

**FINAL**

Technical Review Report

**REVIEW AND FORMULATION OF THE M&E POLICY  
DECISION ON PFES**

**Angus McEwin**

**Nguyen Manh Ha**

**September 2015**

## Table of contents

Executive Summary .....	8
A. Introduction .....	10
1. Background .....	10
2. Objectives of the Review .....	11
3. Scope of the Review.....	11
4. Approach and Method .....	12
a. Work-Plan .....	12
b. Participation .....	12
c. Data and data sources.....	12
d. Lessons learned.....	13
e. Analysis.....	13
f. M&E System .....	13
B. Review of the Current National Forest M&E System .....	13
1. Forest Management and Protection in Viet Nam.....	13
a. Forest Management.....	13
b. Forest Ownership.....	14
c. Forest Protection Responsibilities.....	15
d. Forest Protection Groups or Communities.....	16
e. Forest Protection System.....	16
f. Funding for Forest Protection .....	17
2. Forest Monitoring and Evaluation .....	18
a. Monitoring and Evaluation Components .....	18
b. On-the-ground Monitoring and Evaluation .....	18
c. Satellite imagery and forest mapping.....	19
3. Overview of the PFES Policy.....	22
a. Objectives and Scope of the PFES Scheme .....	22
b. PFES Stakeholders.....	23
c. Forest Ownership and Management under PFES .....	24
d. Forest Protection Responsibilities under PFES .....	24
e. System of Forest Protection under PFES .....	25
f. PFES Fund Management .....	25
4. PFES Monitoring and Evaluation.....	25
a. Monitoring and Evaluation .....	25
b. Current M&E of Forest Impacts .....	26

c.	M&E of Socio-economic Impacts .....	28
d.	Operational M&E.....	29
e.	PFES M&E Indicators .....	32
<b>C.</b>	<b>Strengths and Weaknesses of the PFES Scheme .....</b>	<b>34</b>
1.	SWOT Analysis .....	34
2.	Strengths .....	34
3.	Weaknesses and Shortcomings .....	35
4.	Opportunities .....	39
5.	Threats .....	40
<b>D.</b>	<b>M&amp;E Experiences and Lessons Learned .....</b>	<b>42</b>
1.	Other projects and initiatives .....	42
2.	National Forest Inventory and Statistics .....	43
3.	ForMIS.....	43
4.	REDD+ Monitoring, Reporting and Verification .....	44
5.	IP FES .....	45
6.	DPFES.....	45
7.	Sustainable Forest Management in the Northwest Watershed Area.....	47
8.	Forest Certification for Ecosystem Services.....	48
9.	SNV Participatory Forest Monitoring .....	48
10.	Forest Biodiversity .....	49
<b>E.</b>	<b>Data and Data Sources.....</b>	<b>50</b>
1.	Existing M&E indicators and systems.....	50
2.	Forest Data.....	51
a.	National Forest M&E System.....	51
b.	Forest Protection Department.....	51
c.	Department of Forestry.....	52
d.	National Forest Inventory and Statistics Programme (NFIS).....	52
e.	Forest Owners and Contractors.....	53
f.	MONRE.....	54
3.	Forest Ecosystem Services Data .....	54
a.	Water Flow Regulation and Water Quality.....	54
b.	FESs provided to Tourism .....	55
4.	Socio-economic Data .....	56
a.	MoLISA .....	56
b.	Commune People's Committees .....	57
c.	Village Management Boards.....	58
d.	Other sources of Socio-Economic Data.....	58

5.	Operational Data .....	58
F.	Principles of Monitoring and Evaluation .....	59
1.	M&E Systems .....	59
2.	Indicators .....	60
G.	Proposed PFES M&E System.....	61
1.	Objectives of the PFES M&E System.....	61
2.	Scope of the PFES M&E System .....	62
3.	Responsibilities.....	62
a.	VNFF.....	62
b.	FPDFs.....	63
c.	Forest Protection Department/ Department of Forestry .....	63
d.	Forest Owners/ Contractors .....	63
4.	Data Management.....	64
5.	Data Sources and Format .....	64
6.	PFES Administrative Data .....	65
a.	Data needed for Implementation and Operation.....	65
b.	PFES Areas .....	65
c.	PFES Forest Titles and Plots.....	66
d.	Forest Owners/ Contractors .....	69
7.	Proposed Indicators.....	72
a.	Indicators .....	72
b.	Implementation and Operational Indicators .....	72
c.	Data and Indicators for the Impacts of PFES on the Forests.....	78
d.	Proposed Indicators for Impacts on FESs .....	85
e.	Proposed Socio-Economic Indicators .....	88
f.	Proposed Institutional Indicators.....	92
g.	Periodic Monitoring and Evaluation .....	94
8.	M&E Mechanisms and Procedures .....	94
a.	Updated Satellite Imagery Maps.....	94
b.	Data and reporting integration .....	95
c.	Forest Protection Groups and Patrol Protocol .....	95
d.	Mobile Monitoring Technology .....	95
e.	Village Funds and Management Boards.....	96
f.	Third-Party Independent Evaluation .....	97
g.	Transparency and Grievance Mechanisms .....	98
H.	Further Work and Next Steps.....	99

## Annexes

Annex 1: List of stakeholders consulted during the Study

Annex 2: Summary of PFES administrative data

Annex 3: Summary of proposed PFES M&E Indicators

## List of Tables

<b>Table 1: PFES Stakeholders</b> .....	23
Table 2: Administrative data and operational M&E requirements in the legislation .....	29
Table 3: Circular 80, PFES administrative data .....	32
Table 4: Current PFES M&E indicators.....	33
<b>Table 5: PFES Stakeholders and Important M&amp;E information</b> .....	61
Table 6: Existing PFES administrative data on PFES Areas and Buyers .....	66
Table 7: Existing PFES administrative data on PFES forest areas.....	67
Table 8: Existing PFES administrative data on Forest Owners/ Contractors .....	69
Table 9: Proposed additional administrative socio-economic data on Forest Owners/ Contractors.....	70
Table 10: Operational Indicators based on existing monitoring and reporting .....	72
Table 11: Existing Operational Indicators for data on each Forest Owner/ Contractor type .	74
Table 12: Existing Indicators for Payments and Disbursements .....	75
Table 13: Proposed Additional PFES Payment Indicators .....	76
Table 14: Existing Fund Management Indicators .....	77
Table 15: Proposed Forest Protection Input Indicators .....	78
Table 16: Reasons for Changes in PFES Eligibility .....	80
Table 17: Indicators of Forest Outcomes from PFES (based on existing data) .....	81
Table 18: Proposed additional Indicators of Forest Outcomes .....	82
Table 19: Proposed Indicators of Forest Protection Outputs .....	83
Table 20: Proposed Water Quality Indicator .....	86
Table 21: Proposed Indicators for FESs provided to Tourism.....	87
Table 22: Proposed Socio-Economic Indicators .....	89
Table 23: Proposed Indicators of Institutional Impacts.....	92

## List of Figures

Figure 1: Forest Ownership and Protection Responsibilities.....	16
Figure 2: Proposed data management system for PFES M&E .....	64

## List of Abbreviations

ADB	Asian Development Bank
CIFOR	Centre for International Forestry Research
CPC	Commune Peoples' Committee
DARD	Department of Agriculture and Rural Development
DPFES	The Development of Informative Database on Payment for Forest Environmental Services in Vietnam project
FES	Forest environmental services
FIPI	Forest Inventory and Planning Institute
ForCES	Forest Certification for Ecosystem Services
FPD	Forest Protection Department
FPDF	Provincial Forest Protection and Development Fund
FSC	Forest Stewardship Council
GMS	Greater Mekong Subregion
GoV	Government of Viet Nam
HC	Hydropower Catchment
IP-FES	The Improving Payment for Forest Ecosystem Service Implementation project
M&E	Monitoring and Evaluation
MARD	Ministry of Agriculture and Rural Development
MoLISA	Ministry of Labour, Invalids and Social Affairs
MoNRE	Ministry of Natural Resources and Environment
MRV	Monitoring, Reporting and Verification
NFIS	National Forest Inventory and Statistics programme
NFIMAP	National Forest Inventory and Monitoring Programme
NGO	Non-Government Organization
NTFP	Non-Timber Forest Product
PC	Peoples' Committee
PES	Payments for environmental services
PFES	Payments for forest environmental services
PFM	Participatory Forest Monitoring
REDD+	Reducing deforestation and degradation of forest resources in developing countries

SUSFORMNOW	Sustainable Forest Management in the North-West Watershed Area
SWOT	Strengths, weaknesses, opportunities and threats
TA	Tourist Area
TSS	Total Suspended Solids
VNFF	Viet Nam Forest Protection and Development Fund
VNForest	Viet Nam Forestry Administration
WSC	Water Supply Catchment

## Executive Summary

The Viet Nam Forest Protection and Development Fund (VNFF), with support from the Asian Development Bank (ADB), recently completed a small project to identify lessons learned from Viet Nam's experience in PFES implementation and to technically support the development of an M&E framework for Viet Nam's PFES scheme. The objectives of the Review are to (i) identify lessons learned from Viet Nam's experience in PFES implementation for wider dissemination in the GMS; and (ii) technically support the formulation of Viet Nam's M&E Policy Decision, including measures and targets, for monitoring the impacts of the PFES policy and PFES activities.

The main target groups for the Review are central government authorities under the Ministry of Agriculture and Rural Development (MARD), managers and staff of provincial Forest Protection Development Funds (FPDFs), PFES users (buyers) and PFES suppliers. It is recommended that the M&E system is designed to enable M&E of two components or aspects of the PFES scheme:

- a) The implementation and operational performance, particularly the management of the PFES funds paid by Buyers; and
- b) The effectiveness of the scheme in meeting its stated objectives, namely the protection of forests and FESs, and positive socio-economic impacts on forest communities.

Component (a) entails mostly M&E of inputs and outputs of the scheme, in terms of activities, fund flows and use of resources, whereas component (b) entails mostly M&E of the impacts and outcomes of the PFES scheme.

It is recommended that the M&E system should serve the needs and interests of all groups of stakeholders, including the Buyers and the Suppliers of the FESs, not just the administrative and government agencies. Thus, the scheme should be transparent and provide access to information for all stakeholders. This should include information on the provision of the FESs and the socio-economic impacts of the scheme.

Given the short time and limited resources allotted, the Review did not attempt to assess and provide detailed recommendations on all the parts of a PFES M&E system. Rather, the scope of the evaluation and recommendations in this Review is focused the criteria and indicators to be measured, and the M&E mechanisms and procedures.

*Responsibilities.* The following responsibilities and key tasks are proposed:

- |       |   |
|-------|---|
| VNFF  | <ul style="list-style-type: none"><li>➤ Takes the main responsibility for the PFES M&amp;E system, with support from the FPDFs and other stakeholders</li><li>➤ Establishes and maintains a PFES database in accordance with that proposed by the DP-FES project and integrates this database into the ForMIS platform</li></ul>  |
| FPDFs | <ul style="list-style-type: none"><li>➤ Take responsibility for reporting the performance of the scheme in each province in accordance with a report template developed to include requirements to monitor and evaluate key operational and implementation indicators</li><li>➤ Capture and monitor more detailed socio-economic data on the Forest Owners/ Contractors during the PFES contracting process</li></ul> |
| FPD   | <ul style="list-style-type: none"><li>➤ FPDs and Departments of Forestry in each province work more closely with the FPDFs to ensure consistency of data and to reduce overlap of M&amp;E effort</li></ul>  |

- As proposed by the IP-FES project, each provincial FPD updates the NFIS detailed maps of each PFES forest area annually, based on updated satellite imagery data and with technical support from VNFF
- Forest Owners/ Contractors
- A mechanism is developed to ensure that data from forest patrols undertaken by Forest Owners/ Contractors is enhanced and standardized and that more of this data is captured in the M&E system

*Data format.* Forest data in Viet Nam is increasingly map-based, including the new ForMIS system. Geographic Information Systems (GIS), Global Positioning Systems (GPS), satellite imagery and remote sensing technology is all used to develop detailed maps of each forest area with different ‘layers’ of data. These maps are used as the basis for M&E of the forests. Therefore, it is proposed that forest data is monitored in map format integrated with forest statistics.

*Data Management.* The management of the various sources of forest and PFES data is proposed to be based on a PFES database that draws data from the FPDFs, the Forest Owners/ Contractors, the Buyers, and ideally, MoLISA. The PFES database, the NFIS database, and the FPD and Department of Forestry databases would be integrated and linked via the ForMIS platform, thus allowing data to be integrated and shared.

PFES payments are based on the area of forest owned by Forest Owners or subcontracted to Forest Contractor households or Groups, or to Forest Protection Staff (i.e. the forest Title or Contact Area, referred to here as the “forest Title”). Therefore, it is proposed to monitor at least some forest data to the level of the forest Title, as this is needed to determine the eligibility of potential PFES Titles to receive PFES payments and also, in some cases, the level of payment due.

*Indicators.* Over 40 PFES Indicators are proposed, though most of these, or the data required for them, is already monitored and available from the data sources listed above. Indicators are designed to enable M&E of the:

- Implementation and operation of the scheme (16)
- Impacts of the scheme on forests (14)
- Impacts of the scheme on FESs (3)
- Socio-economic impacts of the scheme (6)
- Institutional impacts (these could also be defined as implementation and operational indicators) (4)

*Monitoring Mechanisms.* Several mechanisms for M&E were also proposed, including:

- Greater use of satellite imagery forest maps, updated at least annually
- Group forest patrols and Group reporting against a standard protocol
- Use of mobile monitoring technology (e.g. smart phones loaded with forest maps and monitoring templates, cameras, GPS and internet upload capability)
- Third-party independent evaluation of the scheme’s performance and impacts

# **A. Introduction**

## **1. Background**

Natural capital, such as forest, land, and water resources and related ecosystem services, underpins economic growth in the Greater Mekong Subregion (GMS) but is under increasing pressure from rapid development and climate change. For example, biodiversity- and ecosystem service-rich natural forests continue to be destroyed or degraded at alarming rates, largely driven by conversion to commercial plantations and other land-uses. An estimated 10-12 percent of the subregion's gross domestic product is lost every year through the over-exploitation of forests, land, wildlife and fisheries, as well as pollution. As these natural capital stocks decline, so do their ecosystem services, such as climate regulation, soil productivity, and maintenance of water quality and quantity. While these losses impact broadly, nowhere are they felt more directly than at the local level. Millions of the subregion's rural poor directly depend on healthy soil and forests, as well as quality water and climate, for livelihoods largely based on small-scale agriculture, fisheries, and the use of forest products.

In recent years, understanding about the importance of ecosystem services for rural livelihoods and society more broadly has increased worldwide. This is incentivizing governments to make greater efforts to protect and sustainably manage its natural capital. For example, payments for environmental services (PES) schemes have been introduced by many governments to address market failures by properly valuing ecosystem services and, thereby, contribute to poverty reduction and conservation. With success stories evident from around the world, these schemes are being piloted and promoted in GMS countries.

Viet Nam has taken a lead within the GMS in piloting a payment for forest environmental services (PFES) scheme and mandating payments at the national level. The goals of the PFES scheme are to improve forest quality and quantity, increase the forestry sector's contribution to the national economy, reduce the State's financial burden for forest protection and management, and improve social well-being. The Government of Viet Nam (GoV) has issued legislation to implement and guide the scheme.

Following on from the initial success of the piloting phase from 2008 to 2010, in September 2010 the GoV issued Decree No. 99/2010/ND-CP (Decree 99) on the implementation of the PFES policy. The PFES scheme has now been implemented across the nation for about three years, with differing levels of progress in the different provinces. The implementation has been broadly successful, however, besides the benefits, various shortcomings have been identified, including low disbursement rates of PFES revenue and inadequate monitoring and evaluation (M&E) of the scheme.

To examine these and other shortcomings of Decree 99 and to gain a better understanding of M&E issues of the PFES scheme, it is necessary to objectively review the implementation arrangements of the policy, especially the M&E system. The findings from this review will contribute to improving the PFES M&E system for assessment of the conditions on-the-ground in Viet Nam.

This Review of M&E of the PFES scheme is funded by the ADB Environment Operations Center under its Core Environment Program, in cooperation with the Viet Nam Forest Protection and Development Fund (VNFF). An international and a national consultant were engaged to undertake the Review between May and September, 2015. Lessons learned from Viet Nam's experience will be valuable knowledge for sharing with other ADB Working Group on Environment partners in the GMS.

## 2. Objectives of the Review

The objectives of the Review are to:

- Identify lessons learned from Viet Nam's experience in PFES implementation for wider dissemination in the GMS; and to
- Technically support the formulation of Viet Nam's M&E Policy Decision, including measures and targets, for monitoring the impacts of the PFES policy and PFES activities.

The main target groups for the Review are central government authorities under the Ministry of Agriculture and Rural Development (MARD), managers and staff of provincial Forest Protection Development Funds (FPDFs), PFES users (buyers) and PFES suppliers.

## 3. Scope of the Review

The scope of the Review is focused on M&E issues within the PFES scheme. The Review aims to:

- Analyse the existing data on PFES implementation in Viet Nam and identify the strengths and weaknesses, with a focus on M&E issues;
- Provide technical support to VNFF to identify the procedures, indicators, tools, standards and mechanisms necessary to formulate an improved M&E framework for the PFES scheme;
- Facilitate the formulation of an M&E Policy Decision for MARD; and
- Identify lessons learned for disseminating as a knowledge product to share with the Working Group on Environment and other partners in the GMS.

The Review will cover the two main components of the M&E system of the PFES scheme, namely:

- i. M&E of inputs and institutional operation, and
- ii. M&E of impacts, as measured against the PFES objectives, including environmental and socio-economic impacts.

The scope of Decree 99 covers five potential types of PFES:

1. Watershed protection, for hydropower plants
2. Water supply/ quality maintenance, for water supply companies
3. Natural beauty and biodiversity, for tourism companies
4. Carbon sequestration and storage, for combating global climate change
5. Fisheries nursery and habitat and other ecosystem services, for aquaculture farmers

However, only PFES types 1-3 have been effectively implemented so far in Viet Nam, though PFES for tourism services (3) is very limited. PFES for carbon sequestration and storage (4) is currently being developed as part of national and international negotiations and frameworks, including a detailed monitoring, reporting and verification system. PFES for aquaculture is complex and still being piloted and assessed in Viet Nam. Therefore, a review

of the M&E system for PFES for carbon and aquaculture are not included within the scope of this Review.

The Review provides concrete policy recommendations for PFES related to M&E, including:

- Objectives of M&E
- The framework for PFES M&E
- Targets and indicators
- Data requirements
- Monitoring procedures and guidelines
- Evaluation procedures and guidelines

## **4. Approach and Method**

### **a. Work-Plan**

A national and an international consultant were engaged to undertake the Review with the support of ADB and VNFF. The work-plan comprised (i) consultation with stakeholders in six provinces (18 days), (ii) consultation with central level stakeholders (10 days), (iii) two technical meetings in Hanoi (2 days), (iv) research and reporting (12 days), and (v) finalisation of reports and deliverables (2 days). During this limited time, it was attempted to review the PFES scheme and particularly the M&E system, understand the context of the scheme, identify and understand available data sources, draw out lessons learned from other projects and programmes, and finally to also design and develop a new M&E system for PFES scheme.

### **b. Participation**

The process of developing revisions to the M&E system is important. Participation by all stakeholders is critical for a successful design and for the acceptance of the new system. Therefore, the Review is based on broad consultation with PFES stakeholders at the central, provincial, and local levels. Consultation included meetings and interviews with the various stakeholders, in groups and individually. The Review team travelled to six different provinces in Viet Nam with PFES experience to consult with provincial authorities and buyers and suppliers. Consultations generally took the form of semi-structured interviews. An initial technical meeting with key central stakeholders was held in Hanoi in June and a final technical meeting was held in September to discuss the findings and recommendations with key stakeholders. Participants included central GoV authorities, GoV research institutes, non-government organisations (NGOs) and independent experts. A list of stakeholders consulted during the Review is provided in Annex 1.

### **c. Data and data sources**

The M&E system is dependent on data. Therefore, the Review focused on the practical issues associated with generating and collating reliable data on forests, forest environmental services (FES's) and socio-economic indicators. To be practical and effective, as well as to be accepted as legitimate, the M&E system must be integrated with existing and planned monitoring and database systems of the GoV agencies. This is also necessary to reduce overlap and the need to collect additional data, and thus to reduce costs. The Review thus includes a review of existing and planned monitoring and database systems in Viet Nam,

particularly related to forest monitoring. An overview of data sources is provided in Section E.

#### **d. Lessons learned**

There are several other projects and programs that have been undertaken or are being undertaken in Viet Nam that are relevant to M&E of forests and PFES. These include GoV projects as well as donor-funded and NGO projects. The Review identifies and investigates some of these other projects and initiatives with the aim of drawing out lessons learned as well as existing M&E ideas and frameworks. In most cases, the project proponents were interviewed and given an opportunity to put forward ideas and comments. Due to time constraints, the review was rapid and included only the most relevant projects. An overview of other projects and initiatives and lessons learned is provided in Section D.

#### **e. Analysis**

As a tool to evaluate the current M&E system and identify shortcomings and potential areas for improvement, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was undertaken. The results of the SWOT analysis is provided in Section C.

#### **f. M&E System**

Based on the research and analysis, a PFES M&E framework is proposed. A set of M&E indicators is proposed, along with data requirements, data sources, data collection mechanisms and responsibilities. In addition, several initiatives are identified that have the potential to improve PFES M&E in the longer term.

## **B. Review of the Current National Forest M&E System**

### **1. Forest Management and Protection in Viet Nam**

#### **a. Forest Management**

The PFES policy is one of several forest policies in Viet Nam. As a relatively recent policy, it was designed to sit within and integrate into the existing forest policy framework and institutional structure in Viet Nam. Thus an understanding of this context is important to understand the scheme.

In Viet Nam, forests are managed by the Ministry of Agriculture and Rural Development (MARD). The Viet Nam Administration of Forestry (VNFOREST) was established in 2010 as an agency under MARD with the function of advising and assisting MARD manage forestry in the country.

Each province also has a Provincial Department of Forestry and Provincial Forest Protection Department (FPD), which sit within the Provincial Department of Agricultural and Rural Development (DARD). The Forestry Department performs GoV administration tasks on forest development and manages forest exploitation and planning. The FPD advises and assists VNFOREST in implementing GoV management on forest protection, and ensuring legal enforcement of forest protection. At the district level, FPD also has a District FPD with several FPD stations staffed with rangers that are assigned to protect the forest area in each commune. The GoV has plans to merge the Forestry Department and the FPD into one single agency.

The Forest Inventory and Planning Institute (FIPI) is a public service unit under MARD which performs functions on basic inventory of forest resources, planning, and surveying of forests and forestry land in the whole country. FIPI is responsible for much of the central level forest mapping and monitoring.

The Ministry of Natural Resources and Environment (MoNRE) is also involved in some related aspects of forest management such as land use and biodiversity protection, which sometimes leads to confusion and overlap of responsibilities.

Forests in Viet Nam are categorised into three functional categories, namely Special Use Forest (SUF) managed mainly for conservation, Protection Forest, managed mainly for protection of forest ecosystem services, watershed and coastal protection, and Production Forests, managed mainly for timber and/or NTFP exploitation. Different activities and uses are allowed in each forest function type. Most large forest areas are managed by either a Forest Management Board (FMB) or a State Forestry Company (SFC) depending on the function of the forest and the ownership status (see below).

The main forestry policy and strategy developed by MARD is the "National Forestry Development Strategy for 2006-2020 (NFDS)", which seeks to balance the push for economic growth with the social and environmental aspects of forestry. The objectives of the NFDS include ensuring wider participation of various economic sectors and social organisations in forest development; increasing contributions of the forestry sector to socio-economic development, environmental protection, biodiversity conservation and environmental services supply; and reducing poverty and improving the livelihoods of rural people in the mountainous area." (MARD 2007: 45). The NFDS contains three development programs and two support programs, including forest monitoring<sup>1</sup>.

The Forest Protection and Development Plan 2011-2020 (FPDP), as approved in Decision 57/QD-TTg (2012), has objectives that are broadly aligned with the NFDS, though it contains less details about forest products and more detail with regards to forest protection and associated afforestation targets. The FPDP aims to protect the nation's existing forests, primarily by reducing incidents of forest violations, and also to increase the total forest area.

Vietnam's Forest Protection and Development Law (No. 29/2004/QH11) sets out rules for, among other things, forest classification; the GoV's rights in relation to forest protection and development; allocation of forests to village communities; forest statistics and inventory; monitoring of forest resource development; and responsibilities for forest protection. The Law specifies a range of prohibited acts, including illegally logging or exploiting forests; illegally destroying forest resources or ecosystems; illegally encroaching upon, appropriating, or changing the formal purposes of forests; and, grazing cattle in strictly protected zones of SUFs or newly planted forests, amongst others (Article 12). On 8 February 2012, the Prime Minister promulgated additional regulations strengthening enforcement of forest protection measures (Decision No. 07/2012/QD-TTg).

## **b. Forest Ownership**

The Constitution of Viet Nam states that all forest resources (including land, trees, and wildlife) are owned by Vietnamese citizens. The GoV, on behalf of the people, legally entrusts the management of forests to specific groups. Six types of forest "owners" (effectively leaseholders) are recognised in Viet Nam:

---

<sup>1</sup> VNFOREST 2013, Viet Nam Forestry

- i. State forest enterprises, State forest companies, and joint venture enterprises (“Forest Enterprises”);
- ii. Forest Management Boards (FMBs) for Protection Forests and SUF forests;
- iii. Army units;
- iv. People’s Committees (PCs);
- v. Individual households and individuals; and
- vi. Collectives.

The first four types of Forest Owners are organisations, here referred to as “Org Owners”. The final two types of Owners are referred to here as “HH Owners” and can include Groups, such as villages and communities. In accordance with the Forest Protection and Development Plan, VNForest aims to allocate all areas of eligible forest to appropriate owners. However, progress towards this objective varies among the provinces.

These six types of Forest Owners are represented in three forest tenure arrangements. Private tenure, the most common form of tenure, applies to State enterprises, joint venture enterprises and individual households. Under this arrangement forest is allocated to the tenure-holder for long-term management (typically 50 years). Most forest tenure holders under this arrangement are entitled to a legal land-use certificate. State tenure applies to FMBs, army units, PC’s and collectives. Under this arrangement forests are typically allocated for an unspecified period. For SUF or Protection Forests managed by FMBs, tenure holders are entitled to receive a management budget from the State. Finally, common tenure is found in forest managed by collectives legally recognised by the state. Currently, only a small area of forest falls under common tenure arrangements which are typically allocated for an unspecified period<sup>2</sup>. All the Forest Owners are overseen by the GoV, particularly by FPD and their staff from provincial level to commune level (i.e. FPD rangers).

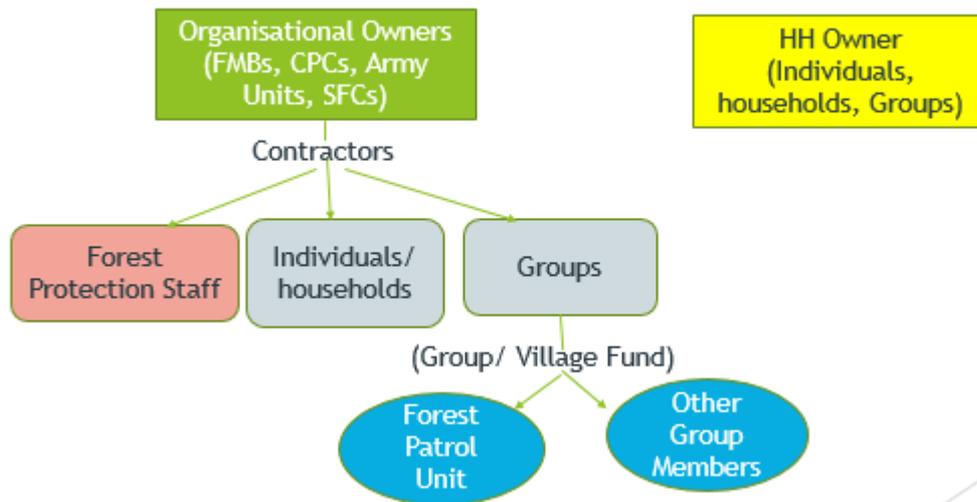
As outlined in the Law on Forest Protection and Development and various associated regulations, Forest Owners have specific user rights to their forest area, depending on the forest function type. Rights might include use of non-timber forest products (NTFPs) and, in Protection and Production Forests, rights to exploit timber in accordance with specific guidelines and restrictions.

### **c. Forest Protection Responsibilities**

The key agents for forest protection are the FPD, the Forest Owners and Commune People’s Committees (CPCs). Forest Owners are responsible for managing and protecting the forests that they own. Org Forest Owners, such as FMBs, CPCs, or SFCs, often sub-contract local households or groups of households (Groups) to protect the forest areas under their management. Alternatively, Org Owners may decide to sub-contract and supervise full-time Forest Protection Staff rather than Forest Contractor households (Figure 1).

---

<sup>2</sup> [www.thereddesk.org](http://www.thereddesk.org)



**Figure 1: Forest Ownership and Protection Responsibilities**

Under this system, Forest Owners then may subcontract areas of forest land of varying sizes to Forest Contractors to protect in exchange for sustainable use rights and sometimes also a small annual payment per hectare from a GoV programme (see below section on Funding). Forest Contractors are usually local households and/or communities. In some areas, the FMBs do not allocate land to Contractors but instead contract additional full-time protection staff (Protection Contract Staff) to protect the forest. In addition to complying with the forest regulations themselves, the Forest Owners and Forest Contractors are charged with protecting the forest from illegal exploitation by other people. However, while they have the responsibility to protect the forest, only the FPD is empowered to enforce forest protection laws.

#### **d. Forest Protection Groups or Communities**

Increasingly, forest areas are being allocated to communities or villages rather than individual households. Similarly, Forest Owners are sub-contracting forest communities, villages, or groups of households as Contractors rather than individual households. HH Forest Owners also often organize themselves into Groups to undertake their forest protection responsibilities. Under this approach, Groups are allocated an area of forest collectively or combine their individual forest areas for the purposes of collective management and protection. The Groups or communities then organize themselves, with assistance from the Forest Owners, to manage and protect the forest. They usually form a Patrol Group comprising members of the village or community selected based on their suitability for the task, often comprising many or even all households in the community engaged on a rotational basis.

There are many advantages of this Group approach, not least being that it promotes equity and fosters a shared responsibility for forest protection by the whole community. Groups are also easier for Forest Owners and authorities to engage and manage (ADB 2014). The Group approach also offers many advantages for PFES implementation, as discussed in Section E.

#### **e. Forest Protection System**

While the responsibilities for forest protection are generally clear, the protection system and required activities to protect the forest are not so clear or consistent.

**Forest Owners/ Contractors.** Forest protection contracts are generally vague with regards to the actual tasks required and the obligations of Forest Contractors. Forest protection activities of Forest Owners and/or Forest Contractors are largely limited to:

- Abstaining from undertaking illegal clearing, encroachment, logging or unsustainable harvesting of NTFPs themselves;
- Undertaking patrols through their forest area to identify forest regulatory violations, including evidence of forest violations;
- Reporting to FDP and possibly also the CPC or FMB regarding any violations, or evidence of violations, observed.

In many respects, the forest protection system as implemented by the Forest Owners/ Contractors is actually a forest *surveillance* system, or indeed, a forest monitoring system. Importantly, it is difficult to penalise Forest Owners/ Contractors if their allocated area of forest is not adequately protected because, under the current system, only those people actually responsible for the forest violations can be penalised.

Forest Owners and/or Forest Contractors undertake forest patrols, either individually or in Groups. However, in almost all cases, there is no clearly defined procedure or protocol for these patrols, nor a mandated routine. Forest protection contracts sometimes include a mandated minimum number of patrols per month but there is generally no further guidance as to the routes of the patrols or actions to take during patrols. As discussed above, the Forest Owners and Contractors are required to protect the forest and monitor violations but are not empowered to enforce forest regulations or apprehend offenders.

