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PU	Public	X
PP	Restricted to other programme participants (including the Commission Service)	
RE	Restricted to a group specified by the consortium (including the Commission Service)	
CO	Confidential, only for members of the consortium (including the Commission Service)	

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Deliverable evidence: Report





**THE THIRD ANNUAL MEETING
REDD-ALERT PROJECT**

Da Lat, Lam Dong, Vietnam, 28-29 September, 2011



With the financial support
from European Union 

Objectives

1. To review progress under each work-package
2. To coordinate activities between work-packages
3. To resolve issues arising from the above
4. To review the plan of work for Year 32.
5. Plan for dissemination of project outcomes

Programme:

Tue, 27 Sept:	Arrive Lam Dong (River Prince Hotel)
Wed, 28 Sept:	Meeting Day 1
0830-0930	Registration and coffee
0930-0935	Welcome speech by local host:
0935-1000	Overview of project – Robin Matthews
1000-1030:	<i>Tea/Coffee</i>
	Theme 1: What is happening at the national/local scale?
1030-1100	Vietnam country overview (V T Phuong/Patrick Meyfroidt)
1100-1130	Indonesia country overview (Fahmuddin/Meine van Noordwijk/Herry Purnomo)
1130-1200	Cameroon country overview (M Tchiokoua/Valentina Robiglio)
1200-1230	Peru country overview (E Cuillar/Glenn Hyman)
1230-1330:	<i>Lunch</i>
	Theme 2: REDD+ options to address the drivers
1330-1350	A framework to design and assess policy (George Dyer)
1350-1405	Country policy case studies (Onno Kuik)
1405-1425	Agricultural intensification and deforestation in Cameroon, an agent-based model (Innocent Bakam)
1425-1445	Actor analysis and agent based modelling in Jambi (Herry Purnomo)
1445-1505	Prospects and policies for a global forest transition (Patrick Meyfroidt, Valentina Robiglio)
1505-1530	<i>Tea/Coffee</i>
	Theme 3: Impacts of REDD+ options
1530-1600	Integration with NAMAs (Meine, Peter)
1600-1620	Effectiveness, efficiency and equity in REDD: lessons from an agent-based, general equilibrium approach (George Dyer & Robin Matthews)
1620-1635	CGE analysis on REDD, world food and timber markets, and leakage (Onno Kuik)
1635-1700	General Discussion

1700-1730	Special talk: The I-REDD+ project (Ole Mertz)
1800-1900	Work-package Coordinator's meeting
1930:	Dinner

Thur, 29 Sept:	Meeting Day-2
	Theme 4: Improved estimates and modelling of C stocks and GHG fluxes from land use change: Mineral soils
0900-0915	Effect of landuse change on soil organic carbon: a pan-tropic study (Oliver van Straaten)
0915-0930	Estimating ecosystem carbon stocks under different land-use and land-use changes at tropical forest margins (Shibu Muhammed)
0930-0945	C stock and soil GHG flux changes in a forest transition into oil palm and rubber plantations of Indonesia (Fitri Aini)
0945-1000	General Discussion
1000-1030	<i>Tea/Coffee</i>
	Theme 4b: Improved estimates and modelling of C stocks and GHG fluxes from land use change: Organic soils
1030-1040	CO ₂ emission under different land use and management systems from peatland (Dr Husnain et al)
1040-1050	Variation of soil respiration with the water table level (Setiari & Fahmuddin)
1050-1100	Soil microbial population and activity in an oil palm plantation (Edi Husen)
1100-1110	Methods for assessing C loss from land-use change (Kristell Hergoualc'h)
1110-1130	Soil respiration partitioning and peat C dynamic modelling using the ECOSSE model (Jenny Farmer)
1130-1150	Effects of fire on the organic geochemistry of tropical peatlands (Leanne Milner)
1150-1200	C stock changes in a peat swamp forest transition into an oil palm plantation (Sebastian Persch, Setiari Marwanto)
1200-1215	General Discussion
1215-1230	Project management issues – Madhu Subedi
1230-1330	<i>Lunch</i>
1330-1530	Year 3 workplans
1530-1600	<i>Tea/Coffee</i>
1600-1700	AOB – Joyeeta's book outline (Onno Kuik)
Fri, 30 Sept:	Field visit
Sat, 1 Oct:	Return home

Participants:

1.	Dr Robin Matthews	JHI, UK	
2.	Dr Madhu Subedi	JHI, UK	
3.	Dr George Dyer	JHI, UK	
4.	Dr Shibu Muhammed	JHI, UK	
5.	Dr Innocent Bakam	JHI, UK	
6.	Ms Jennifer Farmer	JHI, UK	
7.	Ms Leanne Milner	UL, UK	
8.	Dr Patrick Meyfroidt	UCL, Belgium	
9.	Dr Onno Kuik	VU, The Netherlands	
10.	Dr Oliver van Straaten	UGOE, Germany	

