sustainability

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The Transaction Costs of Sustainability: Coase's Proviso and the Roles of Environmentalists and the Government

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Abstract: Environmentalists believe that the Coasean approach is economically efficient but environmentally unsustainable. While acknowledging that this approach is not always sustainable, this paper emphasises its important advantage—the presence of a criterion determining when an activity will/will not lead to an efficient/sustainable outcome. Coase formulated this criterion on what is termed in this paper "Coase's proviso"—the balance between the net benefits of an institutional change (rearrangement of entitlements) and transaction costs associated with this change. The article also defines the terms "best use", "second (or next) best use" and "best user". On this basis, the paper restates Coase's proviso and argues that there is no inherent contradiction between economic efficiency and environmental sustainability. According to the restated proviso, when the transaction costs associated with the institutional transformation establishing *the best* use of a resource are lower than the net benefits of this transformation, the result will be economically efficient *and* environmentally sustainable. However, if the transaction costs outweigh the net benefits of *the best* use, a *second (or next) best* use may be established, which will still be economically efficient, but most likely environmentally unsustainable. The paper explores a case study to check the relevance of the restated proviso.

Keywords: sustainable resource use; transaction costs; Coasean bargaining; environmental policy; environmental value; institutional theory; new institutional economics; resource governance; government's role; environmental organisations

Citation: Slaev, A.D. The Transaction Costs of Sustainability: Coase's Proviso and the Roles of Environmentalists and the Government. *Sustainability* **2023**, *15*, 3096. https://doi.org/10.3390/su15043096

Academic Editor: Sina Shahab

Received: 14 December 2022
Revised: 30 January 2023
Accepted: 6 February 2023
Published: 8 February 2023

1. Introduction

This paper analyses which specific transaction costs have the greatest impact on the sustainable use of natural resources. The term "transaction costs" (TC) was introduced by Ronald Coase in his famous 1937 work [1] and is widely accepted in the literature. Still, there is no consensus on the precise meaning of this concept—e.g., the term can be interpreted narrowly or broadly [2]. One may differentiate between the meanings of TC even in Coase's two seminal articles. In his 1937 article, TC denotes costs related to the functioning of the market, while in "The Problem of Social Cost" [3], this term refers to costs of property rights rearrangement aimed at solving externality issues.

The relationships between TC, externalities, and property rights also are of key importance to this research. According to Coase [3], externalities result from poorly defined property rights over resources. That is why his solution to externality issues requires the establishment of strong ownership entitlements. In his article, Coase does not focus on environmental issues, but only mentions the smoke from a factory as a "standard example" of an externality; however, in the following decades one of the most widely discussed implications of Coase's solution to externalities, known as "Coasean bargaining", refers to the sustainable management of natural resources. Regarding Coase's solution, two opposite perspectives prevail in the literature. Economists stress that Coasean bargaining helps in the allocation of ownership rights over a resource to the party who bids the highest price for that resource, suggesting that this party can use it most efficiently [4]. Thus, there is a consensus among researchers that Coasean bargaining stimulates private ownership and

high efficiency of resource use. Environmentalists believe, however, that the efficient use of resources is not sustainable because of the private owners' pursuit of high profits [5]. Therefore, a key issue in this dispute is the relevance of private or public ownership [6]. According to economists, public ownership inevitably causes rent dissipation. According to environmentalists, private ownership causes over-exploitation of natural resources and their depletion [5–7].

The perspective developed in this article is much more nuanced. The article argues that neither private, nor public ownership, nor Coasean bargaining can be a universal solution that always guarantees sustainability. Still, Coasean bargaining has one important advantage—the presence of a criterion determining when it will lead to an efficient outcome. Coase, himself, formulated this criterion on what is termed here "Coase's proviso"—the balance between the net benefits of an activity and the associated TC (The term "Coase's proviso" has been used by other researchers. The specific meaning in this paper is defined in Section 2.3). If the net benefits outweigh the TC, property rights will be transformed and efficiency will be improved; conversely, no transformation will follow. This article contributes to this debate by proposing a theoretical framework based on Coase's proviso that includes two more factors: function and environmental sustainability. The article also defines the terms "best use", "second (or next) best use" and "best user". Thus, when the complexity of these factors and associated TC are considered, Coase's proviso should be restated as follows: When the TC associated with the institutional transformation (rearrangement of entitlements) establishing the best use of a resource is lower than the net benefits of this transformation, the result will be economically efficient and environmentally sustainable. However, if the TC outweighs the net benefits of the best use, a second (or next) best use may be established, which would improve economic efficiency, but is likely to be unsustainable.

In the paper, these relationships are tested in the case of the development of the ski zone above the small town of Bansko in Pirin, Bulgaria's most beautiful mountainous area. The case study leads to the definition of certain policy recommendations.

The paper proceeds as follows. The next section develops the theoretical framework. The third section introduces the Bansko ski zone case study. The fourth section discusses from a Coasean perspective the motivation of the stakeholders engaged in the development of the ski zone, and their costs, benefits, and interests in two alternative sets of economic activities—one based on ski tourism and the other based on sustainable forms of tourism. Finally, policy recommendations are drawn, and the Conclusion section concludes.

2. Theoretical Framework: Transaction Costs and Sustainability

2.1. Sustainability vs. Economic Efficiency: Coase's Solution, Property Rights, and Environmental Value

2.1.1. Externalities, Coasean Bargaining, the Market-Planning Relationship, and Sustainability

Externalities are an important element of the link between sustainable development and Coase's theory [3]. According to the classical definition [8], sustainability is meeting "the needs of the present without compromising the ability of future generations to meet their own needs". Sustainability is therefore about reasonable and economical use of natural resources at rates of resource use lower than the rates causing resource depletion. Humans use natural resources in almost any human activity but using a resource may also cause negative externalities, such as air pollution, which also means clean air depletion. Negative externalities present or cause market failures. Pigou's solution [9] to market failures involves interventions by the government/central planning to rectify the functioning of the market mechanism. In "The Problem of Social Cost", Coase criticises Pigou's solution, mainly because centralised approaches do not account for the motivation of stakeholders to find innovative win-win solutions under the specific conditions. Coase's proposal is to let interested parties bargain over resource ownership and consider trade-offs in terms of benefits and costs. Thus, the party able to use the resource most efficiently should bid the highest price to acquire it and compensate the other parties for their losses.

