patrolling the territory with police boats. During the forbidden time period, local fisherman from Monhegan Island were able to catch their own supply of lobster because they were not burdened with a depletion of the resource, and they could sell their product at the time when the price at its highest value.

Such a regime stemming from de facto common property rights has the potential to become a powerful tool for many natural resources under threat of exploitation around the world. However, more comparative studies are needed to measure the effectiveness of such regimes.

Specifically referring to the case of Maine, Acheson (1975) provided an empirical case study of the effectiveness of common property regimes in the coastal areas surrounding Monhegan Island. Wilson Acheson collected data on crowding effects, seasonality of catches, the age and size of the lobsters caught, stock density, and income, to conclude that defended grounds were not as crowded with fishing activities as undefended grounds, primarily because there were fewer boats per square mile in defended areas. And the average catch as measured by number of lobsters per trap hauled was 60 percent greater in undefended areas. That is a significant statistical gap between areas operating under de facto proprietary rights and areas that are of open access.

Furthermore, the average catch between the two seasonalities remained relatively stable in defended areas as lobstermen with de facto proprietor rights spread the fishing effort more evenly throughout the year. Conclusively, even though the average catch in undefended grounds was high it was declining dramatically over the remaining several months. In addition, Acheson (1975) concluded that relatively uncrowded conditions and stable fishing efforts in defended grounds translated into stock densities being 22 to 50% greater than those in undefended areas. As a result, lobstermen with de facto proprietary rights experienced greater benefits as compared to lobstermen in de jure authorized users, with an average income of 22,929\$ in defended areas as compared to 16,449\$ in undefended areas.

There is a straightforward conclusion to such a compelling case study. The economic benefits are apparent for lobstermen operating in defended areas originating from de facto common property rights regimes. Therefore, there is a greater call for exclusion in such areas, encouraging lobstermen to invest in institutional arrangements to govern their grounds. Through this case study, we can claim that such practices of common property regimes should be existent in several other global regions where natural resource pools are threatened by excessive use and unsustainable practices of extraction.

Other Case Studies of Common Property Regimes

Several other case studies on common property rights regimes in forestries and fisheries are present all around the world. Berkes (1986) presents a comparative study of Turkish coastal fisheries, which share the same features of de facto proprietary rights and collaborative usage and consumption efforts in common property regimes as the case study of lobstermen in the coast of Maine. Berkes (1986) comprises a series of five case studies on localized common property regimes of fisheries along the Mediterranean coast of Turkey. We focus on three of the five commons, labeled as successful to highlight the effectiveness of such

regimes in maintaining the fisheries as sustainable sources. The paper clearly defines the 'success' of these commons in terms of efficiency in the process of extraction while avoiding the practices of overfishing and overcapitalization.

The first presented case study is the lagoon fishery of the Ayvalik-Baylazli near Adana, comprised of 103 registered fishermen residing in the neighboring villages near the lagoon and its adjacent waters. These fishermen have all cooperated to establish a locally recognized membership system only granting access and permission to catch fish to those who are a part of this commons. Membership is only given to those who have resided at least six months in the neighboring villages, and to those who do not have wage employment incomes. The members participating in this commons were given the choice of living in each of these surrounding villages while giving up wage labor. If members did not agree to these terms, they would be expelled from the commons and not allowed to fish in the area. Not only has the establishment of such a membership limited the amount of fisherman commercially exploiting their product, but it has kept the cost of fishing very low. As a matter of fact, members would go together in groups of four, using two rowboats and one motorboat. They would then tow the rowboats to the motorboat, which would then be anchored to save on fuel costs. Each member of such a group would split the shares of the boats and gear, and split the earnings evenly. Because of the small area of this commons, it was easy for members to patrol the surrounding areas against fishing intruders. While there was some conflict between these members and other more ambitious fishermen from large cities like Adana, this commons was generally seen as successful in managing common property rights of a natural resource pool.

