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To cite this article: Fumikazu Ubukata & Truong Quang Hoang (19 Mar 2026): Communication and changes in local understandings of environmental services: cases of payment for forest environmental service in Central Vietnam, Journal of Forest Research, DOI: [10.1080/13416979.2026.2647319](https://doi.org/10.1080/13416979.2026.2647319)

To link to this article: <https://doi.org/10.1080/13416979.2026.2647319>



Published online: 19 Mar 2026.



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ORIGINAL ARTICLE



Communication and changes in local understandings of environmental services: cases of payment for forest environmental service in Central Vietnam

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ABSTRACT

Environmental services (ES) are highly anthropocentric. This ES concept allows for different interpretations among various stakeholders, which can cause potential obstacles in the implementation phase of the payment for environmental services (PES) scheme. However, few studies have addressed such differences vis-à-vis the institutionalization, interpretation, and communication of ES on a long-term basis. Therefore, this study not only focuses on the differences in understanding ES among stakeholders in a program called Payment for Forest Environmental Services in two provinces in Central Vietnam but also examines how these differences are communicated, which finally affects the long-term change in understanding ES and the program itself. The results show instances of local confusion in the initial phase of the program, indicating that many local people are not given proper information about the program's principles and operational rules. However, after a decade of implementation, the differences in the implementation systems in the two provinces have manifested in variations in accountability to local forest environmental services providers, resulting in differences in their understanding of ES in the program.

ARTICLE HISTORY

Received 12 May 2025
Accepted 20 January 2026

KEYWORDS

Environmental services;
Central Vietnam;
communication; local
understanding; legitimacy

Introduction

Financial approaches to mitigate environmental problems have been introduced into the national policies of many countries (Greiner 2013). Typical examples include payment for environmental services (PES), which creates a financial flow between providers and users of environmental services (ES)¹ under conditions to ensure their provision (Wunder 2005, 2015).

The PES concept can be viewed as an attempt to transform nature into a financially valuable asset. However, this transformation may overlook the different values and meanings of nature among various stakeholders (Iniesta-Arandia et al. 2014). As ES is a highly artificial concept, its anthropocentricity (or coproduction) and ambiguity may foster different interpretations (or misinterpretations) among various stakeholders (Fischer and Eastwood 2016; Palomo et al. 2016), which can cause potential threats in the implementation phase. Therefore, communication among these stakeholders is considered crucial in coordinating these different understandings. However, rather few studies have focused on such differences by which ES is institutionalized into different concepts (Iniesta-Arandia et al. 2014; Blundo-Canto et al. 2018); how it is interpreted (or misinterpreted) and communicated; and how it affects both policy implementation and social response, especially on a long-term basis.

Among the large volume of the existing studies on PES, the majority have focused on its results of governance to nature and society (Farley and Costanza 2010; Hejnowicz et al. 2014), especially in terms of institutional design (Engel et al. 2008; Fauzi and Anna 2013), efficiency (Ferraro and Simpson 2002; Phan et al. 2017), co-benefits (Greiner R and Stanley O 2013), effectiveness and equity

(Calvet-Mir et al. 2015; Leimona et al. 2015; Loft et al. 2017), as well as normative arguments over market-based initiatives (McElwee 2012; McElwee et al. 2014; Fletcher and Büscher 2017). Considering the difficulty in explaining the aforementioned economic analogy, especially in developing countries, it is quite important to examine how different ES interpretations and subsequent communications among stakeholders affect the implementation of PES, which impacts local society and nature in the long term. This study therefore examines the abovementioned different understandings of ES among stakeholders in the Payment for Forest Environmental Services (PFES) scheme in Central Vietnam and how these differences in forest environmental services (FES) are communicated, which has caused long-term changes in the local understanding of ES and the program itself.

The PFES scheme in Vietnam has two characteristics that are suitable as a case. First, it institutionally accommodates several standpoints to view FES among different stakeholders under the dominant actors that administer the program: the authoritarian state and related organizations. This makes it easier for the authors to describe how different views of FES have emerged. Second, Vietnamese upland society, where many ethnic minorities spend their lives and PFES is mainly implemented, has transformed very rapidly toward integration into a lowland society and economy where the majority of Vietnamese live (Scott 2009; Michaud and Forsyth 2011). This enables us to highlight how different FES concepts are interpreted, communicated, and responded to in this socio-political setting.

The remainder of this paper proceeds as follows: First, we describe the methodology and study area, which is located in

two provinces in Central Vietnam. Second, we not only explain some of the basic features of the PFES policy and its implementation but also clarify how and in what sense PFES allows for different understandings of FES among stakeholders. Third, we provide on-the-ground examples in upland communities and villages to examine how these different concepts are interpreted and communicated during the initial phase of program implementation. Fourth, we describe the recent situations of local understanding to examine the long-term changes resulting from program implementation. Finally, we summarize the major findings and discuss implications in terms of both natural resource development and upland society.

Methodology and study areas

The authors set the following research framework of political ecology that considers the interactions among social and ecological processes across different actors and spatial scales (Forsyth 2003; Robbins 2020), including those addressing the sociopolitical dimensions of ES (Berbés-Blázquez et al. 2016; Fischer and Eastwood 2016; Hausknot et al. 2017).