This brief account explains why the prevailing view among researchers is that the Pigouvian solution is based on central governance and planning, while the Coasean solution is seen as a method that leads to resource privatisation. As a result, the views of most environmentalists and economists on the Coasean approach are conflicting. Environmentalists believe that this approach is fully based on the market mechanism and private property, so it guarantees high economic efficiency, but private owners strive for fast and easy profits and compromise sustainability [5,7,10]. In contrast, economists argue that common ownership is to blame for resource depletion, because it encourages free-riding [4,11].

Yet, both perspectives are only partly correct. Above all, Coasean bargaining is not a purely market approach. Although the government uses Coasean bargaining as a market instrument, it still controls the process [12,13], organises the bargain, and grants and enforces property rights. Moreover, in public life and the economy, collective entities such as collective and joint stock companies (JSC), cooperatives, and corporations prevail. Thus, in contexts of collective ownership, the Coasean approach has to employ Pigouvian measures [14]. For example, when the winning party in Coasean bargaining is a collective entity (e.g., a cooperative or JSC), for that entity to pay the cost of a resource, its members must collect contributions similar to Pigouvian taxes. Or if the losing party is a collective entity, the compensation will be distributed among its members in a manner similar to Pigouvian subsidising.

2.1.2. Ownership, Function, Economic Efficiency, and Environmental Sustainability

While the economic efficiency of the Coasean approach seems evident, it does not contradict the relevance of this approach to environmental sustainability [15]. In this regard two considerations, concerning the relationship between, first, ownership and function and, second, economic and environmental value should be stressed:

- To better understand the role of ownership for resource management, we must also clarify the role of the function, or use, of a given natural resource. The function determines in what quantities and how the resource will be used. While the owner chooses the function based on his/her interests and specialisation [16,17], the function is the factor that directly determines the sustainability of a use. What wins in a Coasean competition is not just the individual or entity willing to acquire the resource, nor the function per se, but rather the complex—the set of a function and entity-user/owner.
- Environmentalists distinguish between economic efficiency and environmental sustainability to oppose them against each other [7,18]. But when we acknowledge that sustainability is synonymous with long-term efficiency, the two features prove to be closely linked. The meaning of economic value is the integration of all types of value—cultural, aesthetic, and environmental [13]. From an economics perspective, natural resources are fixed assets and if we consider the residual value of resources at the end of each cycle of their use, we should agree that the economic efficiency of the Coasean solution also provides environmental sustainability. However, we must acknowledge that, as any institution, the market mechanism is never perfect. Respectively, in this paper, "economic value" indicates the value of benefits (ecosystem services) properly priced by the market and "environmental value" indicates benefits undervalued by the price mechanism. A particularly important characteristic of natural resources is that their environmental value changes with their depletion. When the rate of use of a natural resource is low, the resource is usually abundant and its price is low, because humans pay only for its extraction or collection. But when the rate of its use is high, the resource is threatened by depletion and becomes scarce. Therefore, its price goes up (or should go up), often exponentially [19].

To analyse the role of alternative uses, this paper will use the terms "best use", "second (or next) best use" and "best user". The best use is the set of activities that guarantee the most economically efficient and sustainable use of a resource. The second (or next) best use is the second (or next) most economically efficient, but not necessarily environmentally

sustainable use of that resource. The best user is the entity capable of using a resource for its best use.

2.2. Types of Transaction Costs

As Shahab et al. [20] note, economists still debate the precise meaning of transaction costs (TC). TC are the cost of market transactions, while a transaction is the transfer of ownership rights to a good or service [2,21]. According to Williamson [22], TC are the costs of running the market system and "the economic counterpart of friction" [22] (pp. 552–553). Many authors emphasise the role of TC for market processes; establishing and transforming property rights, supporting policy development and implementation, and building institutions and organisations. That is, different researchers attach different importance to the elements of a market transaction and entitlements transfer. Demsetz [23] (p. 35) defines TC as "the cost of exchanging ownership titles". He notes also that TC can be defined narrowly or comprehensively. Most comprehensively defined, TC include all costs that are not directly related to the production of a good or service provision [24].

There is no consensus on the types of TC either [25,26]. One basis for TC classification may be Allen's [27] identification of two theoretical concepts drawn from neoclassical and property rights economics. From a neoclassical perspective, TC are associated with the functioning of the market; they are "the cost resulting from the transfer of [already established] property rights" [27] (p. 901). From a property rights perspective, TC are "the costs of establishing and maintaining property rights".

This paper employs a classification of TC similar to the one based on Allen's views, but it builds primarily on a differentiation between the two meanings of TC in Coase's two seminal works [1,3]. In "The Nature of the Firm", Coase defines TC as the costs of functioning of the market, i.e., "market friction". This term is introduced to explain that the purpose of the firm is to save on transaction costs by establishing an organisation of production. Such TC include, for example, the costs of searching for suppliers, and negotiating and enforcing contracts. Costs of this type are termed in this paper "type 1 TC". The link between such costs and sustainable development can be explained by Lai and Lorne's observation [28] that TC provide a framework for mitigating negative externalities through market negotiations. That is, markets force the negotiating parties to reveal, consider, and incorporate new information on the economic and environmental value of resources. The parties can thus change their mindset and find win-win solutions through adjustments in resource use. Libecap [29] outlines four factors raising TC relating to environmental sustainability: (1) scientific uncertainty; (2) varying preferences and perceptions; (3) asymmetric information; and (4) lack of compliance and new entry.

In "The Problem of Social Cost", Coase stresses the importance of TC for the (re)arrangement of property rights over resources to minimise externalities. As explained in Section 2.1.1, according to Coase, externalities are nothing but a use of resources with undefined/poorly defined property rights. He argues that, if TC were absent, property rights over unowned resources would be "automatically" and optimally allocated, and externalities would not exist. However, in the real world, to allocate entitlements over such resources, the much-needed Coasean bargaining inevitably incurs over TC. The costs of (re)arrangement of property rights are termed in this paper "type 2 TC". Here, we must emphasise the commonalities between property rights and institutions—both are systems of rules embedded in society "that shape human interaction" [30] (p. 3). Hence, the TC of property rights rearrangement (type 2 TC) are the costs of institutional transformation [30,31].

A party engaged in Coasean bargaining would incur type 2 TC to transform its institutional structure by (re)arranging entitlements, only if that party believes this provides an "increase in the value of production" [3] (p. 16). Yet, if the (re)arrangement of entitlements leads to a zero-sum game (i.e., failing to improve the ratio between benefits and costs and therefore not changing the net gain [28]), the two types of TC will be identical. Alternatively, a win-win solution will result in the most efficient party acquiring property rights over the contested resources and the losing party being compensated for the lost entitlements.

