Payment for Forest Environmental Services (PFES) policy learning tool

A case study from Vietnam

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Pham TT, Dang TN, Nguyen DT, Le MT, Pham VT, Hoang TL, and Le ND. 2019. *Payment for Forest Environmental Services (PFES) policy learning tool: A case study from Vietnam.* Bogor, Indonesia: CIFOR.

ISBN 978-602-387-124-7
DOI: 10.17528/cifor/007412

Photo by Hoang Tuan Long/CIFOR
Focus discussion group on PFES with local people at Village 6, Thong Nhat commune, Bu Dang district Binh Phuoc province, Vietnam

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We would like to thank all donors who supported this work through their contributions to the CGIAR Trust Fund: https://www.cgiar.org/funders/

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Acknowledgements

This research is part of CIFOR's Global Comparative Study on REDD+ (www.cifor.org/gcs). The funding partners that have supported this research include: the Norwegian Agency for Development Cooperation (NORAD); the European Union (EU); the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB); the CGIAR Research Program on Forests, Trees and Agroforestry (CRP-FTA) with financial support from the CGIAR Fund Donors, and Winrock International.

Abbreviations

BACI	Before–After–Control–Intervention
BMUB	German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
CRP-FTA	CGIAR Research Program on Forests, Trees and Agroforestry
CSO	civil society organization
DONRE	Department of Natural Resources and Environment
ES	environmental services
FGD	Focus group discussion
FPDF	Forest Protection and Development Fund
GIS	geographic information system
IKI	International Climate Initiative of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
MARD	Vietnam Ministry of Agriculture and Rural Development
M&E	monitoring and evaluation
NGO	non-governmental organization
NORAD	Norwegian Agency for Development Cooperation
PAPoLD	poverty, livelihoods and environment dynamics
PFES	payment for forest environmental services
REDD+	reducing emissions from deforestation and forest degradation
SWOT	strengths, weaknesses, opportunities and threats
VNFF	Vietnam Forest Protection and Development Fund

1 Introduction

The design and implementation of any policy issue involves the accumulation of data about problems and solutions. Drawing on these data, policy actors acquire, translate and disseminate new information and knowledge in order to achieve political endeavors and to revise or strengthen their policy-related beliefs over time (Moyson, Scholten and Weible, 2017). Policy learning is said to occur when actors and organizations acquire new knowledge and apply it to subsequent actions. This policy learning tool focuses on the nature and consequences of how policy actors, donors and researchers learn about national payment for forest environmental services (PFES), using Vietnam as a case study. We present learning processes in which information and experience are used to acquire new knowledge on the impacts of a PFES program and opportunities and challenges for PFES implementation. This tool is also used to facilitate interactive collaboration and information sharing among state and non-state actors, and to enable participatory decision making and monitoring and evaluation (M&E) processes.

PFES is seen by Vietnamese policy makers as a breakthrough in the forestry sector. PFES aims to enhance both forest quality and quantity, improve local livelihoods, and contribute to overall socioeconomic development. Since 2008, PFES has contributed significant funding for forest protection and development throughout the country. PFES's contribution accounts for 22% of total annual investment for the forestry sector and it is a stable and sustainable financial source (Pham et al 2018a). PFES also helps to reduce the burden on the state budget allocated to the forestry sector. Although PFES has gained significant achievements during the nine years since it was first rolled out in 2008, the lack of rigorous and scientific assessment on actual impacts of PFES on environment and local livelihood makes it difficult to confirm its effectiveness (Pham et al. 2018b).

The legal framework for M&E of PFES in Vietnam is still in its infancy. To date, there has been no detailed assessment of the impact of PFES; further, most evaluation studies are conducted on a small scale and are not based on scientific methods. Establishing a M&E mechanism for PFES is essential for policy makers to assess the effectiveness of such policies, as well as to demonstrate effectiveness to investors in order to secure sustainable funding. M&E also helps to ensure fairness (i.e. service providers are only paid when they provide the agreed services). There is growing demand for evaluation of science and innovation policies to ensure they deliver a broad range of economic and societal goals. Thus, evaluations are increasingly understood as an essential policy learning tool. They help policy makers and implementers gain a better understanding of their specific contexts, and this in turn helps them improve the way they design and operate policies.

The information and analysis gained through the PFES M&E process is a necessary but insufficient condition for change through learning. By making a selection of experience and data from the information pool – i.e. by filtering and interpreting – the actor generates new knowledge (Hartlapp, 2009). May (1992) pointed out that there are two forms of policy learning: (i) instrumental learning, which entails lessons about the viability of policy instruments or implementation designs; and (ii) social learning, which entails lessons about the social construction of policy problems. This policy learning tool aims to help policy makers to experience both instrumental and social learning for PFES, by enabling them to assess the viability of current policies and to understand stakeholders' concerns. We also discuss and provide practical insights on how policy makers can use scientific evidence generated from this policy learning tool to directly support their daily work.

2 Intended users

This policy learning tool is primarily designed for policy makers and government officers who need to carry out M&E and report on the progress and impact of PFES policies. All tools and activities were designed, tested and finalized during 2016–2018, based on a collaboration between 5 Vietnamese policy makers, 15 Vietnamese government officers, 3 policy and M&E experts from Winrock International, and 4 senior scientists from CIFOR. The tool also benefits from rich inputs, experiences and comments from 450 people from the private sector, civil society organizations (CSOs), non-governmental organizations (NGOs), media, indigenous representatives, and academia, all of whom participated in interviews, consultation workshops, policy dialogues and policy forums in Vietnam. This policy learning tool has been used by Son La Forest Protection and Development Fund (Son La FPDF) since 2016, and the Cat Tien National Park in Dong Nai province also adopted this method to assess the effectiveness of PFES implementation in the area.

While this policy learning tool is designed to meet policy makers' need to understand the impact, opportunities and challenges of PFES, it can also be adapted by analysts, program sponsors and managers, practitioners in research and research funding organizations, and professional evaluators for their own needs in understanding and identifying areas for PFES improvement.

3 Process and design principles of the PFES M&E policy learning tool

The process of PFES M&E policy learning tool is carried out in a participatory manner (Figure 1).

To understand stakeholders' needs, concerns and interests in PFES policy learning tools, in-depth interviews and consultations were carried out with 450 actors across Vietnam (described above); these built upon a stocktaking of existing scientific evidence. Despite having different interests around PFES, all participants agreed upon five key principles in the design of a PFES policy learning tool (Box 1).

Although there are different views on what a PFES M&E system should look like, the consulted Vietnam government representatives and stakeholders shared similar ideas about what should be the key components of a PFES M&E system (Figure 2).

Figure 1. Process of designing a PFES policy learning tool

Box 1. Five key principles of designing a PFES M&E policy learning tool

Participants agreed that a policy learning tool for PFES M&E should be:

- ***simple***. Stakeholders in general, and policy makers in particular, have expressed their strong interest to have simple methods that government officers at all levels can adopt for their daily work. Government agencies also have limited budgets and time constraints for producing timely data as inputs for policy evaluation and refinement, and complex tools are not feasible for them. Many non-state actors such as NGOs, CSOs and private companies also require simple tools to cross-check and monitor the impacts of PFES.
- ***adaptable to the local context***. Although PFES is a national PFES policy in Vietnam, each province, district and commune have different concerns, interests, human and financial resources for PFES implementation and M&E. Therefore, there is no one-size-fits-all formula. The policy learning tool should be seen as a flexible approach for analyzing and interpreting the impacts of PFES according to local needs, interests and capacities.
- ***low-cost and realistic***. In developing countries in general, and in Vietnam in particular, state budgets and budgets allocated to the forestry sector are limited. Budgets allocated for M&E of forestry policies are often not available or are far from sufficient. Son La province generates USD 65 million/year from PFES policies; however, the provincial people's committee only allows the use of a maximum of USD 5,000/year for PFES M&E work. The PFES policy learning tool, therefore, needs to be designed at low cost and be realistic for policy makers to be able to use and adopt. The depth and complexities policy learning tools depend on the financial and human resources available in each province.
- ***able to prioritize M&E environmental services that generate significant revenue***. For example, there are many types of forest environmental services, such as: watershed protection for hydropower plants; water supply and quality maintenance for water supply companies; beauty of the landscape and biodiversity, which tourism companies rely on; carbon sequestration and storage, for combating global climate change; and fish nurseries and habitat and other ecosystem services, for aquaculture farmers listed in Decree No. 99/2010/ND-CP on Vietnam national PFES program. However, to date, 99% of total PFES revenue has been generated from watershed protection for hydropower plants. With limited government budget devoted to M&E, prioritizing M&E for environmental services (in this case watershed protection, which generates significant returned revenue) would be a strategic choice.
- ***participatory***. Policy learning is a political and social process in which actors interact with each other to discuss, share ideas and negotiate interests. The collaboration of government staff at all levels and across ministries and sectors, buyers and sellers of environmental services, and NGOs throughout all phases of designing and implementing the M&E system will create a shared learning environment that invites questions, seeks answers and uses the knowledge obtained. This learning tool is designed to support policy makers to carry out M&E of PFES policy in a participatory manner. The policy learning tool should promote engagement by all stakeholders at all stages of the decision-making and policy learning process.
- ***rigorous***. Although financial and human resources constraints might limit the scope and the depth of PFES impact assessment, the policy learning tool still needs to collect and analyze credible and evidence-based data and analysis to provide high-quality information for policy makers.

The first step is to define clearly the objectives of the M&E system. The intended objectives of the M&E will determine what criteria and indicators are needed to address these objectives and what methods should be used to collect data in order to provide stakeholders with analysis and information on these criteria and indicators. The next step is to determine the institutional setting and organizational arrangements including 'who, what, when, where and how' to institutionalize these systems and activities. Each component presented in Figure 2 is explained and discussed in detail in the following sections.

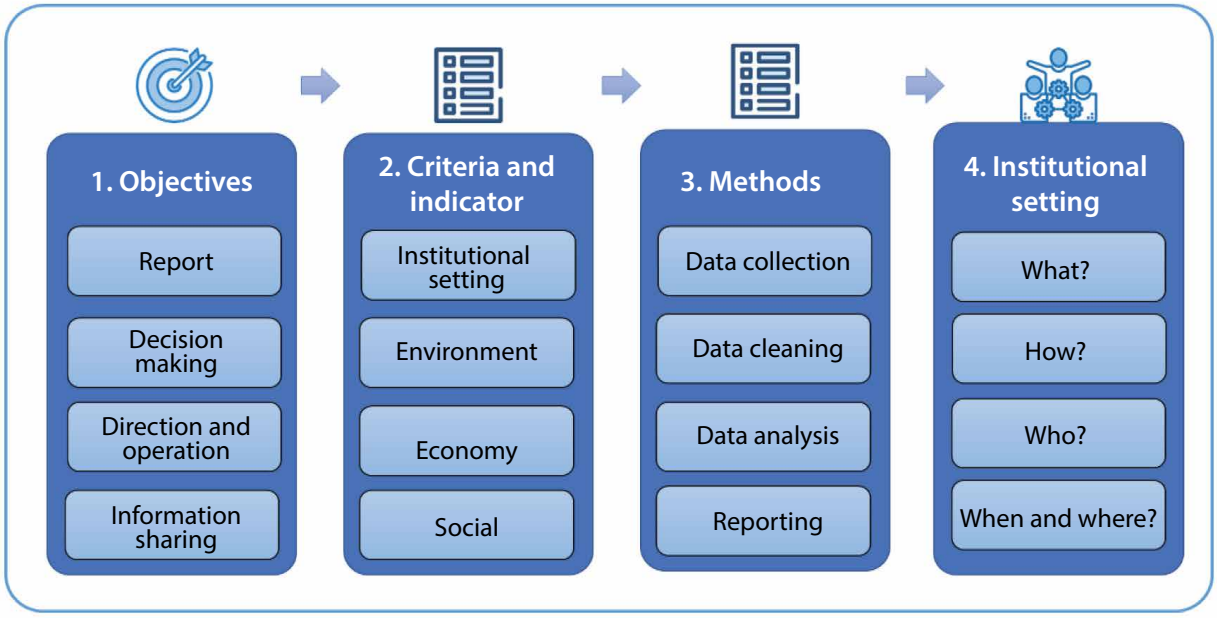

Figure 2. PFES M&E system in Vietnam

4 Policy learning objectives

Identifying objectives of PFES M&E system is the first and perhaps most important step in guiding the entire M&E and policy learning effort. These objectives also determine the depth of analysis, outcome formats, M&E criteria and indicators, and methods used to assess the impact of PFES policies. The objective of M&E should be formulated by local constituents and clearly articulated by all interested parties to ensure common understanding and active engagement of relevant stakeholders.