First, ES or FES are politico-economically defined and constructed, and finally embedded in an institutional structure. Second, forest, as a natural agency, entails multiple facets that accommodate various meanings and values for human society so that various stakeholders may interpret them differently. Thus, it is important to examine how this multiplicity and ambiguity affect policy implementation in the local arena. Third, the anthropocentricity or politico-economic construction of ES/FES sometimes contradicts the natural and social characteristics of forests, which accommodate multiple meanings and values for human society (Nevins and Peluso 2008). Furthermore, different stakeholders interact over the meanings and values of ES/FES to deal with these contradictions or simply address their conflicts over meanings and values (Kosoy and Corbera 2010). In this process, we can observe various social responses according to their power relations, including those of local villagers, government officers, scientists/technicians,

policymakers, and relevant officers, which may lead to social and ecological consequences of the program in the course of the historical context of the study area.

Considering the aforementioned research framework, the authors conducted field surveys in Thua Thien Hue and Quang Nam provinces for 2015–2018, which interviewed relevant stakeholders constituting PFES implementation at the local level: provincial officers, provincial-level forest protection and development fund (FPDF; see explanations in the next section) officers, officers of forest management boards (FMBs),² commune officers, and villagers.³ The selection of sites and interviewees reflects our objectives to identify differences in understanding FES and the program itself, as well as considering institutional differences in program implementation. As explained later, the two neighboring provinces differ in terms of the structure of forest owners,⁴ which has impacted the structure of the PFES program and its priority for information and communication. Additionally, due to their locational adjacency, their social and ethnic compositions are similar. This enables us to compare how different institutional arrangements and communication affect transparency and legitimacy performances, under similar ethnic, social, and, to some extent, natural conditions.

Moreover, a follow-up field survey was conducted in March 2023 to examine long-term changes in the local understanding of ES and the PFES program. A total of 142 respondents were interviewed, of whom the majority were local villagers from two communes in the A Luoi district of the Thua Thien Hue province and a commune in the Tay Giang district of the Quang Nam province. Although dependent on the status and individual situations of interviewees, interviews covered a wide range of issues, including PFES implementation and local understanding, household economy, official missions and administration procedures, and so on (Table 1). Normally, each interview took 1–2 hours at their houses or offices, with some eventual visits to the field site if required.

The obtained information was processed and analyzed thematically to identify gaps in FES understanding and communication among stakeholders in the program. In the

Table 1. List of interviews utilized in the study.

	Number of interviews	Number of interviewee*	Interview period	Content of interviews	Remark
Provincial and district level officers	12	13	Jun. and Sep. 2015, Mar. and Jul. 2016, Jul. 2017, Mar. 2023	Institutionalization and implementation of PFES Communication to local officers and villagers	Five FPDF officers and four district officers in two provinces
FMB staff	7	8	Sep. 2015, Jul. 2016, Jul. 2017	Implementation of PFES, communication to villagers	Two FMBs in Quang Nam province
Commune-level officers	14	16	Sep. 2015, Mar. 2016, Jul. 2017, Mar. 2023	Historical backgrounds of the commune Local implementation of PFES Their attitudes toward upper-level officers and villagers with regard to PFES and related programs.	Three communes in two districts, two provinces
Villagers (free interviews)	29	47	Sep. 2015, Mar. and Jul. 2016, Jul. 2017, Mar. 2023	Their life history and socioeconomic status Local implementation of PFES and communication to officers, as well as understanding and attitudes toward PFES	Thirteen villages (10 after the merger)+ in two districts, two provinces
Villagers (questionnaire surveys)	58	58	Feb.-Mar. 2018 Jul. 2018	Household's history and socioeconomic status** Local implementation of PFES and communication to officers, as well as understanding and attitudes toward PFES	Two villages in the Tay Giang district, Quang Nam province
Total	120	142			

Note: * allows multiple counting. Data in ** (the part of questionnaire surveys) are not used in this study. Here, +village denotes a hamlet (*thon*), the smallest rural social unit in Vietnam. Since the late 2010s, old villages have merged with neighboring villages.

analysis, we modified and applied a method developed by Braun and Clarke (2006), which combines both inductive (bottom-up) and deductive (top-down) approaches. From the interview information, we first extracted the parts in which each actor described their understanding of PFES (top-down). We then picked out keywords and content (e.g. the points they did not understand about FES or PFES and the kind of communication that took place) to classify, pattern, and interpret the data manually, using Microsoft Word and Excel (bottom-up).

These communes and villages are located in the upland areas of Central Vietnam, where many ethnic minorities, such as the Cotu, Paco, and Taoi, have lived for generations (Dang 2014). It is widely known that upland villagers in Southeast Asia, including Vietnam, enjoyed the relative absence of state political power owing to their peripheral location (Scott 2009; Michaud and Forsyth 2011). Thus, villagers could maintain their customary practices, including shifting cultivation and sociopolitical autonomy, by the time this area was embroiled in the war between North and South Vietnam. However, state attempts at politico-economic integration since the 1990s, such as administrative reforms to introduce formal village organizations (Fforde 2011), forest land allocation (Clement and Amezcaga 2009), prohibition of slash-and-burn agriculture (McElwee 2022), construction of hydropower dams (Dao 2010), and strengthened state forest regulations (Dang et al. 2012) have rapidly affected the upland society and economy. Therefore, the introduction of the PFES program should be understood in this context.