With time, however, changes in the production function (technological innovations [32]) or in preferences ("changing of mindset" [28]) may occur and subsequent institutional transformations will be needed.

The prevalence of common/collective property rights has major implications for the magnitude of type 2 TC. While common property rights improve individuals' access to natural resources, common/collective/public management is associated with substantial drawbacks [14,19,33], such as problems of collective action [34], free-riding [35], and shirking [36]. These issues are particularly challenging when resources are owned by more than a few co-owners and delegation of property rights is required. In such cases, common management faces threats of corruption, misuse of coercive central powers, and problems of public choice [8,37–39]. Institutional development is the only solution to all these problems, but it is associated with high, often prohibitively high, type 2 TC.

Because TC are costs arising from the organisation of socioeconomic activities, an important factor for the presence of type 1 or type 2 TC is the organisational level. A national economy, for example, functions at two main levels: the lower (market) level, at which companies, associations, groups and communities operate; and the upper (governance) level, at which central and local governments, and national and local governmental agencies operate. Entities at both levels incur type 1 and type 2 TC; however, these costs vary. Type 2 TC at the lower level comprise, for instance, costs of exploring and assessing the need to create or change an organisation and (re)structuring of groups, companies or associations. Type 2 TC at the governance level refers to costs for elaborating, structuring, and implementing systems of rules and developing state/regional/municipal institutions.

2.3. Coase's Proviso and the Relationship between Intrinsic Costs, Net Benefits and Transaction Costs

As Coase [3] (p. 15–16) points out, Coasean bargaining can lead to the establishment of an efficient structure of property rights only if one critical condition is met. That is, an efficient. "rearrangement of [property] rights will only be undertaken when the increase in the value of production consequent upon the rearrangement is greater than the costs which would be involved in bringing it about". This requirement is termed in this paper "Coase's proviso".

When several potential users compete for a resource and ("i") Coase's proviso is satisfied for the best user (the user capable of using the resource most efficiently), he/she will bid the highest price and will acquire the resource. Sustainability will thus be guaranteed, because the best use provides the highest net returns in the long run, including preservation of the high value of resources. For natural resources not threatened by depletion, even the price bid by the highest bidder will be acceptable and not restrict the use of these resources. The users will therefore use the resource as much as they need and maximise economic and social efficiency without compromising environmental sustainability. Alternatively, when natural resources are being quickly or gradually depleted, their environmental value will go up, their use will be discouraged, and resources will be conserved. Or suppose that, despite the high price of a scarce resource threatened by depletion, the resource value for a commercial use is still higher than the environmental value. In such situations, the resource will be acquired by the commercial user, but sustainability will not be compromised, because the high price paid by the winner in the bargain will compensate the losers, i.e., the environmentalists, who will thus be able to pay for the preservation of other resources.

If, alternatively, the Coase's proviso is not satisfied for the best use but ("ii") is satisfied for a second (or next) best use, a rearrangement of property rights will still occur. Clearly, the realisation of option "ii" indicates that the associated TC are lower than the TC under option "i". Yet, by definition, the net benefits of the second (or next) best use (option "ii") are smaller than the potential net benefits of the best use (option "i"). The smaller net benefits may well be due to the lower residual value of natural resources, i.e., loss of resource value due to resource depletion. Hence, the second (or next) best option may be unsustainable.

To better understand Coase's proviso, we need to clarify precisely what "the value of production" means. This is the value of the net benefits, that is, total benefits minus all costs directly related to goods' production or service provision—costs that can be forecasted with relatively high certainty. In contrast, TC are not directly related to production [24]. Therefore, regarding the types of accounting costs, transaction costs should be attributed to contingency costs as a company should expect to incur such costs. However, they are particularly difficult to predict because they depend on various random factors. To avoid confusion of terms, this paper will use the term "intrinsic costs" to denote all costs that are intrinsically linked to the production/provision of a good or service—including both direct costs (e.g., for materials, consumables, and labour) and indirect costs (e.g., for utilities, administrative expenses, and rent). The difference between indirect costs (as defined in the economics textbooks) and TC is that the former can be predicted and are reflected by the price of the produced goods/provided services, while the latter cannot.

Some further considerations must be kept in mind regarding the meaning of costs and benefits in Coasean bargaining:

- In a Coasean procedure, it is not the total costs and benefits of all involved parties that matter, but only the costs and benefits of the individual parties who tend to be the best or second-best user, as well as the costs and benefits of the organiser of the bargain, i.e., the government.
- Participants in Coasean bargaining are individuals/stakeholders with bounded rationality [22,40] who make decisions to bid prices and take action to acquire ownership of resources based on their perceived net benefits and actual TC, although sometimes their assessment of their benefits and costs may be incorrect.
- Note the different meaning of the elements of the Coase's proviso. The perceived net benefits indicate the stakeholders' motivation to undertake a specific rearrangement of property rights. In turn, the balance between net benefits and TC is the factor defining whether the rearrangement will be realised.

3. Case Study—The Pirin Ski Zone

The purpose of examining this case study is to check the relevance of the theoretical framework—that is, whether this framework explains the behaviour of the involved parties and resulting efficiency and sustainability of resource use. The ski zone above Bansko in Pirin mountain, Bulgaria, is a suitable case study because it is the arena of a real Coasean competition in which two alternative sets of economic activities are engaged: one set of highly efficient economic activities, dominated by ski tourism and winter sports; and another set of environmentally sustainable activities, involving sustainable tourism and nature conservation. Two coalitions uphold the two sets of activities: a coalition of stakeholders motivated by the high returns form the economically efficient activities and a coalition of environmental organisations and their supporters, both at the local and national levels. Thus, the concession competition held in 2001 can be considered an evident form of Coasean bargaining, even though the environmental organisations did not participate in it. Since then, however, the fierce competition for the use and control of the natural landscapes above Bansko continues to this day.

The ski zone is located in the buffer area of the Pirin National Park (PNP), just above the small resort town of Bansko, with 8100 inhabitants. In 1983, PNP was included in the lists of the Convention Concerning the Protection of the World Cultural and Natural Heritage. Currently, the area of the park is 40,332 ha [41]. PNP is distinguished by its impressive biodiversity—there are over 1341 registered species and subspecies of plants (30% of Bulgaria's flora species) and 3221 species and subspecies of fauna in the park. Nearly 180 species of birds and mammals are protected by the European Convention for the Protection of Wild Fauna and Flora. Bulgarians value Pirin's nature, particularly highly for its beauty.

