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# How Does Paying for Ecosystem Services Contribute to Sustainable Development? Evidence from Case Study Research in Germany and the UK

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**Abstract:** Payments for ecosystem services (PES) are currently being discussed as one of the most promising tools in environmental and sustainability governance. However, much criticism has been voiced against overly optimistic assumptions of PES' management potential towards sustainability. Several contributions to the debate show that PES fail both in reducing poverty and strengthening social justice. Additionally, they neglect problems of deliberation in decision-making, as well as the legitimacy of the applied environmental practices. Our empirical investigation on participatory and deliberative structures in already existing PES initiated by non-state actors contributes to the latter body of research. Based on the assumption that playing an active part in scheme design facilitates the consideration of justice and fairness, our case studies from Germany and the UK. present interesting results on the involvement of conflicting interests and their argumentation in the design process. Summing up these findings, we conclude that paying for ES rarely contributes to sustainable development in and of itself, but deliberately designed schemes provide a formal setting to take aspects of justice into account.

**Keywords:** payments for ecosystem services; case study; deliberation; sustainable development; claims of justice; controlled social change

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## 1. Introduction

Since the Rio Declaration in 1992, various policy steps have been undertaken to steer societal development around the world towards a more sustainable course [1]. Among the different means for coordinating action in modern societies, payments for ecosystem services (PES) are currently seen as one of the most promising tools [2] of environmental governance. The ISI (Institute for Scientific Information) Web of Knowledge documents the rocketing number of publications on the subject of PES since the mid-2000s [3,4]; however, much of the discourse is dominated by the analysis of PES' economic parameters, such as costs (e.g., [5,6]), scheme design (e.g., [7,8]), effectiveness and payment sources (e.g., [6,9]). Analyses of conditions under which PES prove effective as a policy instrument are particularly widespread. Based on the analyses provided by the resource economics of the specific characteristics of various goods and resources, Kemkes *et al.* [10] have investigated policy instruments to explain when payments become the most appropriate policy option.

While this discourse reflects extensively on how to manage environmental problems by economic instruments [11], it only marginally breaches issues of sustainability. This is especially true with respect to the contributions of neoclassical environmental economics, which concentrates on the market exchange of a specified ecosystem service between a buyer and a provider [2]. Although reaching a fair allocation of resources while moving towards a stabilized market is among the major goals in this line of economics [12], investigations on formal and substantial conditions of fairness and justice and, furthermore, their relations to environmental goals are rarely considered. Critics challenge the neoclassical approach to PES, especially in the tradition of ecological economics, for disregarding the reduction of poverty and enhancement of social justice in the distribution of income and wealth [13–16]. However, it is striking how the criticisms of the neoclassical-based PES concept reflect the desire for appropriate, fair and environmentally-friendly developments. Indeed, in particular cases, some malfunctions of PES might result from failures in design (e.g., [17]) or management (e.g., [18]). Yet, the most fundamental doubts have been raised as to whether PES can achieve the objectives for which these services are most often being heralded: nature conservation and environmental protection, on the one hand, and poverty alleviation, on the other [16,19]. For that reason, new definitions that have a wider scope have been published lately. They look at PES as tools for regional development that are embedded in social action and primarily influenced by societal values and perceptions [13] or try to combine existing views by focusing on payment transactions, while, at the same time, taking the transparency of the mechanism into account [20]. However, even though such criticisms have been reinforced by observations that PES schemes tend to disregard public participation in decision-making and forego establishing legitimacy for the environmental practices engaged in [21–23], the adequacy of PES for sustainability is gaining greater importance (e.g., [24]). Yet, this issue has only rarely been the subject of empirical research.

In order to initiate a discussion on the adequacy of PES for sustainable development [25], we have opted to broaden the economic discussion on steering instruments by relying on an empirically-based, in-depth investigation of practices of paying for an ecosystem service or a bundle of ecosystem services. We are aware that no single paper can deal with the entire nexus of problems produced by and reproduced in the past scholarship on PES. Hence, we adopt the perspective of practical theory [26] in considering a payment as a coordinative practice to maintain or enhance an ecosystem service.

A wide range of issues could be investigated to clarify the high expectations for PES schemes to act as tools that contribute to sustainable development. To what extent do the PES practices that already exist justify expectations toward the problem-solving potential of this governance tool? What are the possibilities of PES to create sustainable solutions for the use of land and resources? How do PES practices respond to requests for equity and distributive justice? Which consequences emerge from PES for future generations? Our sociological study focuses on opportunities available to actors on the ground to play an active part in the process of designing PES, while omitting issues of material and financial compensation from our analyses. In order to account for these limitations and to explore our assumption that deliberative designs of PES have an impact on sustainable development, we have assessed cases of PES practices in developed societies. Thus, our research contributes to the discourse on deliberative elements in environmental governance (e.g., [27,28]).

## **2. Assessing Sustainability Dimensions of PES Practices: Conceptual Considerations**

In economic sociology a payment is not only an economic fact, but also a social activity in which people indicate their readiness to make sacrifices in order to fulfill their desire for a good or service in return [29]. In this perspective, paying for some ecosystem services, which are mentioned in the Millennium Ecosystem Assessment and include the provision of food, fuels or pharmaceutical products [30], appears to be a trivial everyday practice, whereas paying for other ecosystem services, such as carbon sequestration, water purification or soil formation, is held to be a matter of course and, therefore, not worth paying for. Their embeddedness in sociocultural traditions reflects which ecosystem services are considered commodified and for which specific ecosystem service people are willing to pay (see e.g., [3,4]). However, even if we confine our interpretation of PES to the maintenance or enhancement of environmental or ecosystem functions, the influence of sociocultural determinants on PES practices is rarely reflected in PES literature.