At the same time, the current upland society in Vietnam generally consists of poor households in which villagers are provided with fewer opportunities for education and employment, although the situation differs among villages. In the study area, the per capita average annual income in A Luoi and Tay Giang is similar, at 16 million and 15 million VND, respectively,⁵ which is far below the national average. As PFES also aims to mitigate poverty, it is important to view the program from a poverty alleviation perspective (Pham et al. 2008; Jourdain et al. 2009).

Creation of FES in the PFES policy and its implementation

PFES as a Vietnamese PES

The PFES initiative is the first nationwide PES policy introduced in Southeast Asia (Pham et al. 2013, 1). It is “a service payment mechanism between FES users and providers, with an aim to mobilize contributions from society for forest protection and to enhance the economic value of the forest environment” (McElwee and Thanh 2015, 8). In Vietnam, as mentioned above, the contribution of this policy is underscored not only for forest protection but also for income generation for local people, especially the poor and ethnic minorities. Globally, it can be characterized as a PES with strong government initiatives, as in some famous initiatives such as Costa Rica’s PSA program.

The policy was initiated as a pilot project in the Son La and Lam Dong provinces in 2008 and became a nationwide program with the enactment of Decree 99/2010/ND-CP (Decree 99 hereafter) in 2010. From 2011 to 2020, more than 14 trillion VND (approximately 560 million USD) had already been paid to FES providers in 45 of the total 63

provinces (MARD 2021). The overall impact of this scheme is believed to be positive, especially in terms of forest management (Duong and de Groot 2020), ecosystem maintenance (Duong et al. 2021), and biodiversity conservation (Dang Do and NaRanong 2019; Cox 2025). However, some concerns regarding institutional flaws (To et al. 2012), unfairness (Loft et al. 2017), top-down-style implementation (Tran et al. 2016), and state control over forests and upland communities (Suhardiman et al. 2013; To and Dressler 2019) have been raised.

In Decree 99, FES is defined as “the provision of use values from the forest environment to meet the needs of the society and people’s lives” (McElwee and Thanh 2015, 12). Among officially defined five types of services, water regulation for hydropower dams is the most popular service to get involved in this program, accounting for more than 96% of the total payment between 2011 and 2020 (MARD 2021). However, FES providers are diverse. They include state-run forest management agencies such as FMBs, villagers’ household groups, village communities, and individuals who are allocated rights/duties for forest use and management. As explained later, there are two general types of payment distributions. Some villagers and groups of households can directly make forest protection contracts with an FPDF (see below), whereas other villagers and groups of households may indirectly benefit from the PFES scheme through a forest protection contract with FMBs in the area that receives the payment.

As PFES was a completely new program for the government at the time, it required various inputs for preparation to create financial flow, such as the identification of FES providers and users, mapping and evaluation of forests as a source of services, value estimation, and so on. For this purpose, central and provincial-level FPDFs were established. Meanwhile, these funds also play an important role in intermediating FES providers and users by collecting payments from FES users and distributing them to FES providers.

The financial flows of PFES are indicated as follows (Ubukata and Hoang 2019): First, FES users pay fixed rates for the collection of user fees. As for water regulation, hydropower companies had to pay 20 VND/kWh of commercial electricity every year to the provincial FPDF from 2011 to 2016, which they could ultimately transfer payments to electricity end consumers. The rate increased to 36 VND/kWh in November 2016 through the enactment of Decree 147 to increase payments to FES providers. By contrast, payments to FES providers are decided at the watershed level. This is because of the measure that considers the flow of FES (water regulation in the dam watershed). All the collected fees from FES users in a watershed are then distributed into areas under forest vegetation, considering the weight imposed by the K coefficient.⁶ It is important to note that it is not a forest land area but land under forest vegetation that is considered for this result-based payment. As it does not include denuded areas of forestland, a Geographic Information System (GIS) survey to regularly evaluate the presence of forest vegetation areas is therefore necessary.

As different watersheds vary in terms of size, land use pattern, and structures of FES users and providers, this system produces large differences in payments among watersheds (Pham et al. 2013). Reflecting this unfairness, Decree 147 implemented a measure to narrow the differences in

payment rates among FES providers. Now, each province has to take necessary steps if the payment rate to FES providers is lower than the minimum rate of 400,000 VND/ha.

Institutionalization of FES and Its multi-interpretability

As mentioned previously, implementing PFES requires the construction of a technical and institutional foundation. For instance, the initial process for hydropower company schemes took the following four steps in the Thua Thien Hue province (Ubukata and Hoang 2019; Hoang et al. 2021).⁷ First, FES users (hydropower companies) and their watershed areas are specified. Second, the identification and mapping of FES providers and their managing territories follows. In this process, FPDF staff and delegated consultants integrate various types of information, such as forest classification, forest vegetation, and forest owner information, using GIS.⁸ Based on the information, a payment plan is formulated and submitted to the Provincial People's Committee. Third, after the approval of the payment plan, FPDF staff instruct forest owners to prepare and submit application documents. Fourth, a final map of the PFES program is developed, and the payment rate for the coming year is decided, with the help of related agencies such as district forest protection offices.