3.1. Development of Winter Sports and Ski Tourism

As intentions to develop winter sports and ski tourism in Pirin existed in the 1950s, a buffer area of about 1000 ha was allocated for this purpose with the establishment of PNP in 1962 [6]. However, before the end of the socialist period, ski tracks had been built with a length of only 3.5 km and a chair lift of 0.7 km. The accelerated development of the area began almost a decade after the start of Bulgaria's transition to a market economy [42], in 1999, when Yulen JSC was registered [6]. Initially, shareholders in the company were three newly established Bulgarian private companies and the municipality of Bansko. The municipality provided the land for the gondola's first station and owned 12% of the company's capital. Yulen developed a Territorial Development Plan of the ski area; it was approved and in 2001 the state announced a competition for a 30-year concession. Yulen was the only participant and won the competition. Thus, 99.55 ha were leased to the company, including only the land under the ski tracks and excluding the land between them. The initial capital of the company was BGN 241,000, but by the end of the construction of the network of lifts, tracks and facilities, the capital increased to BGN 76.47 million (39.1 million euros) [43]. With this increase, two new offshore companies acquired 91.4% of the company's capital, and the municipality's share decreased to 8%.

By 2007, the length of the ski tracks reached 50 km, and by 2018 75 km. A cable car (Gondola), five chair lifts, nine drag lifts, a 15,000 cubic metre reservoir, a system of snow cannons, and sports and leisure facilities were built. As a result, ski tourism in Bansko experienced a powerful boom, attracting investments from all over the country and abroad. By 2010, hotels with about 18,000 beds and holiday apartment buildings with more than 21,000 dwellings had been built [44–46]. The number of overnight stays in Bansko's accommodation establishments (hotels and guest houses) increased from about 91,000 in 2002 to 684,000 in 2008 and to 1,083,000 in 2015 [45–48]. The revenues of the hotel industry in 2002 amounted to less than BGN 3 M and increased to BGN 28 M (= EUR 14.3 M) in 2015. Since 2007–2008, Bansko has also hosted regular international competitions, including World and European skiing, snowboarding, and biathlon cups.

3.2. Relations between the Tourism Business, Environmentalists and State Institutions

With the development of ski tourism in Bansko, the relations between the environmental organisations and tourism business quickly became strained. In 2001, when the construction of the facilities started, environmentalists filed 53 complaints for violations of environmental legislation by Yulen. In 2010, complaints by environmentalists forced the Ministry of the Environment to conduct a survey of the territory. The survey found that ski tracks occupied 65 ha in excess of the concession agreement [49]. In 2014, the prosecutor's office established that three ski tracks, a chair lift, a drag, and other facilities fell outside the concession area [50].

The territory of PNP is state property and its governance is based on the park's Management Plan (MP). Two MPs have been prepared for PNP—the first one adopted in 2007 and the second one proposed in 2014. The second plan was developed by a company close to Yulen JSC and proposed a second gondola and an extension of the ski tracks to 333 km, but it was not adopted. The problem with the second gondola led to an escalation of the conflict between the environmentalists and Yulen. At the end of 2017, the government adopted an amendment to the "old" MP (2007–2014) allowing the construction of the second Gondola. In response, the environmental coalition organised nationwide protests, supported by hundreds of thousands of citizens, that continued for seven months. On 26 February 2018, the Green Party submitted a report to the Supreme Prosecutor's Office for environmental crimes in PNP. On 30 July 2018, the court cancelled the amendment to the MP and the immediate prospects of developing a second gondola.

3.3. Changes in the State of the Natural Resources and Landscapes

In the two decades since the concession was granted, four surveys have been conducted on the state of the soil and biodiversity in the ski area. Two of the studies were

related to the development of the two MPs. The 2007 survey [51] confirmed some already known observations. An independent study, initiated in 2009 by young scientists, received modest funding from the Bulgarian Academy of Sciences [52]. It found indications of the harmful impact of ski facilities—strong erosion of many terrains and deterioration of the populations of animal species. The survey for the 2014 MP [53] reported a flourishing state of biodiversity in the area—since 2007, the number of birds and mammal species had grown by 12. Unsurprisingly, many experts rejected that study, because of the close relationship between the company conducting the research and Yulen JSC. The latest study is from 2018. It was initiated by WWF Bulgaria and conducted by the international consulting firm Dalberg [54]. Conducted in the year of the fiercest opposition between the environmentalists and Yulen, its report titled "Slippery Slopes" presented arguments against the expansion of the ski area. The report provided considerations and evidence to prove the harmful impact of the ski facilities on the natural landscapes. It cited the positions of the UNESCO World Heritage Committee and International Union for the Protection of Nature. The "Slippery Slopes" report outlined opportunities for the development of sustainable tourism, although information on the benefits of such a development was not quite sufficient to prove the scale of the expected benefits.

4. Discussion

This discussion has two goals. The first goal is to examine the relevance of Coase's proviso and the rest of the elements of the theoretical framework to the case study—namely, whether the theoretical framework explains the behaviour of the involved parties in the competition for natural resource use and sustainability of the competition results. Therefore, this section will explore the competition between uses and users regarding each user's balance between net benefits and TC and how the TC influence the efficiency and sustainability of resource use. The second goal is to identify issues in the behaviour of the involved parties and the interactions between them. On this basis, the paper will draw some policy recommendations to solve the observed issues.

To analyse the balance between economic efficiency and environmental sustainability in Coasean bargaining, we must identify the main parties capable of and interested in using Pirin's natural resources and landscapes according to these two criteria—users grouped according to their interests and specialisation in different types of uses. Parties interested in earning economic benefits from Pirin's resources are various businesses and Bansko's residents. However, the interests of two business groups should be distinguished: (1) small- and medium-sized local businesses and (2) big businesses of a national and an international scale. Residents are interested in the provision of all kinds of jobs, yet many, if not most residents, run their own small businesses, such as hospitality and services. On this basis, four groups of participants will be studied in this section:

- First, because of their common interests, Bansko's residents and small and medium local businesses will be examined in one group. Local residents and businesses are specialised in industries, such as tourism, hospitality, and services, but also agriculture, food production, and carpentry.
- Second, big business is represented by Yulen JSC and several hotel chains, the most famous of which is Kempinski. Yulen, as the owner of the network of lifts and ski facilities, and the hotel chains will be analysed as a party interested in developing large-scale international and high-end national tourism and the organisation of international winter sports and international cups and events.
- Third, Bulgarian citizens, including Bansko's residents, who highly value nature, are represented by environmentalist organisations and primarily by their leadership. Environmentalists are interested in the preservation of the high environmental value of natural resources and landscapes, therefore—in nature conservation and the development of sustainable forms of tourism that have minimal impact on nature. The criterion here refers to levels of impact that do not threaten nature's carrying capacity [28].