Government agencies, based on discussions both internally and with stakeholders, identified the following objectives for a PFES policy learning process:

- Support government agencies in documenting and reporting on how well PFES has been implemented in Vietnam, and use this analysis for information sharing among stakeholders, supporting government decision making, and managing PFES implementation by their own agencies and for future policy revision, improvement and refinement;
- Identify policy, financial and technical capacity gaps and PFES implementation challenges in order to address both short- and long-term problems;
- Prioritize funding, human resources and efforts to strategically implement PFES policies and programs in an effective, efficient and equitable manner;
- Engage with stakeholders in a participatory manner;
- Improve technical capacities and soft skills (e.g. communication skills and capacities to conduct participatory assessments and consultation workshops) among PFES intermediaries and implementers.

5 PFES policy learning assessment criteria and indicators

Identifying performance questions, criteria and indicators is an important step in the design of an M&E system. These M&E criteria and indicators, which were developed through a participatory process, should be relevant to the management of the PFES program, designed to improve program delivery, and used to document program outcomes.

There is no one-size-fits-all formula for a PFES M&E system and its evaluation criteria and indicators. Different countries and sectors might use different criteria and indicators to learn and evaluate the impact of PFES, depending on their interests, needs, available technical capacity and financial resources. Knowledgeable participants in the PFES process need to further refine these criteria and indicators for each specific context. The aim is to create transparency for all involved, ensure conditionality (e.g. payment only if and when services are delivered), and generate sufficient baseline and monitoring information.

In this policy learning tool, we share and reflect on the PFES M&E criteria and indicators that were developed through the above-described participatory process (Figure 1), and discuss lessons learned in Son La province, which used these criteria and indicators to refine their PFES implementation policy. Guided by the Vietnam Forest Protection and Development Fund (Vietnam FPDF) framework on M&E principles and government reporting requirements on PFES, the policy learning tool provides a series of criteria and indicators to assess impacts of a PFES policy in four key areas: institutional setting, and environmental, social and economic impacts. More specifically, it consists of 31 indicators (11 on institutional setting, 9 on environmental impact, 8 on economic impact and 3 on social impact) developed based on intensive consultations with stakeholders and building on existing scientific evidence. The national framework also stipulates a minimum requirement that each provincial fund needs to follow, mostly based on annual monitoring requirements and annual report generated from secondary data. The experience in Son La shows that provincial actors, including the provincial people's committee, provincial government agencies and private actors, have additional requirements of and interests in PFES M&E. Final indicators used to monitor and evaluate the impact of PFES need to be developed through a participatory process with the involvement of all provincial stakeholders groups to ensure their buy-in and enhance their willingness to share information. The final system was also developed to ensure its relevance to political interests in the province and the concerns of stakeholders (buyers and sellers), and to be realistic with regard to available human and financial resources devoted to M&E.

5.1 Institutional setting

These criteria and indicators help government agencies carry out a self-assessment on how well they have organized themselves and implemented PFES policies. Based on several rounds of consultation with a large number of actors across the country, a final list of criteria on the institutional setting for PFES has been approved by the Vietnam FPDF (Table 1).

5.2 Environmental impact

These criteria and indicators help government agencies to collect environmental data from different governance agencies and local people, in order to assess to what extent PFES has helped improve forest quality and forest quantity over time (Table 2).

Table 1. PFES institutional setting assessment criteria and indicators

Criteria and indicators	Data category	Source of information
1.1. Number of legal documents issued on: a. PFES b. forest land allocation c. forest protection and development activities	Name and number of document; summary content Categorized by province, district, commune, village, district FPDF	List of documents and copies from Ministry of Agriculture and Rural Development (MARD)
1.2. Total number of government staff involved in M&E system	Categorized by province, district, commune, village, district FPDF	List of officials from the administration
1.3. Area of forest land allocated to different forest owners: a. total area by forest owner b. average area by forest owner	Categorized by district, commune and forest owners: government organizations Commune People's Committee households, individuals communities civil society organizations	Forest reports, approved by MARD
1.4. PFES forest area change over time: a. planned total PFES area b. actual total PFES area c. average PFES area by forest owner	Categorized by river basins, ES providers and users, and three types of forests (special use, protection and production forests)	- Payment plan - Payment report with an attached list - Map (if available)
1.5. Process for handling grievances: a. number of grievances recorded (phone and formal document sent to provincial people's committee) b. number of grievances requiring a response c. number of grievances requiring processing	According to number and nature of complaints	Synthesized reports of the provincial FPDF
1.6. Number of government staff trained	By gender (men/women), training subjects	List of officials participating in each training session Training materials
1.7. Number of environmental services (ES) providers and ES users participating in knowledge-sharing events	Categorized by district, commune, gender, training subjects and forest owner: government organizations Commune People's Committee households, individuals communities civil society organizations private companies	List of people participating in each training session Training materials
1.8. Number of awareness-raising campaigns	According to communication methods (e.g. flyer, pamphlet, radio, direct communication)	Reports of communication activities of the FPDF

Table 2. Criteria and indicators to understand the environmental impact of PFES

Criteria and indicators	Data category	Source of information
2.1. Drivers of deforestation and forest degradation	Detailed data (by district)	Evaluation reports on violations of forestry law, as reported as reported by forest rangers and forest development steering committees (with approval)
2.2. Total forest area at all levels: a. total forest area b. forest cover rate	Categorized by district, commune, village, and three types of forests (special use, protection, production) or two types (natural forest or plantation forest)	Forest reports approved by MARD
2.3. Number of violations	- Before and after PFES - With PFES and without PFES - Administrative level (district, commune)	Approved reports from Forest Protection Department
2.4. Number of forest fires	- Before and after PFES - With PFES and without PFES - Administrative level (district, commune)	Approved reports from Forest Protection Department
2.5. Area of damaged forest: forest fire a. deforestation b. natural disasters	- Before and after PFES - With PFES and without PFES - Administrative level	Approved reports from Forest Protection Department
2.6. Restored forest area: a. natural restored forest b. planted forest (from compensation)	- Before and after PFES - With PFES and without PFES - Administrative level (district, commune)	Approved reports from Forest Protection Department
2.7. Production of timber and non-timber forest products exploited according to regulations	Administrative level (district, commune)	Approved reports from Forest Protection Department
2.8. Quality of soil and water at the monitoring points in the province	Classification of natural resources in the hydropower plants and water treatment plants	Report from the Provincial Department of Natural Resources and Environment (DONRE)
2.9. Water quality collected by hydropower plants and other government agencies	Turbidity, sedimentation	Reports from hydropower plants

5.3 Economic impact

These criteria and indicators help government agencies collect economic data, in order to assess to what extent PFES has contributed to the provincial economy and to total household income over time (Table 3).

5.4 Social impact

These criteria and indicators help government agencies to collect social data from different government agencies and local people, in order to understand what social impact PFES has brought to the province and local population (Table 4).

Table 3. Criteria and indicators to understand and assess the economic impact of PFES

Criteria and indicators	Data category	Source of information
3.1. Average income per household from PFES (revenue from PFES and proportion in income structure)	According to administrative level (district, commune)	Reports and statistics from the statistics office
3.2. Number of poor households receiving income from PFES	According to administrative level (district, commune)	Reports and statistics from the statistics office
3.3. Total PFES users in the Son La FPDF: a. signed contract with trust funded b. unsigned contract with trust funded c. late payment d. received a penalty or were disciplined for violating rules	According to sectors (hydropower plant, water plant, tourism, fishery, industrial water industry)	Reports from the provincial FPDF
3.4. Total PFES revenue for the Son La FPDF: a. from state budget b. from the province's revenue (interest incurred in the previous year) c. interest d. late payment penalty	According to sectors (hydropower plant, water plant, tourism, fishery, industrial water industry)	Reports from the accounting department
3.5. Total disbursements according to approved plan and actual: a. operational management costs b. redundancy costs c. payment for forest owners	According to forest owners: - government organizations - Commune People's Committee - households, individuals - communities - civil society organizations	Reports from the accounting department
3.6. Total provincial forestry budget	Annual data related to provincial budget	Approved budget of the Department of Planning and Investment (decision of the People's Committee of the Province)
3.7. Proportion of PFES revenue compared to the total provincial forestry budget	Annual data related to provincial budget	Approved budget of the Department of Planning and Investment (decision of the People's Committee of the Province)

The criteria and indicators presented above can be used in the context of Vietnam based on stakeholders' interests, needs, capacity and financial resources. Although, far from perfect, they serve as a starting point for all provinces in Vietnam to use as common benchmark for comparison.

However, developing PFES M&E criteria and indicators also must be followed up by a participatory process in which stakeholders discuss and agree on the following:

- determining what information is needed to address objectives described above;
- defining the protocol to be used to acquire that information to determine the relevance of a protocol to the overall PFES strategy;
- determining who is responsible for each action, i.e. some tasks should be done at the local level, while other more complex tasks are appropriate

Table 4. Criteria and indicators used to understand and assess the social impact of PFES

Criteria and indicators	Data category	Source of information
4.1. The amount of investment in activities using PFES revenue: a. investment in community activities (e.g. spending on equipment for community) b. village fund c. small-scale credit funds d. road construction e. investment in agricultural production f. investment in forestry g. distribution to households	According to forest owners: - government organizations - Commune People's Committee - households, individuals - communities - civil society organizations	Reports of investment activities from forest owners (report forms need to be designed and sent to forest owners)
4.2. Total households receiving additional income from PFES: a. number of poor households receiving additional income from PFES b. number of ethnic minority households with additional income from PFES	Annual data on income of households and communities	Reports of investment from forest owners and information of PFES to forest owners (individuals, households, reports of Department of Labor, Invalids and Social Affairs)
4.3. Number of forest owners with no forest boundary disputes	Categorize data of administrative (commune, district, province)	Report of Provincial FPDF

for the provincial level, and the most scientifically rigorous tasks should be completed (less frequently) at the central government level or at the request of donor agencies;
- deciding how often each task should be completed;
- producing outputs, i.e. discrete products generated through answering the key questions (e.g. a map, report or spreadsheet);
- establishing the minimum acceptable level of compliance at every level, to ensure transparency and accountability in PFES and to function as a trigger point (the minimum threshold is the point at which the program cannot move forward if this step is not completed, and if the minimum threshold is not met, corrective action must be taken at a higher organizational level);
- setting reporting requirements that itemize the specific products that need to be delivered at specified time frames;
- clearly establishing the consequences of failing to complete the required reporting in a satisfactory manner.

Annex 1 provides examples of actors in Vietnam and in Son La province who agreed upon the above points, as well as how these institutional, environmental, social and economic criteria and indicators are being used, and the organizational arrangements for an M&E system in specific local contexts (see also Pham et al. 2018b).

6 Policy learning methods

Policy makers gather information through facts, first-hand experience or the experiences of others (Dobbin, Simmons and Garrett, 2007). This policy tool is designed to support government agencies and officers to collect, manage and analyze data on PFES implementation and its impacts. Although protocols, tools and methods appropriate for answering the proposed performance questions outlined in section 4, and the criteria and indicators outlined in section 5 may already exist, determining the exact methodologies to use in specific contexts is beyond the scope of this paper. Selecting appropriate protocols, tools and methods requires a review of the literature on existing protocols and a group of informed stakeholders to select and test the desired protocol to determine its ability to answer key questions. Such a group should also determine the practicality of implementing specific protocols, tools and methods before recommending them for national use. It is important that PFES program information be collected using consistent protocols across the country so that the results can be aggregated from the household level to the village, commune, district, province and finally to the national level. Acquiring the information to monitor the efficiency, effectiveness and equity of PFES will require the engagement of multiple ministries and groups of actors. While we do not recommend a fixed formula for policy learning tool and methods, we share case study and lessons learned from the experience of Son La province in designing and implementing this policy learning tool to understand opportunities and challenges for PFES implementation and its impact on environmental, social and economic outcomes. Policy learning tool considered and implemented by the Son La FPDF and Cat Tien National Park have offered useful lessons learned for other provinces in Vietnam as well as other countries.

One useful lesson from Son La and Dong Nai provinces in Vietnam shows that significant investments and resources should be devoted to enhance both technical capacity and soft skills of government officers at different levels to carry out participatory consultation process, because these skills are either weak or absent.

6.1 Data collection methods

The major challenge for many countries in implementing policy learning tools is the lack of available and accurate data. Therefore, different tools need to be combined and used to complement each other. Baseline data (i.e. from before PFES implementation) is often unavailable or scattered. As a result, a wide range of methods, as applied in Son La province and Cat Tien National Park, can be used to better understand the impacts of a PFES policy (Table 5).