The concept of payments for ecosystem services evolved against the backdrop of economic theory and offers differing solutions for solving the environmental problems of current societies. What they have in common is that they conceptualize these problems as insufficient or absent outcomes of societal adaptation in terms of market failure and, thus, view PES as corrective measures to stabilize the market. Arthur C. Pigou initially defined the problem and proposed an incentivizing approach toward environmental offenders by means of an effective tax and/or subsidy for ecosystem services, such as payments and so forth [31,32]. However, the concept of a strong regulatory state is not without its critics. Such critics emphasize a two-level problem regarding the state as an incentivizer. First, it involves a vision of a centralized institution coordinating social life, which is neither shared in all market-driven economies (e.g., [33]), nor in all modern cultural traditions (e.g., [34]). Furthermore, no state's policies are neutral, but are bound by values and are structured around vested interests. Therefore, there is every reason to reject the state's potential role as an institution for society in which citizens' "supreme duty is to be a member of the state" [35]. Since taxation is increasingly being perceived as a burden upon economic development, even environmentalists have queried the state's role in reducing negative environmental externalities. This has resulted in an increasing acceptance of an alternative solution to market-caused development, as advocated by Ronald Coase. He emphasizes that externalities can be best internalized by bargained settlement between the parties involved in a

market-like negotiation [36]. The PES mechanism is presented in the writings of the proponents of the so-called Coasean Theorem, which focuses upon stimulated negotiations between private market players and hopes for win-win outcomes for all participants. This perspective allows for the internalization of markets' external effects and the solution of environmental problems, because PES schemes designed along such lines would dispose of monopolistic beneficiaries of ES and compensate providers directly.

It is striking that, unlike Pigou, the Coasean Theorem does not dispute, for example, environmental offenders' right to pollute in principle; rather, it attempts to construct avenues for reducing environmental impact and the degradation of nature as a result of offenders' misbehavior [32,37,38]. Coase stresses negotiated settlement between independent parties, both of whom are interested in minimizing transaction costs, and clearly delimited realms of responsibility regarding property rights [36]. The Coase Theorem, therefore, can only claim validity in a social world with minimal social inequality and where informational symmetry and vested rights prevail. Reflecting upon the practical implication of the Coase Theorem, Wunder *et al.* [9] have suggested that property rights of goods formerly held in states' hands should be transferred to or bought by users.

However insightful from a practical standpoint, the Pigouvian, as well as the Coasean definitions of payments are neither notions derived from systematic social research nor ideal types formed by referring to historical data. They are but policy blueprints, which might have some merit for explorative policy options, but are often misunderstood if considered as explanations of PES' efficacy. Critics also point out that such a view disregards how payments are embedded in existing sociocultural structures and relations and that no attention is paid to fair distribution between current and future generations (e.g., [39,40]). Therefore, the approaches of Coase and Pigou implicitly point towards sustainable development, looking at PES as a way to internalize externalities and, thus, change behavior (for another distinction, see [12]). However, since both concepts fail to consider systematically sociocultural entities, structures and relations, and, thus, to reconstruct the reasons people use to justify their actions [41], they hardly lead to conceptually sound explications of PES functionality that would allow for a universal understanding of attained and failed sustainability targets.

The concept and likewise the various definitions of sustainable development have proven to be elusive and contested, and yet, some foundational ideas have recently been extracted from the discourse on sustainability. Among these is the notion that sustainable development refers to the practical problem of shaping our present society and taking into account a broader responsibility for mankind, especially its future generations [25,42–46]. Unlike the idea of ecological modernization (e.g., [47]), the concept of sustainability provides neither a framework for the analysis of unsustainable development, nor an action program towards sustainability. As a result, it is considered a normative approach to controlling inter- as well as intra-generational justice in an ongoing process of social change. The concept's openness to competing ideals of a desirable future is only limited by the insight of the Brundtland Commission, which states that societies will not be able to adapt optimally to external impacts on the conditions of their existence without a due, simultaneous and coherent strategy that instates fair and balanced social justice [48]. Since there is no single and unanimously agreed upon concept of social justice, however, participation is generally regarded as a feasible and just way to include divergent strategies and perceptions of "taking action" and, as such, to avoid violations of

competing understandings of justice (e.g., [49]). We therefore regard it as a formal condition for fairness and justice.

Against these conceptual considerations, and with an eye toward economic and sociological concepts of coordinative social mechanisms, we explore how PES projects respond to the norms of inclusive and argumentative decision-making and to inter- and intra-generational claims of justice. We refer to the theory of deliberative democracy (e.g., [50,51]) to frame our empirical research. Proponents of deliberative democracy ask how decisions are reached by advocating for fair, argument-based communication among equal members of a communicative process that jointly sets the rules of negotiation. Therefore, deliberative democratic theory focuses on the way arguments and knowledge are exchanged between citizens and favors decisions that are reached by consensus, because it shows that participants found good reasons to say “yes” or “no” (see [50,52]). Furthermore, we take a closer look at participation in decision-making processes. Although participation and deliberation grew out of different strands of democratic thought and can even be described as approaches along different paths (e.g., [53]), there is a more radical approach to democracy that tries to combine them both, even though they can mutually develop tensions. This strand talks of participatory deliberation and considers the involvement of citizens, as well as argumentation and reasoning to be necessary for decision-making processes [54]. We follow this approach by analyzing participatory and deliberative structures in PES design, both under the umbrella of deliberative democracy.

This conceptual background varies widely from the ones often preferred by environmentalists: participative approaches that are rarely designed to legitimize decision-making by involving public deliberation. Rather, they involve people in environmental conservation practices and seek to secure public acquiescence for the predetermined goals of environmental action [55,56]. We should also point out that market environmentalism amplifies resentment through debate as a method of decision-making, since it involves select experts in a guiding role coercing public actors into compromise over environmental targets. The concerned public is therefore limited to contract partners, and no stringent differentiation is made between negotiation and deliberation.