- Finally, in Coasean bargaining, besides the behaviour of the participants, we must explore the role of the government as the organiser of the competition. Organising Coasean bargaining is undoubtedly a form of government intervention, whose purpose must be to protect the public interest. However, in a pluralist society, the public interest is often particularly difficult to define; it changes with time and governments are influenced by their political orientation.

As studies have found [51–54], two uses and associated sets of economic activities are most relevant and beneficial in the region of Bansko and PNP's buffer zone:

- First, ski tourism and winter sports. Termed here, the "set of economic activities 1", these activities have been realised on a large scale over the past two decades. They comprise the operation of the gondola and lift network, hotels and other accommodations, leisure facilities, arrangement of European and World Cup competitions, attractions, etc. This set of activities is widely considered the most economically efficient (profitable) one.
- Second, sustainable tourism and nature conservation. Termed here the "set of economic activities 2", these activities have been realised on a limited scale so far. These are activities providing the least burden on the environment and preserve the quality of air, water, soils, and biodiversity. They comprise various forms of eco-tourism, and adventure, cultural, and spa tourism.

In the case study, the competition between set 1 and 2 refers exclusively to the buffer zone of the PNP. In most parts of the Bansko region, set 1 and set 2 activities are not competitors for resources. Ski sports cannot be developed in the lower parts of the region, where there are mineral springs, nor in the historical part of the town, suitable for cultural tourism. In the buffer zone, however, conditions are suitable both for (set 1) winter sports and (set 2) mountaineering, hiking and eco-tourism.

4.1. Intrinsic Costs and Benefits of the Parties Involved in the Two Sets of Activities

Net benefits (the difference between intrinsic costs and total benefits) are an indicator of the motivation of each party to participate in Coasean bargaining. The National Statistical Institute and Institute of Market Economy [45–48] provide data on the benefits, although they are not well-structured for this research. Data on costs of set 1 activities are scarce, yet data on the costs and benefits of set 2 activities are almost entirely absent. Table 1 indicates the main types of intrinsic costs and benefits referring to sets 1 and 2 activities in Bansko and Pirin's ski zone.

4.1.1. Intrinsic Costs and Benefits of the Local Residents and Businesses

Depending on their specialisation, some local businesses and residents are interested in the development of set 1, while other in set 2 activities. Those specialised in hospitality and services (by far the largest sectors of Bansko's economy as each one of these two sectors occupies about 28–29% of the local economy [55]) benefit from both sets of activities, as both attract tourists; however, set 1 was expected to provide bigger competitive advantages. Although data on intrinsic costs are scarce, data on benefits clearly show that the development of set 1/ski tourism sparked economic growth. The 2004–2009 construction boom led to a more than 10-fold increase in the capacity of accommodation establishments between 2005 and 2011 [44–46]. The increase in tourism revenues was also 10-fold—from 2002 (BGN 3 M) to 2015 (BGN 28 M = EUR 14.3 M) [47]. Although most of the revenues are realised by big businesses, small and family businesses have also received their share (Data on how the revenues are distributed among different businesses are not available.). To Bansko's residents, tourism also provides jobs in hotels and services. The living standard in Bansko improved substantially. In the economic crisis of the transition period (the 1990s), the populations of the mountainous regions of Bulgaria were in a very poor situation; in Bansko, the standard of living was 60% of the national average and 81% of the regional average. In 2015, the living standard in Bansko was 5% higher than the regional average [47,48].

Table 1. Intrinsic costs and benefits of set 1 and set 2 activities.

	Participants	Intrinsic Costs & Benefits		
		Investment	**Operational Costs**	**Benefits/Revenue**
	a	**b**	**c**	**d**
		I. Ski tourism and winter sports		
I-1	Local residents and businesses	Development of family hotels and service premises	Input of labour and consumables; environmental losses	Revenue from overnight stays and tourist services; Income from wages
I-2a	Big businesses	Massive development of large-scale hotels and service premises	Staff salaries, consumables, equipment, maintenance	Revenues from accommodation establishments and other services
I-2b	Yulen JSC	Construction of the gondola network, ski facilities, and service premises	Staff salaries, consumables, maintenance of hotels and premises	Gondola and lifts tickets, revenues from World and EU cups and other services
I-3	Environmental organisations	Considerable losses of natural landscapes and habitats	Considerable losses of biodiversity	–
I-4	Local and central government	Provision of land for tracks and facilities	Administrative costs; Loss of biodiversity	Collecting concession payments; Accomplishment of social goals
		II. Sustainable tourism and nature conservation		
II-1	Local residents and businesses	Limited-scale development of family hotels and premises; Costs of landscape restoration activities	Input of labour and consumables, environmental maintenance; Costs of biodiversity restoration	Revenues from accommodation establishments and other services; Income from wages; Protected natural resources
II-3	Environmental organisations	Costs of research and organising landscape restoration activities	Costs of research and organising biodiversity protection activities	Landscapes and biodiversity protection and restoration
II-4	Local and central government	Limited provision of land; organising landscape restoration activities	Administrative costs of monitoring and control of biodiversity protection	Accomplishment of social goals, biodiversity protection

Determining the intrinsic costs and benefits of set 2 activities is even more difficult, because these activities were implemented on a limited scale, and experience and studies are lacking. Generally, set 2 would generate extra costs, e.g., for staff training, including costs of protecting landscapes and biodiversity. Yet, the Bansko region provides excellent conditions for various forms of sustainable tourism. Mountain sports and adventure tourism (e.g., alpinism, hiking, trekking, mountain biking) have been successful over the past decade, but the spa-and-wellness industry developed even faster due to the popular hot mineral springs in Bansko's vicinity, and the number of spa hotels is now about 30. Unfortunately, the National Statistical Institute does not collect separate data on these types of tourism.