It is important to highlight that the Before–After–Control–Intervention (BACI) method (Sunderlin et al. 2016) is the most rigorous method for evaluating the impact of PFES. However, this approach requires longitudinal data, and data from before PFES implemented is often not available or well recorded. Inconsistent data produced by different government agencies is also a major challenge for documenting the impact of PFES. Moreover, BACI requires valid control sites, but in the case of Son La province, the number of control sites is limited because the Son La government's intention was to involve all households in PFES. Moreover, in Son La as well as other provinces, differentiating the additionality of PFES from existing policy mixes implemented in the province is a challenge.

Detailed steps, questions and tools used in this process are presented in Annex 2.

Table 5. PFES policy learning tool data collection methods

Methods/tools/ approaches	Objectives	Detailed activities
Secondary data collection		
Literature review	• Many environmental, social and economic data on impacts of PFES are already available or collected by different government agencies and non-state actors. A literature review will help to: (i) maximize available data to save costs and time to collect data; and (ii) identify information gaps to focus data collection process to address these gaps.	• Review academic journal articles, reports and statistics from government agencies, NGOs, CSOs, academic, private sectors related to the impacts of PFES • Review maps and digital, GIS and remote-sensing data published on forest area, forest cover, forest quality from both state and non-state sources of information
Primary data collection		
Case study approach	• Due to limited human and financial resources, it is almost impossible to carry out PFES impact assessment throughout the country. It is important to make a strategic decision on where best to assess the impact of PFES. The selected sites must be ecologically, environmentally, socially, and economically representative of the area, so that lessons learned can be applied to adjacent sites.	• Based on available human and financial resources, the number and location of study sites should be carefully decided. • In the case of Vietnam, the government decided to choose Son La as a strategic case study, for several reasons: (i) the province is one of the first to implement PFES in Vietnam and therefore is able to provide longitudinal data on the its impacts; (ii) as one of the pioneers of PFES in Vietnam, Son La has also fully committed its political will and financial resources for M&E, which is yet to be seen in other provinces; and (iii) the dynamic socioeconomic context coupled with the complex tenure regime in Son La is representative of the country and thus can offer useful lessons learned for other provinces.
Before–After–Control–Intervention (BACI)	• PFES differs from previous and existing forestry policies and programs due to its additionality and conditionality (payment is only made after environmental service delivered). Understanding these issues requires rigorous impact assessment. To analyze the impacts of PFES in areas with and without PFES, before and after its implementation, Son La province and Cat Tien National Park adopted the BACI method developed by Sunderlin et al. (2016).	• Select and compare 4 pairs of villages (4 without PFES and 4 with PFES) to determine its actual impact and additionality. • In each village belonging to these 4 pairs of villages: • Randomly select 30 households and invite them to take part in a socioeconomic households survey and semi-structure interviews • Conduct focus group discussions with separate groups of women and men to assess the opportunities and challenges for PFES implementation and its impacts. • Conduct key informant interviews with the village management board.

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Table 5. Continued

Methods/tools/ approaches	Objectives	Detailed activities
Focus group discussions (FGDs)	• To create information-sharing platforms for community members to learn about PFES and share their concerns, experiences and expectations • To understand community perceptions on PFES and its impacts	• Implement FGDs in 4 pairs of PFES control and intervention villages, followed by household surveys (intensive research). • In addition to these 4 pairs of groups, implement FGDs in additional 4 villages with different characteristics (e.g. forest areas, forest owners, forest categories) but without follow-up household surveys (extensive research). • Select 12–15 households based on age, gender, wealth status, and different types of forest owners.
In-depth interviews	• To determine the perceptions of stakeholders and individual households on the pros and cons of PFES and its impacts on the ground	• Interview key informants, including village, commune, district, provincial government officers and actors (e.g. private sector, consultancy firms) involved in PFES to assess their experiences and the pros and cons of PFES during its implementation. • Randomly select 240 households from the 4 pairs of villages (30 households each) for in-depth interviews.
Consultation workshops	• To inform stakeholders about policy learning outcomes • To create policy dialogue and learning platforms among stakeholders • To verify learning outcomes and obtain feedback from stakeholders	• Carry out consultation workshops across governance levels (community, village, commune, district, province and national) to serve a multistakeholder learning platforms.

6.2 Data cleaning

Why do we need 'clean data'? Data collection is a time-consuming process, and cleaning the data can take as much time as collecting it. When data are not 'clean', it is difficult to run accurate analyses that produce precise conclusions, and this could lead to skewed decision-making around policy refinement and revision.

What is 'dirty data'? This occurs when data are inaccurate, unreliable, illogical, or for which the data entry is incomplete and inconsistent, thus not comparable. Such data may not be relevant to the questions asked or may not be presented and organized in an accessible way. Dirty data can be due to several reasons:

- Data entry is done by different individuals without a proper data entry guide/manual, leading to data being entered in different ways that are not consistent or comparable. Table 6 shows examples of an uncleaned database in which data were inconsistently entered, missing, or where different people entered data using different units of measure.
- Data contradict each other, are illogical or are wrongly entered (e.g. one column is shows that a key informant indicated he has 2 sons and 3 daughters, but the next column shows he has 2 daughters and 3 sons).
- Data are wrongly entered.

Data cleaning is a process where data are cross-checked, fixed, or replaced with accurate, complete

Table 6. Examples of 'dirty data'

Interviewees	Forest area (ha)	Agriculture area (ha)	Coffee yield
Giàng Láo Ly	1.0	0.5	5.6 t
Pùa Láo Chô	0.5	0.8	150 kg
Dừ Láo Mau	1.0	1.0	6.8 lb
Nguyễn Văn Gia	0.05	0.06	
Phạm Thị Vân	Missing data but do not know whether key informants do not answers or data entry person forgot to enter		
Phạm Thị Mơ		0.4	

Table 7. Major questions for data analysis

Q1. Did the policy achieve its intended objectives?	Q2. How can the impact of PFES be enhanced?
1. Effectiveness: Does PFES help to improve forest quality and quantity? Does it provide sufficient incentives for stakeholders to better protect and develop forests? 2. Efficiency: Is PFES implemented in a cost-efficient way? What are PFES costs and benefits? How does PFES contribute to overall household income and reduce the state budget allocated for forest protection and development? 3. Equity: Are PFES and its benefit-sharing mechanism being implemented in an equitable manner?	1. How to enhance PFES effectiveness, efficiency and equity? 2. What activities should the government prioritize? 3. How should the government prioritize its budget allocation and human resources? Where and When? 4. What strategies should government agencies adopt to improve human resources, skills, and organizational arrangements for PFES implementation? 5. What communication strategies are needed to enhance PFES impacts, and to whom should they be targeted? 6. How can the PFES M&E system be improved?

and logical data to ensure consistency among different sources of information. This also includes correction of spelling, grammar, and identification of missing data or incompletely entered data. Data cleaning can be carried out by people or by a computer program.

If data cleaning is carried out by people, it is recommended that:

- There should be a maximum of three people doing data entry to avoid the risk of entering data in different ways. All people carrying out data entry should be trained and provided clear instructions (ideally in a manual).
- It would be ideal to have 2–3 people cross-check the entered data by randomly selecting 10–15% of total data entered and comparing it with a hard copy version to check if they are consistent and correctly entered.
  - If data are entered inconsistently or illogically or wrongly, they should be fixed or re-entered.
  - If data are missing, they should be cross-checked with a hard copy or recorded.

6.3 Data analysis and data management

Depending on the questions pose by stakeholders about PFES, different types of data analysis can be done. Data can be entered using Microsoft Excel or Microsoft Access. However, government officers and actors who plan to conduct data analysis must have the required skills for qualitative and quantitative analysis. More specifically, data are analyzed to answer the two major questions outlined in Table 7.

Data can also be analyzed at different scales (e.g. household, village, commune, district, province) depending on the interests of the government and stakeholders. Policy learning is a continuous and iterative process, and data need to be collected and analyzed over a long period of time. Intermediate outcomes of PFES policy can be seen within the first 10 years of its implementation; however, determining its long-term impact requires more than 10 years of data. Examples of such data analysis can be found in Pham et al. (2018b).

6.4 Reporting

A key component of any M&E system is to use open dialogue and feedback from internal staff and constituents. This helps to continually refine the process and improve both the policy and delivery system to achieve the desired outcomes. Informal discussions, in addition to analysis of quantitative data, will reveal many of the areas that need changes. The key is to act on the information, adapt the process in a timely manner, and communicate the results to constituents.

A participatory process should be used to develop the M&E system, and the results should be regularly reported, both internally and to constituents. This establishes strong relationships and builds trust among constituents; it also allows for critical reflection on how PFES is being received in the community, the efficiency and effectiveness of program delivery, and its ability to achieve the desired outcomes. Both formal and informal feedback on PFES can then be used to strengthen program delivery, using it to adjust policy or program delivery as needed. A M&E system helps an organization to determine whether or not its actions are moving it toward the planned outcomes.

Analysis can be reported in different formats (e.g. policy briefs, technical reports, leaflets, consultation workshops), depending on the target users of this information.

Due to limited funding allocated for M&E, it is impossible to carry out a province-wide evaluation of PFES. The provincial FPDF can choose either an extensive evaluation approach (in which the province replicates the methods used in one place to others) or an intensive evaluation approach (in which the province uses our study sites as the long-term evaluation unit, monitoring changes over time). While the extensive approach gives a general overview about the impact of PFES in the province, the intensive approach is cost-efficient and can provide in-depth analysis. The Son La FPDF is committed to allocating 100 million VND/ year for its M&E activities. The cost of our methods and pilot activities in 3 communes and 10 villages was 97 million VND, therefore it can be implemented in the Son La context. Depending on available funding, other provinces can tailor our methods to their context.

To carry out a proper PFES M&E system, the provincial fund needs to assign at least 1–2 full-time dedicated staff with basic computer skills and analytical skills (which was not the case in Son La province). Data that are not well-managed or shared internally and provincially by the fund staff can be problematic. Setting up an information management system in which data can be systematically collected, recorded and updated is essential. Capacity building to equip provincial fund staff with necessary computer, Participatory Rural Assessment and analytical skills would help FPDF staff perform their roles.

7 How to use the results for policy learning

All parties must appreciate that M&E is an integral part of PFES. The aim is not to simply accumulate data and report them at the end of the year, but to critically analyze those data – including through informal feedback and discussions – and communicate the findings. Open communication of findings empowers all groups engaged in PFES (e.g. communities, government staff, buyers of environmental services, NGOs, and the provincial FPDF board of directors) to not only reflect on how the information learned through monitoring can help improve both program delivery and outcomes, but also to adjust policies, procedures and the engagement of constituents as needed.

Depending on which learning needs are prioritized, data will be collected, analyzed and used for stakeholders' needs. In this section, we illustrate some examples of how the Son La provincial government has used this policy learning tool to explore and understand the impacts of PFES.

7.1 Prioritizing activities based on provincial government's human and financial resources

Applying the policy learning tool has helped provincial governmental agencies learn that, although total forest cover increased after PFES, forests are still not well protected; province-wide, total forest cover loss continued to increase after PFES was implemented. The impacts of PFES are mixed and differ from district to district (Table 8). To avoid spreading their budgets and human resources too thin by trying to implement PFES throughout all districts in each province, provincial government agencies should prioritize their human resources, law enforcement and financial resources to districts that have lost forest cover even after PFES, such as Moc Chau and Chieng Khua districts in Son La province. This will ensure the available budget is well spent and will enhance the overall performance of PFES in the province.

Table 8. Annual forest cover loss (ha/year) and total forest cover loss (ha) in Son La before and after PFES program implementation

Province/districts	Annual forest cover loss (ha/year) before PFES (2001–2008)	Annual forest cover loss (ha/year) after PFES (2009–2016)	Total forest cover (ha) before PFES (2001–2008)	Total forest cover (ha) after PFES (2009–2016)
Total Son La province	5,629.7	6,934.3	45,037.8	55,474.5
Moc Chau district	457.7	624.0	3,661.8	4,991.8
Muong Sang district	9.1	7.8	73.2	62.6
Chieng Khua district	30.6	32.3	245.0	258.4
Dong Sang district	6.9	4.9	55.5	39.5

Another useful lesson the Son La government learned from this tool is the need to prioritize its human and financial resources in areas where PFES implementation led to complaints and conflict. As part of M&E system for PFES, a grievance handling system was established by Son La FPDF in 2013 with financial support from Oxfam International. This system comprises a hotline managed by the Son La FPDF, as well as a postal address for complaints and questions from stakeholders. In 2016, among 11 districts in Son La province, Moc Chau and Phu Yen districts had highest number of complaints on the hotline. These districts should receive special attention from the provincial government, and in the short term, budget and human resources should be prioritized for these areas, rather than spreading resources equally to all districts.