In the case of Org Forest Owners such as FMBs or CPCs, the FMB/ CPC staff assist and supervise the Forest Contractors and also can undertake some forest patrols themselves or accompany the Forest Contractors on some patrols. These accompanied patrols also serve as a way of checking or verifying the condition of the forest and verifying that the forest is being effectively protected by the Contractors.

In most cases, Forest Owners and/or Forest Contractors are required to develop a forest protection and management plan for their area of forest. For PFES, Forest Owners must report against this and it must be approved before payments can be received.

**Forest Protection Department.** The FPD in each province is responsible for forest protection, including identification, investigation and prosecution of violations of forestry regulations. In most forest areas, there is one FPD ranger per commune. The FPD ranger will supervise the Forest Owners and Forest Contractors to protect the forest. The rangers participate in some of the forest patrols undertaken by the Forest Owners/ Contractors and provide oversight, legal support and technical assistance. The rangers also investigate and where possible prosecute incidents of forest violations, as identified and reported by the Forest Owners or Contractors.

**Reporting.** To a large extent, the forest protection activities are in fact forest monitoring activities, as the forest patrols are focused on identifying and verifying violations of forest regulations such as incidences of illegal logging or clearing. The system for monitoring and evaluating forests is described in the following section.

#### **f. Funding for Forest Protection**

Out of a total national forest area of over 13 million hectares, the State budget funds forest protection contracts for 2.43 million ha of forest, including 1.08 million ha in 62 poor districts;

489,000 ha of crucial protection forests at high-risk for encroachment, and 862,000 ha of SUFs in border districts and islands in provinces with limited budgets (in accordance with Decision No.24/2012 QD-TTg). The PFES scheme provides some funding for 4 million ha of forest. Protection for the remaining area is funded from local budgets and Official Development Assistance funds (VNForest 2014).

Under the Forest Protection and Development Plan, some funding is provided to Forest Owners in some areas for forest protection activities through the national budget. The Forest Protection and Development Plan follows on from the previous Programme 661, which aimed to reforest 5 million hectares, and many of the systems and procedures, such as allocation of forest areas to households and communities, are carried over from this programme. However, this funding is far from sufficient to provide Forest Owners with forest protection funds in all areas.

In 2014, the Prime Minister issued the Decision No. 2242/QD-TTg approving the "Project for strengthening management of natural forest exploitation for the period 2014-2020" with the overall objective of strict management of natural forest exploitation, control of illegal logging, and effective protection of existing natural forests. The State provides funding to be extracted from the State Budget to protect natural forests of forestry companies which are suffering from the logging bans imposed under this project. The subsidy in 2014 was generally regulated with a norm of 200,000 VND/ha/year paid to Forest Owners.

## **2. Forest Monitoring and Evaluation**

### **a. Monitoring and Evaluation Components**

The Law on Forest Protection and Development identifies three types of tasks associated with forest inventorying, monitoring, and assessment: forest statistics, forest inventory, and monitoring changes in forest resources. The current system for forest M&E in Viet Nam thus comprises two components or levels:

- i. On-the-ground forest monitoring based on forest patrols and recording planned forest changes conducted on an annual basis
- ii. Forest mapping using remote sensing: satellite imagery, and geographic information systems conducted periodically (usually every 5 years)

### **b. On-the-ground Monitoring and Evaluation**

On-the-ground M&E of forests is undertaken via the Annual Forest Statistics and Reporting Programme. In accordance with Directive No. 32/2000/CT-BNN-KL issued in 2000 by MARD, FPD and its sub-offices at provincial, district and commune levels are assigned to monitor forest resource changes nation-wide, with the support of DARD. This on-the-ground M&E is used to track annually the area of forest, changes in the area, areas of different existing forest and forest land types, and to identify causes of reported forest losses. This information is used to inform forestry policy decision-making at the local and central levels.

On-the-ground forest monitoring is undertaken as the changes occur and is based on observations of forest changes as observed and reported during forest patrols, and also recording of planned forest changes, such as planned harvesting or forest conversion. The FPD rangers in the communes prepare a regular report to the district FPD. This data is aggregated by the provincial FPD and submitted quarterly and annually to the central FPD (under MARD) for annual reporting at the provincial level.

For forest protection, this system captures illegal forest activities as identified during forest patrols and verified and reported by the FPD. Therefore, the reports of forest violations by FPD are the key monitoring indicators, and include the location, type and extent of the violation as well as enforcement actions taken. FPD has a set template for reporting forest violations.

In this way, the forest monitoring data from the FPD ranger patrols is captured in the national M&E system, though the system is largely paper-based at the commune level and relies on manual entry of patrol reports and violation reports. It is also not clear to what extent observed violations that are not prosecuted are reported. However, there is often only one FPD ranger per commune and thus only a few FPD ranger patrols per commune per month, which means many areas of forest are rarely patrolled by rangers. As a result, the on-the-ground forest monitoring is limited by the effectiveness of the patrols. It can also be relatively subjective and there is little if any assessment of forest quality.

The first level of forest monitoring and reporting with regards to forest protection is the forest patrols undertaken by Forest Owners and/or Forest Contractors. These patrols are more comprehensive and frequent as there are many more Owners/Contractors or Groups per forest area than rangers. However, for these patrols, there is no established consistent or standard national procedure or format to plan the patrols and report on the results. Different FMBs, FPD units and PCs employ different methods. In some cases templates have been developed for reporting patrolling activities, observed violations, or observed evidence of violations. Generally, reports of some kind, verbal or written, are made to the local commune PC, Forest Owners and/or FPD ranger by the Forest Contractors, with subsequent further reporting by FPD of follow-up actions. Despite the lack of a clear and consistent protection and reporting protocol, the patrols and associated reporting by Forest Owners and Contractors forms an important part of the national forest M&E system. However, under the current system, much of the forest monitoring information from Forest Owner/ Contractor patrols is not captured in the M&E system.

In addition to illegal or unplanned changes in the forest area, changes in the forest area may also occur in accordance with forest development plans developed by the Forestry Department (DARD) and Forest Owners. Changes may include conversion of forest areas to other land use types, conversion of natural forest to plantation forest, harvesting of some areas, and replanting and planting of areas including afforestation of bare land. Data on these legal changes to the forest area is then used to update the forest inventory database and forest maps. Differences between what is planned and reported and what actually occurs can lead to discrepancies between the official maps and records and the actual forest area.

Based on this data from the on-the-ground monitoring by FPD and the Department of Forestry, forest maps are updated using the inventory stock-change method. Changes in forest inventory are evaluated against the baseline forest inventory data and baseline forest maps (see below). In addition, FPD are responsible for reconciling changes in the forest area against the updated forest statistics database.

More detail about the forest data monitored and collated through this on-the-ground monitoring system is provided in Section E below.

### **c. Satellite imagery and forest mapping**

As part of general forest management and protection in each province, the forest area has been mapped and regularly updated using satellite imagery, geographic information systems

(GIS) and remote sensing (RS), which is verified by the on-the-ground monitoring by FPD described above. Each forest area is mapped and categorised in accordance with the forest administration function (Special Use, Protected or Production forest), the forest 'origin' (natural or plantation) and the forest condition (very poor, poor, medium or rich). Forest areas are organized into 'compartments' and 'sub-compartments' and 'plots'.

In most cases, these maps, including their boundaries and forest information, are used as the official records relied upon for forest allocation and management by the authorities at the district and commune level. However, this has caused problems in the past as the forest maps are often not accurate or updated with actual forest information and borders on the map are not demarcated in the forest<sup>3</sup>.

**FIPI, National Forest Inventory.** The National Forest Inventory, Monitoring and Assessment Programme (NFIMAP) of Viet Nam has been implemented since 1991. The FIPI is the main agency responsible for NFIMAP. Since then, four cycles of the NFIMAPs have been conducted every five years for the periods of 1990-1995, 1996-2000, 2001-2005, and 2006-2010. The current cycle, 2011-2015, has not yet been approved, likely due to the fact that there is a new programme running for this period with similar methodology and output (see below). NFIMAP has the following main objectives:

- Delivering statistics and assessing the current state of the forest resources;
- Analysing and evaluating changes in Viet Nam's forest resources between the inventory cycles;
- Developing and improving the system of ongoing inventory, assessing and monitoring changes in forest resources across the country;
- Assessing the trend of forest cover changes and advising the GoV to enhance the effective and sustainable management and use of forest resources;
- Improving methods and building capacity of staff carrying out the forest inventory and application of scientific advances to improve the accuracy of survey results<sup>4</sup>.

Each round of the NFIMAP has used different remote sensing instruments with later cycles using images with progressively better spatial and/or spectral resolution<sup>5</sup>. The forest stands on the images are delineated and classified by means of digital classification and visual image interpretation. The interpretation keys are developed and used by experts to assign certain forest classes to each compartment.

Verification of the data from the satellite images is undertaken by on-the-ground surveying of sample plots of forest areas. The coordinates of the "ground-truthing" sample plots are recorded by hand held Global Positioning System (GPS) devices. A map of Viet Nam is divided into eight kilometre by eight kilometre grids and a total of over 2,000 forest plots of one hectare in size are sampled in different grids. The sample plots are mostly of natural forest. Maps and data are produced to the level of the forest compartment (700 -1,000 ha in

---

<sup>3</sup> Two official land use classification systems are operating in Vietnam: that of the GDLA under MONRE, which focuses primarily on land use management and planning, and that of FIPI under MARD, which focuses on forest management. This situation creates inconsistencies between existing land use 'categories' and inconsistencies in the available forest data.

<sup>4</sup> MARD 2012, Technical report: Land cover and forest type mapping for National forest inventory in Viet Nam (in cooperation with FAO), Project No: GCP/GLO/194/MLU/(FIN)-VN

<sup>5</sup> For the 2006-2010 cycle, SPOT5 imagery with the spatial resolution of 2.5m×2.5m or 5m×5m was used. The images were in digital form and interpretation was done with the assistance of the software ERDAS and ENVI

size). The data generated by NFIMAP is relatively detailed and includes assessment of forest quality. Indicators monitored by NFIMAP include forest cover or area, forest stock volume, forest status (medium, rich or poor), and topography.

**National Forest Inventory and Statistics Programme.** In April 2013 MARD submitted to the Prime Minister the Decision No. 594/QD-TTg approving the National Forest Inventory and Statistics (NFIS) Programme for the period 2013 - 2016. NFIS follows on from the General Forest Inventory and the General Forest Survey and Inventory projects, which included pilot projects. Under the Decision, the NFIS project shall establish a national database by 2016, and 24 provinces will be completed in 2015. FIPI is the main implementing agency but the Viet Nam Forestry University and the Viet Nam Academy of Forestry are also responsible for the programme in some provinces. The objectives of NFIS are to:

- Identify and capture the forest area, forest reserves and forest land that has not yet been planned for forestry purposes associated with the specific management on a national scale;
- Establish a forest management profile and build a database of forest and non-forested land;
- Establish a forest database to enable monitoring of forests and forest land annually and to protect and develop forests from central to local levels;
- To provide information to facilitate allocation of forest land and a policy basis for payments for forest environmental services stipulated in Decree No. 99/2010 / ND-CP.

NFIS is similar to NFIMAP but the process and method has been streamlined with the use of higher resolution imagery from a range of satellites. It is more comprehensive and more detailed than NFIMAP and includes many different classifications of the forest areas including non-forested land. Most importantly for PFES, NFIS includes delineation of forest boundaries and forest ownership plots, including details of the Forest Owners. It also entails a more rigorous ground-truthing sampling programme of ninety 2,000m<sup>2</sup> plots in each province across rich, medium and poor forests, including physical measurements of forest density. A further thirty sample plots of smaller size of plantation forest in each province are also surveyed. Data and mapping is undertaken down to the level of the plot or lot, which for natural forest is as small as 0.5 ha. Like NFIMAP, NFIS will likely be undertaken every 5 years.

Indicators of NFIS thus include:

- Forest ownership and management boundaries
- Forest Owners
- Key plant species
- Forest cover or area
- Forest biomass stock volume, tree density and diameter
- Forest status (medium, rich or poor)
- Topography

More detail on the data monitored by the NFIS programme is provided in Section E below.

NFIS develops a forest map at the commune level with scale 1:10,000 that can then be used and verified by local Forest Owners and updated based on annual on-the-ground monitoring.

It is not yet clear how often the NFIS census will be undertaken, though it looks set to take over from and replace NFIMAP.

### **3. Overview of the PFES Policy**

#### **a. Objectives and Scope of the PFES Scheme**

The PFES policy began in Viet Nam in 2008 with the establishment of the PFES pilot phase, in accordance with Decision 380/Q-TTg of the Prime Minister. The PFES policy then became a national policy with MARD's Decree 99/2010/ND-CP (Decree 99) in 2010. However, neither of these regulations clearly state the objectives of the PFES policy and the objectives stated in associated documentation vary. Nonetheless, it is clear that the PFES policy aims to:

- i. Improve protection of the forests
- ii. Support the livelihoods of poor forest communities and thus contribute to reducing poverty in these areas and thus also the pressure on forest resources
- iii. Provide alternative sustainable funding for forest protection activities to reduce the burden on the State budget

This is to be achieved by mobilizing social inputs for forest protection and mandating that the users of forest ecosystem services (FES) must pay for the FES. Decree 99 outlines five FES's with payments by users, and thus funding for forest protection activities, based, at least theoretically, on the protection and maintenance of these five specific FES's. The application of a "K coefficient" is also prescribed to adjust payment levels for different areas of forest based on (i) forest status (rich, medium or poor); (ii) forest functional type (SUF, Protection or Production); (iii) forest origin (natural or plantation); and (iv) forest condition with regards to social and geographical factors (such as ease of access to the area). Further discussion of the K coefficient is provided in Box 1.

The M&E system for the PFES scheme must be designed to assess to what extent the objectives of the scheme are being achieved. Therefore, a clear and precise definition of the objectives of the PFES scheme is necessary. Several questions are identified:

- Decree 99 specifies only five FES types. Is the PFES policy objective only to protect those FES's that are specified in Decree 99, or is it meant more broadly to protect forests, all FESs, and the forest environment generally?
- Should the forest protection activities in a given forest area be focused only on protecting that FES for which payments are received? For example, if a forest area receives funding from a hydropower company for the FES of watershed protection, should all associated PFES payments be devoted to activities that protect this FES only and not on protecting other FES's?
- Are the PFES policy objectives limited to just improving forest protection or do the objectives extend to improving the forest areas more generally, and thus include support for replanting and afforestation activities?

- Does the PFES policy aim to support the livelihoods of forest communities or is it focused more specifically on supporting poor households within these communities, and/or on those households dependent on the forests for their livelihoods?

The answers to these questions have a bearing on the objectives, indicators and design of the M&E system for the PFES policy. Based on discussions with VNFF, it is assumed here that:

- The PFES policy aims to protect all FES's and that payments should thus be broadly applied to forest protection rather than the maintenance of a specific FES. It is recognised that this is not consistent with the principles of PES schemes but it is consistent with the incumbent forest management and protection system in Viet Nam;
- While it is desirable to support replanting and afforestation, it is not realistic at this stage to expect PFES funding to extend to these activities;
- A greater socio-economic impact, and indirect impact on forest protection, could be achieved by targeting support to poor and forest-dependent households, if possible.

### **b. PFES Stakeholders**

The PFES concept is based on the understanding that forest ecosystems provide various services that are used by humans ('forest ecosystem services', FESs). Depending on the socio-economic context of the forest, there are certain industries and people that rely on and benefit from these ecosystem services. The PFES policy is a framework by which the beneficiaries of these ecosystem services are required to pay a fee commensurate with the value of the benefits they receive from these FESs. The beneficiaries thus become 'buyers' of the FESs that are valuable to them. The fee paid is in return for the protection and maintenance of the particular FES from which the buyers benefit. Those people protecting or maintaining the FES are the 'suppliers' or providers, whom receive a payment for doing so. The stakeholders to the PFES scheme thus include FES buyers and providers, as well as administrators (*Table 1*).

**Table 1: PFES Stakeholders**

<b>Stakeholder</b>	<b>Description</b>
Buyers	<ul style="list-style-type: none"> <li>• Hydropower plants are the key service buyers for the PFES scheme in Viet Nam and they are currently contributing over 95% of the PFES payments that have been collected.</li> <li>• Fresh Water Supply Companies are the second most important service buyer. Nevertheless, not all provinces have decided to collect PFES money from the fresh water supply companies yet.</li> <li>• Tourism Operators are the third most important service buyer and PFES payer. However, collecting PFES payments for forest services to tourism is proving difficult and to date only a handful of provinces have implemented arrangements to collect PFES money from tourism.</li> </ul>
Providers/ Suppliers	<ul style="list-style-type: none"> <li>• The Forest Owners provide the forest protection services and thus provide the FESs. Forest Owners in the PFES scheme include the following types of ownership:</li> <li>• Organisations: FMBs, SFCs; Army units, and CPCs (for the forest which has not yet allocated to any owner).</li> </ul>

Stakeholder	Description
	<ul style="list-style-type: none"> <li>• Community: village, hamlet</li> <li>• Household: family</li> <li>• Individual: person</li> </ul>
Administrators	FPDFs, VNFF, FPD, CPCs, Department of Forestry, VNForest
People of Viet Nam	The people of Viet Nam, as the owners of the forest. The People are also the ultimate buyers of most of the FESs, as the PFES payments are redeemed by the hydropower plants and water supply companies by increasing the charges levied for electricity and water supply.

### c. Forest Ownership and Management under PFES

The PFES policy does not prescribe significant changes to the existing national system of forest ownership and management. The only major change introduced by the PFES policy is that the source of funding has been diversified for forest protection activities, which for PFES forest areas, now comes from FES users or buyers. By far the largest source of PFES payments is hydropower companies (>95%).

However, to implement the PFES scheme in each province, mapping and demarcation of the forest areas is required. This entails identifying and demarcating the water catchment areas or water ‘basins’ where PFES will apply<sup>6</sup>. In forest areas where PFES from tourism applies, the boundaries of the forest areas providing services to tourism need to be identified. Each area of PFES forest could be further categorised in accordance with the other ‘k coefficient’ parameters as described above.

To date, over four million hectares of forest falls under the PFES scheme, equivalent to over a quarter of the total national forest area (Nguyen C. T. and McElwee P., 2015). In some provinces, forest plantations, or plantations of non-native species, are excluded from the PFES scheme and PFES payments.

The PFES policy also relies on, and provides further impetus to, the existing policy of allocating all forest land to Forest Owners. Each forest compartment or sub-compartment in the forest area must be allocated or contracted to a household, group of households, organisation or individual. The PFES scheme requires the PFES forest areas to be identified and reviewed to clearly define and demarcate each Forest Owner’s plot, as well as to classify the forest status. The work on allocating and demarcating forest areas is ongoing, and progress varies amongst the provinces. Note that the size of the area of forest owned by Forest Owners varies greatly, ranging from as little as 0.5 hectares for a forest household, to many thousand hectares for a FMB or CPC. Provinces with many thousands of individual household Forest Owners face administrative difficulties in managing the large number of PFES contracts.

### d. Forest Protection Responsibilities under PFES

The Forest Owners sign a contract or forest protection agreement with the relevant provincial FPDF to protect the forest in return for PFES payments. As with existing general

<sup>6</sup> Circular No.60/2012/TT-BNNPTNT dated 9th of November 2012 of MARD on Regulating the principles and methods to identify the forest area within the basin for PFES

forest policy, the Forest Owners such as FMBs, CPCs or SFCs, may subcontract their forest areas to Forest Contractors for management and protection. In this case, the Forest Contractors take on the responsibility of protecting the forest and receive the PFES payments (net of administrative fees deducted by the Owner). Forest Contractors sign a forest protection contract with the Forest Owners accordingly. However, the Forest Owners still retain responsibility for supervising the Contractors and checking that the forest is being protected.

These PFES forest contracts are not consistent across different forest areas or provinces and do not follow a mandated template. Generally, the forest protection contracts provide limited details of actual forest protection activities required or details of the conditions of payment. The consequences in cases where the forest area is not protected are not clear.

#### **e. System of Forest Protection under PFES**

The system for protecting forests under the PFES policy is almost no different to the previously existing system for forest protection as also applies to forests outside of PFES areas. As described above, this system chiefly entails forest patrols by the Forest Owners and/or Contractors, as well as patrols and checks by the local FPD.

However, to receive their PFES payments, Forest Owners need to prepare an annual forest protection/ management plan and submit it to the FPDF. There is no template or set format for these plans, but they generally include a description of planned protection activities (i.e. patrols) and a plan for how the PFES funds that are received will be used. Forest Owners must also submit a statement each year regarding the protection or otherwise of their forest area. There is also a verification process that aims to verify whether indeed the forest area has been protected, which entails an additional check of some areas of forest. The verification process is part of the current PFES M&E system, as described below.

#### **f. PFES Fund Management**

Decree 99 and other legislation prescribe how PFES funds are to be allocated amongst the stakeholders, with 0.5% being deducted for VNFF and 10% being deducted for provincial FPDFs to meet administration expenses. A further 10% can be deducted by FMBs and CPCs to cover the expenses of administering the payments to the Forest Contractors. In accordance with Decree 99, the remainder of the PFES funds are to be kept in trust by the VNFF for the people who protect the forests and is not to be appropriated by GoV agencies. There is little guidance on how the various deducted funds are to be used.

### **4. PFES Monitoring and Evaluation**

#### **a. Monitoring and Evaluation**

The following section reviews the current M&E system for the PFES scheme, as prescribed in the legislation and as implemented in the provinces. As discussed, the two components of the M&E system are:

- i) M&E of the impacts of the PFES scheme, particularly the impacts on the forests and socio-economic impacts on forest communities, and
- ii) M&E of the implementation and operation of the scheme.

The M&E system should be designed to provide information to monitor and evaluate to what extent the objectives of the scheme are being achieved. In addition, as far as practical, the

M&E system should also monitor the broader impacts of the scheme including unintended impacts. This information should facilitate the improvement of the scheme.

### **b. Current M&E of Forest Impacts**

**Policy objective.** Through improving forest protection, the PFES policy aims to have positive impacts on the forest. It is assumed here that the policy objective is broader than just the maintenance and protection of the specific FESs outlined in Decree 99 and extends generally to an improved forest in terms of both the total forest area and the health and quality of the forest. Though it is not stated explicitly in the policy legislation, it is generally assumed that this means reduced incidence of illegal forest activities and thus reduced deforestation and degradation of forest resources.

While an 'improved forest' is the objective of the policy, little guidance is provided on what this includes or on how to monitor and evaluate the attainment of this objective. Similarly, while PFES payments are made by companies based on the provision of certain FESs, the PFES scheme does not currently specifically monitor or evaluate the provision of these services.

**Forest ecosystem services.** Based on the PFES concept, it would be logical to monitor and evaluate the extent to which the specific FESs being paid for are in fact being provided to the beneficiaries. In the case of the PFES policy implemented in Viet Nam so far, the main beneficiaries are hydropower companies, water supply companies and tourism operators, with the former currently accounting for over 95% of the total PFES payments. Therefore, payments are made based on the value of the FESs of water flow regulation and improvement of water quality and the understanding that these services will be maintained and protected by the PFES scheme.

Decree 99 states that PFES payments are payable to all eligible forest areas that provide FESs. Payments are to be made in accordance with the prescribed payment level and the K coefficient, after checking and verification by the responsible agency. The K coefficient is a mechanism designed to recognise that forests with different characteristics will provide different levels of FESs and thus have more or less relative value. Accordingly, payments to protect higher value forests are adjusted to be higher than payments for lower value forests (Pham et al., 2014). The K coefficient for each area of PFES forest should be determined and included in the forest protection contracts and forest protection payments per hectare adjusted accordingly. However, in practice, the K coefficient is usually not determined or applied due to practical difficulties and due to the fact that forest communities prefer equal payments per hectare (Pham T. T. et al 2013; Nguyen and McElwee 2015). However, no further qualification of the provision of these services or guidance on how this FES provision is to be monitored and evaluated is provided. The PFES scheme does not currently monitor or evaluate the provision of these services. Rather, proxy measures of the FESs are monitored, such as the area of forest in the catchment and the extent of forest cover etc.

**Forest M&E in the PFES policy.** Decree 99, in Article 15, states that the 10% of PFES funds deducted by the FPDFs should be used for various administrative purposes including "checking, supervision and audit, support for activities of assessment of forests, and support for technical activities of monitoring the quality of forest environment services". Similarly, in accordance with Decree 99, "Forest Owners that are state organizations contracting out forests for protection may use 10% of the PFES funds for checking, supervising, testing and evaluating the quality and quantity of forests to make annual payment for forest environment services. The remainder (90%) shall be paid to households contracted for forest protection".

However, no specific guidance is provided on what “checking, supervising and testing” is required or how it is to be undertaken.

In practice, the PFES policy has not significantly changed the incumbent national system for M&E of forests, but rather relies on the existing system. The M&E of forest areas within the PFES scheme is not significantly different from areas not included in the scheme. Forest M&E, both on-the-ground monitoring and satellite imagery and mapping, is as described above. Implementation of the PFES policy has worked within existing national systems and has provided some additional impetus for the implementation of other existing forest policy, such as allocation of forest areas to households. Importantly, the PFES scheme has provided funding for forest protection activities that otherwise was lacking.

However, the PFES scheme has added some forest monitoring activities. The process of payment of PFES funds to Forest Owners and Contractors requires forest mapping, demarcation and ‘verification’ of whether the forest has indeed been protected. In addition to the reporting associated with forest patrols, the verification process provides an additional level of forest monitoring that is specific to the PFES scheme.

**Verification.** In accordance with Decree 99, FPDFs are to make payment for forest environmental services to Forest Owners on the basis of the quantity and quality of their forests. FPDFs are to act as the focal point in assisting competent state agencies in examining Forest Owners' provision of FESs. The competent state agencies tasked with certifying or verifying FES provision are:

- DARD for Forest Owners being organizations,
- A district-level specialized forestry agency designated by the DPC, such as the FPD, for Forest Owners being households, individuals and village communities; and
- CPCs for households contracted for forest protection, on the basis of requests of Forest Owners.

MARD Circular No. 20/2012/TT-BNNPTNT provides further guidance on the verification of forest protection under PFES to check if the forest areas have indeed been protected as claimed. Forest areas owned by or allocated to organisations are to be verified firstly by the Forest Owner, who verifies the protection by the Contractors, and then also by DARD (the Department of Forestry). Verification by DARD entails ‘spot checking’ a random sample of at least 10% of the forest area. Forest areas owned by households, individuals or communities are to be verified by the district PC and the District FPD. Site checking and field validation exercises are only conducted in case of necessity and then should be 100% of the forest area.

In practice, verification of forest protection is limited. There is no clear guidance on how to spot check or to verify, nor how to select the 10% samples. It is also not practical or feasible for 100% verification of forest areas. In most provinces, up-to-date forest maps and satellite imagery, which would be useful for identifying areas of possible forest loss, conversion or degradation, is not available and not used by the Forest Owners or the verification agencies.

The status and condition of the forest areas when allocated is generally based on the official forest records and maps, as provided by the official annual forest inventory and statistics reports of the district FPD. Verification of whether the forest has indeed been protected during the year is also based on these official statistics and maps, as updated by FPD ranger reports and Department of Forestry official reports of legal forest changes. Inaccuracies in these maps and inconsistencies with actual forest conditions can lead to

non-forested areas being recorded as forested and thus being eligible to receive PFES payments. This causes problems as it creates disincentives and distrust of the scheme amongst forest communities who know the true condition of the forest and of forest violations.

**Reporting and evaluation.** Annually all the Forest Owners need to submit a forest protection report to the provincial fund (FPDFs 2014). However, this is often only undertaken by the Forest Owners that are organisations and not by each individual household Forest. In areas where the Forest Owners are households or individuals, a commune report is often prepared by the CPC. These reports usually provide information on how the forest has been protected, how many households/communities have been contracted to support forest protection and how many forest violation cases occurred in the forest (including, for example, information on how much area of forest was lost). In some cases forest patrol timesheets are submitted to Group leaders to support payment claims and brief reports of varying content and format are generated by the patrol Group to record each patrol. The patrol reports are in paper format though in some cases these reports are then input into a database each month. The annual forest protection report is compiled from quarterly reports and combined and reconciled with the quarterly reports from the FPD rangers assigned to manage that specific forest area.

All provincial FPDF reports are submitted to VNFF annually and used to prepare an annual national VNFF report. However, the annual VNFF report currently largely focuses on PFES fund flows and transactions as well as progress towards implementation of the PFES scheme rather than forest protection performance (as described in more detail below in the section on Operational M&E).

The current M&E system includes very little evaluation of the impacts of the PFES policy on the forest or provision of FESs. Two evaluations of the PFES scheme have recently been undertaken but both focussed on reviewing the implementation and operational aspects of the scheme and not the impacts (Nguyen C. T. and McElwee P. 2015; MARD 2015). Several other independent evaluation studies have been undertaken by local and International NGOs (Dam et al. 2014, Pham T. T. et al. 2014; Pham T. T. et al. 2011; To X. T. et al. 2012; Winrock International 2011; Ly N.T.Y. 2013; ADB 2014). However, these studies are not regularly conducted or formally recognised by VNFF and so are not part of the formal M&E system. With the exception of a study by Pham T.T. (2013), they are also mostly limited in scope and area of focus, with many focused on various aspects of the implementation of the scheme in Lam Dong, Son La, and Quang Nam provinces.

### **c. M&E of Socio-economic Impacts**

The PFES policy aims to support the livelihoods of forest communities. As discussed, it is not clear if the policy aims to support the livelihoods of forest communities generally or whether it is focused on poor households and/or households dependent on forest resources. Paying households and communities for forest protection provides economic support and also provides an incentive for the protection of the forest. In many forest areas, if not most, a main driver of forest loss and degradation is illegal activities by the forest communities themselves, including clearing forest land for agriculture, illegal logging and over-exploitation of forest resources. In the case of households that are dependent on the forest for their livelihood, the payments for forest protection will provide not just an incentive to protect the forest but also an alternative source of income that might allow them to reduce illegal forest activities.

The PFES scheme is also having social impacts by developing an improved awareness of the value of forests and by organizing the communities and promoting cohesion and collective action. Implementation of the PFES scheme furthers the allocation of forest areas to households and has also promoted the formation of ‘forest protection groups’ and ‘communities’. In many forest areas, Forest Owners have formed into groups to undertake the forest protection activities or Forest Owners have organised and contracted forest patrol groups comprised of representatives from the local households. In some cases, Groups or Villages receive the PFES payments into a collective fund and use some of the funds received for investment in socio-economic projects and public infrastructure investment as chosen by the community and for the benefit of the community (Pham T. T. et al. 2014).

These positive socio-economic impacts are improving the effectiveness of forest protection efforts by fostering a sense of community ownership and responsibility for forest protection and by facilitating improved collaboration with the forest authorities. For example, the FPD in several provinces has credited the PFES Groups with increased ability to manage forest protection efforts of local communities, which has led to a significant improvement in the ability to detect and fight forest fires.

However, the PFES scheme currently has very limited specific requirements or guidelines on M&E of the socio-economic impacts of the policy. Only a few indicators focused on socio-economic outputs of the scheme are currently monitored as part of operational M&E as discussed below.

A few independent studies by NGOs have been undertaken on the socio-economic impacts of the PFES scheme but these are not a recognised or regular part of the M&E system and are limited in scope (Pham et al., 2011; Nguyen 2013; Winrock 2011).

#### **d. Operational M&E**

In contrast to the M&E of the impacts of the PFES policy, the M&E system for the implementation and operation of the scheme is relatively well developed. The M&E of implementation and operation of the scheme is largely based on inputs and outputs, rather than impacts and outcomes, and thus this component of the M&E system is also relatively straightforward and easy to design and undertake.