The second case study concerns the local fisheries of Tasucu Bay near Silifke, comprised of 140 fishermen collaborating together in the same cooperative, and using 90 small inboard boats to fish and protect the area from intrusion by trawlers. While in this cooperative fishing was not restricted to members, the members created several factors that made joining the cooperative attractive. Such factors included obtaining a \$3000 bank credit to jump start the business, and a year-round, seasonally adjusted guaranteed price for the fish a member catches. In order to stabilize prices of the fish market, the cooperative also used a freezer storage facility to store the fish and keep them fresh. Members were also able to sell their fishing equipment at a subsidy, which was always a reliable option for obtaining an income. The result of this cooperative was to allow its fishermen to make a good living without having to fish at an unsustainable rate. While the fishing grounds had the capacity to support up to 300 boats, the fishermen only used 90. In addition, the cooperative was able to attract several new members, contributing to the strong financial and political position of the cooperative.

The third case study is about the local fisheries in Alanya comprised of about 100 registered fishermen operating 45 small inboard boats. A cooperative set up by half of these fishermen was established. The other half of the fishermen sold their product to independent vendors of the town market. While fishing was not generally restricted, there was a

limited amount of regularly spaced net fishing sites, which had several migratory species during specific seasons. Only members of the cooperative were allowed to fish in these sites, and the restriction was informally defined on willing consent. This informal restriction indicates that local fishing regulations are loose. In fact, they are based on the broad interpretation of the Aquatic Resources Act, which gives legal jurisdiction to such local communities who informally enforce rules. The rules are formalized annually at the beginning of the fishing season for migratory fish. Local arrangements are made between members who participate in the cooperative and specifically name fishing locations. Local authorities are informed of such arrangements so that there is a general consensus in policing the waters. If a member disobeys such arrangements with his/her actions, the fishing community imposes local sanctions to punish the violator. These arrangements are definitely considered successful when analyzing common property regimes, but there are still threats that cooperatives face in the area of Alanya. The increase in tourists in the area has attracted sports fishermen, spear-fishermen, and divers, to use the natural resources of these waters without consulting the cooperative, leading to conflicts. The natural resource also runs the risk of becoming unsustainable because of overcapitalization in the area.

While there are some potential conflicts within the commons of these three case studies, it is evident that procuring a common property regime for fisheries helps local communities manage the source of fish in the area.

The arrangements presented in the three case studies of Berkes (1986) show the successful use of 'extra-local' authority. Whether its local authorities get notified about collaboratively established de facto proprietary rights or members use the exclusion of non-members to protect the source from utilization by outsiders, each of the three cases demonstrate the use of arrangements and de facto rules on the resource. These locally recognized and informal sets of rules provide fishermen with the credibility they need to establish commons. Because of the presence of cooperating fishermen performing sustainable fishing practices, these areas are far more protected with the regime in place. As more resources run the risk of becoming depleted due to overexploitation, these common property regimes are imperative to procure. They will contribute to the global effort in promoting sustainable practices.

While fisheries are a perfect example of highlighting the effectiveness of common property regimes, the same types of regimes can be just as effective in forestries. For example, Maine is the state that holds the most forested area of the United States. Over 90% of 10 million ha is covered with forests. It is reasonable to mention that the southern part of Maine is overpopulated, urbanized and quite industrialized. In addition, half of the population lives in Portland, which is the largest city near Boston. In the surrounding areas most of the forests are apprehended by small landowners, most of whom own just a few acres of land. Here the huge portion of landscape is spruce-fir forests, scattered by quite large lakes, thus most of the land has never been used and cleaned for agriculture. Moreover, the population is very sparse, with little industrial activity, and communities ten-

ding to be very small. It is important to state that from 19th to the end of 20th century this land was owned by 20 companies which maintained the area as the working forests.

Nowadays, landowners of Maine forests have a legal title to their property. This means that they can get all of the income from economic activities held on those lands. They have the right to sell it, to manage it, as well as pass it onto others. Landowners generally pay taxes on the land and are liable if they create any kind of hazard which causes the injury of someone. At the same time, people hunt on the land owned by others, and use the land for bird watching and cross country skiing too. In this case, usually public members feel that they have a right to use the land of others for their own personal recreation. Sometimes they ask the permission for it, but usually they do not. Thus, a portion of owners of these forested lands feel violated and trespassed when something of theirs has been taken away. Often this is the issue for the members of public, when they take down the signs of "No Trespassing" and use the land anyway. From their side, landowners do not complain that much and allow others to use their land to some extent.