The learning tool can not only support provincial governments with information and analysis to consider where they should prioritize their work, but can also reveal which activities they should prioritize. Data collected and analyzed from the grievance handling system shows that within the first eight months since the system was established, the Fund received 59 calls from heads of villages on behalf of communities, individual households, villagers and district authorities through their hotline. Most of the complaints came from communities and individual households, and their questions focused on level of payment, time of payment, requirements for PFES payments, payment distribution, corruption and the overall management process of PFES. The frequency of topics and issues raised by local people through the grievance-handling process are important inputs for the provincial government to develop a work plan and activities to address people's concerns and feedback.

The hotline is currently used by the Son La provincial government as the only channel to receive local feedback and grievances about PFES. However, data collected using this PFES M&E policy tool shows that the hotline is not functioning well, because most local people cannot access it and must rely on the heads of villages as their main channel. If provincial government agencies want to ensure an effective grievance-handling process, they need to improve the access, availability and management of these hotlines. They also should improve the capacity and accountability of the heads of villages (as they are currently weak) in order to ensure local people have access to information and grievance handling systems.

Provincial governments can also learn to improve their communication strategies using this policy learning tool. Awareness raising for different groups of actors (buyers and sellers of environmental services) and dissemination of PFES policies to different social groups have always been considered important tasks of the Son La FPDF. Since 2013, a PFES awareness-raising campaign has been heavily funded in Son La province, producing many knowledge-sharing products. Of these, direct policy dialogue among representatives of the Son La FPDF, the private sector and local communities was considered by interviewees from households and the private sector as the most effective form of knowledge-sharing. However, the Fund is focusing solely on distributing posters and brochures. Prioritizing resources to develop effective communication means based on stakeholders' interests would help to enhance the overall effectiveness of the program and ensure that PFES revenue is used efficiently.

7.2 Support policy makers to identify and address policy pitfalls and a mismatch between policies and practices

The results from applying the PFES learning tool in Son La province show that, in several villages, more than 83% of interviewed households confirmed that, despite receiving PFES payments, their forest area has been reduced over time. This indicates that PFES laws are not well enforced, and PFES conditionality is not well implemented. Moreover, data also reveal existing disincentives for forest owners to comply with PFES under the current payment distribution principle. Data collected from in-depth interviews and focus group discussions with local people show that, although many people continue log their forests, they still received higher PFES payments over the years due to the gradual increase of PFES per-hectare payments. Understanding the mismatch between policies and practices would ideally help decision makers to revise their policies.

7.3 Traffic light learning approaches

As this PFES M&E learning toolbox is a self-assessment tool designed for provincial government officers, it does not aim to criticize or assign marks to government performance; instead, it aims to help provincial governments understand where they have made good progress, where they need to improve and what are the urgent issues they need to address. Therefore, this learning tool adopts a 'traffic light' approach to help policy makers more easily detect where they can report on PFES achievement and where they need to pay attention for future planning (Table 9).

Further examples on how policy makers can use these lessons to better understand the impact of PFES can also be found in Pham et al. (2018b).

Table 9. Examples of the 'traffic light' approach as applied to PFES criteria and indicators

PFES criteria and indicators			
3.1. Average income of people from PFES (revenue from PFES and proportion in income structure)			
3.2. Number of poor households receiving income from PFES			
3.3. Total PFES users of Son La FPDF a. signed contract with trust fund b. unsigned trust contract c. late payment d. received a penalty or were disciplined for violating rules			
3.4. Total PFES revenue of Son La FPDF a. from state budget b. from the province's revenue (interest incurred in the previous year) c. interest d. late payment penalty			
3.5. Total disbursements according to approved plan and actual: a. operational management costs b. redundancy costs c. payment for forest owners			
3.6. The total forestry budget of the province			
3.7. Proportion of PFES revenue compared to the total forestry budget of the province			

 Areas with good progress and achievements

 Areas with some good progress but which still require improvements

 Areas with no progress or that are constrained by serious problems that need to be addressed urgently

8 Conclusions

This PFES M&E policy learning tool is an example of how provincial governmental agencies can use data to document, analyze and better understand the impacts of PFES, in a participatory manner with stakeholders. Although this tool was specifically designed to meet the Government of Vietnam's needs and interests, its process, learning tools and approaches can be adapted to support other stakeholders or other policies. This learning tool should also be revised and adapted by stakeholders as they tailor it to meet their own learning needs.

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Annexes

Annex 1. PFES M&E design in Son La province and Cat Tien National Park, Vietnam

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
A. INSTITUTIONAL SETTING					
Developing guideline documents					
1.1. Number of legal documents and executive directives on PFES issued: a. PFES b. Forest land allocation c. Forest protection and development activities	Name and number of document; summary content	List of documents and copies from MARD	Synthesize documents	Planning and technical department	Last week of June and December
			Send the synthesized document to the Vietnam Forest Protection and Development Fund (VNFF) by email	Director/ Deputy director	First week of July and January
1.2. Number of executive directives on PFES issued: PFES Forest land allocation Forest protection and development activities	Name and number of document; summary content	List of documents and copies from MARD	Synthesize documents	Planning and technical department	Last week of June and December
			Send the synthesized document	Director/ Deputy director	First week of July and January
Administrative and operating work					
1.3. Number policies and guidance on monitoring, supervision, guidance on policy implementation	Categorized by province, district, commune, village, district FPDF	Regular work report	Enter data into synthesized table	Planning and technical department	December
1.4. Total number of government staff involving in M&E system	Categorized by province, district, commune, village, district FPDF	List of officials from organization administration	Enter data into synthesized table	Planning and technical department	Every quarter, 6 months, year/ last week of every quarter

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Annex 1. Continued

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
1.5. Area of forestry land allocated to different forest owners: a. total area by forest owner b. average area by forest owners	Categorized by district, commune and forest owners government organizations Commune People's Committee households, individuals communities civil society organizations	Forest report, approved by MARD	Synthesize information	Planning and technical department	Every quarter, 6 months, year/ last week of every quarter
1.6. PFES forest area: a. total PFES area (planned) b. total PFES area (actual) c. average PFES area by forest owner	Categorized by river basins, ES providers and users, and three types of forests	- Payment plan - Payment report with an attached list - Map (if available)	District officials send hard copies of approved reports to provincial officers	District officials	Last week of every quarter
1.7. PFES database information system completed	Data from provincial FPDF	List of officials participating from technical office	Enter data into synthesized table	Planning and technical department	Every quarter, 6 months/year; last week of every quarter
1.8. Grievance handling: a. number of complaints recorded (phone and text) b. number of grievances to be responded to c. number of grievances to be handled	According to subjects of complaints	Synthesized reports of provincial FPDF	Synthesize comments according to form	Planning and technical department	Immediately after receiving the grievances
			Synthesize responded grievances according to form	Planning and technical department	Immediately after grievances are responded to and handled
Awareness-raising activities					
1.9. Number of government staff being trained	By gender (men/ women), training subjects	List of officials participating in each training session Training materials	Synthesize list of officials participating in training sessions from accounting department	Planning and technical department	Every quarter, 6 months/year; last week of every quarter
			Enter data into form	Planning and technical department	Every quarter, 6 months/year; last week of every quarter

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Annex 1. Continued

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
1.10. Number of ES providers and ES users participating in knowledge-sharing events	Categorized by district, commune, gender, training subjects and forest owner: • government organizations • People's Committee of the Commune • households, individuals • communities • civil society organizations • private sector	List of people participating in each training session Training materials	Synthesize list of people participating in training sessions from accounting office	Planning and technical department	Every quarter, 6 months/year; last week of every quarter
			Enter data into form	Planning and technical department	Every quarter, 6 months/year; last week of every quarter
1.11. Number of awareness-raising campaigns	According to communication methods, flyers, pamphlets, radio, direct communication	Report FPDF communication activities	Synthesize list of communication activities and content every quarter	Planning and technical department	Last week of every quarter
B. ENVIRONMENTAL					
Changes in forest area					
2.1. Drivers of deforestation and forest degradation	Detailed data according to district	Evaluation reports on violation of forestry law by forest rangers and of forest development steering committee (with approval)	Summary information report and lists the drivers of deforestation and forest degradation	Planning and technical department	Every year, 6 month/last week of every quarter
2.2. Total forest area at all levels: a. total forest area b. forest cover rate	Categorized by district, commune, village, and three types of forests (special use, protection, production) or two types (natural or plantation forest)	Forest report approved by MARD	Enter data into a synthesized table	Planning and technical department	Every year, 6 month/last week of every quarter
2.3. Number of violations	- Before and after PFES - With PFES and without PFES - Administrative level (District, commune)	Approved reports from Forest Protection Department	Synthesize and enter data into form	Planning and technical department	Last week of every quarter
			Send reports to the VNFF email	Director/ Deputy director	First week of the next quarter

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Annex 1. Continued

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
2.4. Number of forest fires	- Before and after PFES - With PFES and without PFES - Administrative level (District, commune)	Approved reports from Forest Protection Department	Synthesize and enter data into form	Planning and technical department	Last week of every quarter
			Send reports to the VNFF by email	Director/ Deputy director	First week of the next quarter
2.5. Area of damaged forest: a. forest fire b. deforestation c. natural disasters	- Before and after PFES - With PFES and without PFES - Administrative level	Approved reports from Forest Protection Department	Synthesize and enter data into form	Planning and technical department	Last week of every quarter
			Send reports to the VNFF by email	Director/ Deputy director	First week of the next quarter
2.6. Restored forest area: a. natural restored forest b. plantation forest from compensation	- Before and after PFES - With PFES and without PFES - Administrative level (district, commune)	Approved reports from Forest Protection Department	Synthesize and enter data into form	Planning and technical department	Last week of every quarter
			Send reports to the VNFF by email	Director/ Deputy director	First week of the next quarter
Changes in forest quality					
2.7. Production of timber and non-timber forest products exploited according to regulations	Administrative level (district, commune)	Approved reports from Forest Protection Department	Synthesize and enter data into form	Planning and technical department	Every 6 month/ year; last week of every quarter
2.8. Quality of soil and water at the monitoring points in the province	Classification of the natural resources and environment sector and water plants	Report from the Provincial Department of Natural Resources and Environment	Synthesize information and write a summary report of quality indicators	Planning and technical department	Dec 30 annually
2.9. Water quality at hydropower plants	Turbidity, sedimentation	Reports from hydro plants	Synthesize information and write reports on quality indicators	Planning and technical department	Dec 30 annually
C. ECONOMIC					
Impacts of PFES on people's life					
3.1. Average individual income from PFES (revenue from PFES and proportion in income structure)	According to administrative level (district, commune)	Reports and statistics from statistics office	Contact and collect data from statistics office	Planning and technical department	December
			Synthesize information and report by email	Director/ Deputy director	First week of January
3.2. Number of poor households having income from PFES	According to administrative level (district, commune)	Reports and statistics from statistics office	Contact and collect information from statistics office	Planning and technical department	December

continued on next page

Annex 1. Continued

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
PFES revenue and contract					
3.3. Total PFES users of Son La FPDF: a. signed contract with trust fund b. unsigned trust contract c. late payment d. received a penalty or were disciplined for violating rules	According to sectors (hydro power plant, water plant, tourism, fishery, industrial water industry)	Reports of Provincial FPDF	Synthesize information according to form	Planning and technical department	Last week of the month
			Send reports to VNFF	Director/ Deputy director	First week of the following month
3.4. Total PFES revenue of Son La FPDF: a. from state budget b. from the province's revenue (interest incurred in the previous year) c. interest d. late payment penalty	According to sectors (hydro power plant, water plant, tourism, fishery, industrial water industry)	Reports from Accounting department	Accounting department sends information	Accounting office	Last week of the quarter
			Synthesize information and report to the VNFF by email	Planning and technical department Director/ Deputy director	First week of the following quarter
PFES Disbursement					
3.5. Total disbursements according to approved plan and actual a. operational management costs b. redundancy costs c. payment for forest owners	According to forest owners: 1. government organizations 2. People's committee of the commune 3. households, individuals 4. groups of households 5. village communities 6. civil society organizations	Reports from Accounting Department	Accounting department sends information	Accounting office	Last week of the quarter
			Synthesize information and report to the VNFF by email	Planning and technical department Director/ Deputy director	First week of the following quarter