### 3. Methodology

In order to explore the previously disregarded dimensions concerning the deliberation of PES practices, we undertook an in-depth analysis [57] of PES cases in so-called developed countries. Though absolute poverty and hunger rarely conflict with nature conservationists’ and environmentalists’ efforts, aspects of justice do play an important role in all societies. We therefore foreground the power and information asymmetries, participation constraints and the ability to have a say in decision-making beyond existing positions of power, which are, for example, created by land ownership or tenure. Our case selection followed a two-track approach. First, in selecting Germany and the UK, we chose two different countries, due to our focus on nongovernmentally-initiated PES. Although we must admit that government-funded programs can financially be considered the most important payment schemes in both countries, a glance at nongovernmental schemes allowed us to optimize the assessment of deliberative decision-making as opposed to prevalent command-and-control regulations discussed elsewhere (e.g., [27,58]). Since Germany and the UK have different traditions in public participation [59], jurisdiction [60] and engagement of organizations and the public in decision-making

processes [61–63], these differences helped us generalize from our findings against a different context for nongovernmental organizations. Secondly, we selected a sample of eight cases within those two settings. The sample is constructed on the basis of a theoretical sampling [64]. Guided by theoretical considerations, we looked for the widest possible range of deliberative structures in projects to determine if there is a connection between those structures, as well as the role of justice and fairness in PES design processes. This is not about representativeness, but is instead a matter of theoretical saturation and the recognition of heterogeneity in the field of research.

As opposed to the focus in economic discourse on PES as a regulatory instrument, we reconstructed PES practices in terms of a monetary transfer (understood as an institutionalized medium for coordinating action) aimed at generating, enhancing or maintaining an ES [65]. Without giving priority to any particular ES or class of ES, we considered PES projects that range from the maintenance of biodiversity and cultural services to flood regulation and the provision of fresh water. However, we concentrated on the respective PES design process, which includes the initiation phase of the projects, as well as transformation phases of the project strategy, in order to investigate whether or not formal structures of participation and deliberation are a prerequisite to gear social development toward sustainability. Once a payment mechanism has been established, the people concerned share the benefit of its coordinative power; stakeholders' interest in debating over the mechanism itself is practically zero. The notion that deliberation contributes to social learning towards sustainability is a widely shared view (see, e.g., [66]). This leads us to the assumption that decisions that influence the design of PES schemes and do so by involving an exchange of arguments, and including all parties affected can be expected to contribute to sustainable development.

Data about the cases were collected through semi-structured interviews with project initiators, document analyses, project websites, media reports and project reports (Table 1). The data was interpreted with content-analytical and hermeneutical methods [67,68]. Each case, taken as a whole, was analyzed for the given conditions and the opportunities for deliberative decision-making. As we did not observe the decision-making processes themselves, we could not make any statements on the speech acts as such, but rather, we assessed the willingness, attitudes and formal conditions that played a role in sharing knowledge and power in the decision. Therefore, our study provides data from different cases to compare the involvement of different actors, as well as the reasoning and argumentation in debates over PES design processes. To analyze these processes, we differentiated between participatory elements and deliberative structures. Both were assessed in terms of the project design, which we could only assume in decision-making processes concerning the overall project goal or processes that significantly influence the project strategy. Participation therefore answers the question: Who was able to take part in the project design? We assessed whether only the initiating organization decided on the project design, whether potential ES providers and other persons of concern were involved and whether even a wider public was able to take part in decision-making.

In classifying the deliberative character of the project design, we asked how the decision-making process took place. Here, we analyzed if providing information was the only form of exchange, and therefore, no argumentative negotiation could be assessed; or if a mutual exchange indeed occurred, but only to attain a regionally adapted and socially accepted scheme, however, without any substantial say in project design or the strategies to achieve the project objectives being open for discussion (as the third variant form).

We finally examined whether or not the projects explicitly provided some notion of inter- or intra-generational justice by examining statements on fair allocation, equal opportunities, claims for future generations and comparable topics. Our operationalization of “inter-generational justice” therefore goes beyond the fact that all these projects contribute something to that notion, because they maintain ecosystem services, which then are more likely to be available for future generations. However, it is not a search for substantial criteria for justice. We do not make any statements on the justice of the PES process and the scheme itself. Rather, we examine whether or not justice becomes an issue in (the discussions of) PES design.

**Table 1.** List of the studied cases and relevant data (sources of data and interviewees).  
PES, payments for ecosystem services; GER, Germany.

No.	Name of the PES project (surrogate project names)	Country ID	Sources of data	Interviewees (function) (all names are anonymized as follows: alias (first name), m (male)/f (female))
1	Citizens funding organic agriculture	GER	Interview, newspaper articles, contributions on the Internet, television report	Tom, m (initiator on a voluntary basis)
2	Conserving orchard meadows	GER	Interview, newspaper articles, project report (movie), contributions on the Internet, television report	Robert, m (initiator on a voluntary basis)
3	Protecting the Montagu’s harrier	GER	Interview, contributions on the Internet	Eric, m (project head and initiator on a voluntary basis)
4	Restoration of moorland	GER	Interview, newspaper articles, contributions on the Internet,	Mike, m (project head); Tina, f (project manager); Christian, m (local citizen)
5	Compensation for harvest losses caused by mute swans	UK	Interview, contributions on the Internet, project report	Jack, m (project head); Julie, f (project manager); Edward, m (project manager); Dave, m (regional representative)
6	Conserving an upland area	UK	Interview, contributions on the Internet, project report, scientific article	Alice, f (project head); Charlotte, f (project manager); Lenny, m (project manager); Andrew, m (project manager); Hannah, f (farmer)
7	Sustainable management program for a water catchment	UK	Interview, newspaper articles, project report, contributions on the Internet	John, m (project head)
8	Community project to protect urban biodiversity	UK	Interview, contributions on the Internet	Christian, m (initiator on a voluntary basis); Catherine, f (initiator on a voluntary basis); Jessica, f (initiator on a voluntary basis)

#### 4. Description of the Studied Cases

The following case descriptions illustrate the project's environmental strategy and the payment mechanism. We also assign the role of involvement by illustrating the range of actors contributing to the scheme design. Moreover, we explain how decision-making in the respective project took place. Our goal here is to describe the variety of interests and conflicts and their handling that guided the process of project initiation and development. These descriptions form the basis of our assessment and its discussion presented in Sections 5 and 6, which outline the projects' impact on their sustainability objectives (see Table 2).