It is important to note that FES was institutionalized during this process. The most important difference between PFES and conventional forest conservation programs was the FES concept. In fact, the official definition of FES mentioned above is ambiguous when implementing the PFES scheme in the following senses: First, FES was not a familiar concept for the local people, even for local officers who were engaged in the program at the time. Information about the program was typically not well disseminated in the local arena.

Second, the concept of FES is inevitably accompanied by the hybridity of humans and forests. As FES is “services,” it is realized in the program after some human activities and interventions. For instance, the construction of hydropower dams and prior village resettlement programs are necessary to recognize FES in watersheds. It is therefore difficult in some cases to identify the “true” producers, even though it is a service that originates in forests and nature (Ubukata and Hoang 2019).

Third, the program itself accommodates at least three important standpoints to view FES; hence, equity perceptions focus on different stakeholders (Loft et al. 2017). It is crucial for FES users to regard FES as an economic value of watershed functions because many hydropower companies are concerned about unstable electricity generation owing to unstable water inflows (Ubukata and Hoang 2019). It is obvious that their interest is not in forest management *per se* but in the improvement of their watershed to improve water regulation functions.

However, FES providers, especially villagers, attach importance to their transferability to labor efforts. This is because in many cases, villagers are paid for their labor contribution to forest management (i.e. forest patrol), especially in the case of group/community-based payment schemes. In other words, their interest is not necessarily the forest situation or the “result” of the program but their compensation for their efforts (and opportunities) (McElwee 2016; Loft et al. 2017).

By contrast, state organizations, such as state FES providers (i.e. FMBs) and FPDFs, view the quality and quantity of forest as crucial to influencing FES, as these are state-run organizations that follow state regulations and definitions of forest. FPDF officers and consultants who are delegated the preparation work evaluate the forest area and classifications using GIS techniques during the map-making process for the PFES program.

Local understandings and communications over FES

Given the ambiguity and multi-interpretability of FES, social cleavages have emerged during program implementation. It was natural to mention that local people either did not understand or misunderstood FES and the entire program (Loft et al. 2017; McElwee et al. 2019). Then how did they understand? The two case studies in the A Luoi district of the Thua Thien Hue province and the Tay Giang district of the Quang Nam province provide an examination of the ambiguous understanding of FES and the program itself. First, we would like to show local confusion due to different understandings and communications in the initial phases of program implementation using field information obtained during the 2015–2018 period. We then move on to recent situations to examine the long-term changes regarding local understanding.

In both areas, watersheds of hydropower dams cover a considerable proportion, and the recipient villagers are upland ethnic minorities who have had clan-based societies and traditionally relied on shifting agriculture. In addition, positive ecological impacts are reported in both areas, such as improvements in forest ecosystems in A Luoi, particularly flora and fauna in Sao La Nature Reserve (Dương et al. 2021), and biodiversity enhancement in Tay Giang Protected Forests (Cox 2025). Despite such sociocultural similarities and positive ecological impacts, the actual implementation of the PFES program depends heavily on province-level institutional structures that reflect historical and area-specific factors.

In this regard, the most significant difference between the two provinces is the forest ownership structure, which leads to a difference in the provincial payment systems.⁹ In Thua Thien Hue, forest ownership is fragmented because forests are allocated to not only the FMBs and whole village or villager groups but also to individual households. Therefore, the number of eligible forest owners for PFES is more than 600, and they are regarded as FES providers who directly receive payments for FES from the provincial FPDF. However, in Quang Nam, there are only 42 forest owners that mainly include state-run organizations, such as FMBs, and Commune's People Committees, which are not forest owners but manage the forests and receive PFES.¹⁰ As the recipient villagers are not forest owners but live inside the management area of such organizations, they are indirectly paid for FES through forest protection contracts with FMBs and other state-run organizations. There are no individual plots, and all forests under contract are assigned to household groups that jointly patrol to conserve them. Similar to the household groups in Thua Thien Hue, villagers distribute payments to individual households according to their labor contributions to patrol activities, as well as dividends in some villages. In both cases, as McElwee et al. (2019) pointed out, the intra-village benefit sharing (e.g. among households and gender) reflects villagers' sense of equity. Additionally, our

interviews did not identify any serious biases in benefit sharing among different ethnicities in the research area.

In addition, there are significant differences in the study area with regard to the relative importance of PFES payments for villagers' incomes. Though annual per capita incomes are similar and the payment rates (as we explain later) do not differ a lot, the annual per capita PFES payments are quite different due to differences in the assigned forest area. According to interviews in 2023, a villager received around 5 million VND per year on average in Tay Giang, while A Luoi villagers received around 500,000 VND per villager on average annually. These represent 25–47% and 3% of their average total annual income, respectively.¹¹

Different understandings and confusion in PFES implementation in the initial phase

Reflecting on the interviews in the two areas, the authors classified the following three dimensions of different understandings (or misunderstandings) and confusion in PFES implementation during the initial phase: general information about the program, eligibility for payment and assigned area, and amount of payment and its fluctuation.