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Annex 1. Continued

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
Financial contribution of PFES to forestry sector of the province					
3.6. The total forestry budget of the province	Annual data related to provincial budget	Approved budget of the Department of Planning and Investment (decision of the People's Committee of the Province)	Contact the Department of Planning and Investment to get budget	Planning and technical department	December
3.7. Proportion of PFES revenue compared to the total forestry budget of the province	Annual data related to provincial budget	Approved budget of the Department of Planning and Investment (decision of the People's Committee of the Province)	Contact the Department of Planning and Investment to get budget	Planning and technical department	December
D. SOCIAL					
Impacts of PFES on community development					
4.1. The amount of investment in activities using PFES revenue: a. invested in community activities (e.g. spending on equipment for community, summarizing conferences) b. village fund c. creation of small-scale credit funds d. road construction e. invested in agricultural production f. invested in forestry g. distributed to households	According to forest owners: 1. government organizations 2. People's Committee of The Commune 3. households, individuals 4. groups of households 5. village communities 6. civil society organizations	Reports of investment activities from forest owners (report forms need to be designed and sent to forest owners)	Instruct forest owners to report according to form; collect (hard copies) of reports from districts officials	Planning and technical department	First and second week of December
			Synthesize information into designed form and send synthesized table to provincial FPDF	District officials	2nd and 3rd week of December
			Synthesize information for entire province and enter data into spreadsheet	Planning and technical department	Fourth week of December (finish before Dec 31)

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Annex 1. Continued

Criteria and indicators	Data category	Source of information	Detailed responsibility	Responsible actor	Frequency/ Reporting period
4.2. Total households have additional income from PFES: a. number of poor households get additional income from PFES b. number of ethnic minority households with additional income from PFES	Annual data on income of households and communities	Reports of investment from forest owners and information of PFES to forest owners (individuals, households, reports of Department of Labor, Invalids and Social Affairs)	Collect information from reports of Department of Labor, Invalids and Social Affairs and compare with information collected from PFES	Planning and technical department	December
4.3. Number of forest owners with no dispute over the boundary	Categorize data of administrative (commune, district, province)	Report of provincial FPDF	Collect information from reports of provincial FPDF and enter data into system	Planning and technical department	December

Annex 2. Interview form for key informants, focus group discussion and household

KEY INFORMANT INTERVIEW

with heads of villages

1. Interviewer …….....……Time …… Date ……
2. Name of informant: .....
3. Position/title: .....
4. Name of commune/village: .....
5. Total number of households in commune/village: .....
6. Ethnicity and percentage of each ethnic group: .....
7. Commune/village poverty rate: .....
8. Male/female ratio: .....
9. Total amount of money received through PFES (million VND):

2010			2015	
2011			2016	
2012			2017	
2013			2018	
2014			2019	

10. Payment received (million VND) by group

Group	**Amount paid**
1. Household	
2. Community	
3. Social groups (farmer's association, women's union, youth union, veterans association)	
4. Private sector	
5. Other (please indicate)	

11. After receiving money from community-managed forest environmental services, how did the community use the money? (Please check the activities that the commune/ village has spent on below and complete any missing information.)

Expenses	**Amount**
• Building infrastructure (for example: road, school, station, etc.)	
• Upgrading and buying items for the community (e.g. items for village cultural houses)	
• Paying for forest protection group established by the village	
• Evenly divided among households	
• Loaned to households for various types of livelihoods	
• Other activities (please indicate): …….. …….. ……..	

12. After receiving the payment for environmental services for forests, how do social groups (Farmer's Union, Women's Union, Youth Union, Veterans) use money?

Unit	**Expenses**	**Amount**
Farmers' association		
Women's union		
Veterans		
Youth union		
Other social units, please specify:		

13. Who decided how to spend the money? (Please check the corresponding boxes below):
    - Local government (province, district, commune)
    - Entire village decides through village meetings
    - Village head and secretary
    - Other methods, please indicate .....

14. How is the payment managed?
    - Sent to a bank account
    - Kept in a cabinet or a safe in the village
    - Other methods .....

15. Who manages the money received?
    - Accountant of the village
    - Head of the village
    - Other actors, please indicate .....

16. How to use and manage audited money?
    - No auditing
    - Once a year
    - Twice a year
    - Others, indicate .....

17. Who will audit results be reported to?
    - Report to village community
    - Commune People's Committee
    - No report required
    - Others, please indicate: …….

18. What are the three main advantages of implementing payment for local environmental services?

    ....

    ....

    ....

19. What are the three main difficulties in implementing payment for local environmental services?

    ....

    ....

    ....

COMMUNE PEOPLE'S COMMITTEE INTERVIEW CHECKLIST

Province: District: Commune:	Date and time : Place:

List of attendees

No.	Name	Title

I. Basic Information:

1. How many villages are there in this commune?

2. What is the total population of the commune?

3. What ethnic groups does the commune include?

   3.1 What percentage does each ethnic group take up?

4. What is the commune's poverty rate (years)?

   4.1 Has the poverty rate in the past nine years tended to increase or decrease? Why?

   4.2 What year has the highest poverty rate been in the last nine years?

5. What is the literacy rate?

6. What is the main source of income of people living in the commune?

   6.1 What about the proportion of different economic sectors in the commune?

7. In the last nine years, which communes have received state-supported programs, or programs and projects to improve the environment and society? (Program name, start and end of the year, supports provided)

II. Forest environment:

1. What is the total forest area of the commune?

   1.1. Special-use forest area:

   1.2. Protection forest area:

   1.3. Production forest area:

2. What is the area of regenerated forest/replanted in the past year?

3. Does the commune have a community forest area?

   3.1. Has the community forest area increased or decreased in the last nine years? Why?

4. Number of forest fires in the past year?

4.2. Number of illegal forest exploitation cases in the past year?

5. What are the main drivers of deforestation and forest degradation in communes? Have these causes changed over the past nine years?

6. Is there a processing company or market related to timber and non-timber forest products?

7. According to you, does the PFES mechanism contribute to improving forest area and quality? If yes, to what extent; if not, why not?

III. PFES payment

1. Amount of PFES payment received by the commune?

2. Number of village communities receiving PFES?

3. Number of households receiving PFES?

4. Number of forest owners as organizations receiving PFES?

5. Can government officials and local people participate in PFES training?

5.1 How many officials have participated in PFES training?

6. How many grievances on PFES were sent to the Commune People's Committee?

   6.1 How many of those grievances have been handled?

IV. Economic

1. What is the average income in the commune?

2. Is the commune budget spent to support PFES?

3. Methods for PFES payment? *(PFES directly brought to the village and received by the village representatives? If another method, please specify)*

4. In your opinion, did the amount received from PFES contribute much to the commune's budget and improve villagers lives?

V. Social

1. Does PFES help stakeholders become more active in forest protection and improve forest protection activities?

2. What is the rate of reinvestment from PFES for forest protection activities?

3. What is the rate of reinvestment from PFES for livelihood activities?

4. What is the rate of reinvestment from PFES for community development (for example, road construction, irrigation system, etc.)?

5. Among poor households, are there many which have female heads who participate and benefit from PFES?

6. Does PFES help create more jobs or help poor households overcome poverty?

VI. Summary

1. According to you, what are the advantages of a PFES mechanism?

……

……

……

……

2. According to you, what are the disadvantages of a PFES mechanism?

……

……

……

……

3. What would you suggest to help improve PFES implementation?

……

……

……

……

Note: The commune committee should be informed of the interview in advance. There should be adequate representation of members, such as a specialized vice-president, an agricultural and forest official, land official, representatives from the women's union, farmer's union etc. to ensure diversity in the respondents.

The above questions are used to collect the minimum amount of information needed; however, if possible, please ask deeper questions and record other information in the minutes of the meeting

FORMS TO COLLECT DATA FROM FOREST PROTECTION DEPARTMENT

1. The total annual forest area at all levels (province, district, commune, village) by three forest types.
We respectfully request the Forest Protection Department to share a map of the annual forest area

Total forest area (ha)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Special-use forest										
Production forest										
Protection forest										

2. Cases of forest fire and area burned annually, by type of forest.

Fire cases (case)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Special-use forest										
Production forest										
Protection forest										

Area of forest fire (ha)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Special-use forest										
Production forest										
Protection forest										

Please provide information on the main causes of forest fire.

3. Amount of deforestation per year, by type of forest .

Area of forest cleared (ha)	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Special-use forest										
Production forest										
Protection forest										

Please provide information on the main causes of forest fire:
- Infrastructure development
- Pressure from agricultural development
- Shifting cultivation
- Forest fire
- Other causes, specify…….

4. Area of forest to be restored, zoned regeneration and compensatory afforestation.
We respectfully request the Forest Protection Department to share a map of forests under restored, zoned regeneration and compensatory afforestation annually (if any).

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Area of forest to be restored, zoned regeneration and compensatory afforestation (ha)										

5. Annual forest cover rate at all levels.
We respectfully request the Forest Protection Department share maps and remote sensing images with the annual forest coverage ratio (if any).

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Forest cover rate (%)										

6. Annual production of timber and non-timber forest products.

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Production of timber (ton)										
Production of non-timber forest products (ton)										

7. Average biomass ratio in forest.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Average biomass ratio in forest (m3/ ha)										

8. Violations.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of cases of violation										

9. Number of complaints, feedback, disputes, etc. solved during the process of forest protection.

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of complaints, feedback, disputes, etc.										
Number of complaints, feedback, disputes, etc. that have been resolved.										

10. What difficulties does the Department encounter in forest protection and in the development and coordination of PFES?

11. What advantages does the Department have in forest protection and in the development and coordination of PFES?

12. What suggestions does the Department have to improve forest protection and the development and coordinate PFES implementation?

NATURAL RESOURCES AND ENVIRONMENT DEPARTMENT INTERVIEW

1. Annual quality of soil and water at the monitoring points in the province).

1.1. Soil quality at monitoring points

Monitoring point 1: at……..town/district……

Soil quality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
pH										
Humidity										
Phosphorus										
Potassium										
Heavy metals										
Amount of pesticide residues										

Monitoring point 2: at……..town/district ……

Soil quality	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
pH										
Humidity										
Phosphorus										
Potassium										
Heavy metals										
The amount of residues of pesticides										

Monitoring point 3: at……..town/district ……

Soil quality	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
pH										
Humidity										
Phosphorus										
Potassium										
Heavy metals										
Amount of pesticide residues										

2. Surface water quality at monitoring points

Monitoring point 1: at……..town/district ……

	Indicator*	**Basin**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Hydrological	Water table											
	Flow rate											
	Flow velocity											
Basic physical and chemistry	pH											
	Temperature (°C)											
	Dissolved oxygen (DO)											
	Electrical conductivity (EC)											
	Total dissolved solids (TDS)											
	Biochemical oxygen demand (BOD)											
	Chemical oxygen demand (COD)											
	Total suspended solids (TSS)											
	Ammonium (NH4+)											
	Nitrate (NO3-)											
	Nitrite (NO2-)											
	Phosphate (PO43-)											
	Iron (Fe)											

	Indicator*	**Basin**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Biological	Zooplankton											
	Phytoplankton											
	Benthic											
	Determining qualitative and quantitative fish samples											
	Index of Biological Integrity (IBI)											
	Zooplankton and phytoplankton dispersion index											
	Biological monitoring working party (with water insects and large invertebrates)											
Toxicology	Lead (Pb)											
	Arsenic (As)											
	Mercury (Hg)											
	Oil											

**Sources of indicator: Center of Environmental Monitoring – Vietnam Environment Administration (2012)*

Monitoring point 2: at……..town/district ……

	Indicator*	**Basin**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Hydrological	Water table											
	Flow rate											
	Flow velocity											
Basic physical and chemistry	pH											
	Temperature (°C)											
	Dissolved oxygen (DO)											
	Electrical conductivity (EC)											
	Total dissolved solids (TDS)											
	Biochemical oxygen demand (BOD)											
	Chemical oxygen demand (COD)											
	Total suspended solids (TSS)											
	Ammonium (NH4+)											
	Nitrate (NO3-)											
	Nitrite (NO2-)											
	Phosphate (PO43-)											
	Iron (Fe)											

	Indicator*	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Biological	Zooplankton											
	Phytoplankton											
	Benthic											
	Determining qualitative and quantitative fish samples											
	Index of Biological Integrity (IBI)											
	Zooplankton and phytoplankton dispersion index											
	Biological monitoring working party (with water insects and large invertebrates)											
Toxicology	Lead (Pb)											
	Arsenic (As)											
	Mercury (Hg)											
	Oil											