##### *4.1. Case 1, Germany (GER): Citizens Funding Organic Agriculture*

The environmental situation following the collapse of the German Democratic Republic (GDR) led to the initiation of the project. First, the size of agricultural holdings as a result of land collectivization and increasing demand for land by new investors led to a surge in the price of land as "new" landholders (such as companies without previous connections to agriculture) started cultivating energy crops to utilize the land in the most profitable way. Second, land owned by the former GDR state previously held in trusts was put on the market to be privatized. With no rules or restrictions defining who had preferential access to the purchases of land, the contract was to be awarded to the highest bidder. As a result, some organic farmers who settled in the region and had been tenants on such lands found themselves outbid by investors buying the land they cultivated. To counteract the trend, twelve farm business holders struck an alternative course of action, cooperating with an ethical bank to provide participation certificates that could be bought by citizens. These certificates aimed to purchase the farmers' leaseholds and then lease the land to them for a minimum of eighteen years. In turn, the farmers would have to prove (via a certificate) that they farmed the land ecologically throughout, even if not all of the land was secured by the fund. The partnership sought to maintain organic farming across the region and to ensure crop diversity among participating farms.

The farmers' group selectively let other stakeholders be a part of the decision-making process for the project design. These included the ethical bank that had already supported another project seeking to withdraw property from the (speculative) market, representatives from the state (Bundesland), and the trust responsible for the land sales. They mainly sought for other farmers in the region who were interested in organic farming to join the group and strengthen its interests; residents and the wider public were only approached, primarily through the media, to spark a more general debate on the topic and to create pressure on state officials to change the bidding process for the sales of former state property. The farmers' group was exhausted by the struggle to attain their overall goal (to secure the land for organic farming). Negotiations between the stakeholders on the problem were (at least to a certain extent) hierarchical insofar as the debate was not solely bound to arguments. The results were not reached by consensus, nor did the stakeholders have an equal (power) position. The responsible state authority was prepared to decide on the future of the regions and the farmers. The only way to have a say was through translating influence into political power by means of convincing members of parliament to speak up for the idea and trying to secure a qualified majority. This assessment is supported by media reports, as they helped raise awareness of the farmers' situation among the public



and, therefore, pressured representatives. As a result of the strong position of the state and its unwillingness to change the general bidding process, the project remains an exception and does not serve as a model. Within the farmers' group, arguments were exchanged on a rather equal basis, although two farmers took the lead to push the idea. In conclusion, there was a debate about the problem and possible strategies to handle it. The regional peer group of the initiators (farmers) and representatives of interests on the matter were involved in decision-making. A wider public was alerted and informed in order to create pressure on the state representatives who ultimately hold decision-making authority.

Intra-generational aspects of justice were clearly stated as part of the farmers' engagement in the matter of the unfair distribution of land due to financial capital. As a result, this would have led to a monocultural landscape in that region. By campaigning for diverse organic land management, the farmers continue to provide ecosystem services and biodiversity.

#### *4.2. Case 2 (GER): Conserving Orchard Meadows*

This case is characterized by a single person's engagement and recognition of the loss of the former cultural landscape. The person retired from a job where he experienced how landscape plans were developed, but kept in the bottom drawer, possibly forever, by the authorities in charge. He was determined to see the practice changed, as he was worried about the landscape developments that were taking place in the vicinity of his home village and elsewhere in the region. After the traditional form of agricultural management (crops and fruit orchards) became unprofitable, many areas in question became disused and completely overgrown by wild vegetation. The person formed a small group of like-minded local residents who lived near the village limits and resented the changes in landscape on their own doorsteps. After starting clearing work on around 100 hectares of contingent land, which was formerly an orchard meadow, the group identified the need for technical equipment to handle the material to be cut. As a result, the initiator set up a foundation to finance the deployment of machines. However, all labor was carried out on a voluntary basis. The area was turned into an orchard meadow as a result of citizens' efforts, and two regional shepherds were invited to let their sheep graze there free of charge, so as to maintain the orchard meadow as an open landscape. Although this financial incentive for the shepherds was separate from the group's engagement itself, it was in a sense a consequence of the initiative's goal to maintain the recreated cultural landscape.

As a result of the region's compartmentalized approach to property, the most difficult task before getting started was to obtain permission from the landowners to alter the land. The citizen group approached landowners with a contract confirming agreement to cut shrubs and, in some cases, to plant new orchards, as well as to allow sheep to graze in the area. The success in communicating with the landowners was due to guarantees given the owners that they could make alternative use of their land if they did so immediately. Therefore, the property rights are not affected. This could not have been accomplished in the same way by an administrative body and, hence, could be achieved only by this particular institutional setting and form of engagement.

By holding an annual meeting and implementing one project after the other around the village, the group functioned similarly to an association without having legal status as such. However, they did not seek to attract a large amount of members; rather, they hoped to achieve a stable and active group for

their particular purpose. The group was open to new people to join, although the locality also restricted the engagement of a wider public. There were shallow communication hierarchies, and everyone could introduce ideas; but, once again, there was one key person who was keen on pushing the idea and, to do so, required the engagement of fellow campaigners. The idea was accepted by the public body as an officially prepared landscape plan that set the ecological agenda for the area, but all administrative and implementation tasks were carried out by local citizens. Without that engagement, ecosystem services (achieved by cultural landscape management) would not have been restored and maintained. In conclusion, participation in this case occurred long after the plans had been developed and took place in the form of self-initiation and citizen engagement. Although the process was open to everyone (in the region), the goal had therefore already been set and was not the subject of discussion. No statements about justice and fairness were made. The project instead concentrated on the environmental objective and recognized the loss of a cultural landscape as an instance of state failure without directly associating the loss with future generations.

#### *4.3. Case 3 (GER): Protecting Montagu's Harrier*

Montagu's harrier is a meadow-breeding bird and a regionally endemic species facing a population decline. A foundation pays farmers in this region not to utilize pieces of land in which Montagu's harrier breeds. If Montagu's harrier is nesting in a field and the farmer of that field is participating in the project, the foundation stakes off an area of about one hundred square meters around the bird's nest. For the non-usage of that land, the farmer receives two hundred Euros as a compensatory payment from the foundation.