Importantly, most local forms of sustainable tourism do not have to compete with ski tourism for the resources of PNP's buffer zone. As already noted, hospitality businesses are happy to attract clients, no matter whether skiers or mountaineers, adventurous tourism businesses have a wide choice of locations; other than the buffer zone and spa-and-wellness businesses, they have no interest in the buffer zone's resources.

4.1.2. Intrinsic Costs and Benefits of Big Business

Big businesses made the greatest contribution to the development of ski tourism in Bansko, with Yulen JSC playing the key role. Big businesses invested heavily in the construction of hotels and hundreds of holiday apartment buildings. From 2003 to 2009, hotels with more than 18,000 beds and apartment buildings with more than 21,000 holiday dwellings were built [44–46,54]. The construction boom was extremely powerful, and dozens of buildings could not be sold, but tourism's net returns rose between 4–5 and 16% per year. Corporate profits boosted the revenues of the hotel industry in Bansko for 2021 to amount to almost EUR 19M [46]. Yulen JSC played the key role—Yulen's winning the concession competition in 2001 launched the development of the ski zone. Yulen

had a particularly high interest in the development of ski tourism, because it realised huge net returns. The intrinsic costs of the company comprise (1) the initial investment and (2) ski facilities' operating costs. In 2013, Yulen's fixed assets amounted to BGN 76.91 M (= EUR 39.2 M) [56]. It is difficult to estimate Yulen's real costs and returns as the accounting of the two offshore companies helps Yulen hide its profits, because the concession fee is determined by the consortium's net returns. Thus, for the period 2002–2016, Yulen JSC paid only BGN 2.67 M total concession fees, i.e., less than EUR 91,000/year. Yulen also has other significant sources of profits—the hosting of World and European skiing, and snowboarding and biathlon cups. From such competitions, in less than 10 days, the company receives payments equal to the maximum declared annual revenue (For instance, in 2012, Yulen JSC leased the ski facilities for EUR 2.71 M to the Bulgarian Ski Federation for only 8 days during the Alpine Ski Cup in 2012 [57]).

With the high net revenues described above, big business is not interested in the development of sustainable tourism in Bansko. That is why big business' intrinsic costs for, and revenues from, such activities will not be considered here.

4.1.3. Intrinsic Costs and Benefits of the Environmental Organisations

The environmental organisations are an interested party in the competition for Pirin's resources, opposing set 1 and supporting set 2, but without being involved in economic activities. As an interested party, environmentalists should engage in Coasean bargaining, although they do not realise its benefits. The costs of the functioning of these organisations, the costs of arranging the protests and lawsuits against Yulen, are costs of public (not economic/productive/commercial) activities. As these activities generate market friction, they incur primarily TC, which will be analysed in Section 4.2.

Still, we should assume that the environmental organisations incur intrinsic costs through environmental losses. PNP's natural resources are owned by all Bulgarians, represented by the state, but the environmental organisations also represent Bulgarian citizens—those who value nature highly. Therefore, we can assume that the environmental organisations are a party representing those who bear the loss of the value of natural resources due to their depletion (cells I-3/b and I-3/c in Table 1). However, estimating environmental costs or benefits is a very challenging task. First, the physical state of natural resources must be assessed. Section 3.3. described the rather discouraging experience of the assessment of the state of nature in the ski zone by the four surveys conducted so far. Then, the change in their economic value must be estimated. There are different techniques for this purpose, all providing different results. One method is by evaluating ecosystem services; another one is by measuring the costs of, and revenues from, the forms of sustainable tourism. There have been several attempts in Bulgaria to employ the former method and the Dalberg study [54] referred to the latter; but so far, neither method has produced meaningful results that could inform effective policies or business decisions.

4.1.4. Intrinsic Costs and Benefits of the Local and Central Governments

In Coasean bargaining, the government is the organiser of the bargain. Besides, on many occasions, as in the case of Bansko's ski zone, the government is a party to the bargain because it sells or leases public property to private parties (e.g., concessionaires) for temporary use.

The central and local governments represent the interests of the national and local communities. Their main goal should be to promote uses of natural resources that provide maximum economic and social benefits to the public or the state while preserving, as much as possible, the value of natural resources.

The state's and local government's costs for set 1 activities include investment (cell I-4/b in Table 1) and operating costs (cell I-4/c). In Bansko's ski zone, the municipality invested in a plot of municipal land—the municipality's input as a partner in Yulen JSC. The state granted a concession on the land for the ski tracks. It is in this contract that the state must provide minimisation of public costs and maximisation of public benefits.

As the greatest value in Pirin is biodiversity, its loss is the greatest intrinsic cost, and the benefits comprise the concession payments. But the contract lacks any detail about the state of landscapes and biodiversity at the beginning and the required state at the end of the concession period, as well as any specific obligations of Yulen for environmental protection (Only two quite general articles in the contract mention that Yulen is obliged to protect nature without any specifications.). The contract deals only with the land under the ski tracks, but the territories between the tracks are also subjected to deterioration, without Yulen paying for it. The average annual concession fee Yulen has paid since 2016 is about BGN 300,000 (about EUR 150,000) for the terrain under the ski tracks (97 ha + 65 ha occupied in breach of the contract). When the territories between the tracks are included, Yulen uses over 220 ha. Hence, the state is far from securing minimum environmental losses and maximum net benefits.

4.2. Transaction Costs of the Parties Involved in the Two Sets of Activities

While the difficulties of measuring or estimating the net benefits have already been explained, the difficulties of evaluating TC are yet greater. These difficulties are due to the high dependence of TC on random factors. For instance, negotiating costs are a classical example of TC that may vary, probably hundreds of times, depending on incidental circumstances.

In Table 2, the main types of TC incurred by the four groups of participants are shown. However, further in this subsection, only the costs incurred by Yulen JSC and the environmental organisations will be discussed because it is the TC of these parties that matter for the realisation of the two sets of activities (as explained in Section 2.3).

Table 2. Transaction costs associated with set 1 and set 2 activities.