**Sources of indicator: Center of Environmental Monitoring – Vietnam Environment Administration (2012)*

Monitoring point 3: at……..town/district ……

	Indicator*	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Hydrological	Water table											
	Flow rate											
	Flow velocity											
Basic physical and chemistry	pH											
	Temperature (°C)											
	Dissolved oxygen (DO)											
	Electrical conductivity (EC)											
	Total dissolved solids (TDS)											
	Biochemical oxygen demand (BOD)											
	Chemical oxygen demand (COD)											
	Total suspended solids (TSS)											
	Ammonium (NH4+)											
	Nitrate (NO3-)											
	Nitrite (NO2-)											
	Phosphate (PO43-)											
	Iron (Fe)											

Biological	Zooplankton											
	Phytoplankton											
	Benthic											
	Determining qualitative and quantitative fish samples											
	Index of Biological Integrity (IBI)											
	Zooplankton and phytoplankton dispersion index											
	Biological monitoring working party (with water insects and large invertebrates)											
Toxicology	Lead (Pb)											
	Arsenic (As)											
	Mercury (Hg)											
	Oil											

**Sources of indicator: Center of Environmental Monitoring – Vietnam Environment Administration (2012)*

3. Quality of underground water at monitoring points

Monitoring point 1: at……..town/district ……

Quality of underground water	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
pH										
TDS										
Hardness										
NO2-										
NO3-										
As										
Mn										
Fe										
Coliform										
…										

Monitoring point 2: at……..town/district ……

Quality of underground water	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
pH										
TDS										
Hardness										
NO2-										
NO3-										
As										
Mn										
Fe										
Coliform										
…										

Monitoring point 3: at……..town/district ……

Quality of underground water	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
pH										
TDS										
Hardness										
NO2-										
NO3-										
As										
Mn										
Fe										
Coliform										
…										

4. Area of forestry land allocated and contracted in the province every year (ha)

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Area of allocated forest land										
Area of forestry land to be contracted										

USERS OF ENVIRONMENTAL SERVICES INTERVIEW: HYDROELECTRIC POWER PLANTS

Name of unit using environmental services:

Year founded:

Functioning year:

Participated in implementation of the PFES policy in the province since:

1. Power production capacity of the enterprise by year (MW)

Name of hydroelectric plant	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

2. Volume of soil, stone and gravel the company must remove from the hydropower reservoir ($100m^3$)

Name of hydroelectric plant	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

3. Amount businesses need to spend to remove sedimentation (million VND)

Name of hydroelectric plant	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

4. The amount of annual input water supplied to hydropower (m^3)

Name of hydroelectric plant	**Basin**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**

5. Water quality (e.g. pollution, turbidity of water). Please specify which data the plant has collected that are related to water quality for quarterly and yearly comparisons.

	Indicator*	**Basin**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Hydrological	Water table											
	Flow rate											
	Flow velocity											
Basic physical and chemistry	pH											
	Temperature (°C)											
	Dissolved oxygen (DO)											
	Electrical conductivity (EC)											
	Total dissolved solids (TDS)											
	Biochemical oxygen demand (BOD)											
	Chemical oxygen demand (COD)											
	Total suspended solids (TSS)											
	Ammonium (NH4+)											
	Nitrate (NO3-)											
	Nitrite (NO2-)											
	Phosphate (PO43-)											
	Iron (Fe)											

	Indicator*	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Biological	Zooplankton											
	Phytoplankton											
	Benthic											
	Determining qualitative and quantitative fish samples											
	Index of Biological Integrity (IBI)											
	Zooplankton and phytoplankton dispersion index											
	Biological monitoring working party (with water insects and large invertebrates)											
Toxicology	Lead (Pb)											
	Arsenic (As)											
	Mercury (Hg)											
	Oil											

*Sources of indicator: Center of Environmental Monitoring – Vietnam Environment Administration (2012)

6. In addition to the environmental indicators that were collected by the factory as required by the state, does the factory also record or collect any other data related to water and soil environmental services?

   ☐ Yes, please indicate……

   ☐ No

7. In general, have you noticed since the PFES policy was implemented, whether water quality and the quantity of water supplied to the company has increased? Or decreased?

   ……

   ……

   ……

8. Could you suggest some reasons for the cause of the increase/decrease? Are these causes related to PFES?

   ……

   ……

USERS OF ENVIRONMENTAL SERVICES INTERVIEW: WATER SUPPLIERS

Name of unit using environmental services:

Year founded:

Functioning year:

Participated in implementation of the PFES policy in the province since:

1. Water supply capacity of the plant.

Name of water plant	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

2. Annual water intake.

Name of water plant	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016

3. Indicators of plant operations.

Name of water plant	Basin	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of flooding days											
Hours of inactivity due to turbidity											
Hours of inactivity due to insufficient water input											
Amount of water that must provide according to the subsidy policy											
Number of times that a high level of pollution was measured											

4. Water quality
   4.1 Please let us know what data and indicators are currently collected by the company to measure water quality (e.g. turbidity, pollution)

4.2 Please provide data on changes of those indicators according to the table below

	Indicator*	**Basin**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Hydrological	Water table											
	Flow rate											
	Flow velocity											
Basic physical and chemistry	pH											
	Temperature (°C)											
	Dissolved oxygen (DO)											
	Electrical conductivity (EC)											
	Total dissolved solids (TDS)											
	Biochemical oxygen demand (BOD)											
	Chemical oxygen demand (COD)											
	Total suspended solids (TSS)											
	Ammonium (NH_4^+)											
	Nitrate (NO_3^-)											
	Nitrite (NO_2^-)											
	Phosphate (PO_4^{3-})											
	Iron (Fe)											
Biological	Zooplankton											
	Phytoplankton											
	Benthic											
	Determining qualitative and quantitative fish samples											
	Index of Biological Integrity (IBI)											
	Zooplankton and phytoplankton dispersion index											
	Biological monitoring working party (with water insects and large invertebrates)											
Toxicology	Lead (Pb)											
	Arsenic (As)											
	Mercury (Hg)											
	Oil											

*Sources of indicator: Center of Environmental Monitoring – Vietnam Environment Administration (2012)

5. In general, have you noticed since the PFES policy was implemented, whether water quality and the quantity of water supplied to the company has increased? Or decreased?

……

……

……

6. Could you suggest some reasons for the cause of the increase/decrease? Are these causes related to PFES?

……...

……

……

7. In addition to the above environmental indicators that were collected by the factory as required by the state, does the plant also record or collect any other data related to water and soil environmental services?

☐ Yes, please indicate……

☐ No

8. What suggestions do you have to improve the implementation of the PFES mechanism and increase the effectiveness of the plant's participation in the mechanism?

……...

……

……

FOCUS GROUP DISCUSSION GUIDELINES

I. Objective

In this discussion group, we will focus on PFES, social, economy and environmental information in villages before and after PFES was implemented, in order to assess the socioeconomic and environmental impact of PFES on villages.

Specifically, in this focus discussion, we will try to determine the following:
1. Understanding about the socioeconomic and environmental conditions
2. Role and impact of PFES and other support programs for local people
3. Pros and cons of PFES

Note: While conducting the group discussion, it is necessary to find out information about other support programs to separate the impact of PFES and the impact of other programs on local people's life.

II. Planning and preparation

It is very important to plan carefully before conducting the group discussion. This include stages such as data collection, study group arrangements, participant invitations, and time and location of the group discussion.

1. Data collection

Data that need to be collected one week before the field trip include:
- Secondary data (e.g. the commune socioeconomic annually report, PFES information at study communes and villages)
- Logistic information (such as contact details of the commune officer and village head, the village households list to decide who match the criteria for group discussion and create a random selection from among them)
- Distance between commune center to village, transportation options, traveling time, etc.

2. Study group arrangement

At least three people should always be in the discussion operating groups (ideally 4–6 people)
- One person to facilitate the focus discussion group. The facilitator has the following tasks:
  - to operate the discussion and help the participants focus on the discussion
  - to make sure all participants actively participate on the discussion
  - to re-phrase the questions to cross-check information
  - to encourage additional details, but also to stop people when they begin rambling
- One person to support the focus discussion group. The supporter has the following tasks:
  - to support the facilitator
  - to support the note-taker by supplying A0 paper (or colored paper when necessary)
  - to remind the facilitator when necessary (such as when management forget to ask an important question, or when the group discussion is rambling, or if information is being shared too quickly for the participants to follow)

- One note taker. This person will write out all content of the discussion, as well as taking an audio recording and taking photos. The transcript should be made as soon as possible, while members still remember information. The audio recording should serve as a back-up, but should not replace the transcript.
- 1–2 observers. This person/people will add their observations to the transcript after the focus group discussion.
- One interpreter (if necessary). The interpreter will provide translation support if participants and the study group do not share the same language (such as in the Hmong villages). The interpreter needs to understand the content and purpose of the discussion and should on the same page with the study group. They should try their best to translate each sentence, and not just summarize the content.

It is best to get support from local officers (such as the agroforestry commune officer or village head). Village heads may help by inviting participants and preparing the venue of the focus group discussion.

3. Permission, working procedures

Ensure all permissions to work at the local site are obtained before the discussion.

4. Stationary

The following is a checklist of supplies needed for the focus group discussion:
- A0 paper
- Colored paper (Prepare blue, red and yellow papers for ranking sections. Cut the paper to 10x20 cm pieces and ensure there are at least 30 pieces of each color.)
- Colored pens (blue, black and red; at least four of each color)
- Tape, scissors
- Camera, sound recorder, mobile phone.

5. Participants

Focus group discussion with men's group.

This group should have 12 participants from 12 different households and match the following criteria:
- Four poor households, four average households, and four wealthy households (as per village criteria)
- Representatives of ethnic groups (ignore this if all people in village are same ethnic group). In the case of villages having different ethnic groups (e.g. Thai, Hmong), ensure there are both Thai and Hmong people included in the discussion.
- Variety of ages (four people aged 16–25 years old, four people aged 25–50 years old, four people aged 50 and older)
- Households receiving PFES and households not receiving it.

Focus group discussions with women's group
- Should have 12 women from 12 different households and match these criteria:
- Four poor households, four average households, and four wealthy households (as per village criteria)
- Representatives of ethnic groups (ignore this if all people in village are same ethnic group). In the case of villages having different ethnic groups (e.g. Thai, Hmong), ensure there are both Thai and Hmong people included in the discussion.
- Variety of ages (four people aged 16–25 years old, four people aged 25–50 years old, four people aged 50 and older)
- Households receiving PFES and households not receiving it.

FOCUS GROUP DISCUSSION METHOD

I. Introduction

1. The facilitator starts the FGD and thanks participants.
2. The facilitator gives a summary of the project, project staff, and the objectives and content of the meeting. The facilitator explains that this group meeting is voluntary and based on the consent of all participants.
3. The facilitator explains in details the content of the FGD, procedures and time, and encourages participants to ask questions.

Note: Meeting of group 1 and 2 will be conducted according to a procedure – history of the village; poverty categorization; participatory analysis of poverty, livelihoods and environment dynamics (PAPoLD); and strengths, weaknesses, opportunities and threats (SWOT) analysis. However, both groups will also have questions focusing on gender.

II. Village history

The objectives of this step are to: (i) understand comprehensively the history of the village; (ii) understand the main events and projects that occurred in the village, including the PFES program; (iii) determine the impacts of PFES and other projects on socioeconomic life and the environment of the village. After this step, based on collected information, we will conduct an in-depth investigation to understand changes in the environmental, livelihood and social events of the village.

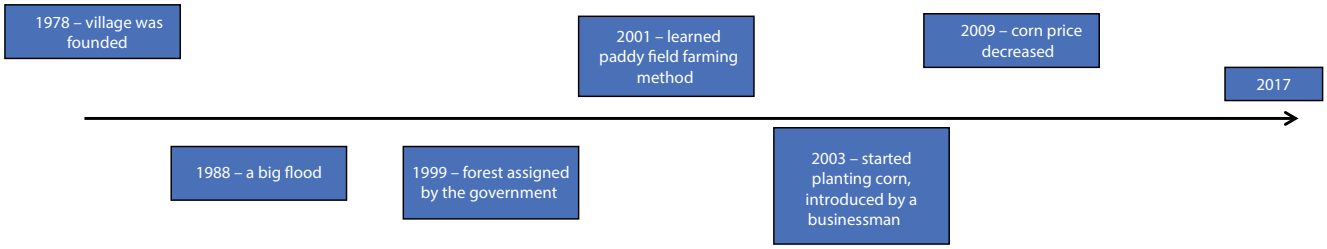
Note: Participants may not exactly remember the timing of each event (e.g. when PFES first started). In this case, remind them of a big event (a serious drought or forest fire) then ask how long before or after PFES appeared in relation to these events.