To protect Montagu's harrier, the foundation needs to convince farmers to participate in the project. The payment itself is not the only incentive to make this happen, as it does not contribute equally to farmers' livelihood. Rather, it represents a form of acknowledgement that the farmer is contributing to biodiversity and habitat protection by opting into this form of land management. To entice farmers into signing the contract, foundation staff (or a subcontracted biologist) inform them about the breeding grounds of Montagu's harrier on their fields and offers compensation payment if they choose to withdraw that land from active agricultural use.

Participation in this project design is restricted to the providers of the ecosystem service and does not aim to create an equal partnership for decision-making. The project's objective and its processes were set out by the foundation. However, without the farmers' willingness to participate, these objectives would not be attainable and, therefore, were put to the test year after year. Therefore, the project strategy can be described as pursuing two paths. First, a compensatory payment, which pays the highest price for possible crops no matter what the farmer actually grows, was used to convince farmers to take part by offering a good incentive. Secondly, regular informational events have been crucial to the implementation of the project. They helped bring farmers on board. In the course of these events, the two parties exchanged knowledge and were brought closer to each other. Therefore, they not only shared expertise, but also developed trust between each other, which helped to create a partnership rather than a buyer/provider relationship. There are some indications that farmers have internalized project objectives and identified with them. The project coordinator confirmed that farmers approached him of their own volition to inform the foundation about Montagu's harriers nesting in

their fields: “It happened to me that one of them called me and said, ‘My Montagu’s harrier is back again’” [69].

However, the process cannot be described as a process of reasoning in which decisions are made on the basis of “the better argument.” However, the strategy seems to work for the project, as long as farmers trust the organization, understand the reasons for it and are willing to protect Montagu’s harrier. It remains to be said that no aspect of justice and fairness was mentioned, neither as a goal of the project nor within the broader discussions.

#### *4.4. Case 4 (GER): Restoration of Moorland*

This case concerns nature conservation on a larger scale, which aims to restore a moorland area. Indeed, financial support for the project comes mainly from government funds, but the idea to maintain moorland was initially floated by civil society groups. The foundation coordinating the conservational work was established by a consortium of a homeland association, the two counties in which the moorland is situated and community representatives from villages surrounding the area.

With every loss of moorland comes the loss of the ecosystem services it provides (e.g., carbon storage and the provision of biodiversity). In the past, intensification of agricultural management led to installation of drainage that allowed this moorland to be managed in a more profitable way; this project sought to recreate the moorland by reflooding it. As a large part of the area was under private ownership, the decisive step was to restructure the property situation through land consolidation. Later, farmers were asked to manage the land by allowing only extensive grazing. In return for this special form of management, they would not have to pay any fee for their tenancy. Farmers were skeptical in the beginning, but as land is a scarce resource, they accepted the incentive to increase the amount of land they were able to farm. Although the project’s development plan was designed in a deliberative way, only umbrella organizations (e.g., farmers’ associations, hunting and fishing associations) and the local authorities were involved; citizens’ participation was limited to being informed of the project at certain stages of development. The public and active groups were involved only through the dissemination of information. There were no intentions of involving all people concerned in deliberative negotiation about the aims of the project or the strategies of achieving them. Any form of mutual exchange was limited to the initiators and local representatives who decided on the development plan.

Unsurprisingly, the potential for conflict arose between citizens and the managing foundation when local residents started a campaign against the project. In this particular case, the group of residents who lived but a hundred meters from the project limits felt extremely uneasy about the rapid and intense change as a result of the reflooding of nearby land after the drainage ditches were blocked. Arguments for and against have been extremely adversarial on both sides. Even though the initiating organization did mention reasons why it would be helpful to involve local citizens, the critics of not doing so were not taken seriously. As a consequence, the latter filed a complaint with the court. The citizens’ initiative prevailed in the process, and the foundation was forced to pay compensation, thereby delaying the project implementation, even though the overall goal was not countered in court. Therefore, even if citizens are not legally liable to be involved in the process of project development, this case illustrates that project development in some cases ought to include the residents affected by a

project's objectives in the process of decision-making. Therefore the relationship between the disputing parties could have been described as aloof, mistrustful and adversarial; it did not allow for fair and deliberative decision-making. No statement was made with regard to intra- or inter-generational justice. Instead, the goals set by the initiating organizations concerned purely environmental objectives.

#### *4.5. Case 5 (UK): Compensation for Harvest Losses Caused by Mute Swans*

This project was developed due to its special geographical location: close to the seafront with an inland basin that is attractive to birds. Therefore, a local nature reserve was established in 1981 to emphasize the importance of protecting the area surrounded by farmland. Organic waste had been handled in a lax way in the area, whereby farmers used to simply dump their waste on the site, and producers of canned food used to dispose of their organic by-products there. Over the years, that practice had attracted feeding birds, especially in the winter season, until 1998, when it became unlawful to throw by-products into the river. For the farmers, this caused new problems with birds, especially mute swans, which came looking for alternative food options. Farmers' fields located conveniently around the basin offered an easy substitute, thus disheartening farmers who considered the birds to be a part of the nature reserve rather than natural inhabitants of the area.

The first step in the project was to approach two representative farmers and encourage them to be a part of a nature reserve management committee. Whereas different interest groups had already been part of this committee, area farmers had no voice in the management of the nature reserve, even though parts of the land they managed formed a part of the reserve. Farmer involvement improved the relationship between the groups: "It used to be a battle between the farmers and the conservation side of it. [...] You know, when we sort of brought them on board, it took a lot of pressure off them" [70]. The committee members started to work on the farmers' problem, keeping in mind that they did not want to sacrifice the presence of wildlife through cooperation with the management subgroup. In the UK, unlike elsewhere, the hunting of swans is not permitted under any circumstances, making the objective of protection fall under the letter of law. However, various strategies were put in place and tried out over the years. Every time a commitment on a certain strategy came to an end, meetings were held with all farmers and committee members involved to identify positive and negative experiences and single out a preferred action strategy for the future. Hence, strategies ranged from paying for a scarecrow to allocating fields, while compensating the affected farmer for feeding the swans. All groups agreed to deposit funds in order to purchase the grain they used to feed the swans, and farmers have played an equal part in decision-making in terms of next steps. Although the aim was fixed due to the swans' legal status, the initiators created space for equal discussions amongst the parties to discuss the actual handling of the problem and set the strategy for the next season. This gives all interested parties the opportunity to exchange their experiences, and decisions are made by majority rule. Participation and deliberation are therefore important aspects that define the cooperative nature of the project by basing decisions on open debate. Aspects of intra-generational justice are also of concern within the project. The issue expresses itself as fairness among the farmer community, because some of them contribute financially to the project, even though they are unaffected by the swans.