In accordance with Decree 99 and Decree 05, the FPDFs report annually to the PPCs and to VNFF on the progress towards implementing the scheme and also on the operational performance. However, there is no guidance and template for the report, hence each province prepares it differently. The reporting includes data on the collection of payments from PFES buyers and the disbursement of PFES funds to Forest Owners. The FPDFs also report on how they have used the PFES revenue they have deducted to cover administration expenses and contingencies (as allowed by Decree 99).

There are at least twelve legal documents relating to VNFF and a further nine relating to the PFES policy (VNFF 2013). Some reporting of the implementation and operation of the PFES scheme and VNFF is prescribed and administrative data and criteria are implied (Table 2).

**Table 2: Administrative data and operational M&E requirements in the legislation**

<b>Legal Document</b>	<b>Provisions regarding administrative data and M&amp;E</b>
Decree 05	VNFF is to report on fund management and utilization, the plan of financial revenues and expenditures, and quarterly and annual reports against this plan. In addition, VNFF is responsible for accounting and reporting in line

Legal Document	Provisions regarding administrative data and M&E
	with Ministry of Finance regulations.
Decision 15/QD-VNFF-BDH	Technical staff of the Steering Committee of VNFF are to set up a database, M&E system and conduct M&E exercises periodically (quarterly and annually) over the programs, projects and non-project activities funded by the Fund.
Decree 99	FPDFs are to report to the PPC's and VNFF on the status of income and spending of payments for forest environmental services of the local area on an annual basis and VNFF is to synthesize these provincial reports and report to MARD
Decision 2284/QD-TTg	<p>To use the river basin master plan as the basis for identifying forest areas, and liable payers and payees of money for forest environment services in each basin;</p> <p>To use the outcomes of the general census on forests during 2010-2015 as a database for the implementation of the policy on payment for forest environment services;</p> <p>To apply information technology to building appropriate databases and advanced software for managing, monitoring and supervising the payment for forest environment services in each province and nationwide;</p> <p>To study, develop and apply the hydrological observation model to monitoring the quality of forest environment services: soil erosion and sedimentation; regulation of water sources, etc... for the supply of water for hydropower plants and water supply plants, as a basis for the payment for and monitoring of the quality of forest environment services;</p> <p>To inspect, supervise and undertake preliminarily reviews of the implementation of the PFES policy;</p> <p>VNForest is to make annual reports to the Prime Minister on the Decree 99 implementation;</p> <p>VNFF is to annually monitor the payments of FES users/ buyers.</p>
Decision 119/QD-TCLN-KHTC	<p>Make list, classify facilities using FES within provinces and list of facilities under inter-provincial basin;</p> <p>For hydropower plants, it is needed to classify in categories such as: (1) hydropower plants of Vietnam Electricity (EVN); and (2) Others;</p> <p>Previous, forecast and actual production of hydropower plants and water companies; revenue of tourism companies</p> <p>MARD to work with DARDs to identify forest boundaries for PFES areas, forest area, forest status and forest category for each Forest Owner</p> <p>FPDFs to monitor payments by FES users/ buyers</p>
Circular 20/2012/TT-BNNPTNT	<p>Procedures for verifying forest areas as being adequately protected or not, as assessed and reported by the Verification/ Validation agency (DARD or FPD);</p> <p>For forest area that is impacted (including: harvesting, cutting, encroachment, fire, conversion of use illegally, damages caused by disaster, etc.) and not be able to provide the forest environment service: will be validated unsatisfactory and un-paid;</p> <p>Validate the forest quality: identify the K factor in case of necessity for each Forest Owner;</p> <p>The forest area validated for payment is identified via the Validation Minutes of providing forest environment service as attached in this Circular, including:</p> <ul style="list-style-type: none"> <li>• Total PFES area of the Forest Owner</li> <li>• Assess and report on the annual change in area of eligible PFES</li> </ul>

Legal Document	Provisions regarding administrative data and M&E
	<p>forest of each Owner due to increases in forest area;</p> <ul style="list-style-type: none"> <li>• Assess and report on the annual change in area of eligible PFES forest of each Owner due to forest losses, by cause (exploitation, fire, cutting/ encroachment, conversion, natural disasters, exclusion from PFES area)</li> <li>• Proportion of the Forest Owner's area this is eligible for PFES (i.e. % validated/ verified)</li> </ul>
Circular 80/2011/TT-BNNPTNT	<p>Prescribes methods guiding identification of PFES and annual payments levels, which requires data on:</p> <ul style="list-style-type: none"> <li>• The total PFES payments received,</li> <li>• The total forest area eligible for PFES,</li> <li>• The k coefficient of each forest Plot,</li> <li>• The amount of funds deducted by VNFF, FPDFs and Org Forest Owners,</li> <li>• The average payment to be paid by each Buyer per hectare of eligible forest, and</li> <li>• The average payment per hectare to be paid to Forest Owners/ Contractors.</li> </ul> <p>VNFF announces the FES payments to be transferred to the FPDFs based on the PFES Type (i.e. service type), the Buyer or user, amount of forest area within the basin (i.e. 'PFES Area'), and the amount of payment.</p> <p>The FPDF announces the FES payment amount paid to Forest Owners, including the Service (PFES Type), Service users (Buyers) and forest area, as per the Table below.</p> <p>A similar table is prescribed to regulate the reporting of payments to Forest Contractors by Forest Owners, though it also includes the proportion of the forest area that is not paid for.</p>
Circular 60/2012/TT-BNNPTNT	Identifying and mapping PFES Areas on the basis of FESs, including administrative boundaries and forest categories and use types
Joint Circular 62/2012/TTLT-BNNPTNT-BTC	<p>Instructions on the mechanism of managing and using the payment for forest environment services by FPDFs and Org Forest Owners;</p> <p>FPDFs report on:</p> <ul style="list-style-type: none"> <li>• The collection and disbursement of PFES funds</li> <li>• Payment exemptions granted to Buyers</li> <li>• Funds deducted and used for management</li> <li>• PFES funds received from each type of Buyer (i.e. hydropower companies, water supply companies and tourist companies – Form 9b)</li> </ul> <p>Org Forest Owners are to:</p> <ul style="list-style-type: none"> <li>• Make the boundary map of the forest area supplying forest environment services at ratio 1/25,000;</li> <li>• Make the list of households receiving forest protection contracting;</li> <li>• Prepare PFES payment plans and submit to the FPDFs (which aggregate and submit to VNFF)</li> <li>• Report to FPDFs on PFES payments made</li> </ul>



changes (i.e. increase in forest area or loss of forest due to illegal activities). However, in practice, this process relies on the self-reporting of the Forest Owners/ Contractors, FPD data, and limited verification assessments. Reliable monitoring and reporting of the impacts of the scheme on the forests is thus limited.

**Socio-economic impacts.** Similarly, the only socio-economic indicators relate to the number of households included in the scheme, the number receiving payments, and the average payment level per hectare of forest.

**Operational performance.** Most of the indicators in the PFES M&E system relate to implementation and operational parameters. As described above, various Circulars and Decisions regulate the PFES scheme and require the monitoring and reporting of administrative and operational data. In particular, data required under Circular 20 and Circular 80 is useful for M&E of the PFES scheme. Operational data monitored includes data on PFES areas, Buyers, payments collected and disbursed, the area of forest eligible for PFES payments, etc (Table 4). However, it is not clear to what extent all this data is currently reliably monitored and reported.

**Table 4: Current PFES M&E indicators**

No.	Indicator	Indicator Type
i.	Total forest area within the PFES scheme	Forest/ Operational
ii.	Total forest area within the PFES scheme this is eligible for PFES payments	Forest/ Operational
iii.	Change in the area of PFES forest eligible for PFES payments, by Forest Owner/ Contractor and by reason (i.e. increase in forest area or loss of forest due to illegal activities)	Forest/ Operational
iv.	Number of each type of Buyer contracted	Implementation/ Operational
v.	Number of Forest Owners with PFES contracts	Socio-economic/ Operational
vi.	Number of Forest Contractors with PFES contracts	Socio-Economic/ Operational
vii.	Total payments due by Buyers and Buyer Type	Socio-Economic/ Operational
viii.	Total payments actually made by Buyers/ unpaid amounts	Operational
ix.	Total payments made by PFES Area	Operational
x.	The disbursement rate of PFES funds	Socio-Economic/ Operational
xi.	Payment exemptions granted to Buyers	Operational
xii.	Average PFES payment level per hectare	Socio-Economic/ Operational
xiii.	Establishment of FPDFs	Implementation
xiv.	Identification and demarcation of PFES forest areas	Implementation
xv.	Funds deducted by forest management agencies (i.e. FPDFs, Org Owners)	Operational

## **C. Strengths and Weaknesses of the PFES Scheme**

### **1. SWOT Analysis**

The following section identifies and analyses the strengths, weaknesses, opportunities and threats (SWOT) of the PFES scheme. While the focus is on the M&E system, the analysis also looks at the PFES scheme in general as it is difficult to isolate the M&E system from other aspects of the scheme design and operation.

### **2. Strengths**

After three years of implementation, the PFES policy has been a success on most measures and shows great potential to contribute to the sustainable management of Viet Nam's forests. The scheme has been broadly implemented in most provinces, has successfully engaged the users and suppliers of FESs, has raised awareness about the importance of FESs, has added impetus and support to other related GoV policies, and has successfully generated significant revenue for the protection of forest resources.

With regards to protecting forest resources, most stakeholders interviewed during this study were of the opinion that the PFES policy is improving forest protection, though without a better M&E system, this is hard to measure. The PFES payments are providing an incentive, albeit low in most cases, to protect the forest and abstain from illegal practices and the PFES policy is increasing monitoring and reporting of forest violations. In recent years VNFF has witnessed a reduction in the number of violations against the Forest Protection and Development Law and a reduction in the area of degraded forests. Violations almost halved between 2008 and 2013 and the area of degraded forests in 2013 is less than one-quarter of the area of degraded forests recorded in 2008 (VNFF 2014).

The key strengths of the scheme are identified as:

- The existence of an institutional structure in Viet Nam from the central to the commune level that facilitates policy implementation and management of the scheme
- A large degree of State control over the Buyers, particularly the fully or partly State-owned hydropower companies and water supply companies
- A body of legislation now established at the central and provincial level
- The existence of the Forest Protection and Development Funds established at the central (VNFF) and provincial level (FPDFs) and managed as trusts
- The existence before the PFES policy of forest policies and a system of forest management in Viet Nam, including forest allocation to households and guidelines for using and managing the forest resources
- A much increased general level of awareness amongst stakeholders of the value of forests and the importance of forest protection
- A high degree of knowledge of, and respect for, the forests and a general willingness to protect the forests and ensure sustainable use amongst forest households
- A varying but relatively high degree of faith and confidence in the local GoV and/or local leaders amongst forest communities
- A high degree of community cohesion and cooperation at the community and village level, particularly in ethnic villages, which supports the formation of Groups for forest protection activities and management

Specific to the existing M&E system, several strengths are identified:

- The vast number of households directly involved in forest protection and monitoring in Viet Nam, both as Forest Owners and Contractors
- The existence of a forest M&E system established before the PFES policy was implemented, consisting of on-the-ground monitoring and satellite imagery, as described in Section B
- An existing Forest Protection Department and Department of Forestry with a varying but reasonable level of capacity, rangers stationed in most forest communes and an established system for monitoring and reporting forest changes
- The embedded use of ever-improving technology such as satellite imagery, remote sensing and GPS to monitor and evaluate forest resources
- A relatively high level of consistency and standardisation in forest management and reporting across the provinces

The PFES policy is built on strong foundations and is well supported by legislation and the institutional structure. The planned revisions to the policy after the first three years of national implementation aim to build on this and the early successes to improve the scheme and make it more effective.

### **3. Weaknesses and Shortcomings**

While the PFES scheme has been broadly successful, there are several weaknesses and shortcomings of the design and operation of the scheme. Many of these weaknesses are understandable given that the scheme has only been implemented for three years and that the scheme is still evolving and improving. MARD has initiated a review of the PFES policy with the aim of identifying and addressing as many of these weaknesses as is practical and feasible.

Many of the weaknesses are in fact weaknesses of the national forest protection system in Viet Nam, rather than specific weaknesses of the PFES policy itself:

- Lack of detection and enforcement of forest protection regulations in some places due to incompetence of FPD rangers in some areas (VNForest 2014)
- Difficulties in enforcing the regulations in some areas due to socio-economic realities, such as customary practices and dependence of very poor households on forest resources
- Insufficient knowledge sharing within and between GoV agencies
- Limited capacity of forest management agencies, particularly in some communes (Pham et al., 2011)

Some weaknesses relate to the design of the PFES policy:

- The objectives of the policy are not yet clearly stated and defined (as discussed above)
- Unequal payments per hectare of forest protected and across provinces and watersheds, leading to inequity, confusion, and social conflict
- Payments to Forest Owners are based on the area of forest protected rather than time and effort expended or value of the services provided, leading to inequity and reduced efficiency and effectiveness
- There is no mechanism for ensuring poor households and/or forest dependent households are prioritized to receive PFES contracts, with the result that in some areas, CPC staff and/or rich households receive PFES payments as Contracted

- Protection Staff of the Forest Owner organisations and poor households are excluded
- There is a lack of conditionality and accountability, with a lack of guidance and procedures to assess non-compliance and to apply sanctions or deductions in payments for PFES violations or if the forest is not adequately protected
  - Payment levels to Forest Owners and Contractors are too low to offset the opportunity costs (i.e. too low to cover the inevitable economic gains of clearing forest for highly profitable activities such as planting maize or coffee, or converting mangrove forests into shrimp farms (Pham T. T. et al., 2013)
  - There is no direct link between the payments made by Buyers and the value of the FESs from which they benefit

Other weaknesses relate to the implementation of the scheme:

- Incomplete forest land allocation to households, particularly in some provinces, and lack of clear boundaries and demarcation of forest areas and PFES areas, sometimes leading to conflicts (VNFF 2014)
- Low and slow disbursement of payments to Forest Owners in some provinces due to incomplete forest inventory, slow land allocation processes, lack of technical and financial capacity at central and provincial levels, and weak coordination among government agencies
- Lack of transparency such that stakeholders are not informed about the scheme
- The K coefficient is most often not applied so all forest types are ranked equally regardless of their relative values with respect to FES provision (it is possible that rubber plantations can be deemed eligible for payments)
- The level of understanding of PFES policy and concepts among stakeholders is low
- There is a lack of consistency and standardisation across provinces of PFES forest protection contracts/ agreements and a lack of detail in these contracts
- Lack of detailed guidance on how the PFES funds deducted by forest management agencies should be used
- Lack of guidance and support for the use of the PFES funds paid to Forest Owners and Contractors, including Groups and Village Funds (though Son La FPDF has issued guidance on the establishment and operation of Village Funds)
- Relatively high transaction costs, particularly in some forest areas
- The FESs provided to tourism have not been clearly defined and studied
- Practical difficulties in applying PFES to tourism services and collecting payments from tourism operators (cannot include as part of entrance fees as the use of such funds by Department of Nature Conservation is regulated)
- Limited integration of the PFES policy into national and provincial policy planning processes

The lack of transparency in the PFES scheme is a major weakness. Some Buyers reported having received no information at all from the FPDF other than to confirm required payments. Similarly, many Forest Owners and Contractors know very little about the scheme and in many cases are not aware of the payment levels due per hectare for their areas of forest. Only two out of twenty-six FPDFs surveyed by the DPFES project were found to have and use a website to for the PFES scheme (VNFF 2015).

Several weaknesses specific to the M&E system of the scheme are also identified:

- A limited M&E system for the impacts of the scheme on forests, with PFES contracts lacking guidance on how to assess whether the forest area and forest quality has been protected against the baseline
- The current M&E system relies on self-detection and self-reporting of forest violations by Forest Owners and Contractors and thus creates a disincentive for reporting forest violations
- Lack of clear and practical guidance for verification of forest protection
- No effective M&E system for the socio-economic impacts of the scheme
- No M&E system for the provision of FESs
- Limited M&E of the institutional impacts of the scheme
- No M&E of how the PFES funds are used by the Forest Owners/ Contractors (and the Forest Owner organisations and FPDFs)
- Lack of clear guidance on forest protection and monitoring activities such as forest patrols and lack of a standard and consistent protocol and reporting template for forest monitoring (i.e. during forest patrols)
- Lack of an effective and practical system to capture and assess forest information collected during forest patrols undertaken by Forest Owners/ Contractors (e.g. via a template form that can be simply uploaded to a database and acted upon, rather than just paper reports that are just prepared, collected and filed)
- Incomplete allocation of forest areas to Forest Owners and demarcation of forest areas and thus lack of ability to identify FES providers
- Limited coordination between forest patrol groups and FPD rangers, limiting the effectiveness of the forest patrols (forest patrols do not have the right to enforce forest regulations or apprehend illegal activities)
- PFES data is mainly created and stored at different management levels. Therefore, the checking, monitoring and sharing of PFES data of relevant stakeholders, such as CPCs, FPD, and FIPI, is still limited
- The data collection system is not updated and modern
  - Monitoring data from patrols by Forest Owners/ Contractors is not captured in the M&E system
  - There is no standard protocol for forest patrols and verification patrols
  - Limited use of updated and high resolution satellite remote sensing imagery to assist annual on-the-ground monitoring due in part to a lack of connection or coordination between the national forestry M&E components and lack of capacity at the local level<sup>7</sup>,
  - Forest statistics are partly based on extrapolating survey results from a relatively small percentage of the total forest area, leading to inaccuracies (i.e. NFIMAP and NFIS forest survey data)
- The data management system is outdated:
  - Forest patrols rely on paper based reports that are not standardised and that need to be manually input into isolated databases at the local level
  - Data is stored in various formats and with various software
  - There is a lack of centralised and linked databases, with data scattered across agencies, administration levels, and isolated computers and inconsistently by the provinces

---

<sup>7</sup> Forest Owners and managers at the local level generally do not currently have access to up-to-date forest maps and satellite imagery (one FPDF manager interviewed during the study had joined an online network that enabled him to access up-to-date low-resolution monthly satellite imagery for free)

- Due to the above, there are difficulties in accessing data, not only for communities, forest owners or FES using facilities but also for manager of FPDFs
  - Forest maps are an essential part of the data but there are several different sources of maps with limited integration and reconciling
  - There is overlap between forest M&E undertaken by the FPD and that needed for PFES, with often two separate processes and sets of data for the same forest area and same indicators
  - The structure and format of forest data is not consistent across the different agencies and programmes leading to difficulties in integrating and sharing data
- Lack of M&E capacity of FPD and FPDF staff in some provinces, such as in the use of satellite remote sensing imagery
  - Lack of a grievance mechanism and a feedback mechanism in most provinces (Son La FPDF maintains a grievance hotline and email address mostly used by Forest Owners)
  - Limited involvement of Buyers, NGOs and civil society in M&E of the scheme and limited opportunities for inclusive stakeholder participation
  - No M&E of NTFP harvesting
  - No independent M&E by a third-party
  - Lack of clear baseline data on forest areas and forest quality
  - Lack of hydrological monitoring in Viet Nam
  - Lack of coordination with MoNRE and thus the M&E conducted by MoNRE and related agencies
  - A dedicated budget for PFES M&E has not been established or regulated
  - The drivers of deforestation and degradation are not monitored

The PFES scheme is supporting forest protection activities in line with the national forest policy that existed before PFES, as described in Section B. Forest patrols are undertaken by individual households or Groups with PFES contracts. To a large degree, the forest patrols are surveillance exercises rather than direct forest protection because the forest patrol groups do not have the authority to enforce the forest regulations. However, there is no standard template for reporting violations observed during Forest Owner/ Contractor patrols or the routes taken in the forest and the system for capturing and acting upon this data is weak. The FPD has a standard template for reporting recorded violations but there is scope for only verified and enforced incidences being reported with other observations from the forest patrols not entering the forest information system.

Enforcement relies on the FPD rangers who only sometimes accompany the patrol groups. Violations are reported by the patrol groups to the forest managers and/or the FPD, who are then meant to follow-up and verify the violations and/or apprehend the violators. In at least one province visited during this study, the Patrol Group had reported an area of forest had been cleared but the FPD had not followed this up with verification, enforcement or reporting. This demonstrates the weakness of the forest protection, reporting and enforcement system due partly to the ineffectiveness of the forest patrol system.

In this case, this cleared area of forest was identified during PFES verification and the PFES payment for the following year was reduced, but only to account for the fact that this area of forest was no longer defined as forest (i.e. only the cleared area was not eligible for PFES payments while payments for the rest of the forest were still approved). The Patrol Group was paid in full that year because they had reported the violation, even though the forest

was not effectively protected. This demonstrates the lack of conditionality of PFES payments, the weak incentives to protect the forest, and the difficulty in penalising Forest Owners/ Contractors for forest violations committed by others.

In one province, a hydropower company complained that PFES payments have been approved and paid for areas that are in fact either bare land or have been cleared for corn plantations. The current M&E system is thus failing to detect, report, and enforce some violations and the PFES verification system is also failing.

The current PFES payments have been made without appropriate verification and thus regardless of whether the forest protection service has been adequately provided (i.e. payments are unconditional). Verification is difficult to undertake for large areas of forest and the current policy guidance is limited. Resources for verification are also limited, with some FPDFs focusing on verifying disbursement of payments rather than protection of the forest. The mandated forest verification 10% spot checks and 100% checks by Forest Owners that are organisations are either inadequate or impractical and most provinces are not using updated satellite photographs to inform the verification efforts. For instance, apart from the case described above, in the six provinces visited during this study there has been no major forest loss or violation case identified and thus 100% of the PFES forest area is deemed to have been well managed and protected and 100% of the PFES payments have been approved. This perfect protection record generates some doubts about the true condition of the forest as well as the protection and verification protocol that are currently applied. However, there is currently no grievance mechanism to investigate complaints and no mechanism to allow third-party verification.

It is widely recognised that one of the most important remaining challenges for PFES in Viet Nam are related to the current ambiguity of M&E systems (Pham et al, 2013). Clear guidelines on M&E are required for ensuring accountability and transparency in the distribution of payments and so that forest owners may access grievance mechanisms. However, they are also required for measuring additionality, compliance and conditionality in the delivery of services. In the context of limited enforcement and M&E capacity of both local authorities and communities, buyers are often dubious over the services they are paying for and/or whether the payments are indeed being used for the provision of services, particularly when they are already paying water resource taxes.

## **4. Opportunities**

The strengths and weaknesses of the scheme as discussed above present opportunities for improvement. An increase in nature-based tourism in Viet Nam and the ability to include other FESs into the PFES scheme also present opportunities for the scheme. With regards to M&E, there are several broader trends and developments, such as improvements in technology and an improving national M&E system for forest resources in Viet Nam. Opportunities to improve the M&E system of the PFES scheme include:

- Improvements in technology and the application of this technology to the forest sector, particularly improved accuracy and access-ability of satellite imagery, remote sensing and GPS technology, and developments in mobile devices and applications, such as smart phones and iPADS that are GPS enabled
- The improvement of the national forest M&E system, particularly the new NFIS programme
- Improved management of forest information in Viet Nam, particularly via the VNForest's Forest Management Information System project (ForMIS), which provides

- a platform and mechanism to collate, organize, integrate and share all sources of available data (more detail about ForMIS is provided in the following section)
- The ability to learn from and leverage of the successes of various other forest M&E and forest management initiatives developed and trialled by both NGOs and donors in Viet Nam and internationally (as described in more detail in the next section)
  - The availability of more data from various sources, including hydropower companies, research institutes, GoV programmes, international GIS and satellite imagery databases
  - The early success of initiatives and pilot projects that establish forest protection households Groups that facilitate better management, reduce transaction costs, and also facilitate Participatory Forest Monitoring (PFM)
  - A strong civil society in Viet Nam, particularly Non-Government Organisations (NGOs) that have valuable experience and expertise in forest protection
  - The establishment of Village-level funds that facilitate lower transaction costs and more effective use of PFES funds for socio-economic outcomes
  - The increasing importance of the REDD+ framework and the associated development of forest Monitoring, Reporting and Verification (MRV) protocols
  - Increasingly strong incentives from international timber markets for better and more sustainable management of forest resources and improved M&E (e.g. the Forest Stewardship Council, ForCES, and other international standards and certifications as described in more detail in Section D)
  - The potential to include other PFES types in the PFES policy and to bundle payments from all FES, thus increasing payment levels
  - The potential to add more detailed and sophisticated forest monitoring into the PFES monitoring system as awareness levels and capacity of Forest Owners and particularly patrol Groups is increased (i.e. once the M&E framework for PFES is established)
  - The increasing awareness of the watershed management approach that promotes integrated management of all watershed issues and could be aligned with PFES
  - Increased recognition of FESs and how to protect and enhance them
  - Slow but ongoing improvements in data sharing within and between GoV agencies
  - Ongoing improvements in the M&E of biodiversity in Viet Nam

The PFES policy's first three years has increased the awareness and recognition of FESs and of the potential for the mechanism to provide effective incentives for forest protection and a valuable source of sustainable financing. The broad success of the scheme has galvanised support from all levels of the GoV for the continuation, expansion and improvement of the scheme.

## **5. Threats**

Several threats to the effectiveness and success of the PFES scheme are identified. A key threat relates to the loss of faith and trust in the system of forest protection by the stakeholders, including the PFES Buyers and also the Forest Owners/ Contractors. This could result from ineffective forest protection, corruption and inequities. Specific to PFES M&E, if the forest monitoring data collected by the Forest Owners/ Contractors and FPD is not effectively used to improve management of forests and the scheme, then those responsible for forest protection and monitoring will likely lose faith in the system and it will fail.

Threats identified include:

- Ineffective forest protection efforts and a lack of enforcement of regulations, leading to forest degradation and deforestation and leading to a loss of faith and trust in the scheme by Forest Owners/ Contractors and PFES Buyers
- Capture of the PFES funds by those in positions of power, including Village Heads, Group Leaders, leaders of mass organisations, FMB managers, and PC staff (i.e. elite capture), through, for example, under-payment of Forest Owners/ Contractors and/or awarding of PFES contracts and payments to the Forest Protection Staff and the elite rather than poor and/or forest-dependent households
- Provincial PC's blocking or hindering direct payment of tourism PFES and diversion of PFES funds (such as in Quang Binh)
- Ineffective use of PFES funds by the Forest Owners and Contractors, reducing the socio-economic impacts
- Low and slow disbursement of payments to Forest Owners in some provinces, which along with elite capture, leads to distrust and erodes the confidence and faith of the stakeholders in the scheme
- Unequal payments, leading to confusion, social conflicts, distrust, and a loss of faith in the scheme by stakeholders
- PFES payments to Forest Owners that are not linked to actual forest protection performance and a lack of recognition of services actually provided by Forest Owners/ Contractors, leading to ineffectiveness and erosion of faith and household engagement in the scheme
- Low payment levels to Forest Owners that barely cover transaction costs and are not sufficient to provide an incentive to protect the forest
- Exclusion of many forest households from the scheme and from receiving payments, which can lead to a lack of engagement in forest protection and even spiteful behaviour by those excluded (i.e. forest violations)

It is noted that in many areas, poor governance has also allowed corruption to continue unabated. For example, studies found that more than 50% of the total funding allocated to Programme 327 was diverted to other purposes (Pham et al 2011). While no corruption has been officially identified related to the operation of the PFES scheme, there is anecdotal evidence of under-payment of Forest Owners and Contractors by the responsible agencies, and inappropriate use of funds deducted by Group Leaders, Village Heads and CPCs. Currently, in many provinces, the Group and Village leader will sign the forest protection contract and manage the payment on behalf of the Group or Village. A portion of the funds is deducted for a Village or Group fund to be used collectively for the benefit of all, and as decided by all (ADB 2014). Generally this system works very well but there is scope for Leaders to unfairly select households that will receive payments and also to misappropriate some of the funds, particularly in areas where there is low awareness of the PFES scheme amongst households and a lack of transparency about payment levels and use of the funds. Currently there is no guidance or mechanism to monitor and report on this.

Similarly, FMBs in some areas have chosen to contract a few full-time Forest Protection Staff and to pay them a salary with the PFES funds to protect a very large area of forest. This is an alternative arrangement to the usual arrangement as envisioned in Decree 99 of contracting many forest households to each protect a small area of forest and receive an annual payment per hectare. While this arrangement may have some operational advantages, there is significant scope for corruption and elite capture of PFES funds, doubtful effectiveness of forest protection efforts, exclusion of almost all forest households

from the scheme, and thus a greatly reduced socio-economic impact on forest communities. In one area visited during this study, it was found that the Forest Protection Staff contracted by the FMB were in fact full-time employees of the CPC, were relatively rich, were not dependent on forest resources for their livelihood, and were not living in the forest area they were responsible for protecting.

One of the strengths of the current PFES scheme as described above is the relatively high level of trust and faith in the scheme amongst forest communities and their willingness to participate and protect the forest for even relatively low annual payments. While the PFES scheme is not a pure PES scheme in that the suppliers (i.e. those protecting the forests) are not participating voluntarily, the suppliers are for the most part participating willingly. This is critical to the effectiveness and success of the scheme. However, there is a threat that this faith and trust will be lost if the scheme fails to provide incentives to protect the forest and does not recognise and reward those who effectively protect the forest and penalise or punish those who undertake illegal activities. The scheme must also be more equitable with regards to payments to Forest Owners/ Contractors and achieve results with regards to forest protection. One forest patrol Group reported that those undertaking illegal activities in the forest often taunt and provoke them when approached as they know that the Group is not empowered to enforce the regulations and apprehend them and actual enforcement is weak.

## **D. M&E Experiences and Lessons Learned**

### **1. Other projects and initiatives**

There are several current projects and programmes, including several that appear set to significantly change and improve the official system of M&E in the forestry sector in Viet Nam, particularly:

- The Forest Management and Information System for VNForest (ForMIS)
- The National Forest Inventory and Statistics (NFIS) programme
- Reducing forest degradation and deforestation in developing countries (REDD+), Monitoring, Reporting and Verification (MRV) protocol

Viet Nam's forestry policies are undergoing a paradigm shift from production-oriented to multi-functional forest management, including the conservation and sustainable use of biodiversity and ecosystem services. Any proposed revisions or new systems for the M&E of the PFES scheme will need to be consistent with the structure, framework and format of these initiatives.

In addition, there are two other projects currently working with VNForest to review and improve the M&E system of the PFES policy, namely:

- Improving Payment for Forest Ecosystem Service Implementation project (IP-FES)
- Development of Informative Database on Payment for Forest Environmental Services in Vietnam project (DPFES).

These two projects are being overtaken over a much longer period and with much greater input and resources than this Review. Therefore, any revisions to the M&E system of the PFES scheme proposed by this Review should understand these projects, including their work towards developing a revised PFES M&E system.

There have also been many projects and programmes in Viet Nam, implemented by the GoV and various donors and NGOs, aimed at improving forest management, including M&E. Many of these offer valuable ideas, experiences and lessons for the design of an M&E system for the PFES scheme. These projects are too numerous to properly review and assess here. However, a few of the most interesting and relevant projects are described here, including:

- The Sustainable Forest Management in the Northwest Watershed Area project (SUS-FORMNOW)
- Forest Certification for Ecosystem Services project (ForCES)
- SNV Participatory Forest Monitoring
- Forest Biodiversity M&E projects

Other projects include several by GIZ, PanNature, CIFOR, projects on monitoring biodiversity such as KfW's CarBi project, the ongoing Vietnam Forests and Deltas project, KfW10, and the JICA-funded project "Technical support to improved management and restoration of protection forests".

## **2. National Forest Inventory and Statistics**

As described in Section B, the NFIS programme looks set to replace the NFIMAP programme as the satellite imagery component of the national forest M&E system. This is a very detailed M&E programme that includes data on the forest ownership of each forest plot, as well as forest cover, density and several other forest criteria. The data from NFIS will form the baseline data for PFES M&E and provide the map-based M&E data for forest impacts on a five-yearly cycle. The availability of this data at the local level, and the integration and consistency of this data with the on-the-ground forest M&E data, will be critical for the M&E of impacts on the forest in PFES forest areas.