Main question used in this step includes:

- When was your village founded?
- Since then, which memorable events/milestones have heavily impacted people lives? (e.g. policy milestones or natural disasters such as floods or droughts)
- Which support program has the village received? Are there any support programs on forest protection and development? (Note: if you ask directly about PFES, people might not understand clearly, so use leading questions to gather information)
- Which period was the most difficult (poorest) period of the village? Why? Which period was the wealthiest? Why?
- During which period were the forests most developed in the village? Why?
- During which period were the forests most damaged in the village? Why?

Note: Comparing main events mentioned in Group 1 and Group 2 might suggest whether women's awareness is different from men's. For example, in Group 2 meeting, women participants might mention that Women's Union of the village helped them with loans, but this event might not be mentioned in the Group 1 meeting, proving that there is a gender difference in awareness.

2.1 After completing the village diagram based on main events of the village, conduct a further investigation to compare the situation before and after PFES by following the table below:



	2007	2008–2009	2009–2013	2013–now
Corn productivity	Increased, due to road expansion	Decreased, due to diseases	Decreased again. Due to the climate	Increased. Many started to plant and invest
Road	Expanded by the government	No changes	Built more inner roads because of more money from PEFS	No changes
…..				
….				
…..				

Thus, it should be noted that when asking about the village history, it is important to understand when PFES implementation began in the village (in this case, 2009). Next, continue to explore gender differences on the above topics. (Note: This tool only applies to group meetings with women). See the example in the table below:

	Men		Women	
	Before 2009	After 2009	Before 2009	After 2009
Corn	• Only cut the grass	• Only cut the grass	• Plant and harvest	• Plant and harvest
Road	• Not built yet	• Built mainly by men		
Forest protection	• Did not participate much	• 2 times/week in some months		• Only participate when the husbands are not home
Harvest forestry products	• Cut trees to build houses and harvest honey	• No more harvesting wood because there is not much left	• Harvest bamboo shoots and firewood	• Still harvest bamboo shoots and firewood, but the amount is substantially less now
…	…	…	…	…

Determine when PFES was implemented from the village history (such as 2009 in this case). Then choose the main topics (such as corn, road, forest protection, harvest forestry products…) and find the differences between men's and women's responses related to these subjects.

III. Household's economic level classification

Cut out 12 pieces of cardboard and write the names of 12 participants, one on each piece. On the A0 paper, there are three columns, titled: Poor household, Average household, Wealthy household. Participants will discuss together to place households in each column.

After the group has classified itself, they will be asked why they put these households into poor, average or wealthy groups? Find out what criteria they used. These criteria may be different from the criteria of the poverty standard being applied; however, it is important to understand these criteria to capture the local situation. Moreover, understanding people's perceptions of economic criteria will help assess the impact of PFES on the economic aspect.

The following sample will be on the A0 paper (example):

Wealthy households	Average households	Poor households
• Nguyễn Văn A • Vi Văn B • Bùi Văn C • Lương Văn D	…	….

Criteria:

Ask more thorough questions about the criteria of ranking poor, average, wealthy. Use the following table:

	Poor	**Average (enough for living)**	**Wealthy**
Income	Under 400,000 VND/month	More than 400,000 VND/ month	More than 1 million VND/ month
Access to basic services	No electricity Use water from springs	Use electricity Use well water	Use electricity Use treated water
Property	Cottage No buffalo or cow No paddy fields, fewer than 3 swidden fields	Stilt house 1–2 buffalos/cows 1 paddy field, more than 3 swidden fields	House with tiles More than 5–6 buffalos/ cows Have many paddy fields and swidden fields
Education	No one attends/attended an educational institution	Someone in the household has finished middle school	Someone in the household has finished high school
…..	….	….	……

Note: This table of economic level criteria must be built on the opinions of people in each village to define what criteria they consider to be poor, average or wealthy.

IV. Participatory analysis of poverty, livelihoods and environment dynamics (PAPoLD)

Record the criteria for poor household classification at the bottom of the page, then together draw the ladder chart showing the poverty escape strategy of the household (see table below):

Ask if participants had a small amount of money, what would they do to escape poverty? (If the amount is very small – about 1 million VND – ask what they would prioritize first.)

Ask, after you have achieved the first level, if you receive another amount of money, what would you continue to prioritize in terms of spending?

Continue asking until they reach the 'wealthy' level, then stop (about 5–6 times = 5–6 steps).

On the ladder chart, ask whether they think they have escaped poverty and to what extent they think that the household is actually wealthy?

Step	
10	Expanding business, establishing a brand
9	Applying technology to livestock production
8	Possessing modern communication facilities (telephone, TV)
7	Saving and buying insurance
From average to wealthy	
6	Buy motorcycles
5	Build houses, buy more equipment for kitchens and toilets
Escape poverty level	
4	Buy cattle
3	Buy fertilizer and agricultural machines
2	Buy more land
1	There is little land, many people to feed, small houses, often deal with sickness

Continue asking each household the following questions: At historical milestones (results obtained from the village history), which level on the poverty reduction strategy scale were they at? Until the 2nd, 3rd and 4th steps, which level were they at? How can they escape poverty, or become even poorer?

Understanding village poverty reduction strategies will help to understand the impact of PFES on economic life. For example, how can PFES money be used to strengthen the economy, or did participating in PFES limit the source income for people from the forest?

Then, find out the views of the participants to see how their livelihood has changed compared to the time before PFES began. In the example below, we assume that PFES began in 2009. Use the above milestones built into the PAPOLD table (see example in the table below).

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Lan	2	3	3	6	6	6	6	6
Long	3	4	5	5	5	5	5	7
Phong	6	7	8	10	10	10	10	10
..	…	…	…	…	…	…	…	…

Note: For the Group 2 meeting, try to ask questions to clarify gender differences. Note that the strategy of escaping poverty and economic strengthening between men and women can vary, showing the difference in their perspectives. Women's groups may raise strategies such as investing in education for their children in this section.

Also ask about whether livelihood activities done by women are different from those done by men. For example, men mainly do jobs such as building houses, plowing, etc. while women directly cultivate, raise livestock and do housework.

V. Strengths, weaknesses, opportunities and threats (SWOT) Analysis

The main questions for SWOT analysis are:
1. What are the strengths of PFES/(other forest protection programs if there is no PFES in the village)?
2. What are the weaknesses of PFES/(other forest protection programs if there is no PFES in the village)?
3. What are the opportunities for PFES/(other forest protection programs if there is no PFES in the village)?
4. What are the risks of PFES/(other forest protection programs if there is no PFES in the village)?
5. What are the participant's solution to PFES/(other forest protection programs if there is no PFES in the village)?

Note: You can use questions that are more accessible to people. For example, does PFES help people get more income? If yes, categorize the answer as Strength; if the answer is no because they can no longer exploit forestry resources, categorize it as Weakness.

Strengths	**Weaknesses**
• Income • Funding to pay for forest protection units • ….	• Can no longer collect bamboo shoots • Some households receive more than others, creating conflicts
Opportunities	**Risks**
• Help protect the forest better • When the forest is well protected, air quality improves and water quantity increases for agriculture	• Some households still do damage to the forest despite awareness-raising activities

Note: For the second group meeting, we can clarify with women by questions such as:
- Are women involved in forest protection?
- Are more men or more women involved in forest protection?
- Do men or women get more non-timber forest products ?
- Who is the decision maker in participating in forest protection and harvesting of forest products? Men or women? Is there any discussion?

VI. Summary

The facilitator summarizes the content of the meeting and verifies the information (for example, asking participants if the information recorded during the meeting is correct, or if is there a need to amend it), then thanks the participants. The final step is to ask participants if they have any questions and to answer those questions.

VII. Lessons from group meetings

After the group meeting, the whole team should gather to draw on their experience and propose a revision of the method for the next meeting:

1. Do the team members share a common understanding of the content and purpose of the group meeting? What information is missing or not yet collected?
2. Has the group meeting been effective? Do I need to change anything?
3. What issues arose during the group meeting?
4. Record these discussion points for future review.

Note: Records, audio recordings and cameras must be collected and carefully stored. The drawings that appear in the group meeting need to be captured, and all data must be handed over to a manager.

HOUSEHOLD INTERVIEW QUESTIONNAIRE

Household ID: ……..

Province: …….

District……

Commune: …….

Village: …….

Name of household head: …….

Name of interviewee:

Date of interview:

Time of interview:

Distance from the household to the village center, in walking minutes: …… and km: ……

Name of interviewer:

1. BASIC INFORMATION ABOUT HOUSEHOLD

1.1. Name of the head of household/ interviewee:

1.1.1 Relation to the head of the household:

1.2. Sex:

1.3. Age:

1.4. Ethnic group:

1.5. The head of the household was born here or elsewhere:

☐ Yes ☐ No. Moved from: ……

1.5.1. How long has your family lived in this village (years)?

1.5.2. When did your family have household registration?

1.6. Marital status of head of household:

☐ Married ☐ Not married ☐ Widowed ☐ Divorced ☐ Other

1.7. Is the household a poor household according to state standards? (Is it in the list of poor households of the commune?)

☐ Poor household ☐ Near-poor household ☐ Not a poor household

1.7.1. If this is a poor household or near-poor, are there any state support programs for the household?

☐ Yes, please list all the programs:

……

……

☐ No, please explain why:

……

……

1.8. How many members are there in your household?

No.	Name of household member	Relation to the head of household	Sex	Age	Education level	Current jobs
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

2. LAND AREA OF THE HOUSEHOLD BEFORE AND AFTER PFES (before and after first years of PFES implementation, for example 2011, 2013……depending on each locality)

No.	Purpose of land use (e.g. residential land, cultivated land, livestock, ……)	Is there any land-use certificate (red book or green book)?	Classification of land use (for rent, to share….)	Is it in the village or not?	Area after PFES	Area before PFES

Land use type	Land use classification	Area managed by the household with land-use certificate				Area of household used but without land use certificate					
		1. Land area used by the household (ha)		2. Land area rented out or lent out by the household (ha)		3. Land area used by the household (ha)		4. Land area rented out or lent out by the household (ha)		5. Shares land area (ha)	
		Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES
1. Agriculture	1. Agricultural crops										
	2. Agroforestry										
	3. Grazing										
2. Forestry	1. Plantation forest area										
	2. Secondary forest area										
	3. Mature forest area										
3. Other types of land use (e.g. shifting cultivation)											

Land use type	**Land use classification**	**Area managed by the household with land-use certificate**				**Area of household used but without land use certificate**					
		1. Land area used by the household (ha)		**2. Land area rented out or lent out by the household (ha)**		**3. Land area used by the household (ha)**		**4. Land area rented out or lent out by the household (ha)**		**5. Shares land area (ha)**	
		Before PFES	**After PFES**	**Before PFES**	**After PFES**	**Before PFES**	**After PFES**	**Before PFES**	**After PFES**	**Before PFES**	**After PFES**
4. Total area											
5. Does the household have any land area outside this village?											