General information about the program

As new concepts such as FES and watershed identification, which were not familiar to officials, villagers, and communities, had been employed throughout the implementation of the PFES policy, a misunderstanding of the objectives and structure of the program emerged.

A typical example was the case of Ms. S (16/3/2016) in the A Luoi district.¹² She owned 4.9 ha of natural forest and received payments for FES. At the end of 2014, a land officer in the commune came to the village to inform her about the PFES program. She did not know why she could get money through the program, and she thought this was a gift from the government. Even Mr. M (18/3/2016), a leader of the commune-level farmer union at the time in the same district, had a limited understanding of the PFES program. He knew that the payment was a reward for taking care of the forest, but he could not distinguish PFES from other forest conservation programs.

Villagers in the Tay Giang district also held similar views about the PFES program. Almost all interviewees had little perception of the FES concept. Most of them did not know where the money came from, and some were not interested in the details of the program. Unlike in the A Luoi district, FMBs in Tay Giang played an important role in translating the PFES concept into communities. As villagers here were not direct recipients of the PFES program but were under contract payments from FMBs, some villagers believed that this program was the FMB's project. Moreover, many villagers did not even know the name PFES (in Vietnamese, *chi trả dịch vụ môi trường rừng*). This local understanding (or ignorance) indicated that many local people, including the local elites, did not distinguish the PFES program from conventional government subsidy programs. They did not know about the flows of money they received, let alone those of FES within the watershed.

Eligibility for payment and assigned area

Although the abovementioned cases might not lead to serious problems, some could cause local confusion during the

implementation stage. A typical example was eligibility for the program. In the initial phase, confusion regarding the eligibility for payment or the area assigned for payment was common. This raised the question of why some persons or places were qualified, while others were not. The A Luoi case was typical because of fragmented forest ownership and household-based payments.

In A Luoi, where individual households were regarded as FES providers, many people were not sure about why and how eligible households or forests were selected. The case of Ms. S in the previous subsection was a typical example. However, ineligible villagers felt dissatisfied with the program. The recipients worried about the jealousy of the non-recipients, as Mr. S stated that she worried about complaints by other villagers (16/3/2016).

In Tay Giang, where villagers are not direct FES providers but groups of villagers make a contract with FMBs, individual eligibility was not a problem. However, differences between the forest boundaries assigned for PFES payments and traditional village boundaries had occasionally become a conflict. Villages of ethnic minorities have recognized their own territory for customary use, whose boundaries often overlap but have not caused serious conflicts. However, these boundaries were not considered when the FMBs assigned their forests to villages and made contracts with them for forest protection. The assignment was based on the administrative boundaries of villages identified on the map or the population–forest ratio calculated by FMB officers.

For instance, the forest area in Village X overlapped with the boundaries of the other villages.¹³ These villages considered overlapped forests as their customary areas and claimed that they had rights to the forests. After the assignment, although still implicit, the relationships among these villages became poor. For example, formally approved logs stocked and piled in the area for household consumption were stolen by people from other villages. In another case, a villager could not use his fallow land because it was allocated to the forest area of another village. Villagers asked the FMB survey team to respect the customary boundaries. However, the team did not accept this idea, claiming that it was a government policy. Instead, they divided the forest according to population size.

Payment amount and its fluctuations

The second type of typical confusion relates to why payments differ in terms of both space and time. This can be crucial in that it affects villagers' economic motivation, as it creates the core of the principle of "result-based payment," which is one of the basic principles of PES.

One example is the difference in payments in the same village but in different watersheds. For instance, Mr. M (18/3/2016), the previously mentioned leader of the farmer union in A Luoi district, owned 3 ha of acacia plantation, which was planted in 2012.¹⁴ His plot was in the Phong Dien Natural Reserve, located somewhat far from the village area. He received 180,000 VND for 3 ha in 2015, while his neighbors received a much larger amount. He did not know why it was so small and quite different from other villagers. Furthermore, there was no explanation for this difference.

The second example involves the difference in annual payments. Village A2 in A Luoi was allocated approximately 70 ha of natural forest in 2014 and received

36 million VND for FES in 2015. This amount was less than the payment made in the previous year. However, in reality, there was no forest destruction. Mr. N (18/3/2016), an ex-village head, therefore complained to a commune officer in charge of implementing the program. According to the officer's explanation, there was a gap between the survey for forest allocation and the PFES program, which is a typical local misunderstanding that confuses the entire allocated forest land as the area under payment. The officer also claimed that there was some degree of forest destruction.¹⁵ There is no doubt that Mr. N was not satisfied with this explanation.

The third example is the confusion regarding the difference in payments over time. In Tay Giang, FES payments to villages were made via FMBs twice a year: the first was paid in advance, based on the rate of the previous year, and the second was paid at the end of the year after collecting all payments from hydropower companies.¹⁶ This made it more difficult for villagers to recognize annual payment trends. For instance, a villager (4/7/2017) in Village B complained that he could not recognize the payment trend because the scheme was complicated. It was after an FMB officer told him that he recognized a downward trend. Similarly, villagers (4/7/2017) in Village X reported that they could not calculate the payment amount they received in a year, as the way the FMB paid was complicated and record keeping for villagers was inadequate.