## **3. ForMIS**

The VNForest programme Development of a Management Information System for the Forestry Sector (ForMIS) is financed by the Government of Finland, the Trust Fund for Forests (TFF) and the GoV<sup>8</sup>. FORMIS supports MARD in sector-wide forest governance and management by developing a modern information system from central to local level in order to provide accurate information for decision making for the forestry sector at all levels.

ForMIS will provide a national forestry information database and data management system that will be forest information portal. All forest data and information, including primarily data from the on-the-ground monitoring of FPD and data from NFIS, will be standardized, harmonized and integrated into the ForMIS platform to facilitate analysis and evaluation and sharing of data among ministries, line agencies and other stakeholders.

In accordance with MARD Circulars No. 25/2009/TT-BNN (Guidance on Forest Management Statistics, Inventory and Compilation of Forest Dossiers) and No. 34/2009/TT-BNNPTNT (Criteria for Forest Specification and Classification), ForMIS integrates and records data to the level of the forest management 'plot'. ForMIS will include data on forest ownership and thus will be a powerful tool to assist PFES M&E of forest impacts and scheme operation. Ideally, when fully implemented and operational, ForMIS will provide up-to-date detailed GIS

---

<sup>8</sup> <http://formis.vnforest.gov.vn/en/web/home/formis>

maps of each forest area that will be widely accessible, including at the commune level. ForMIS will enable evaluations of changes in forest area, forest cover, and forest quality as well as information on causes of forest changes, disaggregated to the level of each PFES area.

ForMIS provides the platform for all forest data and will enable extraction of relevant data for the PFES scheme. ForMIS is therefore a very valuable opportunity and resource for any M&E system implemented for the PFES scheme. Similarly, any additional data monitored specifically for the PFES scheme should be designed so as to be consistent with ForMIS formats and categories to facilitate integration into the ForMIS database system.

#### **4. REDD+ Monitoring, Reporting and Verification**

Viet Nam is making significant progress in the establishment of its monitoring, reporting and verification (MRV) system for REDD+<sup>9</sup>. The MRV calls for the development of a National Forest Monitoring System (NFMS), which will monitor and assess the forest area and forest area changes and changes to the National Carbon Inventory (NCI). For REDD+, methods are needed to monitor and assess changes in forest biomass and to collate data to analyse carbon pools. The NCI will include a national forest inventory and a carbon inventory for other land use types.

Viet Nam is now in Phase 2 of the UN-REDD Programme. Phase I of the UN-REDD Programme involved working on the development of allometric equations for key forest types in several forest-rich eco-regions in the country. The allometric models are compiled in a national database and have been made accessible to neighbouring countries which may benefit from their use.

The MRV system being developed to comply with the international REDD+ requirements will likely require more detailed and rigorous forest M&E than the current national system and that proposed for the PFES scheme. Carbon storage and sequestration services are included as one FES type in the PFES policy. The international REDD+ mechanism is a PFES scheme and thus there are clear synergies with the PFES policy. Payments for carbon services has the potential to greatly increase the average level of payment per hectare of forest in some forest areas in Viet Nam and thus greatly support the PFES scheme. It is likely that the PFES M&E system will be aligned to a large degree with the final MRV for REDD+. Also, the REDD+ system will likely use much of the PFES management and administration framework, including the mechanism to distribute payments to Forest Owners.

However, payments for carbon have not yet been implemented under the PFES policy and will likely not be until the REDD+ negotiations are more advanced and the protocols finalised. MRV indicators will likely include forest area, forest density, forest biomass, and activity data on the various causes of forest degradation and deforestation

Full and effective participation of stakeholders, particularly local communities, in national REDD+ programme development and implementation is now promoted under the United Nations Framework Convention on Climate Change (UNFCCC). This provides further impetus and support for Participatory Forest Monitoring (PFM) that involves local communities (see below on SNV PFM).

---

<sup>9</sup> Reducing Emissions from Forest Degradation and Deforestation in developing countries

## 5. IP FES

The Improving Payment for Forest Ecosystem Service Implementation (IP-FES) project is funded by the Asian Development Bank and is being implemented by MARD. IP-FES began in September 2014 and will run for two years. The overall goal of the project is to accelerate the implementation of the national program of PFES schemes by improving the existing policy and legislative framework for PFES, especially Decree 99/2010<sup>10</sup>. IP-FES is undertaking several technical studies, including:

- i. Forest ecosystem service assessment in aquaculture, tourism and industrial water,
- ii. PFES WebGIS system,
- iii. PFES improved financial management and accounting, and
- iv. PFES integration into provincial planning processes.

Based on these studies, IP-FES aims to develop a PFES M&E framework and guideline and also a guideline for assisting the use of PFES funds by forest communities. IP-FES thus targets addressing several of the current weaknesses of the PFES policy design and implementation, as identified in Section C. The outputs will provide materials and tools for VNFF/ MARD to revise the current PFES-related decrees and regulations.

The PFES WebGIS system component of IP-FES is particularly relevant to the M&E system for the impacts of PFES. IP-FES proposes to establish an updated GIS database of forest areas at the provincial level to identify the target forests of PFES, their boundaries, status and owners. Forest maps based on the NFIS inventory are to be **updated annually** by FPDFs at minimal cost for the latest satellite imagery. The M&E system will include technical training for FPDF staff on how to undertake mapping and expert assistance for each province to update the maps annually. The maps will include twelve GIS layers (or data types), consistent with DP-FES, including data relevant to the K coefficient and demarcation of Forest Owners' and Contractors' areas.

The GIS map system will thus facilitate and improve the on-the-ground forest monitoring at the community level undertaken by forest patrols and verification patrols. It will also facilitate the integration of the two components of the national forest M&E system, namely on-the-ground monitoring and monitoring via satellite imagery and remote sensing. The GIS data secured in the target provinces will be incorporated into the data processing and management system of ForMIS and thus integrated into the national forest database and official statistics. A website will be developed to enable access for PFES stakeholders and thus improve the transparency of the scheme.

Component three of IP-FES, on improved financial management and accounting, is relevant to the M&E system of the operation of the PFES scheme, particularly the use of PFES funds by the various forest management agencies. IP-FES aims to improve the guidance and regulations and to prepare a PFES accounting handbook to improve fund management and benefit sharing mechanisms.

## 6. DPFES

The project "Development of Informative Database on Payment for Forest Environmental Services in Vietnam" (DPFES), funded by the Trust Fund for Forests (TFF), provided recommendations on the necessary conditions for the development and maintenance of an informative database on PFES to meet the requirements of relevant stakeholders in

---

<sup>10</sup> IP-FES Inception Report

updating, managing, analyzing, organizing, sharing and using the data and information of PFES. The PFES Informative Database (PID) will be integrated with the broader forest information management system being developed by ForMIS.

DPFES is thus directly relevant to the PFES M&E system and focused particularly on the M&E of the implementation and operation of the PFES scheme and data management. DPES has identified and categorised the data that is mandated to be monitored in the PFES-related legislation issued by MARD, the Ministry of Finance, VNForest and FPD and identified areas for improving this data and related processes. DPFES identifies five categories of data relevant to PFES:

- i. Data on forests and forest owners,
- ii. Data on FES user facilities (i.e. Buyers)
- iii. Data on PFES situation (payment plans, payment collection, eligible areas),
- iv. Data on PFES effectiveness,
- v. Data on PFES policies.

DPFES has prepared a useful summary and description of the PFES data currently collected and how it is stored and organized (VNFF 2015). With regards to M&E of PFES effectiveness, DPFES found that only 40% of provinces collect data on forest quality, only 16% collect data on the number and value of social welfare projects implemented, only one of the 25 provinces surveyed collects data on the average PFES payment received per household, none collect data on the percentage of total household income that the PFES payments to households contribute, and none collect data on environmental quality. Data on PFES effectiveness is mainly reported in the PFES implementation reports of FPDFs, based on Microsoft Word files and paper maps.

In collaboration with the Institute on Forest Ecology and Environment, DFES developed a "Handbook for guiding PFES data collection, update, management and utilization". Several indicators for the M&E of the operation of the scheme are proposed, including:

1. Forest location from province to plot level
2. Forest type, origin and status
3. Area of forest within a river basin
4. Number of FES buyers
5. Production and payment capacity of each Buyer
6. Actual production and payment of each Buyer
7. Official documents produced (Decree, Decision, Circular, Instruction and Guidelines) and data available on the components of the k-coefficient.

Further indicators were proposed related to the implementation and operation of the scheme that are also important to measure the impact of the scheme:

8. The number of Forest Owners with PFES contracts
9. The number of Forest Contractors with PFES contracts
10. The name and code of each Forest Owner receiving PFES payments
11. The name and code of each Forest Contractor receiving PFES payments
12. The amount of payment received by each Owner/ Contractor
13. The verification percentage for each Forest Owner

In addition, DPFES proposed the following indicators specifically for the M&E of the effectiveness or impacts of the PFES scheme:

14. Number of welfare structures constructed from FES revenue (village infrastructure)

15. Total FES money invested in welfare structures
16. Number of people that participated in forest protection
17. Average FES revenue per person (Owner or Contractor)
18. FES revenue as a percentage of total household income
19. Number of forest violation cases per year

Indicators 13 and 19 are apparently the main indicators for M&E of the impacts of the PFES scheme on the forests. No indicators are proposed for M&E of FES maintenance and delivery. Indicators 15 to 18 monitor socio-economic impacts, though it is not clear how this data will be generated and reported. For example, Indicator 18 implies that data on each Forest Owner/ Contractors' total household income will be collected.

The DPFES project provides further detailed guidance for developing and organising a PFES database system, including coding the information. Importantly, it is proposed that each Owner/ Contractor will have a unique identification code.

## **7. Sustainable Forest Management in the Northwest Watershed Area**

The Sustainable Forest Management in the Northwest Watershed Area project (SUS-FORMNOW)<sup>11</sup> is based in Dien Bien province and funded by JICA. The project began in 2010 and will be completed in August 2015. SUS-FORMNOW has developed a Provincial Forest Monitoring System which has been introduced and trialled in pilot communes of Dien Bien province with a plan to expand the system to several other northwest provinces. The PFMS is based on participatory forest management combined with local livelihood development with the aim of increasing forest cover. SUS-FORMNOW also aims to be integrated into the Provincial REDD+ Action Plans (PRAPs) of the provinces.

The Provincial Forest Monitoring System is based at the village level and entails establishing a Village Forest Patrol Team (VFPT) that then undertake forest patrols, using satellite maps with numbered compartments. The Patrol Teams follow a procedure as set out in a manual and report their observations (not measurements) to the FPD ranger each month via a standard template (a paper report). These reports record:

- Forest Identification
- Place Location (local name)
- Status (rich, medium or poor)
- Cause of deforestation (forest fire, burning for cultivation, conversion of other land use, land slide, mass flowering (bamboo))
- Applied countermeasure
- Date, time
- Who causes it?
- Detector (person who detected and reported the change)

The FPD ranger in each commune responds to issues reported by the Groups and goes to the site of the reported violation to verify and take measurements. Each ranger is provided a Tablet (like an iPad) that is loaded with the forest maps, is GPS-enabled and includes a compass and a camera. Information about forest violations and field survey results, including the location and photographs, can be easily recorded and uploaded via the internet to the district database where the data is confirmed and the forest maps can be updated. A 'forest

---

<sup>11</sup> <http://www.jica.go.jp/project/english/vietnam/004/outline/index.html>

change monitoring' layer on the maps is established for this purpose. Data is checked again at the provincial level. The Tablets use Quantum-GIS, which is free software.

The FPD reports are generated in a format consistent with ForMIS and VNForest categories and reporting. The template report loaded into the Tablet is structured so as to capture the required information, ensure consistent reporting and reduce reporting errors. It captures and uploads the monitoring information and thus facilitates tracking of follow-on actions including enforcement and punishment of forest violators. It also facilitates greater integration of on-the-ground monitoring with official forest maps based on satellite imagery and remote sensing.

## **8. Forest Certification for Ecosystem Services**

The Forest Stewardship Council (FSC) certification has typically focused on the certification of timber products sourced from sustainably managed forests, as determined by a set of principles and criteria. Under the Forest Certification for Ecosystem Services (ForCES) project, the idea of expanding FSC to include additional ecosystem services (such as carbon, water, biodiversity and others) are being tested across four countries; Vietnam, Chile, Indonesia and Nepal<sup>12</sup>. Essential to this is the development of suitable, measurable compliance indicators which will be incorporated in FSC national standards in the pilot countries and compliance with the FSC International Generic Indicators (IGIs). The IGI are a set of indicators that address the FSC principles and criteria and are designed to be adaptable at the regional or national level.

To attain FSC certification, the forest management organisation must monitor and assess the environmental and social impacts of their activities against verifiable targets and make results publically available. This includes impacts on environmental values, rare and threatened species and landscape values. (It is noted that these FESs and impacts are valuable to tourism). If the organisation wants to make specific claims about promoting the provision of FESs, the maintenance and/or enhancement of these FES should also be monitored. Such certification is intended to create the opportunity for forest management organizations to meet additional requirements related to the maintenance and/or enhancement of ecosystem services in support of promotional claims to facilitate improved market access to ecosystem service payments. The "FSC Procedure for Demonstrating the Impact of Forest Stewardship on Ecosystem Services" is currently being developed and will describe requirements for evaluating the outcomes and impacts of activities to maintain and/or enhance the provision of ecosystem services.

The FSC system will likely include M&E of reforestation/ afforestation with invasive/ foreign species, impacts on indigenous/ ethnic communities, engagement/ consultation with stakeholders, and impacts on High Conservation Value Areas.

## **9. SNV Participatory Forest Monitoring**

The Participatory Forest Monitoring (PFM) approach has been generally emerging in forest landscape management across the Asia region<sup>13</sup>. Related to SNV's REDD+ work, SNV is piloting PFM<sup>14</sup> in two districts in Lam Dong province, with 18 ethnic minority villages. This work is being carried out in close collaboration with local partners with the aim of

---

<sup>12</sup> <http://forces.fsc.org/>

<sup>13</sup> Evans and Guariguata 2008

<sup>14</sup> <http://www.snvworld.org/en/sectors/redd/about-redd/priority-interventions/participatory-forest-monitoring>

demonstrating the value of engaging primary stakeholders in forest monitoring for the national forest inventory. PFM is broader than just the monitoring of carbon, recognising the role of communities in monitoring activity data and the introduction of policies and measures, as well as co-benefits. SNV aims to add value to participatory monitoring of forests through application of emerging best practice, and contributing to methodological innovation.

PFM is particularly important for application in areas of forest degradation and where there are opportunities for forest carbon stock enhancement, which are more difficult to detect through remote sensing. Recognition of the role for local actors in forest monitoring is an important element of REDD+ contribution to the livelihoods of rural poor communities and the long term success of REDD+.

PFM piloting in Vietnam comprises: development of operational and methodological guidance; field testing of operational systems and data collection/management protocols; and national policy dialogue. Although in the very initial stages of development, PFM in Vietnam presents a working example of exploring the technical and institutional aspects of designing and operating an inclusive monitoring system that has multiple applications, such as REDD+ and other payment for ecosystem service schemes.

## **10. Forest Biodiversity**

The SNV High-Biodiversity REDD+ (HB-REDD+) project conducted over three years (2011-2013) with funding from the International Climate Initiative (ICI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)<sup>15</sup>. HB-REDD+ trialled participatory forest, carbon and biodiversity monitoring at the commune and individual household level in Lam Dong Province. At the field level, the project aimed to test biodiversity indicators and establish a prototype community-based monitoring system, which could be scaled up across the country. Lessons learned from this project would be relevant to the M&E of the PFES scheme, particularly with regards to the FES of biodiversity and the value of this FES to the tourism industry.

On a similar theme, the “Conservation and sustainable use of forest biodiversity and ecosystem services” programme will run from 2014 to 2017. It is supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and aims to establish the conditions necessary for the conservation and sustainable use of forest biodiversity and ecosystem services in Viet Nam. This includes providing advisory support for the drafting of legal documents, including for conservation-oriented financing mechanisms (PFES), protected area management, and sustainable forest management. The programme also assists MARD in implementing the National Capacity Development Plan for Protected Area Management. The Department of Nature Conservation is supported to introduce information management systems to improve forest ranger patrolling strategies in protected areas.

This initiative is similar to other projects in the region that have applied a Spatial Monitoring and Reporting Tool (SMART) to assist forest monitoring, particularly forest biodiversity. In Quang Bing Province in Vietnam, SMART was introduced for the management of the Phong Nha–Ke Bang National Park, in a project funded by KfW. With the standardised forms SMART rangers can easily collect, record, store, retrieve, analyse, and ultimately map and report quantitatively on field data regarding species (animal sightings/hearings, tracks and other sign, behaviour), habitat (type and condition) and threats (floods, fires, snares, illegal loggers, poacher camps, encroachment). Moreover, SMART quantifies patrol effort (ranger-days, ranger-kilometres, patrol blocks covered) and results (snares removed, arrests) and

---

<sup>15</sup> <http://www.snvworld.org/en/redd/publications/hb-redd-leaflet>

allows the sharing of information among ranger teams as well as with managers and decision makers.

The SMART software has been jointly developed by a consortium of NGOs such as the World Wildlife Fund (WWF), Wildlife Conservation Society (WCS), Flora and Fauna International (FFI), Zoological Society of London (ZSL), Frankfurt Zoological Society, New Castle Zoo, CITIES, MIKE, and many others<sup>16</sup>.

Other projects that might provide lessons for M&E of the FES of biodiversity include the Avoidance of Deforestation and Forest Degradation in the Border Area of Southern Laos and Central Vietnam for the Long-Term Preservation of Carbon Sinks and Biodiversity project (CarBi)<sup>17</sup> implemented by the World Wildlife Fund and KfW, and the REDD+ and Biodiversity Monitoring Sourcebook developed by GIZ and the Zoological Society of London (ZSL).

## **E. Data and Data Sources**

### **1. Existing M&E indicators and systems**

As described in Section B, data on the forests in Viet Nam is already monitored and collated as part of the existing national forest M&E system. Data is generated and collated as part of the on-the-ground forest monitoring undertaken by FPD, and the periodic monitoring via satellite images and remote sensing undertaken as part of the NFIS programme. The Department of Forestry and Forest Owners also monitor and collect forest data. Based on this data, a set of indicators for the M&E of the forestry sector has already been selected and are reported as part of the forest management system.

In Viet Nam, the national socio-economic M&E system is managed by MoLISA, with detailed data monitored down to the level of individual households with support of the CPCs. Socio-economic indicators based on this data have been established for various purposes.

The PFES policy and the PFES scheme sits within the broader national forest management policy framework and management system. Accordingly, the PFES M&E system should also fit within the existing M&E systems in Viet Nam as far as practical. It is proposed that the M&E system of the PFES scheme integrates with, and uses data from, the existing forest and socio-economic M&E systems. The historical data from these M&E systems can be used to provide a baseline for the PFES policy, though it is recognised that there are limitations of this data. In this way, the need to generate, collect and collate additional data for the PFES M&E system can be minimized. This will also promote consistency of the data, data formats and monitoring processes and effort and thus facilitate integration of data sources and data sharing.

In addition to data monitored for the existing national forest M&E system, some additional data is already monitored specifically for the PFES policy. Currently, this data relates almost entirely to the inputs and outputs of the scheme, rather than the impacts, and thus relates to the M&E of the implementation and operation of the scheme.

---

<sup>16</sup> [www.smartconservationsoftware.org](http://www.smartconservationsoftware.org)

<sup>17</sup> [http://wwf.panda.org/what\\_we\\_do/where\\_we\\_work/greatermekong/our\\_solutions/projects/carbi/](http://wwf.panda.org/what_we_do/where_we_work/greatermekong/our_solutions/projects/carbi/)

## **2. Forest Data**

### **a. National Forest M&E System**

Data monitored by FPD is collected by local FPD rangers and then reported each month to district FPDs, and each quarter from the District FPDs to the provincial FPD. The provincial FPD compiles the information and reports to the Central FPD where the data is then input and integrated into the FPD central database system. All the information is reported separately to the Central database from provincial FPDs under guidance procedures provided by the Central FPD.

For the satellite monitoring, the FIPI has been implementing the NFIMAP since 1990, covering four cycles and is currently in its fifth cycle. This inventory system has undergone changes in the past, and is in the midst of a review. The new NFIS programme is a variation on the NFIMAP programme that aims to provide information on forest ownership as well as better integrate with the on-the-ground monitoring component. The data generated from NFIS is comprehensive and appears likely to form the major component of the national forest resources inventory database and M&E system.

As discussed in Section C, there are several weaknesses of the current national forest M&E system, not least of which is the lack of integration of the various data sources and the limitations of the on-the-ground monitoring system.

### **b. Forest Protection Department**

Under the existing forest M&E system, key data on forests is monitored but it mostly focuses on forest cover and forest cover change by the existing forest classifications. The forest data that is generated and collated as part of the existing M&E system includes detailed information about each forest area, including forest areas within the PFES scheme. Data includes:

- 1) GPS coordinates and unique code of each forest Compartment
- 2) Forest location – province, district, commune, village
- 3) Name of Forest Area
- 4) Subzone, Lot, Plot
- 5) Area (ha)
- 6) Forest Status (rich, medium, or poor)
- 7) Forest Origin/ Source (plantation or natural)
- 8) Forest Type (SUF, Protection, Production)
- 9) Area of degraded forest
- 10) Demarcation of each PFES forest area (GIS coordinates)

The above data on forests is needed to enable the implementation of the PFES scheme and it also forms the foundation for the M&E indicators. GPS coordinates for each forest Plot and clear demarcation of forest areas is essential for the PFES scheme. Much of this data is specific to an area of forest as defined by GPS and as located on a map. Therefore, the forest monitoring system is increasingly map-based and dependent on maps and mapping software and capacities, with forest information stored and presented as maps with “layers” of location-specific information.

The FPD M&E system also monitors the following information in each forest Compartment:

- 11) Area of forest lost due to disease
- 12) Area of forest lost due to forest fires

- 13) Area of forest destroyed
- 14) Area of forest converted illegally
- 15) Area of forest degraded due to illegal logging
- 16) Area of degraded forest land in SUF and Protection forests reforested that year
- 17) Number of forest violations due to illegal hunting or collecting of NTFPs

These criteria are also reported by the Forest Owners for their forest areas, and confirmed and reported by the FPD. The area of forest effected is estimated based on visual observations in the forest. The FPD also reports on:

- 18) Number of forest violations prosecuted and resulting in penalties, by type
- 19) Number of forest violations reported but not prosecuted

Most of the forest monitoring undertaken by FPD is focused on changes in forest area and on forest violations. Monitoring of forest quality is limited, though the area of forest that is degraded due to a detected and reported forest violation is reported. Apart from that, monitoring and reporting by the FPD, verifiers and Forest Owners/ Contractors under the PFES scheme is largely qualitative and based on a subjective visual assessment, often of only a small sample of the total forest area. There is no standard and practical protocol to assist FPD and others monitor and report on the forest quality or health.

### **c. Department of Forestry**

The Department of Forestry monitors data related to legal forestry activities to the Plot level, particularly in Protection and Production forests, namely:

- 20) Area of forest legally converted to another land use
- 21) Area of forest planted that year, by species
- 22) Area of forest (legally) harvested that year, by species
- 23) Age in years of each forest plantation
- 24) Average tree height (calculated based on tree species and age, and estimated default growth rates)
- 25) Area reforested, naturally regenerated or planted
- 26) Area afforested, naturally regenerated or planted
- 27) Land use category (aquaculture, agriculture etc)

This data is important for determining which areas of forest area eligible for PFES payments, in accordance with Circular 34. Only forest areas that meet the minimum tree height as specified in Circular 34 are eligible for PFES payments. A plantation that has been recently harvested or recently planted will clearly provide a lower level of FESs than an established forest and thus should not receive PFES payments.

However, the Department of Forestry information is generally only recorded in paper format at the provincial level, with no database system (electronically) to manage and share data at both the provincial and national level.

### **d. National Forest Inventory and Statistics Programme (NFIS)**

Approximately every five years, the new NFIS programme will monitor detailed technical criteria about each forest Compartment and Plot. The data will be generated from satellite imagery and remote sensing surveys and analysis, including:

- 28) Forest ownership of each forest Title
- 29) The Forest Contractor responsible for each forest Title

- 30) Whether the forest is primary or secondary
- 31) Canopy cover
- 32) Forest density
- 33) Geographical type of land (mountainous, rocky, dune, submerged, saline etc)

Further data is generated by undertaking detailed field surveys in permanent sample plots (national sample plot). These surveys serve to 'ground-truth' the remote data and also to provide additional detailed data that is then extrapolated to similar areas beyond the survey plots. Therefore, this additional detailed data is not as accurate or reliable for those plots that were not directly included in the field surveys. The detailed data includes:

- 34) Tree diameter and height,
- 35) Tree density, and thus forest standing biomass can be calculated based on tree diameter, height and density
- 36) Tree species, and thus forest standing carbon stock based on standing forest biomass and species
- 37) Conditions of soil and terrain

Again, much of this data, such as tree species and height, as well as forest canopy cover, is necessary to apply the criteria for defining and classifying a forest under Circular 34 and thus determining forest areas that are eligible for PFES payments under the PFES policy. Importantly, the NFIS data provides a robust, rigorous and standard method for assessing forest quality as well as forest area.

The NFIS process generates and updates detailed forest inventory maps with several 'layers' of data capturing the above data. The forest maps are central to the national forest M&E system. The map detail and resolution has increased over the last decades to now be:

- Commune forest map 1:10.000
- District map 1:50.000
- Provincial map 1:100.000
- Regional map 1:250.000
- National map 1:1.000.000

The NFIS data is now available for the main forest agencies at the Central and Provincial level. Further improvements via the ForMIS platform are expected to enable access and use of the data at the local level and by a wider group of stakeholders.

#### **e. Forest Owners and Contractors**

Forest Owners/ Contractors are required to report on the protection of the forest, including preparing Forest Protection/ Management Plans. Under the PFES scheme, Owners of PFES forest areas also need to submit such a plan and have it verified/ approved in order to receive payments from the FPDF. Data reported includes:

- 38) Funds spent on forest protection activities, including equipment
- 39) Number of forest patrols undertaken in the forest area
- 40) Forest violations observed and reported to FPD (by type of violation)

As discussed, this data from the Forest Owners/ Contractors is not consistent across the provinces and is reported to varying levels of detail and in various formats. In the case of forest protection Groups, the data is reported by the Group Leader and is related to the total forest area protected by the Group of Forest Owners/ Contractors, rather than the individual forest ownership Titles or forest Plots. The route of the forest patrols within the forest area is

usually not recorded or reported. The Forest Protection Plans are submitted in hard copy (paper) only.

Some SFCs that are certified under the Forest Stewardship Council (FSC) or similar scheme are required to monitor quite detailed data across a range of forest and forest management criteria. This data is sometimes reported to the Department of Forestry.

The above forest data is already monitored, or should be, by the various parts of the existing national forest M&E system and the existing PFES M&E system. Thus a significant amount of data and criteria is available. However, some data is only monitored to the Compartment level, while other data is to the level of the forest Plot or Title. The FPD data is mostly monitored and reported quarterly while the NFIS data is only generated and collated periodically (likely to be once every 5 years).

#### **f. MONRE**

Under MONRE, the General Department of Land Administration (GDLA) is responsible for monitoring land use including areas designated as forest land. The GDLA conducts inventories in five-year cycles. The focus is on monitoring land-use changes. MoNRE uses a different land categorisation and classification system to that used by MARD, which has created inconsistencies in the two data sets and inventories. MoNRE and MARD are currently working to improve the consistency and integration between their two M&E and data management systems.

### **3. Forest Ecosystem Services Data**

#### **a. Water Flow Regulation and Water Quality**

Water flow regulation from basins and catchments, and the quality of freshwater, are important for many industries, particularly hydropower companies and fresh water supply companies. Currently, through the PFES scheme, many of these companies that source their water from forested catchment areas are paying for the services provided forests to regulate water flow and improve water quality. Information on hydrology is officially monitored and recorded by the three MONRE institutions namely:

- Department of Water Resources Management
- National Centre of Water resources Planning and Management
- National Hydro-meteorological and Climate Change Centre

However, the hydrology information monitored and recorded by these institutions is not yet integrated, linked or shared. Each institution has their own monitoring and data management system. Among the three institutions, the National Hydro-meteorological and Climate Change Centre has the most advanced and long-term data on water and hydrology. However, it is not clear how detailed, consistent and comprehensive the data is and thus useful it could be for the PFES M&E system.

Related to hydrology and water quality information, the most relevant information for monitoring could come from the records and monitoring undertaken by the hydropower companies and the water supply companies themselves.

Water supply companies regularly monitor water quality information as part of their normal operations, such as:

- Sedimentation levels

- Chemical contamination in water
- Water treatment costs
- Water levels, though this might only be visual observation

Similarly, hydropower companies regularly monitor water quality information and water levels in the relevant reservoirs and rivers as part of their normal operations, such as:

- Sedimentation levels
- Chemical contamination in water
- Water flow (not very regular and not available in all hydropower stations)
- Rainfall (though they often rely on secondary data from hydrological monitoring stations)
- Water level (in the reservoirs and rivers, though this is often a visual observation only)

Beyond the information that these companies would collect for their own purposes, they also monitor and report on data to comply with regulatory requirements. Water supply companies must regularly report on water quality to the Department of Health. Hydropower companies must report to the Environmental Appraisal Division of the Department of Natural Resources and Environment in accordance with the environmental monitoring plan in the hydropower plant's Environmental Impact Assessment (EIA). Thus, some data relevant to the water regulation and water quality services provided by forests in PFES catchments is already monitored and regularly reported by the PFES Buyers.

#### **b. FESs provided to Tourism**

Forest ecosystem services to tourism relate generally to biodiversity, landscape beauty, and recreational and educational amenities, as these are the main attractions to forest areas. However, data on the provision of these services is difficult to monitor and assess and thus it is difficult to monitor and evaluate the extent to which the PFES scheme is protecting and maintaining these services. Directly measuring and monitoring changes in the value derived by tourists from these services is easier, such as via proxy measures of the value of the nature-based tourism industry or tourists' willingness to pay to visit a site, as reflected in the value of park entrance fees.

Information on tourism in Viet Nam is limited, particularly as it relates to FESs. Information is difficult to collect. The structure and organisation of the tourism industry, and the management and monitoring of tourism, varies across the provinces. Currently it is not clear what data is available on nature-based tourism. In some forest areas, such as National Parks, entrance fees are charged and collected by the FMBs. While this revenue is not currently included as PFES revenue, the entrance fee system presumably generates some consistent data that could be useful for PFES M&E, such as:

- 1) Number of forest areas in each province where entrance fees are collected
- 2) Total entrance fees collected by forest area
- 3) Total number of visitors to each forest area
- 4) Average entrance fee charged

This data is monitored by the Department of Nature Conservation within MARD.

The Department of Tourism also have data that is important for the operation of the PFES scheme. Certain data on forest-related tourism is needed for PFES forest areas to enable the identification of FES beneficiaries such as tourism operators who should be paying for the FESs under the scheme. Thus, the data monitored by the Department of Tourism is:

- 5) The number of (licensed) tourism operators in each forest area where tourism PFES has been established

Further more detailed data on these tourism FES buyers is needed to calculate the amount to be paid by these tourism operators. There are several different ways in which tourism PFES can be applied. In some cases, the payment is based on the profit of the tourism operators or their total revenue. In these cases, data from the Tax Department is used to determine the required payment level, specifically:

- 6) Total revenue of tourist operators
- 7) Total income of tourist operators

However, it is noted that only a few PFES forest area apply the entrance ticket system. Also, there is currently only a few areas where PFES revenue is collected from the tourism sector and these contribute less than 2% of total PFES revenues collected.