	Participants	**Transaction Costs**	
		Type 1—Costs of Market Friction	**Type 2—Costs of Institutional Development**
	a	**b**	**c**
		I. Ski tourism and winter sports	
I-1	Local residents and businesses	Transaction costs of the labour market; Marketing and provision of customers	Company registrations; Organising the local guild of hoteliers
I-2a	Big businesses	Lobbying; Marketing and provision of customers	Lobbying; Establishing companies and corporations
I-2b	Yulen JSC	Taking part in the competition, negotiating and enforcing the concession contract	Establishing a joint stock company
I-3	Environmental organisations	Organisational costs of protests and lawsuits	–
I-4	Local and central governments	Arranging competitions (Coasean bargains); Negotiating and enforcing the concession contract	–
		II. Sustainable tourism and nature conservation	
II-1	Local residents and businesses	Informal marketing and provision of customers; Transaction costs of the labour market; Organising nature protection activities	Firm registration; Organising the local guild of hoteliers
II-3	Environmental organisations	Lobbying; organising protests; Taking part in competition; Negotiating with local and central governments; Evaluation of natural resources	Developing associations, incl. ad hoc organisations of supporters; Developing fundraising tools
II-4	Local and central governments	Costs of arranging the competition, incl. resources' value definition; Negotiating and enforcing the concession contract	Establishing advanced legal and administrative Coasean rules

4.2.1. TC of the Parties-Potential Best and Second-Best Users Interested in Ski Tourism and Winter Sports Development

Yulen JSC is the stakeholder most interested in set 1 economic activities, because the potential net benefits for this company are greatest. Yulen is dedicated to ski sports and ski tourism, and the company has strong connections with the Bulgarian Ski Sports Federation.

Yulen's type 1 TC (market friction costs) refer to:

- negotiating with the municipality of Bansko and the ministry of the environment and arranging for the elaboration of the Territorial Development Plan of the ski zone, and
- taking part in the concession competition and contracting the concession agreement.

Yulen's type 2 TC (institutional development costs) refer to:

- establishing the joint stock company (JSC).

Yulen did not have to use a lot of resources to adapt its organisational structure for the competition in Bansko or Coasean bargaining. Businesses are meant to compete, and their structure must be flexible and adaptable for competition. For businesses, restructuring a company and establishing a new one are routine activities—easy, fast, inexpensive: they can be carried out in a few days, at a low price. Furthermore, once the company won the concession competition, the negotiations with the ministry were quick and the contract was drafted almost immediately. This suggests that Yulen's negotiating costs were very low. It also casts doubts on whether the potential of Coasean bargaining to mitigate negative externalities (emphasised by Lai and Lorne [28]) through changing the mindset of the key participants was realised. More on this in Section 4.4. One may therefore speculate that Yulen's TC are smaller than any reasonable contingency costs in the company's budget, especially if compared to the extremely high net benefits (see Section 4.1.2).

4.2.2. TC of the Parties-Potential Best and Second-Best Users Interested in Sustainable Forms of Tourism

Several parties are interested in the sustainable development of PNP: the environmental organisations and their supporters (including most of Bansko's residents) who value Bulgarian nature highly; and local businesses, who specialise in sustainable forms of tourism. As the environmental organisations are leaders of this coalition, their motivation and role in the competition for natural resources are central to this paper's argument.

Firstly, environmentalists tend to overlook the need to participate in Coasean bargaining. As environmentalists are not willing to consume natural resources, they do not understand the need to acquire ownership. However, to protect resources, they must hold management rights, which are a form of property rights.

Environmental organisations incur type 1 TC for (cell II-3/b in Table 2):

- lobbying the local and central governments, and other public institutions for development of sustainable forms of tourism and nature protection,
- cause promoting—attracting and mobilising supporters,
- taking part in competitions,
- estimating the necessary intrinsic costs, benefits, and environmental losses and negotiating.

Type 2 TC of the environmental organisations include (cell II-3/c in Table 2):

- developing and establishing new, usually ad hoc, organisations of supporters,
- developing fundraising tools.

Two of the outlined activities incur TC that may be prohibitively high. First are the difficulties with evaluating the necessary intrinsic costs, benefits, and environmental losses. Such evaluations are particularly important, as they inform natural resource management.

Second, because the institutional structure of most environmental organisations is not suitable for competitions, to participate in Coasean bargaining, they must incur significant institutional development costs. While private companies are adapted to participating in competitions, the environmental organisations' institutional structure does not always fit this purpose. Often the greatest challenge is to organise numerous, sometimes hundreds of thousands of supporters, to participate in specific actions. This incurs exceptionally high

TC, primarily costs associated with collective action, free-riding, misuse of coercive central powers, corruption, principal-agent, and public choice issues [8,34–39]. Clearly, building organisations of supporters requires huge effort and time. Slaev and Daskalova [6] argue that the environmental organisations could win in Coasean bargaining for the Pirin ski zone, because they could outbid the price paid by Yulen, i.e., the concession payments, if they collected contributions from their supporters. As the number of supporters of the environmental coalition in the 2018 protests was more than 140,000, collecting just EUR 1.5/year from each supporter would be enough to win the Coasean bargain. Major problems faced by the environmental organisations refer to particularly high and sometimes prohibitively high TC.

4.3. TC vs. Net Benefits and the Behaviour of the Involved Parties

The first goal of this discussion is to assess whether the case study confirms the theoretical framework, i.e., the relevance of Coase's proviso to the sustainable outcome of the competition between uses and users of the buffer zone's resources. Here, two questions must be answered:

(1) To what extent does the balance between the TC of the individual parties (entities, groups) and their perceived net benefits explain their behaviour in the Coasean competition?
(2) To what extent does Coase's proviso explain the success of a given use of natural resources in the competition between different uses and the sustainable outcome of the competition?

Clearly, Yulen's success in the bargain fully corresponds to the balance of the company's TC and net benefits. In 2001, most of Bansko's residents and local businesses expected particularly large net benefits from the development of ski tourism. Yulen's expectations were even more optimistic, and the company's TC were many times smaller than the perceived net returns. Thus, the company entered the competition and won it. Moreover, Yulen was able to negotiate a very advantageous concession contract that guaranteed favourable conditions and high profits to the company. Unfortunately, as a concessionaire, Yulen's interest in the use of Pirin's natural landscapes is fully determined by the contract and the company has no interest in preserving the value of PNP's natural resources.

In contrast, the environmentalists believe that sustainable tourism, rather than ski tourism, is the best use of the resources of the buffer zone. Yet, the environmental coalition did not enter the Coasean bargain, and it was not properly conducted. This paper stresses three critical reasons why the environmentalists did not take part in the bargain, and all three were associated with prohibitively high TC. The first two were outlined in the previous subsection—the costs of evaluating environmental losses and potential TC and the costs of developing ad-hoc organisations. The third reason is associated with the environmentalists' poor understanding of the need to participate in Coasean bargaining to acquire property/management rights. This can be interpreted as a lack of experience that can be gained only with time. Experience and time are resources of particularly high cost.