#### 4.6. Case 6 (UK): Conserving an Upland Area

This case is one of the PES projects in which civil society (more precisely, a wildlife trust) has steered the entire process, starting from identifying the problem and finding ways to solve it, including ways of maintaining the ES, on to implementing and funding the project. This particular project supported a change in upland farm management to make it more sustainable; its use up to this point was characterized by poor woodland management and intensive activities, such as large-scale forestry and overgrazing. This led to soil erosion, loss of biodiversity and habitat degradation, thereby making farming the uplands less attractive as a result of its generating lower incomes. The project aimed to protect biodiversity, enhance landscape quality and provide carbon sequestration, catchment-based flood control and a species-rich countryside.

A payment scheme was set up by the trust, even though NGOs and public bodies were supportive of the initiative. After preparing a landscape development plan, the project team conducted a poll among the farmers in order to identify those interested in the project and who would consider participating. To convince farmers to change their land-management strategies, the team held face-to-face conversations. The group would go to a farmer who was interested in taking part in the project and ask what (s)he would like to change on which parts of land. Furthermore, the parties would negotiate their goals, thus bridging the gap between environmental goals and management strategies by creating a landscape plan and outlining opportunities for farmer participation. Knowing that the only way to create a stable project is through trust, the group hired a local farmer to promulgate the ideals of the project. The following quote shows that the project idea was able to spread from the very beginning only through some degree of social cohesion:

“We [...] hired a local contractor. He was one of the local farmers. Well, they all knew each other. They had a social event going on, so they all went out to have a drink with each other on Thursday nights [...]. That’s how the project started to spread initially, where you had local contractors and local farmers involved, and then, they would talk about it. That helped it spread” [71].

There had been no group discussion on the overall goal; the trust staff was not very keen on participatory decision making: “I am always reluctant to bring farmers together. It always puts me on edge” [72]. However, given that the farmers’ opinions were important for knowledge exchange and their acceptance of the project idea, they were given the opportunity to raise concerns, even if those concerns were not guaranteed to be considered in the actual decision-making process. Therefore, participation and deliberation in the project design was limited to the idea of gaining acceptance from farmers and ensuring their participation in the project. Further exchange was only needed to improve the quality of the strategies pursued. The negotiation process between the two groups was only fair insofar as the farmers and landowners had a strong position due to their property rights. Here, face-to-face conversation and the hired farmer that helped to spread the project ideas all assisted in getting the project off the ground and developing it over time. The project explicitly mentioned inter- and intra-generational justice as a goal by aiming to create new jobs and provide farmers with new skills, thereby raising standards of living not only for the current, but also for future generations.

However, aside from the mention of this goal, justice and fairness were not guiding issues in the decision-making process.

#### *4.7. Case 7 (UK): Sustainable Management Program for Water Catchment*

With the British privatization of the water authority in the 1990s, land that was formerly owned by local councils was transferred to a new water company that was now responsible for the water treatment. As in the 1950–1960s, the government was concerned with self-sufficient agricultural production in the country; intensification of use ensued, and many farmers sought to rid themselves of moorland areas by installing additional drainage. Drying peat releases carbon dioxide and methane into the atmosphere and pollutes water with sediment, as well as coliform bacteria. Due to the increase in coliform bacteria, the water company had to increase its investment in water treatment by introducing additional chemicals. The project was initiated by the water company and was intended to solve this problem in an affordable and environmentally-friendly way. At the start, a farm plan was developed for each farm. In consultation with the farmer, the plan set out to change the actual land management form in the short term. Additionally, the farm plans helped the farmers in the long run when it came to participating in the state-run programs for environmentally-friendly land management, as these programs often require a functional farm plan that must meet certain standards before an application can be made. As an incentive for signing these contracts with the company, full costs for this were borne by the water company, so that the farmer incurred no additional costs. Decisions on these farm plans were made between the tenant and the project staff without further consultation, group meetings or informational meetings. Talks were conducted by a well-known and long-established environmental organization that functioned as a project partner. Farmers could offer their own input on the feasibility of the suggested solution, ultimately making the process a negotiation between the two parties. However, power positions were asymmetrical, because the company would attempt to acquire the farmers' land leases when they showed no interest in participating.

The project evolved in cooperation with the above-mentioned nature interest group along with various supportive government bodies and nongovernmental organizations. However, one must admit that apart from the water company, none of them had any substantial say in matters of project design; the influence they were granted was limited to providing local knowledge and input towards achieving a more environmentally-friendly solution. As these stakeholders had some shared goals, their partnership was nevertheless fruitful in retrospect. The main conflict here arose between the farmers and the water company, which was trying to resolve contested issues by negotiating face-to-face with individual farmers and offering them work and financial incentives. It was not a fair debate process; once again, the goal and even the strategies were decided in advance by the water company. "So you then look for a methodology to encourage them to move from where they are to where we want them to be" [73]. The company had a powerful position, since the farmers were in fact tenants on its grounds. However, the company still needed to work together with the farmers, at least to some extent, in order to get the project up and running. On the whole, the company had strong leverage in convincing the farmers to take part, and this leverage relied on the distribution of property rights rather than on consensual discourse. Moreover, no statement was made on issues of justice and fairness.

The essential objective of the company as the initiator of the project was to reach the environmental goal and more profitable water treatment as a result.