Long-term changes of local understandings

As shown in the previous section, in the initial phase, it was clear that many local people, including villagers and officers, were not given proper information about the principles and operational rules of the program. Communication and advocacy are, therefore, considered tools for improving people's awareness of the program. However, it seems that differences in forest ownership and institutional setting affect the priority of communication in the two provinces. In Thua Thien Hue, where forest ownerships are fragmented, the priority of communication is much higher. For this reason, FPDF officers in the province have particularly emphasized local training activities (Hoang et al. 2021). However, the FPDF in Quang Nam had little motivation to communicate with villagers because their direct recipients were basically state-run FMBs. After a decade of program implementation, the two provinces showed a sharp contrast in terms of changes in local understanding.

Changes in the annual payment rates

Local understanding matters, especially when villagers suspect changes in the program. One of the important changes in the decade of PFES implementation in the two provinces was the change in payment rates. In the case of the hydropower dam scheme, the official decision of the payment rate is basically affected by electricity production (hence water availability in the dam) as well as the area and quality (K coefficient) of the forest. However, the effect of the former is generally much greater than that of the latter because the change in the former is more volatile. In the case of the A Luoi watershed, the annual per-hectare rate until 2018 was between 400,000 and 600,000 VND/ha, whereas it ranged between 300,000 and 600,000 VND/ha in a studied watershed of Tay Giang. In addition, villagers might not

necessarily see the annual trend unless they obtained official information about the rate because the payment was made several times a year. Thus, villagers faced not only annual fluctuations but also time-by-time fluctuations.

Furthermore, the rates drastically increased after the government issued Decree 147, which introduced minimum payment rates to mitigate inequality among watersheds.¹⁷ In both provinces, the payments have drastically increased since around 2020. According to local officers, the official annual payment rate has increased to 920,000 VND/ha in 2022 in the A Luoi watershed and to 800,000 VND/ha in 2022 in the studied watershed of Tay Giang. Therefore, in most cases, villagers' understanding did matter when they suspected payment changes, especially when payments decreased.

A sharp contrast between two sites

In A Luoi, we found in the 2023 survey that some villagers, especially those who were in guiding positions in the scheme, such as commune officers, village heads, and patrol group leaders, developed their understandings of the PFES program. Since the first year of payment in 2014, they have generally attended training programs. In addition, villagers had some ad hoc opportunities to receive officers' explanations, especially when they had some claims. Hence, it is natural that they gradually came to understand how the program functioned more appropriately, although not perfectly.

For instance, Mr. L, a commune officer in charge of land management in A Luoi, gave us an episode in which district officers visited village meetings to explain why the payment rate decreased when villagers complained of a payment decrease in 2017 (13/3/2023). This district/commune-level communication is followed by village-level communication. Mr. T, the former village head of Village N1, told us the current annual payment rate precisely and explained that payment fluctuations are related to the water storage level of hydropower dams. Upon understanding, he also explained to curious villagers when asked about payment fluctuation (13/3/2023).

In Tay Giang, on the other hand, most villagers, including village heads and commune officers, did not understand how the program functions. For instance, Mr. C, a board member of the village forest management in Village X, had no idea why the payments fluctuated.¹⁸ He told us that nobody tried to calculate the payment account, even if they suspected smaller-than-expected payments. The villagers simply received money from time to time (16/3/2023). Village-level board members in Village P also complained that villagers only paid attention to money despite having a decade of experience. They have no information; hence, no understanding of how the program functions (17/3/2023).

It seemed that the FMBs were not interested in interacting with villagers, although they sent a field staff to the site regularly. As an FMB field staff told us, their principal mission was to monitor villagers, and they did not train the villagers as organizations (17/3/2023). As mentioned earlier, most villagers did not even know the name of the program. Furthermore, it appeared as if they were trying to evade the confusion that they had created. The recent increase in payment rates had intensified the forest border disputes in this area. Some villagers then brought their claims to the FMBs and other responsible organizations, for it was the FMBs who assigned forests without considering customary boundaries.

With regard to such disputes, a director of an FMB told us that it was easy to “solve” them. His “solution” was just asking the villagers to discuss until the agreement was made. He added that there were no cases of such an agreement (15/3/2023).

The abovementioned on-the-ground stories imply that FMBs have benefited from villagers’ ignorance of the program and FES. This lack of transparency is apparent in transactions between FMBs and villagers. According to the FPDF officers in the province, the FPDF could monitor the transactions between the FPDF and FMBs, but it was not authorized to monitor FMBs’ transactions of villagers (28/7/2016). Although the FMBs might monitor villagers, no system monitors the relationship between FMBs and villagers.

Discussion

Confusion and communication in the initial phase

As shown above, the concept of FES and its institutionalization have made the program very complicated for local people. Thus, they have tried to understand the program in their own context and reasoning, as have been raised by other studies (Loft et al. 2017; McElwee et al. 2019). Throughout the initial phase of implementation, this therefore created a lot of confusion. As these previous studies have highlighted, our survey in the initial phase reveals three types of typical local confusion: general information, eligibility and assigned areas, and payment fluctuations. In addition, we could point out that confusion was evident not only among villagers and local officers but also among FMBs and FPDF officers. In A Luoi, the provincial FPDF’s trial and error, such as the sudden suspension of payments to acacia plantations, exacerbated local confusion. In Tay Giang, FMBs created local confusion, such as forest boundary disputes.