Other data may be available currently or in the future from system to license or register tourism operators, hotel visitor registrations, and even tourist satisfaction surveys.

## **4. Socio-economic Data**

### **a. MoLISA**

MoLISA is responsible for the national socio-economic M&E system, supported by the DoLISA in each province and the CPCs. Socio-economic household data is collected via two main processes:

- i. A detailed survey or census conducted every three years in each village and coordinate by DoLISA and the CPCs
- ii. An annual survey to update the detailed census, as conducted by each Village Leader

The findings and results of each survey are discussed and verified at the village or community meetings to verify the results. This provides an important reality check to the surveys and improves the reliability of the data (much of which is based on self-reporting by the households themselves). MoLISA has a standard socio-economic survey template and software programme that is consistently applied across all provinces and villages. There are two levels to the survey, with the first level being a brief survey that monitors basic socio-economic information from every household and also allows identification of households that are likely to be officially classified as “poor”. The second level survey is undertaken only of poor or near-poor households and is collects more detailed information. The survey form is regulated in Circular 21/2012/TT-BLĐTĐBXH.

Importantly, the MoLISA M&E system and database allocates a unique identification code number to each household and to each household member. The code is based on the location of the household (i.e. province, district, commune, village, and hamlet) and the position of the person within the household.

For each household, MoLISA monitors the following data:

- 1) Name of household
- 2) Household code
- 3) Location of household
- 4) Gender of the household head

- 5) Age of the household head
- 6) Education level of the household head
- 7) Number of people in the household
- 8) Age and gender of people in the household
- 9) Ethnicity
- 10) Main livelihood/ occupation (main income)
- 11) Number of dependents
- 12) Employment of any person by the GoV
- 13) Income level/ wealth level (“poor”, “average” or “rich”)

For each “poor” household, MoLISA monitors the following additional data:

- 14) Household assets
- 15) Access to fresh water
- 16) Type of toilet
- 17) Type of house (roof and floor)
- 18) Education level of each person
- 19) Reasons for poverty (e.g. few people of labour age, low skills, landless etc)
- 20) Attendance at school by school-age children
- 21) Dependence on natural resources such as forests and fisheries

Currently, MoLISA is implementing a new project funded by the World Bank that aims to create an information management system for MoLISA. The Vietnam Social Assistance System Strengthening Project (VSASS) was launched in 2014 and is much like ForMIS though for socio-economic data rather than forest data. The project will consolidate existing database into a national database of poor and near-poor households and social assistance beneficiaries, laying the foundation for program consolidation and improving the effectiveness of public spending on social assistance. In the four pilot project provinces (Hà Giang, Quảng Nam, Lâm Đồng and Trà Vinh), the project will test the strengthened, consolidated cash transfer program by putting existing and new cash transfers for poor households with children and pregnant women into a “family package” which can guarantee income security for poor households in the long run. The program will be delivered through improved management and service delivery systems<sup>18</sup>.

The new information system developed by VSASS will be fully digitalised and enable integration of the various sources of socio-economic data from the various programmes and agencies and integration and sharing of data at all levels from the commune to the Central level. Based on the unique personal code, a wealth of socio-economic data will be available via this new information portal and data management system. This will greatly facilitate the M&E of the socio-economic impacts and performance of the PFES policy. Interestingly, there will also be a new system to distribute the benefits and support to the target households.

## **b. Commune People’s Committees**

The CPCs and Village Heads work with the local DoLISA to implement the socio-economic surveys discussed above, and other line agencies such as DARD etc as required. The CPCs thus have a large amount of information and data about the households in their commune.

---

<sup>18</sup> <http://www.worldbank.org/en/news/press-release/2014/08/07/support-to-reform-and-innovation-in-vietnams-social-assistance-program>

### **c. Village Management Boards**

Each village has an appointed or elected Village Leader. Village Committees and/or Village Management Boards (VMBs) have also been established in many forest villages. VMBs are a potential source of useful socio-economic data, particularly related to how the PFES funds are spent by the Forest Owners and local communities.

The use of PFES funds by Forest Owners or Contractors that are households and communities is more easily monitored when the Forest Owners/ Contractors are organized into Groups and paid as a Group. As in Son La province, the PFES funds are paid into a Village Fund and then, in accordance with the agreed Fund rules, the PFES funds are divided between the forest Patrol Groups and a pooled fund used for village projects, such as investment in village infrastructure. The decisions on how to use the pooled fund are made democratically during village meetings and documented in the meeting minutes. The meeting minutes thus provide a source of data to monitor how the PFES funds are used. Data on the proportion and amount of PFES funds that is directed to village-level investments as opposed to household payments would be interesting and may provide some tangible data on socio-economic impacts of the PFES scheme. However, the efficiency, equity and effectiveness of these village investments, and thus their socio-economic impacts, is more difficult to monitor and evaluate.

In Son La province (Copia FMB) the PFES monies are paid to the local communities rather than to each household. The FPDF has issued guidelines on how this money should be shared and spent (i.e. 30% to the Village Fund and 70% direct to households). The community prepares a logbook of how the PFES money was spent and reports to the FPD. Larger investments by the Village Fund are agreed via a village meeting and documented in the meeting minutes.

However, the VMB meeting minutes are generally recorded only in paper format and in inconsistent formats, and are as yet, not submitted to a central database.

### **d. Other sources of Socio-Economic Data**

Other socio-economic information is also collected by the Ministry of Justice, and the Ministry of Public Security for various purposes. The data collection and data management systems of these Ministries are not consistent, integrated or linked.

The Committee for Ethnic Minority Affairs (CEMA) also collects information specific to ethnic minority peoples in Viet Nam. However, it is not clear on how detail information in ethnic people would be available at CEMA and its database system.

Other potential sources of socio-economic data are results from donor and NGO projects, and data from the mass organisations such as the Farmers' Union, Women's Union, and Youth Union. However, much of this data is likely project-based and thus not regular, which limits its value for the PFES M&E system.

## **5. Operational Data**

In accordance with the PFES regulations, data on the implementation and operation of the PFES scheme is monitored by the FPDFs and VNFF. Some of the data monitored relates to the implementation of the scheme:

- 1) Number of provinces with an established FPDF
- 2) Number of provinces with provincial PFES legislation

- 3) Number of provinces with contracted PFES Buyers
- 4) Total area of forest eligible for PFES payments
- 5) Total number of demarcated PFES forest areas (i.e. watersheds/ basins)
- 6) Total PFES forest area allocated to Forest Owners

Most of the data relates to the operational performance of the scheme:

- 7) Number of Buyers with PFES agreements
- 8) Name and type of Buyer (i.e. hydropower, water supply, tourism)
- 9) Number of Forest Owners with PFES contracts
- 10) Number of Forest Owners that are households, individuals, communities, villages
- 11) Number of Forest Contractors with PFES agreements
- 12) Payment expected/ forecast from each Buyer
- 13) Scheduled payment date
- 14) Actual Payment due by each Buyer
- 15) Actual Payment made by each Buyer
- 16) Payment exemptions for Buyers and reasons for
- 17) Total payments collected by each FPDF
- 18) Total payments disbursed by each FPDF
- 19) Total PFES payments disbursed to Forest Owners
- 20) Average payment per hectare
- 21) Average payment received per Forest Owner in each PFES forest area
- 22) Total undisbursed/ unallocated PFES funds

Other data collected by some FPDFs relates to institutional impacts of the scheme:

- 23) Training and capacity building support provided
- 24) Details on legislation and guidance produced at the provincial level

In addition to the above, a few FPDFs such as Lao Cai, have established a grievance mechanism to respond to and track questions, complaints and grievances of the stakeholders, mostly the Forest Owners and Contactors. The grievance mechanisms usually comprise a dedicated telephone number and/or email address which stakeholders can use to ask questions and raise concerns. In a few cases, a logbook and register of these questions and complaints is maintained though as yet this does not include a record of how the issues were addressed.

## **F. Principles of Monitoring and Evaluation**

### **1. M&E Systems**

There are many necessary parts of an M&E system, including:

1. The criteria and indicators to be measured
2. The mechanisms and procedures, such as how, by whom and when the data will be generated or sourced and collected, including guidelines and training
3. Mechanisms to ensure accuracy and reliability of the data and the system, including, for example, independent verification and checks
4. Evaluation protocols, including what is to be assessed, by whom and based on what indicators
5. Baseline data to enable assessment of changes
6. Infrastructure and equipment for M&E, including information technology (IT)
7. Data systems, formats, and templates

8. A database and network for collating, organising, integrating, and evaluating data
9. Policy responses to the data and the resulting evaluations
10. Implementing legislation, including clearly designated responsibilities
11. Funding arrangements for establishing and maintaining the M&E system
12. Mechanisms to ensure transparency and stakeholder participation, including mechanisms to share, disseminate and communicate information and data
13. Grievance mechanisms that are accessible and effective

## 2. Indicators

M&E activities set baselines, define indicators, measure progress and evaluate successes and setbacks in policy interventions. There are several well-developed principles, concepts and guidelines for designing an effective M&E system, including the M&E process as well as the selection of indicators. A well-known guideline is the selection of “SMART” objectives and indicators, where SMART refers to:

- Specific:** Clear and targeted at a specific area for improvement or observable action or achievement
- Measurable:** Quantifiable and possible to measure, as well as meaningful
- Attainable:** Data is available or can be generated and is **realistic** given available resources and capacities
- Relevant:** Relevant to the objectives and targets, and reliable and consistent over the time period
- Time-related:** Measurement is specific to a particular period of time (i.e. annual), and are replicable over time to enable quantification of changes over time.

An M&E system needs to clearly and consistently outline what data is to be collected, at what level of detail, when and by whom, and how that data is to be reported. Ideally, where possible, SMART indicators are designed and monitored for project inputs, outputs, outcomes and impacts.

Monitoring should enable evaluation of the changes of the conditions with and without the policy interventions (i.e. “additionality”), and thus requires baseline data. Where possible, monitoring should be designed to measure changes that are attributable to the policy interventions, rather than changes that might have occurred as a result of other factors or a combination of factors. Indicators should also be selected that are suitable for identifying risks and unacceptable impacts. While quantitative indicators are emphasised in mainstream M&E approaches, qualitative indicators are often also needed and can be more descriptive.

Based on these principles, and in the context of the PFES scheme, the M&E indicators should be:

- Specific to the objectives of the PFES policy, namely forest protection and socio-economic improvements
- Based on, and consistent with, the other available forest and socio-economic data in Viet Nam, particularly FPD, NFIS and MoLISA data
- Based on quantifiable, meaningful and reliable data on forest protection, including mapping/ GIS data
- Integrated with, and reliant on, existing data sources and monitoring mechanisms
- Simple, given the limited technical capacity in some areas

- Cost-effective, given the limited available funds per hectare
- Also specific to other impacts and risks of the PFES scheme, including institutional impacts and environmental and social risks

## G. Proposed PFES M&E System

### 1. Objectives of the PFES M&E System

Item 5, Article 5 of Decree 99 specifies the principles of PFES as publicity, democracy, objectivity and fairness. In order to implement these principles, a PFES M&E system is needed.

As discussed, the M&E system should be designed to enable M&E of two components of the PFES scheme:

- c) The implementation and operational performance, particularly the management of the PFES funds paid by Buyers;
- d) The effectiveness of the scheme in meeting its stated objectives, namely the protection of forests and FESs, and positive socio-economic impacts on forest communities.

Component (a) entails mostly M&E of inputs and outputs of the scheme, in terms of activities, fund flows and use of resources, whereas component (b) entails mostly M&E of the impacts and outcomes, in terms of successes in achieving the objectives of the PFES scheme.

The M&E system should serve the needs and interests of all groups of stakeholders, including the Buyers and the Suppliers of the FESs, not just the administrative agencies and the GoV. Thus, the scheme should be transparent and information accessible for all stakeholders. The objectives or interests of the different stakeholder groups differ. Therefore, the M&E system should provide the various stakeholders of the scheme with information relevant to their various interests. This should include information on the provision of the FESs and the socio-economic impacts of the scheme. Based on the consultation undertaken for this Review, the relevant information for the different stakeholders is proposed below (*Table 5*).

**Table 5: PFES Stakeholders and Important M&E information**

Stakeholder	Relevant Objectives and M&E Information
Hydropower Companies	<ul style="list-style-type: none"> <li>• The protection and maintenance of the water regulation and water quality services provided by the forests in the relevant watershed</li> <li>• Use of their PFES payments</li> </ul>
Water Supply Companies	<ul style="list-style-type: none"> <li>• The protection and maintenance of the water regulation and water quality services provided by the forests in the relevant watershed</li> <li>• Use of their PFES payments</li> </ul>
Tourism Operators	<ul style="list-style-type: none"> <li>• The protection and maintenance of the services to tourism provided by the forests in the relevant area</li> <li>• Use of their PFES payments</li> </ul>
Administrators	<ul style="list-style-type: none"> <li>• Progress towards implementing the scheme in each province</li> </ul>

Stakeholder	Relevant Objectives and M&E Information
	<ul style="list-style-type: none"> <li>Operational performance</li> </ul>
	<ul style="list-style-type: none"> <li>Use of the PFES funds deducted by the Administrators</li> </ul>
	<ul style="list-style-type: none"> <li>Impacts on the forests</li> </ul>
	<ul style="list-style-type: none"> <li>Socio-economic impacts</li> </ul>
People of Viet Nam	<ul style="list-style-type: none"> <li>Protection and maintenance of the forests</li> </ul>
	<ul style="list-style-type: none"> <li>Socio-economic impacts of the scheme</li> </ul>
	<ul style="list-style-type: none"> <li>How the PFES revenue is used</li> </ul>

## 2. Scope of the PFES M&E System

Given the short time and limited resources allotted, this Review cannot and does not attempt to assess and provide detailed recommendations on all the parts of a PFES M&E system listed in Section F above. Rather, the scope of the evaluation and recommendations in this Review is focused on parts 1) to 4) in the above list.

- 1) The criteria and indicators to be measured
- 2) The mechanisms and procedures, such as how, by whom and when the data will be generated or sourced and collected, including guidelines and training
- 3) Mechanisms to ensure accuracy and reliability of the data and the system, including, for example, independent verification and checks
- 4) Evaluation protocols, including what is to be assessed, by whom and based on what indicators

As discussed in Section D, the multi-year DP-FES, IP-FES and ForMIS projects, among others, are addressing many of these other parts more comprehensively and in more detail.

Secondly, it is clear that the component of the system for M&E of the implementation and operation of the PFES scheme is already well developed and established and is functioning relatively well. Therefore, most of the recommendations in this Review are focused on the component of the system for M&E of the impacts of the scheme.

Finally, it is recognised the PFES scheme is still in the early stages of its implementation and is still evolving, expanding and improving. Design and implementation issues are still being resolved, particularly for the FESs provided to tourism, aquaculture and carbon. Therefore, the recommendations and proposed revisions to the M&E system will not be the final revisions but rather those that are practical in the short-term (i.e. the next three to five years). The M&E systems for FESs to carbon and aquaculture are not addressed here.

Accordingly, based on the preceding overview and assessment, the following section of the Review identifies and proposes additional or alternative indicators and data sources for the M&E system and elaborates some specific proposed initiatives for improving the current system.

## 3. Responsibilities

### a. VNFF

It is proposed that:

- VNFF takes the main responsibility for the PFES M&E system, with support from the FPDFs and other stakeholders
- Based on reports prepared and submitted by the FPDFs (see below) and other data from other sources described below, VNFF prepares an annual PFES report that includes information on the PFES indicators as described below and an overall evaluation of the progress and success of the scheme
- VNFF establishes and maintains a PFES database in accordance with that proposed by DP-FES
- VNFF checks the submitted FPDF reports and then inputs/ exports the FPDF statistics into ForMIS such that the data is available for other stakeholders
- Access to the PFES data is provided to stakeholders via the ForMIS platform (with various 'levels' of access)

#### **b. FPDFs**

FPDFs are currently required to submit reports to VNFF annually. As described in Section B, these FPDF reports provide information on the implementation and operation of the PFES scheme in the province. However, while there is guidance on what these reports are to include, there is not yet any set template with defined indicators and data formats. It is proposed here that:

- A template for the FPDF reports is developed that includes requirements to monitor and evaluate key operational and implementation indicators, as described below
- That the FPDF reports include a set of indicator statistics in both map-based data format and statistics that can be easily imported into the DP-FES database (and ForMIS system)
- FPDFs work more closely with FPDs (see below)

#### **c. Forest Protection Department/ Department of Forestry**

It is proposed that:

- FPDs and Departments of Forestry in each province work more closely with the FPDFs to ensure consistency of data and to reduce overlap of M&E effort
- As proposed by IP-FES, each provincial FPD updates the NFIS detailed maps of each PFES forest area annually, based on updated satellite imagery data and with technical support from VNFF (see below)
- The updated forest maps are used to inform and improve forest patrolling as undertaken by the FPD and as undertaken for PFES verification
- FPD's M&E data is input and integrated into ForMIS

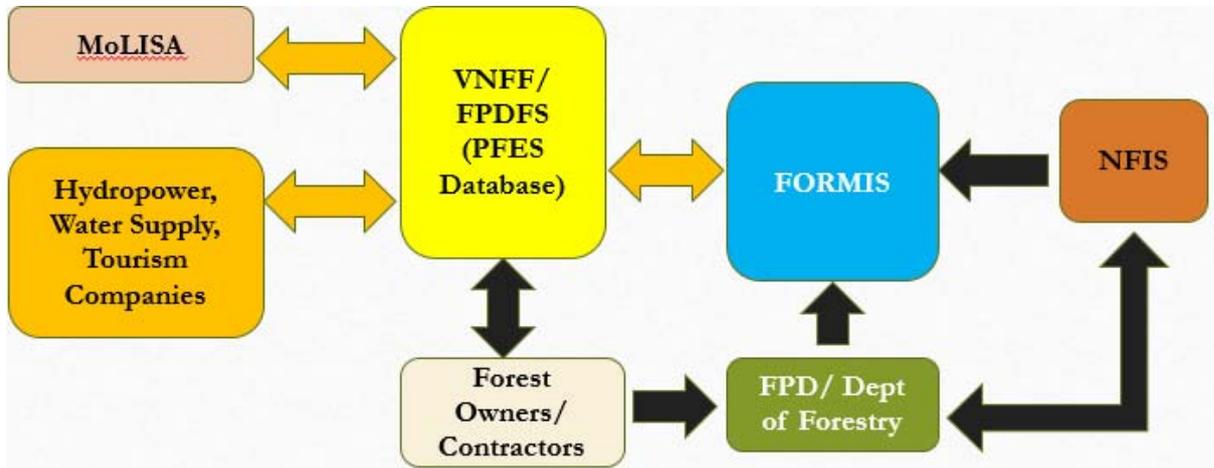
#### **d. Forest Owners/ Contractors**

Forest Owners/ Contractors already report data to the FPD and/or Org Owners, including data on the forest patrols conducted. It is proposed here that:

- A mechanism is developed to ensure that this data is enhanced and standardized and that more of this data is captured in the M&E system
- More detailed socio-economic data on the Forest Owners/ Contractors is captured during the PFES contracting process

## 4. Data Management

It is understood that VNFF will develop and maintain a PFES database in accordance with the proposal by DPFES, and that this database will be consistent with the format and categories used by ForMIS. It is envisioned that the ForMIS platform plays a central role in the PFES M&E system, mainly as a source of data (Figure 2).



**Figure 2: Proposed data management system for PFES M&E**

It is proposed that:

- VNFF develops and maintains a PFES database as per DPFES proposals, which includes data from regular reports from the FPDFs
- Data from FPD, FIPI (NFIS), Department of Forestry and Department of Nature Conservation is input into the ForMIS system (as already planned by ForMIS)
- VNFF accesses the required data from ForMIS to monitor and evaluate the indicators on PFES impacts, as described below
- Data from Forest Owners/ Contractors is monitored and evaluated by the FPDFs/ VNFF
- MoLISA shares certain socio-economic data about the Forest Owners/ Contractors with the FPDFs/ VNFF
- FES Buyers, namely hydropower, water supply and tourism companies, provide additional data related to FESs directly to the FPDFs (along with data on production and payments that they already provide)
- Access to PFES data and information by stakeholders is facilitated and managed via the ForMIS platforms and data permission levels etc

## 5. Data Sources and Format

The data sources required to monitor each of the proposed PFES indicators are identified for each indicator below. To a large extent, the required data is already monitored and is already available from the various sources. It is proposed that:

- Data required from the identified sources within MARD, such as FPD, FIPI, NFIS, and Department of Nature Conservation, is extracted from these sources via the ForMIS platform
- Data required from other Ministries, such as MoNRE and MoLISA, is routinely extracted from these Ministries via information sharing arrangements and integrated into the PFES Database

- Some specific data is collected from the PFES Buyers, such as hydropower companies and water supply companies, as part of their regular reports to FPDFs

In this way, the additional effort required and cost of the PFES M&E system is minimized.

However, the proposed PFES M&E system requires monitoring of some additional data. As mentioned above, while NFIS data is monitored and updated only every five years, IP-FES plans to establish an M&E system that will update a subset of this data annually based on updated satellite imagery and remote sensing analysis. The annually updated data will not include detailed data from sample field surveys but will provide other useful data. It is thus proposed that:

- Updated detailed forest maps based on updated satellite imagery and remote sensing analysis to the level of the forest Title and Plot are prepared by the FPDFs, with technical support from VNFF
- Forest data will be in the form of GIS data embedded in forest maps, as well as in statistics format that can be extracted from the map data

## **6. PFES Administrative Data**

### **a. Data needed for Implementation and Operation**

Information and data is required to implement and administer the PFES scheme. While this data may change from time to time, it does not change very often. This data is mainly administrative data rather than data related to the operational performance of the scheme. However, this underlying data and information about PFES forest areas and stakeholders is important to enable M&E of the PFES scheme. It is also valuable information for the stakeholders. Almost all the required data is already required to be collected and monitored in accordance with the existing PFES regulations, as discussed in Section B. However, it is identified here again as this data forms the foundation of the data needed for PFES M&E. Also, despite the regulations, it seems that some of this data is currently not reliably and consistently monitored and reported by the FPDFs as part of a clear M&E system.

### **b. PFES Areas**

Information about the PFES forest areas and the Buyers is needed and is already collected and established by the FPDFs in order to implement the scheme. Much of this data is map-based and thus embedded in updated maps of the PFES forest areas.

It is proposed to:

- Organize and monitor the area of forest land included in the PFES scheme in more detail by identifying each discrete PFES Area and the Type(s) of these PFES Areas.

That is, it is proposed to identify discrete PFES areas and whether the PFES Area is a Hydropower Catchment (HC), Water Supply Catchment (WSC), or Tourist Area (TA). Note that an area of forest land can only be included in the PFES scheme after a Buyer has been identified for this area and thus the PFES Area is already defined partly by the PFES Type. Each PFES Area would be given a unique name or code to facilitate data management.

Note that the 'forest area' and 'PFES Area' here refers to the total area of 'forest land' that is potentially eligible for PFES payments (e.g. forest land within the basin/ catchment area), whether or not it is currently classified as 'forest' or is currently eligible for PFES payments. Note also that an area of forest could provide more than one service, such as watershed protection for hydropower companies, water purification for water supply companies and

biodiversity services to tourist companies. In this case, that area of forest would belong to three distinct but overlapping PFES Areas. In this case, the sum of the various PFES Areas would thus be greater than the total PFES area in the province. For example, a large HC PFES Area may have a small TA PFES Area within it.

This information about PFES Areas and Types must already be known and demarcated by the FPDFs in order to implement the scheme, and thus monitoring this information does not require additional effort. This is useful data for both PFES management but also for PFES Buyers and Suppliers (Table 6).

**Table 6: Existing PFES administrative data on PFES Areas and Buyers**

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
1.	Total area of each PFES Area	hectare	Payment area, total potential hectares	FPDFs	Annual
2.	Demarcated GIS location of each PFES Area	GPS/ map	Payment area	FPDFs	Annual
3.	Names and Codes of Buyers contracted, by province and by each PFES Type and PFES Area	Names/ Codes	Identification of Buyers	FPDFs	Annual

These Criteria provide information that is valuable for FPDF to assist PFES management and also information that is sought by PFES stakeholders, particularly Buyers. Buyers can thus see which area of forest they are paying for (this is the main information that Buyers requested during consultations).

### **c. PFES Forest Titles and Plots**

PFES payments are based on the area of forest owned by Forest Owners or subcontracted to Forest Contractor households or Groups, or to Forest Protection Staff (i.e. the forest Title or Contact Area, referred to here as the “forest Title”). As discussed, in many cases the forest is owned and/or protected by Groups of Forest Owners/ Contractors or a Village. The responsibilities and payments are shared by this Group and thus the location and area of each forest Group Owner Area or Group Contractor Area is also needed to administer the scheme. This data needs to be updated at least annually, though it is expected that there will be few changes as forest ownership and protection contracts are generally relatively long-term.

Therefore, some forest data needs to be monitored to the level of the forest Title. This Title-level data is needed to administer the scheme but will also will facilitate analysis and assessment to the level of the individual Forest Owner/ Contractor. Data at the Title level is needed to determine the eligibility of potential PFES Titles to receive PFES payments and also, in some cases, the level of payment due. Eligibility of a forest Title to receive PFES payments depends on whether it meets the criteria of ‘forest’ as outlined in Circular 34, and thus depends on the forest height (which depends on the species and age of trees), and forest canopy cover.

A Forest Plot is the smallest forest area needed to be delineated for PFES. A Plot is a minimum area of 0.5 ha of the same forest Origin, Status and forest use purpose. However, the Plot boundaries do not necessarily follow the boundaries of Forest Owners' titles. Thus, a Plot can be allocated to one Forest Owner/ Contractor or a Forest Owner/ Contractor may own several Plots or a part of a Plot. The boundaries of a Plot may also change as forest Status changes, for example. The NFIS programme monitors and reports data to the level of the forest Plot but also to the level of the forest Title. FPD data on forest violations is also monitored to the level of both the Plot and the Title, as well as forest Compartments etc.

It is proposed that:

- The PFES scheme will be based on map-based, GIS data that will enable linking and integration of information and data that is specific to the different levels/ units or classifications of forest area (such as Plots, Titles, Compartments)
- Forest data to the level of the Title will be recorded and monitored

It is understood that this will be possible via the new ForMIS platform that will integrate the various data sources and link the information via map-based data. Thus, if the GIS location or unique Code of a Forest Owner's Title is known, information about the Plot(s) within that Title as well as data about the Compartment(s) within which the Title is located will also be available.

This administrative map-based data is already available via the existing M&E system for forests (Table 7).

**Table 7: Existing PFES administrative data on PFES forest areas**

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
4.	Demarcated GIS location of each PFES forest Title (including Contract Area, Group Area, Protection Staff Area)	GPS/ Map	Eligibility, payment	NFIS, FPD, FPDF	5 yearly
5.	Area of each PFES forest Title (including Contract Area, Group Area, Protection Staff Area)	Map/ Hectare	Payment	NFIS, FPD, FPDF	5 yearly
6.	Origin of each PFES forest Title (i.e. natural or plantation)	Category Title	K coefficient	FPD, Dept of Forestry	Annual
7.	Forest Use Purpose of each PFES forest Title i.e. Production, Protection of SUF)	Category Title	K-coefficient Changes in Forest Type	FPD, Dept of Forestry	Annual
8.	Status+ of each PFES forest Title (bare land, degraded, poor, average, rich, very rich) – a Title may comprise Plots or parts of Plots	Category Title, Plot	K-coefficient Changes in Forest Status	FPD, Dept of Forestry	Annual

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
	with different Status				
9.	K coefficient  (based on 6,7 and 8 above only)	Number  Plot	Payment levels	FPD, Dept of Forestry	Annual

Combined with Criteria 2 and 3 above, these Criteria enable Forest Owners/ Contractors to be to see which PFES Areas their forest Title belongs to and thus determine what FES are being paid for and also what payments should be forthcoming.

Data to the level of the individual Plot is required in order to apply the K-coefficient and thus adjust payment levels based on the relative value of the FESs provided by the particular Plot of forest. Data on the forest Use Purpose, Status and Origin is needed. This data is already monitored by FPD.

To apply the K-coefficient in full, a fourth factor relating to the relative ease of protecting the area is also needed, which is currently not monitored. However, it is not proposed to include additional criteria in the PFES M&E system to monitor this fourth factor at this stage. This is because, as discussed in earlier sections, the stakeholders generally prefer equal payments per hectare of forest protected as this is not only easier to administer but also reduces conflicts over unequal payment levels. Therefore, in practice, the K-coefficient has only been partially applied if at all. Further work on the K-coefficient system is needed as part of the broader national forest management system before the additional monitoring of the above criteria is proposed for the PFES system. Also, any further work or revisions to the K-coefficient mechanism should look at the merits and feasibility of expanding or revising the factors so as to be more suitable for PFES (Box 1).

**Box 1: FES Values and K-Coefficients**

The K-coefficient was designed in recognition of the fact that some areas of forest are more important to protect than others and that some areas require more effort to protect than others. Some areas are more important to protect because they are more valuable in terms of the FESs they provide, such that a natural forest in an SUF would receive a higher K-coefficient than a plantation forest and thus higher payments per hectare to protect it. To maintain equal payments per household under this scenario, additional households could be assigned to protect the more valuable forest areas so that there is greater protection effort, higher payments per hectare but less hectares per household. However, in practice, this has proved difficult to apply due in part to the socio-economic context of each forest area.

The forest Use Purpose, Origin, and Status are needed to calculate the K-coefficient of a forest area. In addition, a fourth factor, relating to the ease of protecting the area of forest, requires an additional criterion or criteria. Therefore to determine the K-coefficient, the following additional monitoring criterion is proposed by DPFES:

- The relative ease of protecting the forest (little, average and special difficulty)

However, it is recognised that this is largely a subjective criterion and difficult to determine and apply consistently for each forest area. This subjectivity would also leave it open for manipulation of the K-coefficient and thus payment levels. If the K-coefficient is to be widely

applied to determine PFES payment levels per hectare, more objective criteria are preferred, such as, for example:

- The distance of the forest area from main access roads or villages (rated 1-3 based on agreed default distances),
- Availability of existing paths through the forest (rated 1 to 3, with 1 being none and 3 being many), and
- Steepness of the terrain (again rated 1 to 3 based on actual average steepness).

However, this would require these additional criteria on each forest area to be collected (though perhaps only once every five years).

It has been suggested that a weighting system similar to the K-coefficient could be applied for the PFES scheme, based on the differing FES values of the different areas of forest. For example, forest areas within two hundred meters of rivers and reservoirs used for hydropower or water supply are likely to be providing a greater water quality service than forest areas further away. Likewise, forest areas on steep slopes may be relatively more prone to erosion and associated sedimentation of water courses and thus should also be weighted as being more important for protection. Other areas may be more prone to illegal logging or clearing, such as those near villages or along roads, and thus protection of these areas could also be allocated a higher value weighting. The FES Buyers should be consulted to assist in the process of determining the weights of different forest areas. However, while such a FES weighting system would require additional data to be monitored within the PFES M&E system, such a weighting system has not yet been designed and so is not a concern for the PFES M&E system, at least for now.

#### **d. Forest Owners/ Contractors**

Administrative data about the Forest Owners/ Contractors is also required. In order to implement and administer the scheme, each area of forest needs to be allocated to a Forest Owner. A distinction needs to be made between Forest Owners that are organizations, like FMBs, CPCs, SFCs and Army Units, here called “Org Owners”, and Owners that are individual households or Groups, including villages and communities, here called “HH Owners”. A similar distinction is useful for recording data on the different types of Forest Contractors. In addition, further data is needed related to Forest Owners/ Contractors that are Groups, including communities or villages (Table 8). In the case of Forest Owners/ Contractors that are Groups, PFES payments are made directly to the Group Leader, who then pays some of these funds to a Forest Patrol Unit that is usually formed with some or all of the households in the Group.