The use of private land by the public has different names, of which the most common is the "open land tradition," also forestland which is open to "traditional uses". The Executive Director of Sportsmen's Alliance of Maine, George Smith, mentioned in his interview that "It is an old tradition in Maine to hunt where you want. It is a unique tradition. In some states, you have a hard time to find a place to hunt", which explains the case clearly.

During the last few years there were several cases when the open land tradition was strongly defended. One was the case of a wealthy entrepreneur, who bought around 10 000 ha of land in Maine to establish a wildlife sanctuary. She prohibited hunting on her property and closed all the roads crossing the area owned by her. In response, local people complained and criticized her for threatening the local economy by declining the permitted hunting areas. Thus, she had violated so-called "traditional rights" of the public which allows members of the public to use the private land. This is an example of a local community collectively mobilizing in a common effort to save the traditions of the land and hunt at free will.

It is very essential to mention the role of the government with regard to this issue. The state of Maine has a policy of encouraging landowners to permit the public to use their property because of the reason of boosting tourism in that region, since it is Maine's largest industry. There would be a significant loss in inland areas in serving people who come for hunting, fishing, hiking or bird watching, if the access to private lands were limited. As a policy instruments congress would encourage landowners to leave their land available and open for public recreation.

Conclusion

After a thorough analysis of Schlager and Ostrom (1991) case study on lobsters in the coast of Maine, along with case studies of common property rights systems for fisheries along the Turkish coastline and forestries in Maine, we conclude that it is best to encourage a well- defined property rights scale from authorized user to owner.

The scale of these resource users is the best analytical theme for explaining the effectiveness of de facto proprietary rights established by members of a commons community and the sustainable outcomes achieved by the users of a common pool resource. When it comes to avoiding the overexploitation and overcapitalization of a resource, an established common property ownership tends to be the most successful mechanism in addressing differences of property rights.

We state this, because we also conclude in our analysis that frequently recommended governmental policy interventions to address property rights are usually flawed. For example, the use of quota systems established by governments, which is a very popular policy intervention for natural resource pools, neglects the major differences in fishing skills within a group of fisherman. As a result, several fishermen will benefit from catching more fish than the others, leading to major inequalities among fishermen and their income. Quota systems also promote fishing practices that are inefficient and unsustainable, contributing to the harm already caused by the overexploitation of the resources. Furthermore, fishery regulations implemented by government bureaucracy tend to be accompanied by unexpected environmental problems and failures. Transferring funds from fishermen to governments to fully enforce fishing regulations may not enhance efficiency as a result, because such regulations will only address a portion of the problems. It is much better to use de facto proprietary rights established by fishermen to address all the problems linked to the use of a common resource pool.

Nevertheless, according to Johnson and Libecap (1982), developing effective property rights systems is an enormous challenge, no matter what property regime is used. Larson and Bromly confirm in their study that assigning full ownership rights does not guarantee the avoidance of resource degradation and overcapitalization. This is particularly the case when taking into account exogenous changes like technological progress, market expansion, and physiological changes to the resource. That is why governing bodies should consider changing and adapting their policies to develop proprietary rights locally and give rise to new and effective property arrangements among resource users. Desirable outcomes from common property rights systems would emerge more if governments decided to establish regulations and rules in this manner.

However, the emergence of common property regimes is still at a stage of infancy. Thus, making sure such regimes are successful will require more scholarly research and analysis.

Schlager and Ostrom (1991) have stated that scholars need a better understanding of three key points. Scholars need to explore the issues of: (1) the conditions enhancing or detracting from the emergence of more efficient property rights regimes related to diverse resources, (2) the stability and instability of these systems when challenged by various types of exogenous or endogenous changes, and (3) the costs of enforcing regulations that are not agreed upon by those involved. Scholars exploring these three criteria will contribute to the overall shift from private property ownerships to common property ownerships, which will put the world population in a better position to address and tackle the issues of resource degradation and the harmful effects of climate change associated with that. Nonetheless, we conclude that common property ownerships collaboratively established by communities will pave the way for sustainable use of resources all around the world.

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