Faced with such confusion, some villagers tried to communicate with the officers because it was unfair according to their understanding. Some of those who were quite dissatisfied even tried to negotiate with the provincial government and the FPDF (Ubukata and Hoang 2019). The officers’ responses were, in many cases, one-sided, as seen in the cases of payment qualification in A Luoi and forest boundary disputes in Tay Giang. Its top-down, authoritarian style has thrived in the implementation process. Some studies have mentioned that the benefit distributions of PFES are skewed toward state agencies (such as FMBs) over villagers (McElwee et al. 2019; Pham et al. 2022). While there are no serious biases in benefit sharing among villagers, it is apparent that the program prioritizes state agencies, leaving villagers’ roles and benefits to secondary considerations.

Further, such confusion and one-way communication likely affected the implementation of the program in the initial phase. First, combined with low payment rates, it has led to less motivation for local people to protect the forest. They became discouraged, especially when they complained to the authorities, but rarely received satisfactory explanations. Given the unfair and uncertain motivations provided by the PFES program, villagers felt that participation therein was a village duty. In Village P of the Tay Giang district, a villager said that he joined the program because if he did not join, he would be excluded from the village (2/3/2018).

Second, the confusion highlighted informal arrangements, as there was a gap between the requirements of the

program and local reality. For instance, to apply for the program, villagers had to write application documents themselves. However, it was very difficult for them to complete the application because of their limited understanding. To fill this gap, a commune officer personally provided an informal paid service to support the filling out of the applications (17/3/2016).

Despite the confusion mentioned above, serious social disturbances in PFES implementation have not occurred in the study area. This can be partly attributed to the adaptability of local society and street-level bureaucracy to their authoritarian policy implementation (Lipsky 1980; Duong and de Groot 2018). These “realistic” and sometimes “covert” responses largely follow conventional attitudes to government policies in Vietnamese upland society (Scott 1985; Kerkvliet 2005; Forsyth and Michaud 2011). This may suggest that the overall relationship between the government and villagers has remained largely unchanged under this innovative policy scheme. This is also consistent with McElwee’s (2016) statement that the Vietnamese government has continuously tried to rule upland people through environmental regulations, which has forced villagers to develop the aforementioned strategies to survive (Watanabe and Ubukata 2024).

In terms of changes in governance, some villagers may face tighter restrictions on their livelihoods, although the impacts vary from case to case. For example, in a remote village in Tay Giang, increased forest control and fewer market opportunities have led to a greater reliance on PFES and other government subsidies.¹⁹ It could be argued that the existing relationship between the state and society has actually strengthened in some areas, as suggested by To and Dressler (2019), rather than shifting towards a more liberal and negotiable approach.

Development of local understanding in the longer term

In the longer term, the government has tried to address the shortcomings of the program. One of the typical instances was raising the unit price of FES users’ payments and imposing minimum payment rates on FES providers. In some provinces, such as Thua Thien Hue, the FPDF tried to communicate with FES providers and users. Our survey found that this provided a sense of transparency and legitimacy of the program to some extent by providing persuasive explanations to justify the initiative. However, it seems that the lack of transparency and legitimacy has been widespread in Quang Nam, especially among FMBs and villagers. After a decade, the differences in the implementation systems in the two provinces have manifested as dissimilarities in accountability to villagers, resulting in large variations in their understanding of FES in the program.

Over time, the government has seemingly succeeded, at least to some extent, in narrowing the gap in payment rates and increasing the payment amount. In some areas, it has also succeeded in developing local awareness of the program. Using Loft et al. (2017) term, we may say that the program (and its revisions) could improve distributive equity in the longer term. In Thua Thien Hue, villagers have additionally obtained procedural equity to some extent, although their payments remain low. In contrast, the Quang Nam cases, where the villagers could enjoy relatively handsome payments, suggest that the program has not offered contextual

and procedural equity to the villagers. The evaluation of the program can be totally different when we compare the performances of the two areas in terms of economic contributions, on the one hand, and awareness or capacity building on the other. We believe this is an important drawback: we may overlook just transitions when we excessively focus on either ecological or economic consequences as impacts of PES, especially in cases where the program has a strong governmental initiative. In that sense, the importance of an area-specific, process-oriented social impact analysis of PES can be strongly emphasized.

Conclusion

Herein, we examine how different understandings of ES have emerged among various stakeholders in the PFES program in Central Vietnam and how these differences in understanding are communicated and responded to during policy implementation. This study provides the following insights:

First, we confirmed that the program was difficult to understand as a system, as it was more or less rooted in the ambiguous, socially constructed aspects of FES that were institutionalized in the program. It was difficult for local people to comprehend the watershed-based principles and connection between services and monetary flows. Second, we establish the importance of communication, which creates a shared understanding of the program. The instances of confusion clearly indicated that many local people, at least in the initial implementation phase, were not given proper information about the principles and operational rules of the program. Even in cases where villagers and officers communicated with regard to confusion, it was one-way communication. The technocratic, elite-biased, and service-oriented aspects of PFES implementation and modes of communication precluded local understanding, which could exacerbate local confusion and narrow the room for negotiations (Ubukata and Hoang 2019). The longstanding authoritarian style of rural governance continues to thrive in the program.