3. Accessibility to utilities before and after PFES:

3.1. Access to basic services

3.1.1 Source of water: What is the main source of water for household use and production? *Fill in the appropriate box*		3.1.2 Source of electricity: Does your household use electricity, and if so, what is the source of electricity? *Fill in the appropriate box*	
Before PFES	**After PFES**	**Before PFES**	**After PFES**
Untreated water (river, pond, lake, stream, well water, water led from upstream…) ☐ Used for daily life ☐ Used for production Treated water (water from water plant) ☐ Used for daily life ☐ Used for production	Untreated water (river, pond, lake, stream, well water, water led from upstream…) ☐ Used for daily life ☐ Used for production Treated water (water from water plant) ☐ Used for daily life ☐ Used for production	☐ Do not use electricity ☐ Yes, but free to use from the electric power grid or through the village system (generators, small hydroelectricity) ☐ Yes, pay the electric bill ☐ Own generator ☐ Other (please specify)	☐ Do not use electricity ☐ Yes, but free to use from the grid or through the village system (generators, small hydro systems) ☐ Yes, pay the electric bill ☐ Own generator ☐ Other (please specify)

3.1.3. Cooking materials in your household before and after PFES? Fill in the appropriate box

Before PFES	**After PFES**
☐ firewood ☐ charcoal ☐ other vegetative biomass (shrubs, leaves, agricultural residues) ☐ dung ☐ biogas ☐ coal ☐ oil ☐ gas ☐ electricity ☐ solar power ☐ other (please specify)	☐ firewood ☐ charcoal ☐ other vegetative biomass (shrubs, leaves, agricultural residues) ☐ dung ☐ biogas ☐ coal ☐ oil ☐ gas ☐ electricity ☐ solar power ☐ other (please specify)

4. OTHER ASSETS OWNED BY THE HOUSEHOLD:

4.1. How many houses does the household own in this village?
- Before PFES: ……
- After PFES: ……

4.2. How many houses does the household own outside of this village?
- Before PFES: ……
- After PFES: ……

4.3. Please tell us the items you may have in the following household asset categories, including their number and current market value

Type of asset	Number owned (4.3.1)		Total value (4.3.2)	
	Before PFES	After PFES	Before PFES	After PFES
Transportation vehicles				
1. Car				
2. Truck/van				
3. Bike				
4. Bicycle				
Household electrical / mechanical goods				
6. Electric generator				
7. Cell phones				
8. Television				
9. Satellite disk				
10. Radio				
11. Cassette/CD/DVD player				
12. Laptop				
13. Sewing machine				
14. Chainsaw				
15. Refrigerator				
16. Gas stove				
17. Electric cooker				
18. Washing machine				
Agricultural production supplies				
19. Tractor				
21. Spraying machine				
22. Water pump				
24. Milling machine				
25. Agricultural Dryer				
26. Lawn mower				

Type of asset	Number owned (4.3.1)		Total value (4.3.2)	
	Before PFES	After PFES	Before PFES	After PFES
Other equipment				
27. Other (specify)				

5. AGRICULTURAL PRODUCTS AND RELATED INCOME BEFORE AND AFTER PFES

Agricultural products (5.1)	**Units (5.2)**	**Quantity of agricultural products for use only (not sold or exchanged) (5.3)**		**Quantity of agricultural products used for sale and exchange (5.4)**		**Total revenue per year (5.5)**	
		Before PFES	**After PFES (latest)**	**Before PFES**	**After PFES**	**Before PFES**	**After PFES**
Maize							
Rice							
Wheat							
Soybean							
Fruits							
Sugarcane							
Vegetable							
Potato							
Oil palm							
Other…							

Agricultural products which have stopped production

5.6 What crops have you produced before but are no longer producing or have stopped production since PFES?

☐ *Yes;* ☐ *No;* ☐ *Not applicable (for example, households have not been separated at the time);*

☐ *Do not know*

If "Yes", continue with questions 5.7 and 5.8. If it is another option, go to the next table.

No.	5.7. If the answer of 5.6 is yes then what kind of crop have you stopped producing	5.8. If the answer of 5.6 is yes then why did you stop producing that crop?
1.		
2.		
3.		
4.		
5.		
6.		

6. PLANTING COST

What must the family invest in the agricultural production, before and after PFES?

No.	6.1 Type of costs	6.2 Total costs per year	
		Before PFES	After PFES
1	Seeds, seedlings		
2	Chemical fertilizers		
3	Pesticides/herbicides/fungicides		
4	Machinery		
5	Hired labor		
6	Hired machinery		
7	Product marketing/ car rental for freight		
8	Payment for land rental		
9	Fuel for transportation		
10	Others, please specify:		

7. LIVESTOCK OWNERSHIP AND ITS INCOME IN THE LAST 12 MONTHS

We would like to ask some questions about your ownership, consumption, and sale of livestock in the last 12 months:

7.1 Type of animals	7.2 Quantities		7.3 Price		7.4 Income	
	Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES
1. Cow						
2. Buffalo						
3. Horse						
4. Goat						
5. Pig						
6. Duck						
7. Chicken						
8. Goose						
9. Rabbit						
10. Fish						
11. Beehive						
12. Other (please specify)……						

8. COSTS OF INPUTS FOR LIVESTOCK AND PRODUCTS IN THE LAST 12 MONTHS

What are the quantities and costs of inputs used for raising livestock during the past 12 months? We want to record cash expenditure in this table (if it is easier, list only the total cost).

8.1 Input costs	8.2 Total costs	
	Before PFES	After PFES
1. Feed/fodder		
2. Rental of grazing land		
3. Medicines, veterinary services		
4. Costs of maintaining barns, pens, etc.		
5. Hired labor		
6. Water treatment		
7. Other		

9. FOREST ENVIRONMENTAL INCOME IN THE LAST 12 MONTHS

9.1. Products	9.2.From where: *1 = Forests; 2 =Outside of forests (re-purchase)*	9.3. Units	9.4. Quantities collected		9.5. Quantities sold		9.6.Average price		9.7. Labor cost		9.8. Input costs, transportation costs etc.	
			Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES	Before PFES	After PFES
Logs												
Bamboo												
Rattan												
Sawn timber												
Animal feeds												
6. Non-timber forest products												
7. Medicinal plants												
8. Medicinal animals												
9. Tree roots												
10. Seeds												
12. Seedlings												
13. Other												

10. CHANGE IN FOREST COVER AND FOREST INCOME SINCE PFES

We would like to know how your forest-based income has changed since PFES and the reason for that change.

10.1. Has your household cleared any forest during the past 10 years?

☐ Yes ☐ No

If yes, please go to 10.2. If "No", please go to 10.8.

If the answer to 10.1 is "Yes"	10.2. How much forest was cleared in the last 10 years (ha)
	10.3. What was the main purpose for clearing the forest land? ☐ *Cropping;* ☐ *Pasture;* ☐ *Tree plantation;* ☐ *Other purpose (non-agricultural)*
	10.4. Where have you cleared the forest ☐ *Natural forest* ☐ *Plantation forest* ☐ *Do not know*
	10.5 If these were regenerated forests, then how long has it been?
	10.6. If these were plantation forests, the how long has it been?
	10.6. The cleared-land forests are owned by whom?
	10.7 Distance from your household to the cleared-land forests?

1.8. How much land used by the household has been left fallow or abandoned?

1.9. Has your family cleared more, less or the same amount of forest area as before PFES?

☐ *More*

☐ *Stayed the same*

☐ *Less*

☐ *Does not apply (villagers do not clear forest land)*

10.10. If the answer to question 10.9 is "more" or "less" then keep asking: If your household clears more or less, then what is the reason? (Maximum three reasons)

1. .....

.....

2. .....

.....

3. .....

.....

10.11. Since the first year of PFES implementation, has your household consumption of forest products increased or decreased?

☐ *Increased*

☐ *Stayed the same*

☐ *Decreased*

☐ *Depends on the product*

☐ *Not suitable (no income or consumption from forest products)*

☐ *The respondent does not know*

10.12. If the answer to question 10.11 above is "increased" or "decreased" then keep asking: Why has your household consumption of forest products increased or decreased during these years? (Maximum three reasons)

1. .....

.....

2. .....

.....

3. .....

.....

10.13. Over the last few years since the implementation of PFES, has the forest cash income (i.e. *for sale, not home consumption*) of your household increased, stayed the same or decreased?

☐ *Increased*

☐ *Stayed the same*

☐ *Decreased*

☐ *Depends on the forest products*

☐ *Not suitable (no income and consumption from forest products)*

☐ *The respondent does not know*

10.14. If the answer to question 10.13 above is "increased" or "decreased" then keep asking: Why has the income from forest products increased/ decreased during these years? (Maximum three reasons)

1. .....

.....

2. .....

.....

3. .....

.....

11. WAGE OR SALARY INCOME IN THE LAST 12 MONTHS

11.1. Relation to household head	11.2. Type of work	11.3. Duration of employment	11.4. Income in the last 12 months

12. MISCELLANEOUS INCOME IN THE LAST 12 MONTHS

No.	12.1. Type of income	12.2. Total amount received in the last 12 months (millions/year)
1	Renting out owned land	
2	Family remittance	
3	Tangible gifts from family or friends	
4	Inheritance	
5	Pension	
6	Other, please specify:	

13. PERCEPTIONS OF WELL-BEING AND CHANGE IN WELL-BEING IN THE LAST 10 YEARS

13.1 Has your household's income over the last 10 years been sufficient to cover the needs of the household?

☐ Yes

☐ Reasonable (just about sufficient)

☐ No

☐ The household has not been formed until at least 5 years ago

If your household's income is not enough to meet the needs of the family, please let us know the reason? List about three different reasons. If these reasons are related to PFES, ask further questions

14. HOUSEHOLD KNOWLEDGE OF AND INVOLVEMENT IN PFES

A. The involvement in PFES (only ask at villages where PFES exists). Part B is to be asked in all villages

(Note: Questions 14.1 to 14.15 are only to be asked in villages where PFES exists)

14.1. Do you participate in forest protection and management activities (patrolling, signing contracts, fire prevention or tree plantings etc.)

☐ Yes ☐ No

14.1.1. If yes, to what extent? ……

☐ Household level; ☐ Community level; ☐ Join the village unions

a. Had you heard of PFES prior to this interview?

☐ Yes ☐ No

If the answer is "no", please proceed to part B. If "yes" then keep asking

14.2.1. Where did you hear information about PFES from?

☐ Village official

☐ Commune official

☐ District official

☐ The media (TV, radio, newspaper….)

☐ Other (please specify): ……

b. Have you received money from PFES?

☐ Yes ☐ No

14.4. Have you or anyone in your household been involved in deciding whether PFES should or should not be implemented in your village?

☐ Yes; ☐ No. If "no", please proceed to 14.6.

14.5. If "yes", tell me how you or someone in your household have been involved in the decision on whether to implement PFES. Choose all appropriate options

☐ Attended a meeting where officials announced PFES

☐ Attended meetings where there was voting on whether PFES should be implemented or not

☐ Other (Please specify)_____

14.6. Have you or someone in your household been involved in implementing PFES in your village?

☐ Yes; ☐ No. If "no", please go to part B

14.7. If yes, in what ways were you or someone in your household involved in the design and/or implementation of PFES?

Choose all appropriate options

☐ Attended a meeting that explained how the project would be implemented

☐ Attended a meeting held by officials to consult villagers on how to implement the project

☐ Took part in an educational or training event related to the project

☐ Was involved in clarifying forest land boundaries

☐ Was involved in biomass measurements

☐ Participated in forest protection activities with forest rangers

☐ Other (please specify)

☐ Not applicable

14.8. Are you involved in the decision on how to use PFES money?

☐ Yes

☐ No

14.9. Are you aware of how PFES revenue is managed at the higher level of governance?

☐ Yes

☐ No

14.10. Have you signed any commitment on protecting the forests?

☐ Yes, please list all the commitments:

☐ No

14.11. Are you aware of who is environmental services (ES) users?

☐ Yes (please indicate who)

☐ No

14.12. Do you know the schedule of payment for forest environmental services?

☐ Yes

☐ No

If "yes" please proceed to asking 14.13, if "no" then proceed to 14.15

14.13. How many times are the PFES paid per year?

14.14. Is the PFES payment paid on time?

☐ Yes

☐ No, late for how long: ……..why:…….

☐ Not clear

14.15. Who would you ask when there are questions raised about the management and use of PFES money?

☐ Village head ☐ Commune People's Committee ☐ Protection Forest Management Board ☐ Forest Protection and Development Fund	☐ District People's Committee ☐ National Park ☐ Other, please specify: …...

B. Evaluations on the impact of PFES

Note: Ask about the impacts of PFES only in villages with PFES; in the villages without PFES, ask about the impacts of other forest protection and development projects (for example, 327, 661, forestry-community project etc.)

14.16. After receiving the money from PFES, how does the household use it?

Purpose	Amount

14.17. What are the impacts of PFES payments?

☐ People better aware and comply with forest protection and development policies

☐ Better forest quality

☐ Worse forest quality

☐ Better income

☐ Worse income

☐ People's lives are better (more jobs, better roads, funded public projects etc.)

☐ People's lives have not improved

☐ Other: .....

14.18. Has the PFES program had any negative impacts on your household (for example, no more timber or forest products)?

……

……

14.19. What do you think the PFES program should do/change to have a better impact on your village?

……

……

Additional information gathered by interviewers:

……

……

……

……

This policy learning tool is primarily designed for policy makers and government officers who need to carry out M&E and report on the progress and impact of Payment for Forest Environmental Services (PFES policies). While this policy learning tool is designed to meet policy makers' need to understand the impact, opportunities and challenges of PFES, it can also be adapted by analysts, program sponsors and managers, practitioners in research and research funding organizations, and professional evaluators for their own needs in understanding and identifying areas for PFES improvement.

Norad

European Commission

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

Supported by:

Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

based on a decision of the German Bundestag

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