Thus it is proposed here that:

- Additional data is captured on the type of each Forest Owner, such as the type of Org Owner (SFC, FMB, CPC) or the type of HH Owner (household, Group, Community)
- Additional data is captured on the type of each Forest Contractor, such as Household, Group (group, village, community), or Forest Protection Staff
- For each Forest Owner or Contractor that is a Group, the name of the Group Leader and Group Members is also captured

**Table 8: Existing PFES administrative data on Forest Owners/ Contractors**

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
10.	Name and Code of each Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	Name, code	Payment, Management	FPD, Dept of Forestry, Forest Owner, CPC	Annual
11.	Type of each Forest Owner	Code	Administration, Analysis	FPDFs, Forest Owners	Annual
12.	Type of each Forest Contractor	Code	Administration, Analysis	FPDFs, Forest Owners	Annual

The above Criteria facilitate payment of PFES monies to Forest Owners/ Contractors and also enables more detailed analysis and targeting of who receives PFES payments.

In addition to this basic data, it is proposed that additional socio-economic data is also captured:

- Additional information about each Forest Owner/ Contractor/ Group Leader/ Group Member is captured to enable M&E of some proposed socio-economic indicators of the PFES scheme, as discussed below.

The proposed additional six socio-economic criteria to be captured about the Forest Owners/ Contractors is described in the Table below (Table 9). It is recognised that some of this detailed data may not be easy or simple to collect. However, much of this data is already collected, or could be collected, as part of the process for contracting Forest Owners and Contractors into the PFES scheme, but it is not yet captured in the PFES database. Much of this data is already known and recorded by the CPCs. Also, some of the socio-economic data is already monitored by MoLISA as part of regular socio-economic monitoring, as discussed in Section E. Note that, once established, most of this data will not change often and so will not need to be updated regularly. For this current round of PFES policy revisions, it may be decided that only some of these criteria are necessary.

**Table 9: Proposed additional administrative socio-economic data on Forest Owners/ Contractors**

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
13.	Whether or not the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member is from a "poor" household	Yes or No	Administration Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
14.	Whether the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member has a member of the household employed by	Yes or No	Administration Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
	a GoV agency				
15.	Forest Dependency* for livelihood of each Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	Yes or No (or scale of 1-5)	Administration Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
16.	Whether the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member has a member of the household employed by a mass organisation such as the Women's' Union or Farmers' Union	Yes or No	Administration	FPDFs, Forest Owners MoLISA	Annual
17.	Gender of the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	M or F	Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
18.	Ethnicity of the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	Code	Administration	FPDFs, Forest Owners MoLISA	Annual

\* As this is subjective, an alternative would be to record the main livelihood

In line with NFIS monitoring, and as managed by ForMIS, the DPFES project has proposed that each Forest Owner/ Contractor is allocated a unique Code number as this provides a unique identifier in cases where there are several Forest Owners/ Contractors with the same name. It is proposed here that:

- A unique Code number is allocated to each Forest Owner/ Contractor, also including Group Leaders and Group Members
- The unique Code number is designed to reflect the above proposed additional information about the type and socio-economic status of the Forest Owners/ Contractors
- The possibility to link with socio-economic information of MoLISA for the more detailed criteria, such as whether the household is officially classified as poor, is investigated

A summary of the PFES administrative data is provided in Annex 2.

## 7. Proposed Indicators

### a. Indicators

A total of 43 Indicators have been proposed for the PFES M&E system. However, many of these Indicators are already monitored by the various PFES agencies. Therefore, what is proposed here is more about clearly specifying and integrating the various available data rather than requiring a large amount of additional monitoring and reporting effort.

The baseline conditions must also be clearly determined to enable effective M&E. Fortunately, most of the proposed Indicators are not new or are based on data that has been monitored in the past. In addition to comparing the monitored data with the baseline data, consideration should also be given to monitoring the impacts compared to non-PFES areas. That is, the impacts on the forests and socio-economic conditions in PFES areas compared to in non-PFES areas.

### b. Implementation and Operational Indicators

The system for M&E of the implementation and operation of the PFES scheme, as prescribed in the legislation, is already relatively well developed and is being undertaken and reported by the FPDFs. A total of sixteen implementation and operational Indicators are identified here, though only two of these are new and additional to what is already prescribed or implied in the existing PFES legislation.

As discussed above, it is proposed in this Review that FPDFs will monitor and report on the implementation and operation of the scheme in each province based on a detailed template for annual reports to VNFF that includes data on specific indicators. The reports from the FPDFs will include both map-based data and statistics extracted from the maps.

Indicators are needed to monitor and evaluate implementation and operation. This information will assist VNFF manage and oversee the FPDFs in each province. The Indicators relate to:

- Progress towards implementing the scheme in the provinces, including each PFES Type
- The scale of the scheme
- The contribution of the PFES scheme to investment in the forestry sector
- Contracting of Buyers of each Type
- Collection of PFES payments from the Buyers
- Disbursement of PFES funds to the Forest Owners
- The equity of payments made across each province to the various stakeholders
- Information on who is receiving the funds and how much (and thus the incentives being provided by the scheme to protect forests)
- Transaction costs and the efficiency of payments
- Use and management of funds deducted by PFES agencies, particularly the FPDFs
- Identifying inappropriate use of the funds (i.e. elite capture of payments)

**PFES Areas.** The following Indicators related to PFES Areas are proposed to monitor the implementation of the PFES scheme in each province:

***Table 10: Operational Indicators based on existing monitoring and reporting***

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
1.	Total area of forest land included in the PFES scheme	hectare	Extent of the scheme	FPDFs	Annual
2.	Number of discrete PFES Areas by PFES Type, defined as: (i) HC (ii) WSC, or (iii) TA	number	Expansion of the scheme and Types of PFES	FPDFs	Annual
3.	Total area by PFES Type (i.e. sum of PFES Areas of each Type)	hectare	Scheme implementation by Type	FPDFs	Annual
4.	Total area, and proportion, of each PFES Area that is eligible for PFES payments	Hectare, %	Eligibility for payment	Forest Owners, FPD, Dept. of Forestry, Verification agencies (FPDF)	Annual (or bi-annual)

**Indicator-1: Total PFES forest area**

Purpose: Monitors the change in the total PFES forest area and thus the progress towards implementation of the scheme. Note that this monitors the total area of forest land that could potentially be eligible for PFES payments.

**Indicator-2: Number of discrete PFES Areas by PFES Type, defined as: (i) HC (ii) WSC, or (iii) TA**

Purpose: Monitors the change in the number of PFES Areas by PFES Type, and thus the implementation of the scheme by PFES Type (i.e. to further quality Indicator-1).

**Indicator-3: Total PFES area by PFES Type**

Purpose: Monitors the change in the total PFES forest area by PFES Type and thus further qualifies Indicator 1 regarding implementation of the scheme.

**Indicator-4: Total forest area, and proportion of total PFES area, that is eligible for PFES payments**

Purpose: Monitors the eligibility of forest Titles for PFES payments and thus measures the actual implementation of the scheme (as opposed to potential PFES forest area). Also, this Indicator influences average payment levels and also reflects the impact of the scheme on the forest (see below indicators on forest impacts)

Indicators 1 to 3 monitor the scale of the scheme and the progress towards implementing the scheme in the different provinces. Currently, the scheme is still being implemented and expanded in several provinces.

Indicator-4 monitors the eligibility of each forest Title for PFES payments, and thus is critical. It is already required to be monitored in accordance with Circular 20, as discussed in Section B. Determining Indicator-4 requires updated data on the forest canopy cover and on the forest height (based on age and species of the forest). This data is already available from the FPD and the Department of Forestry, though this may not be accurate to the level of the individual forest Title. As discussed in Section B, under the current PFES system, Forest Owners report annually to the FPDF on the eligibility of their forest Titles and this is then verified by DARD, FPD or the CPC at least annually. Combined with Indicator-1, FPDFs can also calculate the proportion of the total PFES forest area that is eligible for PFES payments.

Data on the reasons for changes in Indicator-4 also provides a useful indication of the changing conditions in the different PFES forest areas and thus impacts on the forests, as discussed below.

**Forest Owners, Contractors and Groups.** The following Indicators related to Forest Owners/ Contractors are already monitored as part of the existing PFES M&E system, or should be monitored in accordance with existing regulations. However, it is proposed here to add more detail to these Indicators to ensure that the data on each different type of Forest Owner/ Contractor is captured, thus enabling evaluation of the reach and impact of the scheme on each different type (Table 11).

**Table 11: Existing Operational Indicators for data on each Forest Owner/ Contractor type**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
5.	Total number of Org Owners/ HH Owners/ Contractors/ Protection Staff/ Groups/ Group Members, by province and by PFES Area	Number	Participation, Management	FPDF, Forest Owners, Group Leaders	Annual
6.	Average area allocated to each HH Owner/ Contractor/ Protection Staff/ and Group, by province and by PFES Area	Hectare	Management, Equity	FPDF, Forest Owners	Annual

**Indicator-5: Total number of Org Owners/ HH Owners/ Contractors/ Groups/ and Group Members, by province and by PFES Area**

Purpose: Monitors the rate of participation in the scheme in the province, and how this varies amongst the discrete PFES Areas. This provides an indication of the scale and reach of the scheme. Disaggregation by the type of Forest Owner/ Contractor enables closer analysis of who is receiving PFES payments.

**Indicator-6: Average area of forest allocated to each HH Owner/ Contractor/ Protection Staff and Group, by province and by PFES Area**

Purpose: Monitors the average area of PFES forest allocated to the various types of Forest Owner/ Contractor and thus provides a measure of the forest protection effort (i.e. hectares protected per Forest Owner/ Supplier). It is also relevant to the average level of payments received. Disaggregation by PFES Area enables identification of differences between areas within the same

province and between different PFES Types and thus is relevant to monitoring equity of the scheme.

**Payments and Disbursements.** Data is needed to calculate, collect and disburse PFES funds. This data is already collected and reported by the FPDFs and is included in the PFES database proposed by the DPFES project. While this data is aggregated up when reported at the provincial and central level, it is proposed that the detail of the underlying data is also monitored and reported by the FPDFs to allow analysis by Buyer, PFES Type and by the type of Forest Owner/ Contractor, as well as by each individual PFES Area within each province (Table 12).

**Table 12: Existing Indicators for Payments and Disbursements**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
7.	Total amount of PFES payments scheduled/ forecast by Buyer, PFES Type and PFES Area	VND	Planning and Operation of the scheme	FPDF	Annual
8.	Total amount of PFES payment received/ collected by Buyer, PFES Area and PFES Type	VND	Operation of the scheme	FPDF	Annual
9.	Total outstanding payments by province and by Buyer, PFES Type, and proportion of funds outstanding	VND/ %	Operation of the scheme	FPDF	Annual
10.	Average amount of PFES payments disbursed per hectare, by province and by PFES Area	VND	Scheme operation Socio-economic impacts	Forest Owners, FPDF	Annual

**Indicator-7: Total amount of PFES payments scheduled/ forecast by Buyer, PFES Type and province**

Purpose: Facilitates planning of finances and tracking of payments.

**Indicator-8: Total PFES payments collected from Buyers, by province, PFES Area and by PFES Type**

Purpose: Monitors the total amount of PFES funds received and thus provides an indication of the scale of the scheme and the contribution of the scheme to funding for the forestry sector.

Monitoring by PFES Type allows monitoring changes in the scale/ value of each different PFES Type (i.e. HC, WSC, or TA), and thus the progress towards implementing the different PFES Types in each province.

Monitoring by PFES Area allows identification of the relative importance/ value of the different PFES Areas within a province and allows identification of specific catchments or areas where there has been a significant change between years (due for example, to a change in rainfall, addition of hydropower plants, or a change in tourist visitor numbers). This Indicator is thus also important for managing the PFES funds, particularly for using the contingency fund to reduce fluctuations in payments levels to Forest Owners.

**Indicator-9: Total PFES payments outstanding (due but unpaid), by province and by PFES Type**

Purpose: Allows identification of issues related to payment by the different types of Buyers. This provides a measure of operational success and enables identification of operational issues.

**Indicator-10: Average amount of PFES payments disbursed per hectare, by province and by PFES Area**

Purpose: Monitors the payment levels per hectare across the different PFES Areas and thus allows identification of differences and inequities in payments per level of protection effort. It also useful for comparing with transaction costs per hectare. Changes in this Indicator would be due to variations in payments by Buyers due, for example to variations in rainfall. Such changes in the average payment per hectare will inform the allocation of the contingency fund by FPDF to reduce variations in payments to Forest Owners.

The following two additional Indicators are proposed to enable closer analysis of the payments received by the different types of Forest Owners/ Contractors. This is important as it enables analysis of the different structures of the scheme in the different provinces and the importance of the Group model. This has implications for transaction costs. It also identifies provinces where Forest Protection Staff are receiving PFES payments and thus where there is relatively greater potential for elite capture (Table 13).

**Table 13: Proposed Additional PFES Payment Indicators**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
11.	Proportion of PFES payments disbursed to Org Owners and HH Owners, by province	%	Operation of the scheme Structure of the scheme	FPDF	Annual
12.	Total and average amount of PFES payments disbursed to each HH Owner/ Contractor type by province (HH Owners, Contractors, Forest Protection Staff, Contractor Groups)	VND	Scheme operation Socio-economic impacts	Forest Owners, FPDF	Annual

**Indicator-11: Proportion of PFES payments disbursed to Org Owners versus HH Owners**

Purpose: Measures the structure of forest ownership in each province. The structure has implications for FPDF's costs of administering the scheme. If most payments are made to HH Owners directly, then the transaction costs of the FPDF will likely be higher but the costs and deductions by Org Owners will be lower.

**Indicator-12: Total and average amount of PFES payments disbursed to each HH Owner/ Contractor type by province, namely HH Forest Owners, Contractors, Forest Protection Staff, and Contractor Groups**

**Purpose:** Similar to Indicator-10, this allows monitoring of payment levels and thus the incentives received by each different types of HH Owners / Contractors. Importantly, it allows monitoring of total and average PFES funds received by Forest Protection Staff rather than individual households and Groups and thus the potential for elite capture. It is also a measure of the socio-economic impacts of the scheme as discussed below. Data would be monitored by the FPDFs and Org Owners to the level of the PFES Area and then aggregated up by the FPDFs for reporting to the central level.

A further Operational Indicator could be added to monitor the amount spent on M&E efforts by VNFF and the FPDFs. This may be included as a separate item in the accounting records of FPDFs.

**Fund Management.** The use and management of PFES funds is already monitored to a large extent by the current PFES M&E system and reporting by the FPDFs. The following Fund Management Indicators to monitor the use and management of the Funds are described below. These are all already monitored and reported by the FPDFs in accordance with the PFES regulations, with the possible exception of Indicator-16 (Table 14).

**Table 14: Existing Fund Management Indicators**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
13.	Amount of PFES payments not yet disbursed, by reason and by province	VND	Operation of the scheme Implementation	FPDF	Annual
14.	Amount and proportion of PFES funds deducted by FPDFs, Org Forest Owners, and other agencies by province	VND	Operation of the scheme Efficiency	FPDF, Org Forest Owners, CPCs	Annual
15.	Buyer PFES payment exemption amounts by PFES Area and by reason	VND	Operation of the scheme Equity	FPDFs	Annual
16.	Disbursement of the Contingency Funds by PFES Area and reason	VND	Operation of the scheme	FPDFs	Annual

**Indicator-13: Proportion of PFES payments not yet disbursed, by reason**

**Purpose:** Monitors the reasons why payments have not been disbursed and thus facilitates identification of implementation and operational issues for each FPDF. Reasons for non-disbursement include unclear forest ownership boundaries.

**Indicator-14: Amount and proportion of total PFES funds collected that are deducted by FPDFs, Forest Owners and other agencies**

**Purpose:** Monitors the proportion of PFES funds that are deducted to meet administration and transaction costs of the scheme and are thus not disbursed to those stakeholders actually protecting the forest.

**Indicator-15: Buyer PFES payment exemption amounts by PFES Area and by reason**

Purpose: Monitors payment exemptions granted by FPDFs and the reasons for them. This is useful to check for unfair or unjustified exemptions.

**Indicator 16: Disbursement of the Contingency Funds by PFES Area and reason**

Purpose: This allows VNFF to monitor and check that contingency Funds are only used by the FPDFs in accordance with the PFES regulations. It also allows monitoring of which PFES Areas within each province are receiving the funds and the reasons why.

**c. Data and Indicators for the Impacts of PFES on the Forests**

As discussed, one of the main objectives of the PFES policy is to protect the forests. Indicators are proposed for monitoring both the inputs and the outcomes, many of which are already prescribed in the existing PFES legislation.

**Forest protection inputs.** The operational Indicators above monitor the average area of forest allocated to each Forest Owner/ Contractor, which provides an indication of the forest protection effort. However, it does not monitor the forest protection activities undertaken, nor other related activities including training and awareness raising. As discussed, Forest Patrols by Forest Owners/ Contractors and the FPD rangers are the main forest protection activity and the main measure of forest protection effort. The Patrols are mainly a forest surveillance or monitoring exercise.

However, while the number of Forest Patrols undertaken may be recorded and reported at the local level, limited further information is currently monitored. Data on the Forest Patrols undertaken by Groups, FPD rangers and PFES verification teams is also not currently monitored to the level of the individual forest Title, such that it is not currently possible to determine the forest patrol effort in each Title. Therefore, some Titles may be patrolled very rarely and others often, but this data is currently not captured.

To monitor this, data on the location/ route of each patrol undertaken by Groups, FPD rangers and Verification teams is needed, or at least a list of each through which the patrols pass. This data at the Title level will be difficult to generate and difficult to consistently and reliably capture in the PFES M&E system from the local to the provincial level. However, as described below, Group Forest Patrols, new mobile technology and ForMIS provide an opportunity to develop a practical and feasible mechanism to achieve this.

The following Indicators are proposed. The data for these Indicators is largely already collected by FPD rangers and Forest Owners/ Contractors, but a mechanism is needed to ensure this data is monitored and evaluated in a standard and consistent way. The FPDFs already report the use of their funds (Table 15).

**Table 15: Proposed Forest Protection Input Indicators**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
17.	Average number of forest patrol-days undertaken by Forest Owners/ Contractors (per year)	Number	Forest protection effort	Forest Owners/ Contractors, CPCs	Annual
18.	Average number of forest patrol-days undertaken by Forest Owners/ Contractors with FPD rangers (per year)	Number	Forest protection effort	Forest Owners/ Contractors, CPCs, FPD	Annual

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
19.	Number of Forest Patrols by Groups/ FPD rangers/ Verification teams undertaken in each Title	Number/ Map	Forest protection effort, Verification	Forest Owners, FPD, Verification teams (FPDF)	Annual
20.	Proportion of FPDF funds spent on training and awareness raising activities	%	Forest protection effort	FPDFs	Annual

Forest Owners/ Contractors already collect data on how many forest patrols they undertake but this data is not currently reliably captured in the PFES M&E system. Other information on forest protection activities is also already recorded by the FPDFs.

**Indicator-17: Average number of forest patrol-days undertaken by Forest Owners/ Contractors (per year)**

**Purpose:** Monitors the average number of patrol-days undertaken and thus forest protection effort. Here it will be important to define what is a “patrol-day” as this may vary. For example, a patrol-day may be defined as a forest patrol lasting for at least four hours or traversing at least 10km. Patrols are already currently reported in various ways by Forest Owners/ Contractors and a time-sheet system is in place in many areas. Remote technology will also facilitate the collection of this and other data from forest patrols (see “Mobile Monitoring Technology” below)

**Indicator 18: Average number of forest patrols-days undertaken by Forest Owners/ Contractors with FPD rangers (per year)**

**Purpose:** The number of patrol-days undertaken with the FPD rangers is an important indication of forest protection effort and the collaboration and linkage between the Forest Owners/ Contractors and FPD. Forest surveillance efforts need to be supported by the FPD. It is proposed that the FPD rangers monitor and report that Forest Owner/ Contractor or Group in cases where they undertake collaborative patrols.

**Indicator 19: Number of Forest Patrols by Groups/ FPD rangers/ Verification teams undertaken in each Title**

**Purpose:** This Indicator is map-based and will allow checks on the forest protection and surveillance effort at the level of the individual Title. This will also inform the planning of forest patrols by Groups, FPD rangers and Verification teams (i.e. if a particular area has been patrolled recently, then a different area may be selected for the next patrol).

**Indicator 20: Proportion of FPDF funds spent on training and awareness raising activities**

**Purpose:** Monitors the use of FPDF funds for training and awareness raising and thus provides an indication of the protection effort of FPDFs. Note that the FPDFs already keep records of such expenditures. This Indicator is also proposed by the DPFES project.

As the scheme and the M&E system evolves and becomes more sophisticated, it may also be useful to add the following Indicators:

- Average number of Forest Patrols by each of Groups/ FPD rangers and Verification teams in each Title, to monitor forest protection effort relative to all forest Titles
- Number of Forest Owners/ Contractors to receive training in forest protection activities due to the PFES scheme
- Number of people reached by forest awareness raising activities undertaken by FPDFs

**Forest protection outcomes.** The effectiveness of forest protection effort in terms of the outcomes on the forest is more difficult to monitor and evaluate. Data is needed to determine to what extent deforestation and degradation of forests is being reduced by the PFES scheme.

As described in Section E, a significant amount of forest data and information is already monitored by the existing national forest M&E system. Very little additional data is needed for the M&E of the forest impacts of the PFES scheme. It is recognised that some data on forest outcomes will be more practical and effective to monitor and evaluate on a 3 or 5-yearly basis and other data on an annual or even quarterly basis.

As discussed above, the PFES eligibility of each Title must be monitored and assessed at least annually in order to approve PFES payments by FPDF. Indicator-4 monitors the total forest area, and also the proportion of the PFES forest area, that is eligible for PFES payments. This Indicator could also be called the 'verification rate'. Data on the changes in the PFES eligibility provides a useful indication of the changing conditions in the different PFES forest areas. In particular, the causes of the changes in the area of eligible forest provides an indication of the effectiveness of forest protection efforts. As discussed, eligibility of a forest plot depends on the forest height (which depends on the species and age of trees), and forest canopy cover. A reduction in the area of forest that is eligible may occur due to a reduction in the height and/or canopy cover of the forest as a result of legal activities, illegal activities, or natural events (Table 16). Monitoring changes in eligibility and the reasons for the changes thus provides an indication of the impact of the PFES scheme on the forests.

**Table 16: Reasons for Changes in PFES Eligibility**

Type of Activity	Increase in Eligibility	Decrease in Eligibility
Legal activities	<ul style="list-style-type: none"> <li>• Maturation/ growth of plantation forests</li> <li>• Legal conversion/ rezoning of land to forest from another use</li> <li>• Enrichment planting in a degraded forest</li> </ul>	<ul style="list-style-type: none"> <li>• Legal harvesting of natural or plantation forests</li> <li>• Legal conversion/ rezoning of land from forest to another use</li> </ul>
Illegal activities		<ul style="list-style-type: none"> <li>• Illegal harvesting of natural forest</li> <li>• Illegal logging</li> <li>• Illegal burning (slash and burn)</li> <li>• Illegal clearing and encroachment onto forest land</li> </ul>
Natural events	<ul style="list-style-type: none"> <li>• Regeneration of natural forest above the threshold height</li> </ul>	<ul style="list-style-type: none"> <li>• Disease</li> <li>• Forest fires</li> </ul>

Data on the area of forest destroyed or degraded is monitored by the FPD and the Department of Forestry and reported at least annually. This is further monitored and reported

by Forest Owners/ Contractors and verified annually by the PFES verification teams. However, as discussed, this assessment is limited by the effectiveness of forest patrols that usually do not extend to each individual forest Title. As discussed below, the effectiveness of the forest patrols could be greatly improved by the use of up-to-date satellite imagery maps that would enable visual assessment of larger areas and targeting of patrols.

The following Indicators for evaluating impacts of the PFES scheme on the forests include are proposed. However, these Indicators, or the underlying data, is already monitored and reported by the FPD, FPDFs, Forest Owners/Contractors, and the FPDF verification agencies (Table 17).

**Table 17: Indicators of Forest Outcomes from PFES (based on existing data)**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
21.	Change in the total area of eligible PFES forest area due to legal activities in each province and in each PFES Area, by reason	hectares	Change in forest condition Payment	FPD, Dept of Forestry, Forest Owners, FPDF verifiers	Annual
22.	Change in the total area of eligible forest area due to illegal activities in each province and in each PFES Area, by reason	hectares	Change in forest condition Payment	FPD, Dept of Forestry, Forest Owners, FPDF verifiers	Annual
23.	Area destroyed by forest fires, by PFES Area	hectares	Forest fires	FPD	Annual

**Indicator-21: Change in the total area of eligible PFES forest area due to legal activities in each province and in each PFES Area, by reason**

Purpose: Monitors the change in forest conditions due to legal activities by reason. Monitoring by PFES Area allows identification of changes in each Area and thus avoids loss of detail that can result from reporting only net changes at the provincial level. The implications of changes due to legal activities are different to those due to illegal activities, so these are monitored separately.

**Indicator-22: Change in the total area of eligible forest area due to illegal activities in each province and in each PFES Area, by reason**

Purpose: Monitors the change in forest conditions due to illegal activities by reason. As above for Indicator-23, monitoring by PFES Area and by reason provides detail to enable identification of Areas where protection efforts are succeeding or failing and the reasons why.

**Indicator-23: Area destroyed by forest fires, by PFES Area**

Purpose: The forest monitoring system supported by the PFES scheme is reportedly already having an impact on the forests by reducing the destruction of forests caused by forest fires. This has been achieved in part by an improved response and improved management of the local households to report and fight fires, particularly in PFES Areas where the Forest Owners/ Contractors are organised into Groups. This Indicator will enable this to be specifically monitored.

On a five-yearly basis, the NFIS programme provides data that enables an assessment of the change in forest cover and density based on satellite imagery and remote sensing to the level of the individual forest Title. This data, and assessment, should be consistent with the results of the annual on-the-ground monitoring and associated updated forest maps. Thus, based on NFIS data cross-checked with annual databases, two additional Indicators of forest outcomes are proposed (Table 18).

**Table 18: Proposed additional Indicators of Forest Outcomes**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
24.	Total area and proportion of total forest lost, by PFES Area	hectares	Impact on forest	NFIS	5-yearly
25.	Change in area of degraded forest, by PFES Area	hectares	Impact on forest	NFIS	5-yearly

**Indicator-24: Total area and proportion of total forest lost, by PFES Area**

**Purpose:** Monitors the total forest lost over the five-year period. This is based on NFIS data of forest cover. Monitoring by PFES Area allows identification of changes in different forest areas within provinces and thus reduces the loss of detail that can result from only net changes at the provincial level.

**Indicator-25: Change in area of degraded forest, by PFES Area**

**Purpose:** Monitors the change in the area of degraded area over the five-year period based on NFIS data. Monitoring by PFES Area allows identification of changes in different forest areas within provinces and thus reduces the loss of detail that can result from only net changes at the provincial level. For this Indicator, the definition of ‘degraded forest’ needs to be clarified based on the NFIS definitions. It may be linked to changes in forest Status, such as from ‘rich’ to ‘poor’ based on measured forest density.

Additional Indicators could be added to monitor the conditionality of PFES forest protection payments:

- Cancellation of Forest Protection Contracts due to non-compliance with the terms, and/or
- Non-payment of PFES monies by the FPDFs to Forest Owners/ Contractors due to inadequate forest protection efforts.

Data for such Indicators is already collected, or should be, in accordance with existing PFES regulations. However, it is understood that under the current PFES scheme, there is very limited provision for either of these to occur. PFES payments are only withheld or reduced by the amount of the forest area that is no longer eligible for PFES payments. Therefore, the Indicators proposed above to monitor changes in PFES eligibility are considered more suitable.

**Forest protection and enforcement (outputs).** In addition to the above, FPD monitors and records forest violations. This includes the location of the violation (GPS, sub-compartment), the person responsible/ culpable, and the type of violation. It is proposed here that this should also include whether or not the violation was first reported by the Forest Owner/ Contractor patrols and whether or not the violator is the Forest Owner or Contractor.

The Forest Owners/ Contractors also undertake patrols but much of this data may not be captured by the current M&E system. A new system based on mobile technology is proposed to address this (see below). However, while additional surveillance data from the Forest Owner/ Contractor patrols is useful, the impact on forest protection also depends on the use of this data to improve forest enforcement efforts. This depends on the follow-up of violation reports by FPD rangers, and successful prosecution of violators. The following proposed Indicators do not directly monitor impacts on the forests, but rather the outputs of the forest protection efforts. Note that Indicator-26 and perhaps also 29 are already monitored and evaluated by the FPD (Table 19).

**Table 19: Proposed Indicators of Forest Protection Outputs**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
26.	Number of forest violations reported by the FPD by type of violation and by PFES Area	number	Forest violations	FPD	Annual
27.	Number of forest violations reported by Forest Owner/ Contractors	Number	Forest violations	Forest Owners/ Contractors	Annual
28.	Proportion of forest violations reported by Forest Owners/ Contractors that are followed-up and verified by FPD	%	Enforcement	FPD, Forest Owners/ Contractors	
29.	Proportion of forest violations resulting in prosecutions by FPD	%	Enforcement	FPD	Annual
30.	Proportion of forest violations committed by Forest Owners/ Contractors, by violation type	%	Forest violations	FPD	Annual

**Indicator-26: Number of forest violations reported by the FPD by type of violation and by PFES Area**

**Purpose:** Monitors the number of violations reported and the type by PFES Area and thus measures the protection or enforcement effort of the FPD as well as pressure on the forest from illegal activities. Though this is an indicator currently used in the national M&E system, it is ambiguous as less violations might mean less pressure on the forests or it could mean less enforcement effort.

**Indicator-27: Number of forest violations reported by Forest Owner/ Contractors**

**Purpose:** This monitors the number of forest violations reported, which is an indication of pressure on the forest resources from illegal activities. However, like Indicator 27, it could also mean less protection effort from Forest Owner/ Contractor patrols. Other Indicators proposed here monitor the protection effort of the Forest Owners/ Contractors.

**Indicator-28: Proportion of forest violations reported by Forest Owners/ Contractors that are followed-up and verified by FPD**

**Purpose:** The forest surveillance activities of Forest Owners/ Contractors will only lead to improved forest protection if reported violations are followed-up and acted upon by the FPD. This is an important Indicator because Forest Owners/ Contractors will quickly lose faith in the system if their forest patrols are not effective and not supported by the FPD. The improved system for capturing data from Forest Owner/ Contractor patrols, as described below, will facilitate monitoring of this Indicator.

**Indicator-29: Proportion of forest violations resulting in prosecutions by FPD**

**Purpose:** Monitors the effectiveness of monitoring and reporting of forest violations towards effectively prosecuting the violators and providing a disincentive for illegal activities.

**Indicator-30: Proportion of forest violations committed by Forest Owners/ Contractors, by violation type**

**Purpose:** The PFES scheme, through PFES payments to Forest Owners/ Contractors, aims to provide an incentive for Forest Owners/ Contractors to abstain from or at least reduce their illegal activities in the forest. This Indicator will monitor whether those receiving PFES payments are also those committing the violations, and thus provide an indication of whether the PFES payments are sufficient to change the behaviour of Forest Owners/ Contractors.

No further additional forest data is proposed to be monitored for the revised PFES M&E system. However, in the longer term, the M&E system could be expanded and developed to include further indicators, which would require additional data. This might include data on the drivers of deforestation and degradation and/or the extraction of NTFPs (see Box 2 and 3 below). Also, it is assumed in this Review that there are currently insufficient PFES funds available to finance afforestation and reforestation. However, if there are sufficient funds to finance these activities in the future, then additional Indicators will be needed to monitor this.