Nonetheless, it is notable that the confusion has not led to serious social disturbances in the local society. It is likely that local adaptability to such an authoritarian implementation enables them to tolerate this situation. Moreover, our survey reveals that communication can facilitate local understanding and legitimacy in the longer term, even in the top-down, authoritarian political setting. Thus, this study highlights the importance of transparency and legitimacy of the program. It suggests the need for institutional reform so that the program can incorporate transparency and local legitimacy, including the accommodation of local grievances and effective mutual communications, such as monitoring and evaluation systems, which are believed to be inadequate in the PFES scheme (Pham et al. 2015). The recent revisions of the PFES regulations (e.g. Decree 147) and emphasis on local training activities are considered to be in line with such findings (Hoang et al. 2021).

Finally, contrasting results between the two provinces suggest that the villagers' responses to PFES implementation are embedded in conventional sociopolitical structures and relationships in rural upland society. In some areas, it seems that the existing state–society relationship has become even stronger, rather than shifting toward a more liberal and negotiable approach. This may suggest that the PFES program has also contributed to further integration of upland societies into the

state governance system, which may weaken village autonomy and self-reliance. All in all, the above importance of area-specific and path-dependent program evaluations may also have implications for not only the PFES scheme but also other PES programs (McElwee et al. 2019). This is a challenge not only in the Vietnamese context but also in a wide range of cases in the world in which existing technocratic methods of evaluation and implementation go hand in hand with such area/process- and communication-based initiatives in market-based environmental governance.

Informed consent

Informed consent was obtained for all respondents.

Notes

1. PES is also known as payment for ecosystem services. ES denotes the unpaid valuable services provided by nature (Wunder 2005).
2. Forest management boards (FMBs) are one of the state-run agencies (a unit of FMU: Forest Management Unit) that are responsible for managing protection forests and special-use forests.
3. In total, seven rounds of surveys are included: May and September 2015, March and July 2016, and July 2017, and February/March and July 2018. The surveys in 2018 include household questionnaires, which are excluded from the analysis in this paper. Although the two provinces were reformed into Hue and Da Nang cities in 2025, respectively, we retain the original names of the provinces to avoid complexity.
4. The case selection as such is common, as To et al. (2012) compared the pilot phases in Lam Dong and Son La provinces. However, there are only a few comparisons of the provinces whose locations are next to each other. We therefore believe that the selection of provinces and areas is reasonable, though it should be understood under some location-specific contexts.
5. Based on the interview to commune officers in A Luoi (23/9/2015), and in Tay Giang (16/3/2023). Interview information in parentheses indicate the interview dates (dd/mm/yyyy). As of Oct. 2023, 1 USD is approximately equivalent to 25 thousand VND.
6. K coefficient is the index (ranging from zero to one) reflecting forest quality and other factors that should be considered for maintaining FES.
7. The basic process was also similar in the Quang Nam province (Asian Development Bank 2014), although the final institutional structure reflects the FPDF's policy.
8. In Vietnam, forest legally belongs to the state. Through forest allocation program, the government has issued long-term usufruct rights to some parts of forest since the 1990s. As this is generally regarded as de-facto ownership, the authors express this as "owner" in this paper.
9. This is mainly due to differences in the implementation of forestland allocation between the two provinces.
10. The forest owners' information is based on the FPDFs in each province. The number of forest owners in Quang Nam has increased from 10 since the late 2010s.
11. Based on the interviews in A Luoi (13/3/2023) and Tay Giang (16/3/2023, 17/3/2023).
12. The names of individuals and villages are shown anonymously.
13. This is based on the interview with Mr. K and his son at the in Village X (17/7/2018, 18/7/2018).
14. In Thua Tien Hue, there were cases where villagers were paid for the acacia plantation area in the initial year. The payment suddenly stopped in the subsequent year.
15. This official judgement mainly comes from GIS data whose accuracy is questionable in such a local scale (Huong et al. 2016).
16. In 2023, the payment was made quarterly, which might further confuse the villagers.
17. This means PFES payment became more like subsidy-oriented rather than result-based (McElwee et al. 2019).

18. In Tay Giang where all the payments to villagers are village-based, a village-level board was established for the management of assigned forest to the village.
19. This is based on observations in a Tay Giang village during the fieldwork (February–March 2018). Further quantitative study will reveal this point.

Acknowledgements

The authors would like to thank Dr. Ho Le Phi Khanh, working at the University of Agriculture and Forestry, Hue University for his kind support of the fieldwork in 2023. We would also like to take this opportunity to thank all those who helped with our survey.

Author contributions

All authors contributed to the study conception and design, data collection (including field surveys), and analysis. The first draft of the manuscript was written by the first author and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This study was funded by the Japan Society for the Promotion of Science (JSPS) [15H05125, 21K12428, 24K03165].

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Data availability statement

The datasets generated and/or analyzed in this study are available from the authors upon reasonable request.

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