#### *4.8. Case 8 (UK): Community Project to Protect Urban Biodiversity*

The development of this project was based on civic engagement in a neighborhood. By demonstrating against municipal plans to build new residential housing on an abandoned, one-hectare-sized area close to their homes, residents instead sought to use this plot as an open-space common area. Local residents, particularly younger ones from the neighboring youth club, received some degree of environmental education through restoring the landscape by clearing away garbage, thereby reclaiming the area for recreational use as a gathering place and a community garden for planting vegetables. This citizen initiative prevailed over existing municipal plans and achieved a compromise on action that allocated space for biodiversity and linked the area in focus with the neighboring woodland area that was designated “a site of importance for nature conservation” (SINC). Additionally, the contract between the citizen group and the municipality set limits on individualization, disallowing groups to create separate allotments for individual use. The municipality in return promised not to encroach on the area and agreed to support the group with information on available funding during the period of the group’s action. The group did not face funding difficulties, since it was able to secure funding from various sources; however, it still struggled with keeping steady numbers of people actively involved. Note that this level of involvement was achieved in spite of the fact that the district concerned has a comparatively high poverty rate, which, at least in this particular case, defies the assumption often encountered in studies that the low-income demographic is much less likely to engage in collective action than the upper middle class. A narrow definition of PES would exclude this case, as there is no direct payment to the providers of the ES involved, who are, in this case, the stewards of biodiversity. However, in a wider sense, this example demonstrates that the embeddedness of environmental action in community action cannot be explained by financial incentives alone; rather, the recognition of environmental change, direct spatial connection to the native environment and, ultimately, social cohesion among the neighbors are additional factors to be considered. This case provides a good example of how citizens’ environmental protests can reach public authorities and hereby work successfully. The group itself made decisions based on an equal footing among its members, although there are three or four members who have been steadily involved and have a greater knowledge of the overall process. Nevertheless, every neighbor was welcome to join and take an active part in the group. Fairness issues were raised in regard to urban politics. Whereas the city municipality focused on the financial gains that would come from building expensive housing, the group was committed to issues of livability within the district and strengthening social cohesion in the neighborhood.

## **5. Results**

The descriptions above illustrate that the cases involve different forms of participation and deliberation in project design. In Table 2, we depict the results in a very concentrated and simplified form. It shows the assessment of the cases according to the significance of participation, deliberation and issues of justice. To illustrate the significance of participation, we distinguish between only two

actor constellations in the table, as ES providers have been involved in all projects. Therefore, we refer to projects in which:

- (1) Solely the potential ES providers have been involved (); or
- (2) Additional stakeholders or even a wider public have had a say (+).

In classifying the significance of deliberation in the project design, we indicate how decision-making took place. Here, we differentiate only between processes in which:

- (1) Either providing information was the only strategy of exchange or discussions were conducted with the sole purpose of convincing partners and attaining an effective, regionally adapted and socially accepted scheme. We assess both situations as not being argumentation processes (–).
- (2) The second distinction concerns jointly designed projects where strategies towards a certain goal are at least still open for discussion and which are characterized by arguing (reasons) instead of bargaining (interests) (+).

Finally, we indicate whether or not the projects explicitly refer to some notion of inter- or intra-generational justice. As we could not find a case that fully considers both aspects of justice in decision-making, we differentiate between projects that took some aspects of inter- and intra-generational justice into account () and projects that did not include any elements of justice at all (–). Table 2 shows the results of this analysis.

**Table 2.** List of cases with regard to the significance of participation, deliberation and issues of justice.

No.	Name of the PES Project	Participation	Deliberation	Inter- and/or Intra-generational Justice
1	Citizens funding organic agriculture	+	+	
2	Conserving orchard meadows	+	–	–
3	Protecting Montagu's harrier		–	–
4	Restoration of moorland		–	–
5	Compensation for harvest losses caused by mute swans	+	+	
6	Conserving an upland area		–	
7	Sustainable management program for a water catchment		–	–
8	Community project to protect urban biodiversity	+	+	

(–) Not considered/given; () partly considered/given; (+) fully considered/given (for full definitions, see the text above).

All cases include some level of involvement of potential ES providers. This seems to be the minimal form of participation in all of these locally embedded projects and a necessity to get a project running. Furthermore, this marks their main difference compared to huge state-run PES programs, which often lack that direct involvement. However, the form of participation varies a great deal if we take a closer look at the actor constellation within the actual process of project design. In our sample, processes that involve other stakeholders beyond the providers of the ecosystem services are characterized by difficulties at the start and problems later on, which cannot be solved between two parties or require further mediation. Case 1 exemplifies that very clearly. Two other cases involved a



wider public and, therefore, were open to “everyone”, not only to join the project, but also to actively shape it. We consider predetermined goals and strategies, as well as the environmental organizations’ “monopoly of knowledge” to be the main obstacles to wider involvement. Although the two cases that displayed greater openness than the others and did not concentrate on specific partners in designing the project (*i.e.*, Cases 5 and 8) also had fixed goals, the strategies they used to reach those goals were not determined before discussions started. To be fair, many environmental organizations are often membership-based or develop their goals and strategies in accordance with topics discussed in the public sphere and, thus, act within a wider structure of democratic association before they define their goals for strategic partnerships. However, the existence of fixed goals and the perception of superior expertise on the side of the organizations often leads to inflexible strategy building that hinders common decision-making. Such cases therefore exemplify an approach in which the initiator is focused on convincing ES providers and partners to support the project strategy and implement the predetermined environmental objective. Fixed ideas about project design furthermore influence the mode of debate and argumentation and, unsurprisingly, are the main cause of friction between interest groups. Only three of the eight cases were open to an argumentative discussion that could change project strategies. Again, it is only fair to say that in every project of our sample, we found some form of exchange. The forms range between pure information strategies that do not intend for mutual exchange, discussions that emphasize different interests, serve to transfer knowledge and, in so doing, are often aimed at improving the effectiveness and acceptance of the respective strategy and processes where all participants jointly debate and create strategies that are decided based on a process of reasoning.