**Box 2: Drivers of Deforestation and Degradation**

In the national forest M&E system described above, there is very little data currently collected on the drivers of deforestation and degradation. While the causes of forest degradation and loss might be illegal logging or forest fires, the drivers are the reasons why people engage in illegal logging or the reasons fires occur and are not contained. Ideally, a forest M&E system would include some M&E of the drivers of forest degradation and deforestation, because, where possible, it is the drivers that should be addressed by policy interventions and forest protection efforts as part of a more proactive forest protection strategy. The drivers are usually related socio-economic conditions. Indicators relevant drivers might include:

- Total population living near Protection Forests and SUFs
- Number of households dependent on fuelwood or charcoal for cooking
- The value of timber (particularly uncertified timber)
- The awareness level of forest communities about forest regulations
- Fire-fighting response capacity

Understanding and addressing the drivers is important for any policy that targets forest protection. Drivers are a measure of the pressure on forest resources, and indirectly provide an indication and explanation of actual forest protection results. However, monitoring drivers

is not specifically and directly related to PFES, such as the payments by Buyers and the protection efforts of Forest Owners/ Contractors receiving payments. As the national forest M&E system evolves and develops, M&E of drivers is recommended. Indeed, drivers are included to some extent in the REDD+ MRV protocol and REDD+ Action Plans, linked to Activity Data. Therefore, in the longer term, indicators of drivers should be included in the PFES M&E system but that are not proposed for inclusion at this stage.

#### **d. Proposed Indicators for Impacts on FESs**

As discussed in Section B, little data on the provision of FESs is currently monitored as part of the national forest M&E system. However, there is some data available for the different FESs from a variety of sources. As discussed, PFES schemes should be based on voluntary payments that are based on the value of the FESs being provided. Linking the PFES payments made by Buyers to the actual provision of the environmental service provided by the forests is considered crucial to the long-term sustainability and expansion of the PFES scheme.

As discussed, the current PFES scheme does not include a mechanism to alter PFES payment levels based on a forest area's relative value in terms of FES provision. However, in order to more closely align values derived by Buyers with protection efforts, such a mechanism may be considered in a future revision of the PFES scheme. This mechanism would function much like the current K-coefficient but it would be linked to the relative FES values of each different forest area (as discussed in Box 1).

**Water regulation and water quality.** As discussed in Section E, data is available on water regulation and water quality services provided by forests from sources such as hydropower companies, water supply companies and DoNRE. However, including data on water regulation and water quality in PFES catchment areas is difficult due to the large number of disparate data sources and the lack of consistency in reporting systems and formats.

Indicators need to be simple, practical and inexpensive to monitor. The environmental services provided by forests reduce the costs incurred by hydropower companies and water supply companies in terms of reduced down-time or treatment costs. However, while it might be possible to monitor the actual costs saved, it is unlikely to be simple or practical and thus is considered too complicated for the PFES M&E system at this stage.

Only one Indicator related to the FES of water quality maintenance is proposed here. Sediment, or Total Suspended Solids (TSS) in water can increase the costs incurred by hydropower companies due to the need for increased dredging, or increased wear and tear on machinery. Similarly, a high TSS level also increases the costs of water purification for water supply companies. Thus, the TSS level in the water is of importance to PFES Buyers and is directly related to the PFES payments and the theory of FES provision underlying the PFES policy. This is one of the key services being provided by forests and paid for by the Buyers. A greater forest cover and forest density in the catchment should reduce TSS levels. However, it is recognised that TSS levels are also affected by the intensity of the rainfall events and other upstream factors in addition to forest cover and density.

Both hydropower companies and water supply companies currently monitor and report on TSS levels regularly, either for their own internal purposes and/or for external agencies such as DoNRE and the Department of Public Health. TSS levels vary and generally increase after rainfall. To be meaningful, an average TSS level over the year is required although it is recognized that this is not a precise measure of the water purification services being provided. The location of the water sampling in relation to the water intake may also vary

between hydropower and water supply companies. However, the average TSS level still provides some indication of the FES, and more importantly, the change in time of this Indicator is more informative than the absolute point-in-time level.

It is proposed that hydropower companies and water supply companies that are PFES Buyers report the average TSS levels at their water intake points to the FPDF each quarter, along with their production data that they already report to the FPDF. The average TSS level is to be based on the average of all their TSS monitoring events during the quarter. The average of quarterly reports can be calculated by FPDF to report annually.

**Table 20: Proposed Water Quality Indicator**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
31.	Average TSS levels in the water intake of hydropower and water supply companies	number	FES of water quality maintenance	Hydropower and water supply companies; FPDFs	Annual (based on average data)

**Indicator-31: Average TSS levels in the water intake of hydropower and water supply companies**

**Purpose:** Monitors changes in the quality of the water received by the PFES Buyers. An increase in the average TSS level indicates a deterioration of water quality and suggests a reduction in the level of the service provided by the forests in the relevant catchment.

Monitoring and reporting of this Indicator will serve as a reminder to the stakeholders that this is the FES that is being paid for. However, in cases where the forest is not being protected adequately, it could also lead to concerns being raised by Buyers that they are not receiving the service they are paying for.

A slightly more sophisticated way to monitor this FES would be to monitor the number of days, or number of monitoring events, when the TSS levels are above a critical level. The critical level would be defined by Vietnamese water quality standards, or more appropriately, by the hydropower and water supply companies themselves as the level at which costs are incurred. For example, if TSS levels reach a certain level, water intake may be suspended by the companies or additional processes (and thus costs) may be required to treat the intake water. Again, the actual value of the critical level is not necessarily important, as long as the monitoring and reporting is undertaken consistently so that changes over time can be evaluated. This would be a more precise indicator for this FES as it is more closely related to the actual costs and thus value of the FES. However, it may be slightly more complicated to implement. Consultation with the hydropower and water supply companies is recommended.

Note that the forest ecosystem service of water regulation is more difficult to monitor. However, in the future, a current project to monitor water flow for flood control and dam safety purposes may provide data that will enable water regulation services provided by forests to be monitored and evaluated.

**Services to tourism.** As discussed in Section E, FESs provided to tourism are related to biodiversity, landscape beauty and recreational and educational amenities provided by forests. However, these are difficult to monitor and quantify. For sites where biodiversity is the key driver of tourist visits, it might be possible to monitor the number of days per year

when the attraction species, such as monkeys or cranes, are seen at the site. More sophisticated and scientific methods to monitor biodiversity are available but are expensive to implement and may not be as directly relevant to services provided to tourists (see Section D).

Alternatively, tourist satisfaction surveys could be conducted periodically at each site or included as part of the entrance process. However, again, this requires a new monitoring system to collect and manage additional data.

Currently, the PFES system bases payment levels on the value of the expenditure of tourist at the sites as earned by tourism operators. However, this system is difficult to administer and monitor.

Another way to evaluate the PFES scheme's impact on tourism FESs might be to monitor the expenditure of FPDFs on tourism amenities, such as pathways in the forest, signs and information for tourists etc. However, this is indirect and monitors inputs rather than outcomes.

A simpler way of evaluating the value of the FESs provided to tourism at a site is to monitor the number of tourist visiting the site and/or their willingness to pay (WTP) to visit the site. Note that this does not measure the extent to which the forest is providing the environmental service, but rather it is a proxy to monitor the *value* being derived from this service by tourists. However, it can be reasonably assumed that if the forest is not providing the services, tourists' WTP will decline and thus the number of tourists making the effort and incurring the costs to visit the site will also decline. Tourists' WTP is at least as much as the fee to enter the site.

It is understood that under the current PFES scheme, entrance fee payments are not included as part of PFES payments (though indeed they are payments for FESs), and are not charged or collected by FPDFs.

While only a few forest tourist sites currently charge an entrance fee, it is likely that this will increase in the future. This data is already collected by the Department of Nature Conservation and /or the FMBs at the key tourist sites, and thus monitoring should be simple and inexpensive. Two Indicators to monitor the value of FESs to tourism are thus proposed (Table 21).

**Table 21: Proposed Indicators for FESs provided to Tourism**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
32.	Number of tourists visiting the forest tourist site, by tourist PFES Area	number	FESs to tourism	FMBs	Annual
33.	Total entrance fees paid at each forest site, by tourist PFES Area	VND	FESs to tourism	FMBs	Annual

**Indicator-32: Number of tourists visiting the forest tourist site, by tourist PFES Area**

**Purpose:** Provides an indication of the value of FESs provided to tourism at each PFES Area. A change in tourist numbers could be due to several factors but this still provides an indication of the attraction value of the site. Comparisons to the total number of tourist visits to Viet Nam could be undertaken to qualify this Indicator, though this would need to be done carefully and broadly only as

there are many other factors that affect both national tourist visits and visits to a particular site.

**Indicator-33: Total entrance fees paid at each forest site, by tourist PFES Area**

**Purpose:** Provides an indication of the value of FESs provided to tourism at each PFES Area. This is not the net value provided by forests but rather the total value provided by the tourist site and associated amenities. It is also a relatively loose proxy for this value. However, it does provide an indication of the value of the services provided by forests to tourism.

Other Indicators might include total revenue earned by tourist operators, and total number of registered or licensed tourist operators at each site (where registration/ licensing is implemented). Related to biodiversity, the likelihood of visitors seeing particular species when they visit could also be an indicator.

**Box 3: Non-Timber Forest Products**

The current forest M&E system includes very little if any monitoring of NTFPs. NTFPs, such as fuelwood, medicinal plants, vegetables, and rattan are important because they form an important part of local livelihoods in some areas, especially for very poor households. They are also important because they represent a valuable ecosystem service provided by the forest. In some forest areas, Forest Owners/ Contractors receive not only the allocated PFES payment per hectare but also the rights to access NTFPs, and the NTFPs may be more important and more valuable. Therefore, continued access rights to NTFPs can provide a more powerful incentive for forest protection than the actual PFES monetary payments. The continued provision of NTFPs by a forest depends on sustainable harvesting and on the health of the forest. Unsustainable or illegal harvesting of NTFPs can also be a cause of forest degradation due, for example, to illegal clearing of small areas of forest to plant cardamom trees or harvesting of healthy trees for fuelwood or charcoal. For these reasons, it is suggested here that M&E of NTFPs and NTFP harvesting is important and should be undertaken. However, NTFPs were not the focus of this study and are not regarded as an urgent or critical part of the PFES scheme. Therefore, no proposed data or measures to monitor NTFPs are developed here but it is suggested that they are developed in the future.

**e. Proposed Socio-Economic Indicators**

As discussed in Section B, the current PFES M&E system does not include M&E of the socio-economic impacts of the PFES scheme. However, a main objective of the PFES policy is to improve the livelihoods of forest communities. It is proposed in this Review that this objective could be further refined to focus on providing socio-economic benefits to poor households and households dependent on forest resources for their livelihoods. Providing PFES payments to such households would not only directly provide economic support but it could also reduce the need for these households to exploit forest resources.

**PFES Payments.** The most direct way that the PFES scheme provides socio-economic support, is through payment of PFES funds to Forest Owners/ Contractors. Therefore, the following operational Indicators, as described above, provide an indication of the socio-economic impact of the scheme:

- **Indicator-9:** Total amount of PFES payments collected that is disbursed to Forest Owners, by province, PFES Area and PFES Type

- **Indicator-10:** Average amount of PFES payments disbursed to each HH Owner
- **Indicator-12:** Total and average amount of PFES payments disbursed to each Contractor, Forest Protection Staff, and Contractor Group

These Indicators also enable monitoring of differences and inequities in payments per level of protection effort. In addition, further data is needed to monitor to what extent the PFES payments are indeed being received by the intended target households.

As outlined above, it is proposed to capture a set of socio-economic data about each Forest Owner/ Contractor. This includes information about the type of Forest Owner and the type of Forest Contractor and thus enables the monitoring of who is receiving the PFES payments. It also enables the monitoring of how much of the PFES funds each type of Forest Owner/ Contractor is receiving. This is valuable information for the FPDFs and VNFF to monitor if the PFES payments are being disbursed to the intended target households and also to what extent the PFES payments may be being captured by the 'elite', such as those in positions of power. In particular, payments by Forest Owners to Forest Protection Staff appear to be in contradiction to the socio-economic objectives of the PFES scheme and are also open to corruption. Similarly, payments to Forest Contractor households that are also employees of GoV agencies should be monitored to check for 'elite capture'.

The data about each Forest Owner/ Contractor proposed above also includes criteria about the poverty status, gender, ethnicity, GoV employment and forest dependency of each Forest Owner/ Contractor. This enables more detailed monitoring of the recipients of PFES payments. Payments to poor households and forest-dependent households will have a greater socio-economic impact but also perhaps also serve to reduce the pressure on forest resources and thus also have positive impacts on the forests. However, it is recognised that receiving PFES payments is not necessarily the same as receiving benefits, especially in the case where payments per household are low and the required forest protection effort is high.

The following socio-economic Indicators are proposed to monitor the targeting of the PFES scheme with regards to which stakeholders are receiving the payments (Table 22).

**Table 22: Proposed Socio-Economic Indicators**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
34.	Proportion of PFES payments made to 'poor' HH Owners, Contractors, and Group Members	%	Socio-economic impact	Forest Owners, Group Leaders, FPDFs, MoLISA	Annual
35.	Proportion of PFES payments made to ethnic minority households	%	Socio-economic impact	Forest Owners, FPDFs, MoLISA	Annual
36.	Proportion of PFES payments made to women	%	Socio-economic impact	Forest Owners, FPDFs, MoLISA	Annual
37.	Proportion of PFES payments made to forest-dependent households	%	Socio-economic impact Pressure on forest resources	Forest Owners, FPDFs, MoLISA	Annual
38.	Proportion of PFES payments made to each of Owner Groups, Contractor Groups, and Forest Protection Staff, by PFES	%	Socio-economic impact Operation of the scheme	Forest Owners, FPDFs, MoLISA	Annual

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
	Area				
39.	Proportion of PFES payments made to households that are also employed by GoV agencies	%	Socio-economic impact Operation of the scheme	Forest Owners, FPDFs, MoLISA	Annual

However, it is noted that the PFES scheme does not select which households receive forest ownership titles and thus does not select who receives PFES payments. To a large degree, these are already allocated and are relatively long-term. So the socio-economic characteristics of the Forest Owners does not reflect the implementation of the PFES scheme and, also, will likely not change in the short to medium term. The only characteristic that might change over time is the poverty status of the household.

This is not the case for Forest Contractors, which are selected for PFES contracts by the Forest Owners. In this case, the Forest Contractor households are selected as part of the PFES scheme and therefore the characteristics of the Forest Contractor households should reflect the objectives and intended targets of the scheme. The contracts are also usually shorter-term.

**Indicator-34: Proportion of PFES payments made to ‘poor’ households**

Purpose: Monitors to what extent poor households are benefiting directly from PFES payments. It is proposed to monitor the proportion of ‘poor’ households across amongst each type of HH Owners and Contractor as the PFES scheme for the reasons above. Note that a reduction over time in the proportion of Forest Contractors that are ‘poor’ could be due to the original poor households being elevated out of poverty.

**Indicator-35: Proportion of PFES payments made to ethnic minority households**

Purpose: Monitors to what extent ethnic minority households are benefiting directly from PFES payments. Ethnic minority households are often poor and are also often relatively dependent on forest resources. They are also often excluded from participating in GoV programmes.

**Indicator-36: Proportion of PFES payments made to women**

Purpose: Monitors the extent to which women are participating directly in the PFES scheme and also to what extent women are directly receiving the PFES payments. This is important to assess the gender impacts of the scheme. It is also recognised that women in Viet Nam generally use household funds more effectively than men.

**Indicator-37: Proportion of PFES payments made to forest-dependent households**

Purpose: Monitors to what extent forest-dependent households are directly benefiting from PFES payments. As PFES payments are an alternative income source, PFES payments to forest-dependent households might also reduce pressure on the forest resources and thus improve the scheme’s impacts on the forest.

**Indicator-38: Proportion of PFES payments made to each of HH Owners, Contractor Groups, and Forest Protection Staff, by PFES Area**

Purpose: Monitors which types of Forest Owner/ Contractors finally receive the PFES payments. This is important to monitor the prevalence of the Group approach (see below). It is also to check that payments to Forest Protection Staff are appropriate. This is also an operational Indicator as it monitors whether the PFES scheme is being implemented as planned.

**Indicator-39: Proportion of PFES payments made to households that are also employed by GoV agencies**

Purpose: Provides a check that PFES payments are not being captured by the elite but are indeed reaching the target households, and thus this is also an operational Indicator.

It may also be useful to monitor the proportion of PFES payments made to HH Owners and Contractors living near their PFES forest Title, as this would indicate whether or not the forest communities are receiving the PFES payments or outsiders. It would also provide an indication as to the likelihood that the forest protection activities are actually being effectively provided. As per the socio-economic criteria proposed above, whether or not the HH Owner/ Contractor lives in a village near the PFES Area could be monitored.

The above Indicators depend on the availability of data on the socio-economic criteria of Forest Owners/ Contractors, as discussed above. It is recognised that some of these Indicators may not be practical. However, much of this data is already monitored as part of allocating forest Titles to Forest Owners and contracting Forest Contractors.

**Use of PFES payments.** The above Indicators monitor the socio-economic inputs of the PFES scheme rather than the outputs or outcomes. However, an increase in income due to PFES payments, especially cash income, will have a direct positive impact on livelihoods.

It is more difficult to monitor the socio-economic conditions of forest communities and thus the socio-economic outcomes. Outcomes depend on how effectively the income from PFES payments is used, though this is also difficult to monitor and evaluate. MoLISA regularly monitors the poverty rate of forest communities. However, while this data would provide some indication of general socio-economic conditions, it would be difficult to attribute the changes to the PFES scheme.

In the case of payments to Groups, including Villages and Communities, it may be easier to monitor the use of the PFES payments. As discussed, a portion of the PFES payments made to Groups is allocated to the Forest Patrol Unit or 'Members' directly. The remaining funds are pooled and used for the benefit of the Group. There is often a Community of Village Fund (already) established for this purpose. Funds are used for investing in productive assets such as cattle or in local infrastructure such as roads, wells, and schools. These investments can improve the socio-economic conditions of the villages and thus PFES funds make a direct, tangible and positive socio-economic impact.

Decisions on how to use the Village Funds are based on democratic decisions made by the whole Group at Group meetings. Thus, as discussed in Section E, the minutes of these meetings provide a source of information on the use of the Village Funds. The DPFES project has proposed Indicators to monitor

- Number of 'welfare projects' funded by PFES funds
- Investment of PFES funds in 'welfare projects'.

These Indicators are perhaps one way of monitoring the use of the PFES payments and their direct impact on socio-economic infrastructure and thus livelihoods. However, in cases where the Village Fund or other village-level budgets have several sources of income in addition to Group PFES payments, it could be difficult to determine and attribute the PFES funds contribution to the welfare projects. It is also difficult to assess the effectiveness, efficiency and equity of the use of these Funds. Therefore,

Indicator-12 described above, proposes to monitor the proportion of PFES payments made to the different types of Forest Owners/ Contractors, including Owner Groups and Contractor Groups. Generally, between 30 and 70% of the payments to Groups are allocated directly to the Forest Patrol Units or those responsible for forest patrols during the period. Therefore, Indicator-12 provides an indication of the proportion of PFES payments paid to Groups and the thus the proportion of PFES payments that are deducted for Village Funds. This is considered sufficient monitoring information at this stage. Periodic more detailed monitoring of socio-economic impacts in selected PFES Areas may investigate the use of PFES payments via Village Funds in more detail. Village Funds are discussed in more detail below.

**Other socio-economic impacts.** The PFES scheme also has several other socio-economic impacts. These include:

- Increasing the awareness levels of stakeholders about FESs and forest protection
- Granting access to NTFPs for Forest Contractors
- Promoting social cohesion and cooperation, particularly via Groups
- Clarifying forest boundaries and Titles
- Clarifying the rights of Forest Owners/ Contractors

However, it is not proposed to include M&E of these impacts in the PFES M&E system at this stage. Such impacts could be evaluated in selected PFES Areas periodically through separate M&E projects.

**f. Proposed Institutional Indicators**

In addition to impacts on forest protection and socio-economic impacts, the PFES scheme also has institutional impacts. These institutional impacts are related to:

- Capacity of VNFF and FPDF staff and staff of related GoV agencies, such as the FPD
- The development of central and provincial legislation and guidelines covering aspects of PFES management
- The establishment of Direct Payment PFES schemes between Buyers and Forest Owners/ Contractors (i.e. rather than via FPDFs)
- Improved forest management, such as expedited allocation of forest land to Forest Owners, and demarcation of forest boundaries and Titles

VNFF and FPDFs provide training to their staff and staff of related agencies (as well as to Forest Owners/ Contractors). Four institutional Indicators are proposed (Table 23).

**Table 23: Proposed Indicators of Institutional Impacts**

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
40.	Number of VNFF/FPDF and GoV staff participating in training provided by	Number	Institutional capacity	VNFF, FPDFs	Annual

No.	Indicator	Unit	Evaluate/ Purpose	Responsible Agency	Frequency
	VNFF/ FPDFs				
41.	Number of Legislative instruments and guidelines enacted related to PFES, by province	Number	Institutional capacity and infrastructure	VNFF, FPDFs	Annual
42.	Proportion of PFES payments made via Direct Payment by PFES Type and by PFES Area and by Owner Type	%	Scheme development	FPDFs	Annual
43.	Number of meetings held between FPDF/ VNFF and Buyers, and Buyers and Forest Owners/ Contractors, and FPDF and Forest Owners/ Contractors	Number	Transparency Stakeholder engagement and participation	FPDFs, Org Owners	Annual

**Indicator-40: Number of VNFF/FPDF and GoV staff participating in training provided by VNFF/ FPDFs**

Purpose: Monitors the effort or inputs to improve the institutional capacity of staff

**Indicator-41: Number of Legislative instruments and guidelines enacted related to PFES, by province**

Purpose: Monitors additions in the legislative infrastructure as an output of the PFES scheme (i.e. not necessarily improvements). This Indicator is already monitored and is proposed also by the DPFES project. This Indicator is a measure of the implementation of the scheme and the associated development of legislation. This Indicator is proposed to be applied in the early years of the PFES scheme as it is increasingly implemented across the provinces.

**Indicator-42: Proportion of PFES payments made via Direct Payment by PFES Type and by PFES Area and by Owner Type**

Purpose: Monitors the relative importance of Direct Payment PFES arrangements and thus the development of the PFES scheme beyond the FPDF structure.

**Indicator-43: Number of meetings held between FPDF/ VNFF and Buyers, and Buyers and Forest Owners/ Contractors, and FPDF and Forest Owners/ Contractors**

Purpose: Monitors inputs with regards to the transparency of the scheme and engagement and participation of the stakeholders. As discussed below, Village Meetings are an effective way to make the PFES payments to Forest Owners/ Contractors, involve Buyers and connect Buyers with Forest Owners/ Contractors, ensure transparency in payments, provide information and receive feedback. If a "PFES Village Meeting" process is defined (and perhaps legislated), then this Indicator could be refined to monitor the number of Village Meetings by PFES Type and PFES Area, including those where the Buyers participate.

It is recognised that Indicators 40 and 41 monitor inputs and outputs rather than outcomes. However, these Indicators will still be informative in the absence of practical, simple and cost-effective Indicators to monitor changes in institutional outcomes. Indicator-43 monitors transparency and stakeholder engagement and thus is perhaps an operational indicator rather than an institutional indicator.

A summary of the proposed PFES M&E Indicators is provided in Annex 3.

### **g. Periodic Monitoring and Evaluation**

In addition to the above, there are some M&E activities that should be done occasionally. For example, M&E of the change in forest cover and density undertaken by NFIS every 5 years. Other surveys for specific impacts of the PFES scheme should also be undertaken perhaps every five years, though the scope of the evaluation may be limited to specific target areas or sample areas. Such occasional indicators to be monitored and evaluated with specific surveys include:

- Awareness levels of forest communities and other stakeholders about PFES
- Technical capacity of FPDF staff, staff of related forest agencies and Group Leaders
- Socio-economic impacts of the PFES scheme in forest communities
- The use, efficiency, effectiveness and equity of Village/ Group Funds, including audits of payments to Group members
- Biodiversity surveys in PFES Areas
- Tourist surveys at PFES Areas providing services to tourism
- Water quality and water regulation services in PFES catchments
- Assessments of the value of the FESs provided to Buyers
- Third-party verification of forest protection results (as proposed in more detail below)
- Assessments of changes in forest and socio-economic conditions in comparable forest areas that are not included in the PFES scheme (for comparison with PFES forest areas)
- Effectiveness of PFES grievance mechanisms
- Extraction of NTFPs by Forest Owners/ Contractors

## **8. M&E Mechanisms and Procedures**

In addition to Indicators, and to support data collection for the Indicators, several proposed improvements to the current M&E system are described below. These are designed to take advantage of the Opportunities identified in Section C, such as improvements in technology.

### **a. Updated Satellite Imagery Maps**

Map-based data is critical for an M&E system for forests. Given the large expanses of forests, much of which is difficult to access, the use of aerial and satellite imagery and remote sensing is a key part of map-based data. Currently, the national forest M&E system does not make enough use of satellite imagery and improvements in related technology and satellite availability. This greatly reduces the effectiveness of on-the-ground monitoring efforts and reduces the accuracy of maps and data used at the provincial and especially the local level. It also contributes to inconsistencies in data between forest agencies.

The ForMIS platform is developing map-based data with GIS data layers that will enable integration of data from various sources and promote consistency and improved accuracy of forest data at the level of the forest Title, Plot etc. ForMIS promotes the development of one

integrated forest information database including one set of detailed forest maps that contain all the updated available data about each forest area. However, currently, this relies on maps and data produced by the NFIS programme, which is updated only every five years.

The IP-FES project has proposed to implement a cost-effective programme to provide updated high-resolution satellite imagery maps of each forest area and to provide training to provincial staff on how to interpret and use these maps. This Review supports that proposal and recommends making this updated map-based data available to FPDFs, FPDs, and commune forest patrol groups.

### **b. Data and reporting integration**

As suggested by the DPFES project, the consistency of PFES data with other forest data of the country should be regulated. In particular, the FPDFs forest data should be based on and consistent with data from FPD. This will facilitate and reduce the costs of PFES verification.

As discussed above, data integration and consistency would be promoted by the use of the same master set of updated forest maps, as made available by the ForMIS platform.

### **c. Forest Protection Groups and Patrol Protocol**

The thousands of Forest Owners and Contractors that are households and communities represent a significant labour force, most of which is knowledgeable about the local forests. These Forest Owners/ Contractors are currently engaged to protect the forests, chiefly via undertaking Forest Patrols. However, these Forest Patrols are mainly forest surveillance exercises, with Forest Owners/ Contractors paid to make patrols in the forest and report on their observations. These forest patrols but could be better managed to provide more effective forest monitoring.

It is suggested to improve the forest patrol process by:

- Providing clear guidance for forest patrols via a Forest Patrol Protocol that includes route selection, activities, procedures, and reporting
- Developing a standard consistent forest patrol reporting template for reporting up the line
- Providing Forest Owners/ Contractors with access to updated forest maps (see above)
- Promoting better support from the FPD rangers, including training and collaboration
- Using mobile technology to improve the effectiveness of patrols and the capture of forest monitoring data
- Draw lessons from the Participatory Forest Monitoring approach (as discussed in Section D)

In addition, it is suggested to promote the formation of forest protection Groups, either of Forest Owners or Contractors. The Group structure facilitates improved management and collaboration with the FPD, as well as improved forest monitoring. In particular, as discussed, Groups that include all households in a village can foster social cohesion, engagement in forest protection, and more effective response to forest fires.

### **d. Mobile Monitoring Technology**

In most areas, the Forest Patrols are undertaken without clear guidance as to what to do and where to go during the Patrols. There is not set protocol for the Patrol routes, activities or a

standard and consistent template for reporting observations during the Patrols. In addition, the Forest Patrol reports are in paper or verbal format and thus much information is not captured and included in the forest monitoring system or database. Similarly, while the FPD rangers have a template report for significant violations, there is limited automation of these reports and scope for information to not be captured or to be incorrectly recorded. There is also limited guidance for the process of verification and associated reporting. Currently, the system relies on largely subjective recording of whether the forest has been protected. At all three layers of protection effort, there is limited use of baseline data and up-to-date maps, greatly reducing the efficiency and effectiveness of 'spot' verification checks and forest monitoring efforts.

New technology offers an opportunity to improve the current system of forest M&E in Viet Nam. In particular, mobile devices such as modern smart phones or Tablets could be used to greatly improve both the method, consistency and rigour of forest protection as well as the M&E system. It is proposed to use smart phones or Tablets to assist on-the-ground forest protection and monitoring by the FPD rangers and ideally also the Forest Patrol Groups. The mobile devices would be enabled with Global Positioning System (GPS) technology, Internet, a compass and a camera. They would also be loaded with the latest forest maps and a standard template reporting software to guide the Patrols and facilitate the generation of reports in standard format that reduces input errors and can be easily uploaded to a district or provincial database. Information about forest violations and field survey results, including the location and photographs, can be easily recorded and uploaded via the internet to the district database where the data can be confirmed and the forest maps can be updated. Data on patrols and patrol routes would be captured. The devices could use Quantum-GIS, which is free software.

A similar idea has already been introduced in Quang Binh province by a KfW-funded project and SMART forest monitoring software is used in many other projects across the region. SMART is discussed in more detail in Section D. Currently, the use of mobile technology to assist forest monitoring and forest patrols is currently being trialled in some communes of Dien Bien province by the Sustainable Forest Management in the Northwest Watershed Area project (SUS-FORMNOW) funded by JICA<sup>19</sup>. The SUSFORMNOW project began in 2010 and will be completed in August 2015.

However, it is recognised that improving forest monitoring and capture of data from forest patrols will increase and improve forest monitoring but may not improve forest protection outcomes. The improved forest monitoring must be accompanied by an improved enforcement effort and actual effective use of the improved monitoring data.

#### **e. Village Funds and Management Boards**

Depending on how the PFES payments received by Forest Owners/ Contractors are used, the payments could have a significant socio-economic impact at the local level. In many forest areas, the payment received per household is relatively low but still contributes at least in a small way to meeting household expenses, especially for poorer subsistence households with little cash income. However, in many forest areas, the transaction costs of making small payments to thousands of Forest Owner/ Contractor households offset much of the benefits. Also, the payments are often not used to wisely or constructively by the households. Therefore, at least in some areas where payments per household are low, collective payment to a Group or village not only incurs less transaction costs but can enable

---

<sup>19</sup> <http://www.jica.go.jp/project/english/vietnam/004/outline/index.html>

collective use of the payments that is more effective and can have greater socio-economic impacts.

In addition, as discussed in Section E, the use of PFES funds by Forest Owners/ Contractors that are households and communities is more easily monitored when the Forest Owners/ Contractors are organized into Groups and paid as a Group. The minutes of Village meetings to decide how to use the Funds provide a source of data to monitor how the collective portion of the PFES funds are used.

For these reasons, it is suggested here to promote the formation of PFES Groups, at least in those forest areas where it is most suitable.

However, in terms of effectiveness, efficiency and equity there are positives and negatives associated with each form of contracting arrangement and benefit distribution e.g. Group distribution could lead to elite capture, reinforcement of existing hegemonic power structures and exclusion of vulnerable groups (Pham et al, 2014).

To address the risk of elite capture and inappropriate use of Group Funds, it is suggested that FPDFs make PFES payments to Groups (and individual households) at Village meetings. In this way, the information is more transparent for all participants and there is an opportunity for stakeholders to raise grievances and provide feedback to FPDF and FPD staff. These meetings also provide an opportunity to display and discuss forest maps and for payment recipients to sign-off on their payments. Buyers could also be invited to these meetings.

In the future, it may be possible to independently audit and certify Village Funds and Village Management Boards and thus promote these Funds as a framework for village-level funding related to other initiatives also.