Hence, the actions of the two parties involved in the competition for natural resources correspond to the theoretical framework. We can therefore conclude that this framework provides a relevant explanation of the behaviour of the parties.

Regarding the second question, Coase's proviso also explains why set 1 has won the competition in PNP's buffer zone. However, it is difficult to assess whether set 1 or set 2 is the best function in this area, because Coasean bargaining was not properly conducted. On one hand, the analysis provided evidence that set 1 is particularly beneficial to Bansko's economy; therefore, the benefits of set 2 may be smaller. On the other hand, because of the particularly high environmental value of PNP's natural resources, the environmental losses may be larger than the difference in the benefits between sets 1 and 2. That is, the case study results most likely support, or at least do not contradict, the advantages of Coasean bargaining in assessing the value of natural resources, and eventually, providing sustainability. Clearly, if not properly conducted, the results of Coasean bargaining are

much less definite. One may say that the reason for the problematic outcome in Bansko is due to the failure of the environmental organisations to participate in the Coasean bargain.

Four important conclusions should be drawn:

- First, conducting Coasean bargaining is of primary importance because (1) it is the best method to estimate the value of natural resources, and (2) if properly organised, it is the most likely way to allocate use and management rights over natural resources to the best user.
- Second, Coasean bargaining does not automatically guarantee a beneficial outcome, i.e., the best use. For the best use to win, the TC of the environmentalists and all other tenderers must be kept lower than their net benefits.
- Third, for the environmental organisations to participate in Coasean bargaining, (1) they must realise the crucial need to participate in such bargains; (2) they must be able to afford costs to mobilise and organise their supporters. To this end, it is essential how Coasean bargaining is conducted.
- Fourth, the role of the government is crucial for the proper conduct of Coasean bargaining aimed at minimising the TC of all participants.

4.4. Government's Role and Policy Development

It was stressed in the theoretical framework (Section 2.1.1) that the Coasean approach is not a "purely" market approach. Therefore, Coase's theory does not reject central governance [6,17,28,33]. In fact, in this approach, the government plays the main role, because it organises the Coasean bargains and allocates property rights over resources to the winners. Yet, this is the government's role only at the lower/market level of a national economy, where firms, households and local communities operate and compete for resources. At the upper/governance level, the state develops and establishes institutions such as the national legal and administrative rule systems.

As noted in Section 2.2, TC at the two levels are of different kinds and value. But it is of greatest significance whose costs we refer to. Most researchers emphasise the need to keep the TC borne by entities-participants in Coasean bargaining low enough for them to be able to restructure their property rights to enhance their efficiency. At the governance level, keeping TC low for local and central governments also matters, but it is much more important to develop efficient institutions. For a specific institutional development, TC are incurred only once, while the positive effect of the improved institutions/rules systems is multiplied in multiple social interactions, which justifies even high TC (However, because of the evolutionary nature of institutions, the government should adhere to the methods of evolutionary institutional design [58]).

Two key tasks of the government at the two main levels of the national economy should be outlined. At the market level, to conduct Coasean bargaining and allocate property rights based on the competition's results, the government should:

- arrange Coasean bargaining so that all interested parties can participate in the bargains,
- negotiate and enforce concession contracts protecting national natural resources and the public interest,
- control the contracts' implementation,
- employ market-oriented instruments [59].

At the governance level, to develop rules and institutions facilitating efficient Coasean bargaining, the government should establish effective legal and administrative rules aimed at:

- reducing the costs of organisational building for participants at the market level by creating a variety of institutional forms and easing registration procedures,
- providing subsidies to environmental organisations to organise their supporters and build coalitions that participate in Coasean bargains,
- developing institutions and rules to facilitate organisational building by environmentalists.

Finally, the case of the PNP's ski zone emphasises a specific requirement of the roles of the government and environmentalist organisations for the proper arrangement of Coasean bargaining aimed at sustainable outcomes. On some occasions (e.g., the negotiations and drafting the concession contract), the government has failed to protect natural resources, either because of poor expertise or insufficient engagement with the public interest. One critical aspect of the role of the government is its double nature—as the organiser of the bargain and, simultaneously, a key party in it—the owner of natural resources (rather, the representative of the actual owner—the national community). Such government's failures compromise Coasean bargaining's potential for mitigating negative externalities, which has been stressed by Lai and Lorne [28] as a key factor to improve sustainability. It is important to understand why markets in such cases fail to encourage the negotiating parties to reveal, consider, and incorporate new information on resources' environmental value, which prevents the parties from changing their mindset. The most convincing explanation of such government failures refers to the drawbacks of collective action and public choice problems such as principal-agent issues, corruption, and misuse of central powers [8,34–38]. The solution to these problems may be the one suggested by Slaev and Daskalova [6] who propose wider involvement of representatives of the environmental coalitions in cooperation with the state agencies and councils.

5. Conclusions

The goal of this paper was to explore the relevance of the Coasean approach to sustainability by emphasising the role of TC and, on this basis, develop policy recommendations. The role of TC and their effect on sustainability have been studied in the context of the restated Coase's proviso, which aims to differentiate between best and second (and next) best functions that natural resources and landscapes can be used for. The case study of Bansko's ski zone has shown some crucial difficulties with the proper conduct of Coasean bargaining to facilitate sustainable development. The key difficulty is with keeping the TC of all stakeholders and especially those of the environmental organisations low enough to guarantee their participation in the bargain. Nevertheless, this study suggests that Coasean bargaining, if properly organised and conducted, is the only way to guarantee the involvement of all interested parties. Coasean bargaining has two key advantages. First, it helps estimate the value of natural resources, costs of complex economic activities, and TC. Second, it helps identify the best user [60].

The study has also underscored the role of the environmental organisations: the importance of participating in Coasean bargains and assuming control functions in cooperation with the government. This research has put an even bigger emphasis on the role of the government: its responsibility to properly organise and conduct Coasean bargains, developing and enforcing legal and administrative rules securing opportunities for all stakeholders to participate in the bargains, and cooperating with third sector organisations.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable. This study did not involve any humans or animals.

Informed Consent Statement: Not applicable. All information used for this study is publicly available and no personal information or data have been involved, other than the author's contribution.

Data Availability Statement: Data, collected for this research and other related studies is available at https://www.researchgate.net/project/Managing-private-common-property-rights and https://www.researchgate.net/project/Sustainable-tourism-27, accessed on 10 December 2022.

Conflicts of Interest: The author declares no conflict of interest.

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