More seldom have we seen that issues of justice and fairness are part of decision-making in matters of project design, and therefore, our case studies provide a great deal of evidence that inter- and intra-generational justice is not necessarily considered a part of PES design. Only four of the projects made some reference to justice in the description of their design processes, and just one was explicitly geared toward shaping future societal conditions. All projects open to argumentative decision-making provided some explicit reference to the idea of inter- or intra-generational justice, which supports our assumption that deliberation can function as a condition for the consideration of justice. Cases 1, 5 and 8 provided for some form of intra-generational justice, albeit one that is limited mostly to the group itself with only a small impact on wider society. Not surprisingly, two of the three projects were self-initiated by a smaller group of people in order to oppose or at least influence local developments affecting them personally. Case 6 can therefore be considered an exception, since neither its goals nor its strategies were discussed in an argumentative manner. Here, we found that issues of inter- and intra-generational justice had been mentioned as project goals, but were instead connected to the context of the project rather than its decision-making process. The project is part of a UK-wide program that is directed not only at conservation issues, but also wants to reconnect locals with their environs. This could serve to explain why its justice-related goals came to the fore. Thus, we conclude that under no circumstances can deliberation be considered to be a sufficient condition when steering towards sustainability. Since we did not find a single case in our sample with a deliberative structure that does not refer to ideas of intra- and inter-generational justice, we consider deliberation to be a necessary condition in the absence of proof to the contrary. The fact that all cases are characterized by some form of participation could be construed according to the functionalist perspective that it is a necessary part of any social change [74].

To summarize, we have found some elements of inter- and intra-generational justice in projects making a connection between participative deliberation and sustainability. They are: (1) projects that were led by self-initiated civil society initiatives (which took an active role and needed to spread their ideas into the public domain to garner support and acquire legitimacy); (2) projects that were open to the public and involved all parties concerned; or (3) projects that were part of a wider framework that considered not only environmental goals, but also social ones.

Finally, it should be mentioned that we have not found any evidence of different participative cultures in Germany and the UK with regard to an open deliberative process of designing PES schemes. It appears that in both societies, PES practices, on the one hand, are bound to property rights, which authorize the owner to pursue his/her interests in negotiations. On the other hand, they reflect the European or, respectively, the international debate concerning PES.

## 6. Discussion

The results above can be discussed from two different perspectives: the discourse on PES and sustainability research. With reference to the discourse on PES, our operationalization of the PES concept against the backdrop of practical theory must be considered an unusual approach; however, it sheds light on the specific interface between this new branch of economy, on the one hand, and societal structures with their cultural traditions, values and interests on the other. Environmental management embraces economic methods, such as payments in various ways to maintain or enhance ES, and in the discussion on strategic goals of societal development, such as sustainability, we think it is reasonable to consider all of these payments to be practices that influence the ecological effects of human behavior. Within this context, we should point out that, contrary to conditions identified in the economic discourse on PES, a clear allocation of property rights has no significant impact on the sustainability dimensions we observed in the projects of our sample. PES in which ES providers have strong property rights could be found in PES projects with references to intra- and inter-generational justice, as well as those without. Of course, it must be noted that this result is not among the main findings of our research. We should keep in mind the limitations of our sample, our operationalization of sustainability dimensions and the disregard in our research for the economic aspects of the PES schemes considered. However, until further research clarifies which goals could be achieved by changing property rights and which cannot, we suggest maintaining a skeptical distance from any claims that changing property rights as such, without taking substantial goals and side effects into account, can provide solutions for a sustainable society. The rationalization of property rights in environmental negotiations can potentially hamper environmental organizations, since negotiated settlements on environmental goods can be perceived as complying with deliberative strategies perhaps only in a social world with minimal inequality. As long as one inhabits and accepts a world of individuals with different ideals, ideas and resources, problem solving by means of a response to claims of justice seems to be the only adequate strategy for PES.

We emphasize this result in particular and point to the restrictions of PES as a policy instrument that could achieve both their ecological objectives and an equitable distribution of resources, since none of the cases we discuss defines an anticipated outcome in terms of interdependence in social and ecological structures with regard to payment practices. This leads us directly to the perspective of

sustainability research, which mostly aims to avoid false expectations [19,75]. Here, it should be noted that the discourse on PES is thoroughly economic, tapping into the rhetoric of “sustainability”, but failing to identify adequacy criteria for testing their assumptions. Likewise, no scenarios of changing conditions have been specified that could potentially lead to a reassessment of the payment practice, and no statements discuss the durability of a payment scheme. We can duly conclude that although PES projects necessarily touch upon issues of fairness and do reshape our perception of the future environment, ideals of justice more rarely feature in their agenda.

Additionally, our results give us reason to focus attention on the assumption that deliberative processes can contribute to sustainable development. This result challenges the widely accepted perspective that recognizes participants solely as providers or consumers who accept a scheme and thereby take part in it. Within such a view, they are largely considered to be mere suppliers of information. However, none of these roles meets the criteria of self-determined, deliberative involvement in the design of a PES scheme. Certainly, not all of the extensive participative deliberation processes are deemed useful in every case of PES design. However, such an approach can make an important contribution in terms of sustainability. In contrast to the neoclassical economic approach to PES, which fails to incorporate issues of inter- and intra-generational justice, deliberation can serve to integrate justice when working towards a more sustainable process. Clearly, more research is needed that provides evidence of the coherence and the relevance of different types of participation and deliberation in PES design.

In summary, we suggest that the problem-solving capacity of PES as a governance tool be enhanced by a more succinct concept of what sustainable development is. Until then, PES is likely to be applied as a measure to ensure the existence of an ES, rather than as a transformative instrument.

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## Authors Contributions

The authors contributed equally to the reported research in terms of conception, design and analysis of the data. The interviews for the case studies 1, 2, 4, 5 and 6 have been conducted by K. Nicolaus, in case study 3 J. Jetzkowitz conducted the interview and for the case studies 7 and 8 both authors jointly conducted the interviews. Both authors discussed the structure and commented on the manuscript at all stages and also approved the final manuscript.

## Conflicts of Interest

The authors declare no conflict of interest.

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