#### **f. Third-Party Independent Evaluation**

To improve the PFES M&E system, the establishment of a system of independent third-party evaluation (3PE) of both the impacts of the scheme and the operational performance is proposed. The impacts of the scheme include both the impacts on the forest, with regards to forest protection and potentially also the provision of FESs, and the socio-economic impacts on forest communities. Both of these impacts relate to the objectives of the PFES policy. The operational performance of the scheme includes the collection of payments from the “Buyers”, the disbursement of funds to the “Suppliers” (i.e. the Forest Owners and Contractors), the use of the funds deducted by the various forest management agencies, and other aspects of the operational performance, such as progress towards implementing the scheme and proportion of PFES payments made to the different entities.

The PFES policy is based on the premise that the PFES revenues are collected by the Viet Nam Forest Protection and Development Fund (VNFF) at the central and provincial level and managed in trust for the actual providers of the forest protection services. The PFES funds are thus not GoV funds and cannot be used as such. However, the current M&E system is closely aligned with the GoV structure and is also not independent. For example, there is a clear disincentive for Forest Owners and Contractors to report forest violations in their forest area as this would indicate that they have not managed to protect the forest and, theoretically at least, should not therefore receive the PFES payments. A similar conflict of interest exists with reporting by the FPD and the FPDFs, who also effectively self-report on their performance. Verification of forest protection is also currently undertaken by the GoV forest agencies.

3PE of forest protection is proposed as a way to ensure expert and independent evaluation of the effectiveness of forest protection undertaken by the various entities as part of the PFES scheme and to check the accuracy of official forest protection reports and databases. 3PE could also provide an important check and audit of the use of PFES funds, particularly the actual payments received by Forest Owners, Contractors and forest communities, and the use of funds deducted by the various forest management agencies. Going further, 3PE could contribute to the M&E of the less direct socio-economic impacts of the scheme, such as the impacts from the use of the PFES funds by the communities.

3PE also offers an opportunity for greater participation by PFES stakeholders and improved transparency of the scheme. A multi-stakeholder committee or meeting is envisioned to set the terms of reference of the Verification Audit, to select the independent expert/ company to undertake it, and to review and evaluate the results. Stakeholders such as Buyers, Suppliers, NGO representatives and representatives of forest management agencies could thus participate in the process and have a chance to influence the design and operation of the scheme. The Verification results would be widely disseminated as trustworthy and independent.

This 3PE could also be linked with the grievance mechanisms established for the scheme, with the selected independent experts managing the grievance mechanisms. The 3PE process might also extend to auditing and certifying Village Management Boards to manage PFES payments etc.

It is envisioned that the 3PE process would be undertaken by accredited experts with knowledge of both forestry and the local area, as selected in a competitive tender by the multi-stakeholder committee (and overseen by VNFF). This would provide an opportunity for the PFES scheme to take advantage of the wealth of highly qualified and experienced NGOs that are active in forest protection and management in Viet Nam, as well as increase the engagement of these NGOs. The timing, funding and detailed method for this 3PE process needs further thought and consultation.

A similar initiative is being considered by PanNature, which is developing an Evaluation Tool that could be applied by an independent expert in a participatory manner. CIFOR is also planning a similar initiative with a focus on developing effective grievance mechanisms (in Dak Nong and Son La).

NGOs, civil society organisations and impartial research institutes could also be engaged to assist with the aspects of the M&E system that require surveys and assessments on an occasional or five-yearly basis, as described above.

### **g. Transparency and Grievance Mechanisms**

The transparency of the current PFES system is low, with Buyers and other stakeholders receiving little or no information about the operation and impacts of the scheme. Participation, disclosure and communication is low. This may be addressed in part by ForMIS and also by 3PE proposed above.

Similarly, work is needed to improve the grievance mechanisms for PFES stakeholders. Some FPDFs have made some efforts in this regard but further work is needed to improve and expand these mechanisms.

While these are important parts of an M&E system, they are beyond the scope of this Review and these issues have not been addressed here.

## H. Further Work and Next Steps

This Review has undertaken a relatively high-level assessment of the PFES scheme and attempted to isolate issues important to the M&E system from broader issues related to the design and implementation of the scheme. It has also been undertaken within the context of other projects and programmes working on improving the M&E of the PFES scheme, such as ForMIS, IP-FES and DPFES.

A set of Indicators to monitor and evaluate the implementation and operation of the scheme as well as the impacts on the forest and forest communities has been proposed. This is considered a preliminary list that needs further work and refining. It is recognised that a smaller set of Indicators may eventually be selected. It is recognised that the process of designing the M&E system and selecting indicators should be participatory and thus the input the PFES stakeholders is sought, particularly of those agencies that will be responsible for implementing the M&E system.

The suggested next steps are thus:

- i) Finalise the M&E framework and Indicators in consultation with the stakeholders
- ii) Determine the feasibility and practicality of sharing data with other agencies, such as FPD, MoLISA and MoNRE
- iii) Develop the PFES database, in line with DPFES recommendations
- iv) Work with the IP-FES project, to ensure consistency with their advice and also about their proposal for using updated satellite maps
- v) Work with ForMIS with regards to data formats, integration and sharing
- vi) Further investigate and develop the proposed mechanisms and procedures described above, including pilots and trials

Further work required includes:

- Investigate and develop ways to improve forest protection in Viet Nam, including how to address the drivers of deforestation and forest degradation
- Design and develop the other parts of the M&E system not addressed in this Review, including:
  - Baseline data to enable assessment of changes
  - Infrastructure and equipment for M&E, including information technology (IT)
  - Data systems, formats, and templates
  - A database and network for collating, organising, integrating, and evaluating data
  - Policy responses to the data and the resulting evaluations
  - Implementing legislation, including clearly designated responsibilities
  - Funding arrangements for establishing and maintaining the M&E system
  - Mechanisms to ensure transparency and stakeholder participation, including mechanisms to share, disseminate and communicate information and data
  - Grievance mechanisms that are accessible and effective
- Integration with REDD+ MRV developments and systems
- Investigation of the potential for the development of the more holistic Catchment Management approach in Viet Nam

It is understood that as the PFES scheme evolves and develops, further revisions and improvements to the scheme will be made. This will include improvements to the PFES M&E system that may include more ambitious and comprehensive measures.

## LIST OF REFERENCES

Asian Development Bank, 2014. Scaling up payments for forest environmental services in Viet Nam: Lessons and insights from Quang Nam. Publication Stock No. RPT146517-2. Mandaluyong City, Philippines: Asian Development Bank, 2014

Dam V. B., Catacutan D.C. and Hoang M. H., 2014. Importance of National Policy and Local Interpretation in Designing Payment for Forest Environmental Services Scheme for the Ta Leng River Basin in Northeast Vietnam. Environment and Natural Resources Research; Vol. 4, No. 1; 2014

Decision 2284/QD-TTg on approving the Project on “implementation of the Decree 99/2010/ND-CP

Decision 186, 2006, Promulgating the regulation on forest management, 186/2006/QD-TTg

Decree 05, 2008, On the Forest Protection and Development Fund, 05/2008/ND-CP

Decree 99, 2010, On the Policy on Payment for Forest Environmental Services, 99/2010/ND-CP

Decision 57, Approval of the Forest Protection and Development Plan for the period 2011-2020, 57/QD-TTg

Evans, K. & M.R. Guariguata (2008) Participatory monitoring in tropical forest management: a review of tools, concepts and lessons learned. Center for International Forestry Research (CIFOR), Bogor.

[FPDFs] Provincial Forest Protection and Development Fund. 2014. PFES implementation reports

Loft L., Pham T. T. and Luttrell C., 2014. Lessons from Payments for Ecosystem Services for REDD+ Benefit-Sharing Mechanisms, CIFOR Info Brief, No. 68, March 2014

Ly N. T. Y., 2013. Evaluating the Pilot Implementation of Payment for Forest Environmental Services in Lam Dong, Vietnam, Published by WorldFish (ICLARM) - Economy and Environment Program for Southeast Asia (EEPSEA)

Ministry of Agriculture and Rural Development (MARD), 2014. Report on PFES

Nguyen C. T. and McElwee P., 2015. 2015. Report on three years of implementation of policy for forest environmental services in Viet Nam (2011-2014). Viet Nam Forests and Deltas Program (VFD), USAID, MARD, Winrock, VNFF

Pham TT, Bennet K, Vu TP, Brunner J, Le ND and Nguyen DT. 2013. Payments for forest environmental services in Vietnam: From policy to practice. Occasional Paper 93. Bogor, Indonesia: CIFOR.

Pham T. T., Garnett S. T., and Aslin H.J., 2011. Organisational and Institutional Opportunities and Constraints for Poor Households to Participate in Payment for Environmental Service Schemes in Vietnam. The Asia Pacific Journal of Public Administration Vol. 33, NO. 1 (June 2011): 57 – 76

Pham T. T., Moeliono M., Brockhaus M., Le D. N., Wong G. Y. and Le T. M., 2014. Local Preferences and Strategies for Effective, Efficient, and Equitable Distribution of PES Revenues in Vietnam: Lessons for REDD+. Human Ecology Interdisciplinary Journal, Vol. 42, No. 4, August 2014

Sikor, T., Enright, A., Nguyen Trung, T., Nguyen Vinh, Q., Vu Van, M. 2012. Piloting Local Decision Making in the Development of a REDD+ Compliant Benefit Distribution System for Vietnam. SNV, for the UN-REDD Programme, Vietnam <http://www.snvworld.org/en/sectors/redd/publications>

To P. X., Dressler W. H., Mahanty S., Pham T.T., and Zingerli C., 2012. The Prospects for Payment for Ecosystem Services (PES) in Vietnam: A Look at Three Payment Schemes. Human Ecology Interdisciplinary Journal. 2012 Apr; 40(2): 237–249.

[VNFF] Vietnam Forest Protection and Development Fund. 2015. Report on research and assessment of current situation and recommendations for a proposed database system on payments for forest environmental services. Prepared as part of the DPFES project.

VNFF 2014. PFES implementation report. Hanoi, VNFF

VNFF 2013. Legal documents relating to the Forest Protection and Development Fund and the Policy on Payment for Forest Environmental Services

Winrock International, 2011. Payment for Forest Environmental Services: A Case Study on Pilot Implementation in Lam Dong Province Vietnam from 2006 - 2010, Winrock International, 2011

## ANNEXES

### ANNEX 1: List of Stakeholders Consulted during the study

<b>Organization</b>	<b>Note</b>
Vietnam Forest Protection and Development Fund	Consultation meeting
<b>Government agency</b>	
Department of Natural Conservation, VNForest	Consultation meeting
Department of Water Resources Management, MONRE	Consultation meeting
Department of Planning and Finance, MOLISA	Consultation meeting
Information Centre, MOLISA	Consultation meeting
<b>Project</b>	
FORMIS project	Consultation meeting
DP-FES project	Consultation meeting
IP-FES project	Consultation meeting
VFD project	Consultation meeting
SusFormNow project	Skype Meeting
<b>Research Institution</b>	
CRES	Consultation meeting
FIPI	Consultation meeting
<b>Local NGOs</b>	
PanNature	Consultation meeting
CIFOR	Consultation meeting
PCRF	Telephone interview
<b>Provincial Stakeholder</b>	
<b>Son La Province</b>	
FPDF Lao Cai	Consultation meeting
Forest Protection Department	Consultation meeting
Department of Forestry	Consultation meeting
Hoang Lien National Park	Consultation meeting
Lao Cai Fresh Water Company	Consultation meeting
Nam Tien Company (Hydropower plan)	Consultation meeting
Ta Phin Commune People Committee	Consultation meeting

representative from Local forest owner and forest protection contractor in Ta Phin Commune, Sa Pa district  
Consultation meeting

### **Son La Province**

FPDF So La  
So La Fresh Water Company  
Nậm Công Hydropower plan  
Copia Protected Area  
Representative from Local forest patrol group in Thuận Châu District  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting

### **Quang Nam Province**

FPDF Quang Nam  
Department of Forestry  
Forest Protection Department  
Hydropower plan  
Quang Nam Fresh Water Company  
Dai Ninh Protection Forest  
Representative from Local forest patrol group in Duy Xuyen District  
Cu Lao Cham Marine Protected Area  
Cu Lao Cham Divers  
Consultation meeting  
Consultation meeting

### **Thua Thien Hue Province**

FPDF Thua Thien Hue  
Forest Protection Department  
Huong Dien Hydropower company  
A Luoi Protection Forest  
Huong Phong Commune People Committee  
Representative from Local community patrol contractor Huong Phong commune, A Luoi district  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting

### **Kon Tum Province**

FPDF Kon Tum  
Department of Agriculture and Rural Development  
Yaly Company  
Dak To forestry Company  
Representative from Local community patrol contractor, Dak Rnga commune, Dak To district  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting  
Consultation meeting

**Lam Dong Province**

FPDF Lam Dong	Consultation meeting
Department of Forestry	Consultation meeting
Tinh Yeu Valley Tourism Company	Consultation meeting
Da Nhim Protection Forest	Consultation meeting
Representative from Local forest protection contractor in Da Hoa commune, Don Duong district	Consultation meeting

**Expert**

Mr. Nguyen Chi Thanh	Consultation meeting
Mr. Nguyen Tuan Phu	Conference call

## ANNEX 2: PFES Administrative Information and Data

No.	Criteria	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency
1.	Total area of each PFES Area	hectare	Payment area, total potential hectares	FPDFs	Annual
2.	Demarcated GIS location of each PFES Area	GPS/ map	Payment area	FPDFs	Annual
3	Names and Codes of Buyers contracted, by province and by each PFES Type and PFES Area	Names/ Codes	Identification of Buyers	FPDFs	Annual
4	Demarcated GIS location of each PFES forest Title (including Contract Area, Group Area, Protection Staff Area)	GPS/ Map	Eligibility, payment	NFIS, FPD, FPDF	5 yearly
5	Area of each PFES forest Title (including Contract Area, Group Area, Protection Staff Area)	Map/ Hectare	Payment	NFIS, FPD, FPDF	5 yearly
6	Origin of each PFES forest Title (i.e. natural or plantation)	Category Title	K coefficient	FPD, Dept of Forestry	Annual
7	Forest Use Purpose of each PFES forest Title i.e. Production, Protection of SUF)	Category Title	K-coefficient Changes in Forest Type	FPD, Dept of Forestry	Annual
8	Status+ of each PFES forest Title (bare land, degraded, poor, average, rich, very rich) – a Title may comprise Plots or parts of Plots with different Status	Category Title, Plot	K-coefficient Changes in Forest Status	FPD, Dept of Forestry	Annual
9	K coefficient	Number	Payment levels	FPD, Dept of	Annual

	(based on 6,7 and 8 above only)	Plot		Forestry	
10	Name and Code of each Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	Name, code	Payment, Management	FPD, Dept of Forestry, Forest Owner, CPC	Annual
11	Type of each Forest Owner	Code	Administration, Analysis	FPDFs, Forest Owners	Annual
12	Type of each Forest Contractor	Code	Administration, Analysis	FPDFs, Forest Owners	Annual
13	Domicile of each Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member (i.e. commune and village)	Code	Administration Socio-economic impacts Forest protection effort	FPDFs, Forest Owners MoLISA	Annual
14	Whether or not the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member is from a "poor" household	Yes or No	Administration Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
15	Whether the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member has a member of the household employed by a GoV agency	Yes or No	Administration Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
16	Forest Dependency* for livelihood of each Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	Yes or No (or scale of 1-5)	Administration Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
17	Whether the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member has a member of the household employed by a mass organisation such as the Women's' Union or Farmers' Union	Yes or No	Administration	FPDFs, Forest Owners	Annual

				MoLISA	
18	Gender of the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	M or F	Socio-economic impacts	FPDFs, Forest Owners MoLISA	Annual
19	Ethnicity of the Org Owner/ HH Owner/ Contractor/ Protection Staff/ Group/ and Group Member	Code	Administration	FPDFs, Forest Owners MoLISA	Annual

**ANNEX 3: PROPOSED PFES MONITORING AND EVALUATION INDICATORS**

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
<b>Implementation and Operation</b>						
1.	Total area of forest land included in the PFES scheme	hectare	Extent of the scheme	FPDFs	Annual	Monitors the change in the total PFES forest area and thus the progress towards implementation of the scheme. Note that this monitors the total area of forest land that could potentially be eligible for PFES payments.
2.	Number of discrete PFES Areas by PFES Type, defined as: (i) HC (ii) WSC, or (iii) TA	number	Expansion of the scheme and Types of PFES	FPDFs	Annual	Monitors the change in the number of PFES Areas by PFES Type, and thus the implementation of the scheme by PFES Type (i.e. to further quality Indicator-1).
3.	Total area by PFES Type (i.e. sum of PFES Areas of each Type)	hectare	Scheme implementation by Type	FPDFs	Annual	Monitors the change in the total PFES forest area by PFES Type and thus further qualifies Indicator 1 regarding implementation of the scheme.
4.	Total area, and proportion, of each PFES Area that is eligible for PFES payments	Hectare, %	Eligibility for payment  Forest conditions	Forest Owners, FPD, Dept. of Forestry, Verification agencies (FPDF)	Annual (or bi-annual)	Monitors the eligibility of forest Titles for PFES payments and thus measures the actual implementation of the scheme (as opposed to potential PFES forest area). Also, this Indicator influences average payment levels and also reflects the impact of the scheme on the forest (see below indicators on forest impacts)
5	Total number of Org Owners/ HH Owners/ Contractors/ Protection Staff/ Groups/ Group Members, by province and by PFES Area	Number	Participation, Management	FPDF, Forest Owners, Group Leaders	Annual	Monitors the rate of participation in the scheme in the province, and how this varies amongst the discrete PFES Areas. This provides an indication of the scale and reach of the scheme. Disaggregation by the type of Forest Owner/ Contractor enables closer analysis of who is receiving PFES payments.

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
6	Average area allocated to each HH Owner/ Contractor/ Protection Staff/ and Group, by province and by PFES Area	Hectare	Management, Equity	FPDF, Forest Owners	Annual	Monitors the average area of PFES forest allocated to the various types of Forest Owner/ Contractor and thus provides a measure of the forest protection effort (i.e. hectares protected per Forest Owner/ Supplier). It is also relevant to the average level of payments received. Disaggregation by PFES Area enables identification of differences between areas within the same province and between different PFES Types and thus is relevant to monitoring equity of the scheme.
7	Total amount of PFES payments scheduled/ forecast by Buyer, PFES Type and province	VND	Planning and Operation of the scheme	FPDF	Annual	Facilitates planning of finances and tracking of payments.
8	Total amount of PFES payment received/ collected by Buyer, PFES Area and PFES Type	VND	Operation of the scheme	FPDF	Annual	Monitors the total amount of PFES funds received and thus provides an indication of the scale of the scheme and the contribution of the scheme to funding for the forestry sector.
9	Total outstanding payments by province and by PFES Type, and proportion of funds outstanding	VND/ %	Operation of the scheme	FPDF	Annual	Allows identification of issues related to payment by the different types of Buyers. This provides a measure of operational success and enables identification of operational issues.
10	Average amount of PFES payments disbursed per hectare, by province and by PFES Area	VND/ %	Operation of the scheme	FPDF	Annual	Monitors the payment levels per hectare across the different PFES Areas and thus allows identification of differences and inequities in payments per level of protection effort. It also useful for comparing with transaction costs per hectare. Changes in this Indicator would be due to variations in payments by Buyers due, for example to variations in rainfall. Such changes in the average payment per hectare will inform the allocation of the contingency fund by FPDF to reduce variations in payments to Forest Owners.
11	Proportion of PFES payments disbursed to Org Owners and	%	Operation of the scheme	FPDF	Annual	Measures the structure of forest ownership in each province. The structure has implications for FPDF's costs of

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
	HH Owners		Structure of the scheme			administering the scheme. If most payments are made to HH Owners directly, then the transaction costs of the FPDF will likely be higher but the costs and deductions by Org Owners will be lower.
12	Total and average amount of PFES payments disbursed to each HH Owner/ Contractor type by province (HH Owners, Contractors, Forest Protection Staff, Contractor Groups)	VND	Scheme operation  Socio-economic impacts	Forest Owners, FPDF	Annual	Similar to Indicator-10, this allows monitoring of payment levels and thus the incentives received by each different types of HH Owners / Contractors. Importantly, it allows monitoring of total and average PFES funds received by Forest Protection Staff rather than individual households and Groups and thus the potential for elite capture. It is also a measure of the socio-economic impacts of the scheme as discussed below. Data would be monitored by the FPDFs and Org Owners to the level of the PFES Area and then aggregated up by the FPDFs for reporting to the central level.
13	Amount of PFES payments not yet disbursed by PFES Type, by reason and by province	VND	Operation of the scheme  Implementation	FPDF	Annual	Monitors the reasons why payments have not been disbursed and thus facilitates identification of implementation and operational issues for each FPDF. Reasons for non-disbursement include unclear forest ownership boundaries.
14	Amount and proportion of PFES funds deducted by FPDFs, Org Forest Owners, and other agencies	VND	Operation of the scheme  Efficiency	FPDF, Org Forest Owners, CPCs	Annual	Monitors the proportion of PFES funds that are not disbursed to those stakeholders actually protecting the forest and thus monitors the transaction costs of the scheme.
15	Buyer PFES payment exemption amounts by PFES Area and by reason	VND	Operation of the scheme  Equity	FPDFs	Annual	Monitors payment exemptions granted by FPDFs and the reasons for them. This is useful to check for unfair or unjustified exemptions.
16	Disbursement of the Contingency Funds by PFES Area and reason	VND	Operation of the scheme	FPDFs	Annual	This allows VNFF to monitor and check that contingency Funds are only used by the FPDFs in accordance with the PFES regulations. It also allows monitoring of which PFES Areas within each province are receiving the funds and the reasons why.
<b>Impacts on the Forest</b>						

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
17	Average number of forest patrol-days undertaken by Forest Owners/ Contractors (per year)	Number	Forest protection effort	Forest Owners/ Contractors, CPCs	Annual	Monitors the average number of patrol-days undertaken and thus forest protection effort.
18	Average number of forest patrol-days undertaken by Forest Owners/ Contractors with FPD rangers (per year)	Number	Forest protection effort	Forest Owners/ Contractors, CPCs, FPD	Annual	The number of patrol-days undertaken with the FPD rangers is an important indication of forest protection effort and the collaboration and linkage between the Forest Owners/ Contractors and FPD. Forest surveillance efforts need to be supported by the FPD.
19	Number of Forest Patrols by Groups/ FPD rangers/ Verification teams undertaken in each Title	Number/ Map	Forest protection effort, Verification	Forest Owners, FPD, Verification teams (FPDF)	Annual	This Indicator is map-based and will allow checks on the forest protection and surveillance effort at the level of the individual Title. This will also inform the planning of forest patrols by Groups, FPD rangers and Verification teams (i.e. if a particular area has been patrolled recently, then a different area may be selected for the next patrol).
20	Proportion of FPDF funds spent on training and awareness raising activities	%	Forest protection effort	FPDFs	Annual	Monitors the use of FPDF funds for training and awareness raising and thus provides an indication of the protection effort of FPDFs. In combination with Indicators 22 and 23, it also enables evaluation of the average cost and efficiency of these activities.
21	Change in the total area of eligible PFES forest area due to legal activities in each province and in each PFES Area, by reason	hectares	Change in forest condition Payment	FPD, Dept of Forestry, Forest Owners, FPDF verifiers	Annual	Monitors the change in forest conditions due to legal activities by reason. Monitoring by PFES Area allows identification of changes in each Area and thus avoids loss of detail that can result from reporting only net changes at the provincial level. The implications of changes due to legal activities are different to those due to illegal activities, so these are monitored separately.
22	Change in the total area of eligible forest area due to illegal activities in each province and in each PFES Area, by reason	hectares	Change in forest condition Payment	FPD, Dept of Forestry, Forest Owners, FPDF verifiers	Annual	Monitors the change in forest conditions due to illegal activities by reason. As above for Indicator-23, monitoring by PFES Area and by reason provides detail to enable identification of Areas where protection efforts are succeeding or failing and the reasons why.

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
23	Area destroyed by forest fires, by PFES Area	hectares	Forest fires	FPD	Annual	The forest monitoring system supported by the PFES scheme is reportedly already having an impact on the forests by reducing the destruction of forests caused by forest fires. This has been achieved in part by an improved response and improved management of the local households to report and fight fires, particularly in PFES Areas where the Forest Owners/ Contractors are organised into Groups. This Indicator will enable this to be specifically monitored.
24	Total area and proportion of total forest lost, by PFES Area	hectares	Impact on forest	NFIS	5-yearly	Monitors the total forest lost over the five-year period. This is based on NFIS data of forest cover. Monitoring by PFES Area allows identification of changes in different forest areas within provinces and thus reduces the loss of detail that can result from only net changes at the provincial level.
25	Change in area of degraded forest, by PFES Area	hectares	Impact on forest	NFIS	5-yearly	Monitors the change in the area of degraded area over the five-year period based on NFIS data. Monitoring by PFES Area allows identification of changes in different forest areas within provinces and thus reduces the loss of detail that can result from only net changes at the provincial level.
26	Number of forest violations reported by the FPD by type of violation and by PFES Area	number	Forest violations	FPD	Annual	Monitors the number of violations reported and the type by PFES Area and thus measures the protection or enforcement effort of the FPD as well as pressure on the forest from illegal activities. Though this is an indicator currently used in the national M&E system, it is ambiguous as less violations might mean less pressure on the forests or it could mean less enforcement effort.
27	Number of forest violations reported by Forest Owner/ Contractors	Number	Forest violations	Forest Owners/ Contractors	Annual	This monitors the number of forest violations reported, which is an indication of pressure on the forest resources from illegal activities. However, like Indicator 27, it could also mean less protection effort from Forest Owner/ Contractor patrols.
28	Proportion of forest violations reported by Forest Owners/ Contractors that are followed-up and verified by FPD	%	Enforcement	FPD, Forest Owners/ Contractors		The forest surveillance activities of Forest Owners/ Contractors will only lead to improved forest protection if reported violations are followed-up and acted upon by the FPD. This is an important Indicator because Forest Owners/ Contractors will quickly lose faith in the system if their forest patrols are not effective and not supported by the FPD.

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
29	Proportion of forest violations resulting in prosecutions by FPD	%	Enforcement	FPD	Annual	Monitors the effectiveness of monitoring and reporting of forest violations towards effectively prosecuting the violators and providing a disincentive for illegal activities.
30	Proportion of forest violations committed by Forest Owners/ Contractors, by violation type	%	Forest violations	FPD	Annual	The PFES scheme, through PFES payments to Forest Owners/ Contractors, aims to provide an incentive for Forest Owners/ Contractors to abstain from or at least reduce their illegal activities in the forest. This Indicator will monitor whether those receiving PFES payments are also those committing the violations, and thus provide an indication of whether the PFES payments are sufficient to change the behaviour of Forest Owners/ Contractors.
<b>Indicators for Impacts on FESs:</b>						
31	Average TSS levels in the water intake of hydropower and water supply companies	number	FES of water quality maintenance	Hydropower and water supply companies; FPDFs	Annual (based on average data)	Monitors changes in the quality of the water received by the PFES Buyers. An increase in the average TSS level indicates a deterioration of water quality and suggests a reduction in the level of the service provided by the forests in the relevant catchment.
32	Number of tourists visiting the forest tourist site, by tourist PFES Area	number	FESs to tourism	FMBs	Annual	Provides an indication of the value of FESs provided to tourism at each PFES Area. A change in tourist numbers could be due to several factors but this still provides an indication of the attraction value of the site. Comparisons to the total number of tourist visits to Viet Nam could be undertaken to qualify this Indicator, though this would need to be done carefully and broadly only as there are many other factors that affect both national tourist visits and visits to a particular site.
33	Total entrance fees paid at each forest site, by tourist PFES Area	VND	FESs to tourism	FMBs	Annual	Provides an indication of the value of FESs provided to tourism at each PFES Area. This is not the net value provided by forests but rather the total value provided by the tourist site and associated amenities. It is also a relatively loose proxy for this value. However, it does provide an indication of the value of the services provided by forests to tourism.
<b>Socio-Economic Indicators:</b>						

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
34	Proportion of PFES payments made to 'poor' HH Owners, Contractors, and Group Members	%	Socio-economic impact	Forest Owners, Group Leaders, FPDFs, MoLISA	Annual	Monitors to what extent poor households are benefiting directly from PFES payments. It is proposed to monitor the proportion of 'poor' households across amongst each type of HH Owners and Contractor as the PFES scheme for the reasons above. Note that a reduction over time in the proportion of Forest Contractors that are 'poor' could be due to the original poor households being elevated out of poverty.
35	Proportion of PFES payments made to ethnic minority households	%	Socio-economic impact	Forest Owners, FPDFs, MoLISA	Annual	Monitors to what extent ethnic minority households are benefiting directly from PFES payments. Ethnic minority households are often poor and are also often relatively dependent on forest resources. They are also often excluded from participating in GoV programmes.
36	Proportion of PFES payments made to women	%	Socio-economic impact	Forest Owners, FPDFs, MoLISA	Annual	Monitors the extent to which women are participating directly in the PFES scheme and also to what extent women are directly receiving the PFES payments. This is important to assess the gender impacts of the scheme.
37	Proportion of PFES payments made to forest-dependent households	%	Socio-economic impact Pressure on forest resources	Forest Owners, FPDFs, MoLISA	Annual	Monitors to what extent forest-dependent households are directly benefiting from PFES payments. As PFES payments are an alternative income source, PFES payments to forest-dependent households might also reduce pressure on the forest resources and thus improve the scheme's impacts on the forest.
38	Proportion of PFES payments made to each of Owner Groups, Contractor Groups, and Forest Protection Staff, by PFES Area	%	Socio-economic impact Operation of the scheme	Forest Owners, FPDFs, MoLISA	Annual	Monitors which types of Forest Owner/ Contractors finally receive the PFES payments. This is important to monitor the prevalence of the Group approach (see below). It is also to check that payments to Forest Protection Staff are appropriate.
39	Proportion of PFES payments made to households that are also employed by GoV agencies	%	Socio-economic impact Operation of the scheme	Forest Owners, FPDFs, MoLISA	Annual	Provides a check that PFES payments are not being captured by the elite but are indeed reaching the target households, and thus this is also an operational Indicator.

No.	Indicator	Unit/ Level	Evaluate/ Purpose	Responsible Agency	Frequency	Detailed Purpose
<b>Institutional Indicators:</b>						
40	Number of VNFF/FPDF and GoV staff participating in training provided by VNFF/FPDFs	Number	Institutional capacity	VNFF, FPDFs	Annual	Monitors the effort or inputs to improve the institutional capacity of staff
41	Number of Legislative instruments and guidelines enacted related to PFES, by province	Number	Institutional capacity and infrastructure	VNFF, FPDFs	Annual	Monitors additions in the legislative infrastructure as an output of the PFES scheme. This Indicator is already monitored and is proposed also by the DPFES project. This Indicator is a measure of the implementation of the scheme and the associated development of legislation. This Indicator is proposed to be applied in the early years of the PFES scheme as it is increasingly implemented across the provinces.
42	Proportion of PFES payments made via Direct Payment by PFES Type and by PFES Area and by Owner Type	%	Scheme development	FPDFs	Annual	Monitors the relative importance of Direct Payment PFES arrangements and thus the development of the PFES scheme beyond the FPDF structure
43	Number of meetings held between FPDF/ VNFF and Buyers, and Buyers and Forest Owners/ Contractors, and FPDF and Forest Owners/ Contractors	Number	Transparency Stakeholder engagement and participation	FPDFs, Org Owners	Annual	Monitors inputs with regards to the transparency of the scheme and engagement and participation of the stakeholders. As discussed below, Village Meetings are an effective way to make the PFES payments to Forest Owners/ Contractors, involve Buyers and connect Buyers with Forest Owners/ Contractors, ensure transparency in payments, provide information and receive feedback. If a "PFES Village Meeting" process is defined (and perhaps legislated), then this Indicator could be refined to monitor the number of Village Meetings by PFES Type and PFES Area, including those where the Buyers participate.