11. Dr Meine van Noordwijk	ICRAF, Indonesia	
12. Dr Peter Minang	ICRAF, Kenya	
13. Ms Joyce Kasyoki	ICRAF, Kenya	
14. Ms Elizabeth Kahurani	ICRAF, Kenya	
15. Ms Florence Bernard	ICRAF, Kenya	
16. Kristell Hergoualc'h	CIFOR, Indonesia	
17. Herry Purnomo	CIFOR, Indonesia	
18. Fitri Aini	CIFOR, Indonesia	
19. Dr Valentina Robiglio	IITA, Cameroon	
20. Dr Glenn Hyman	CIAT, Columbia	
21. Dr Fahmuddin Agus	ISRI, Indonesia	
22. Dr. Ai Dariah	ISRI, Indonesia	
23. Dr. Husnain	ISRI, Indonesia	
24. Dr V.T. Phuong	RECFEE, Vietnam	
25. Dr. Hoang Viet Anh	RECFEE, Vietnam	
26. Dr Martin Tchienkoua	IRAD, Cameroon	
27. Mr Eloy Cuellar	INIA, Peru	
28. Pham Duc Thanh	ICRAF Vietnam	
29. Nguyen Minh Hien	ICRAF Vietnam	
Guests		
1. Pham Manh Cuong	VNFOREST	
2. Ole Mertz	Denmark	
Apologies		
1. Prof Joyeeta Gupta	VU, The Netherlands	
2. Prof Eric Lambin	UCL, Belgium	
3. Prof Edzo Veldlamp	UGOE, Germany	

Day 1: Wednesday, 28 September 2011

The meeting started with a welcome note by Dr Robin Matthews, Coordinator of the project. He described the rationale of the REDD process and the issues the project is addressing. He presented the provisional agenda and asked the participants if they wanted to include any other issues not covered in the agenda.

Then, Mr Vu Tan Phuong (Director of RCFEE, Vietnam) welcomed the participants to Vietnam and extended his best wishes for the success of the meeting. He provided a picturesque presentation about history, geography and climate of Dalat.

This was then followed by an introduction event and participants introduced themselves in turn.

Dr Robin Matthews then presented an overview of the REDD-ALERT Project for the benefit of participants who had joined the project since its inception. He discussed the objectives of the project and its partners, workpackage structure, project sites, activities and expected outcomes. He also presented a diagrammatic structure of the interlinkages between different workpackages, and how these activities linked to the current REDD debate/issues. He then mentioned that unlike in the previous meetings the discussion in this meeting will be structured around themes crossing all of the work-packages. The following presentations would be based on the activities implemented and outcomes achieved in four study countries, viz, Vietnam, Indonesia, Cameroon and Peru.

Theme 1: What is happening at the national/local scale?

Vietnam: Overview of REDD in Vietnam by V T Phuong and Patrick Meyfroidt

Presented that logging was the one of the main drivers of deforestation and that forest cover has declined 1943-1995. The trend had reversed since then as a result of a logging ban imposed in 1995. Most forest (~78%) is natural forest in Vietnam. They described the other drivers of deforestation and discussed the causal chain for deforestation and degradation. Then Vietnam's REDD strategy was discussed outlining the policies supporting REDD. REDD is part of the national climate mitigation strategy in Vietnam. They presented the institutional arrangements to implement REDD strategy in Vietnam, which is ensuring technical support to the REDD actions. A National Forest Monitoring System is in operation in monitoring the forest cover changes in Vietnam. They then described the land tenure system in Vietnam, and discussed issues of forest governance.

Indonesia: Overview of REDD in Indonesia by Fahmuddin Agus, Meine van Noordwijk and Harry Purnomo

With around 55 Mha primary forest and around 17 million ha peat forest remaining, Indonesia has a high potential for reducing emissions from deforestation and peatland development. However, the high population density of 120 persons per km² with the growth rate of about 1.3% per year creates a high pressure for deforestation and peatland developments. Moratorium of new concession for primary forest and peatland are the two NAMAs that have been adopted as the national policy. Other proposed LULUCF NAMAs issued by the Ministry of Environment in 2009 included forest fire control, water table control of peatland, land and forest rehabilitation, control of illegal logging, minimization of deforestation and capacity building for REDD+. Emission rate of 2.9 Gt CO₂-e is considered as the reference level from all sectors in 2020 and forestry and peatland are responsible for 0.672 Gt (88%) of the targeted emission reduction of as much as 0.767 Gt, which accounts for 26% emission reduction from the reference level. REDD+ national strategy has been formulated but the detail of the action plans is unclear and perplexed by complicated land tenure and legal instruments.

Cameroon: REDD+ in Cameroon by Valentina Robiglio, Patrick Meyfroidt and Martin Tchienkoua

Forest cover is decreasing in Cameroon. Deforestation in the Non-Permanent Forest Domain (NPF) is mainly driven by traditional small-scale agriculture to supply local and regional demand. Some big projects related to transport infrastructure, hydro-power and large scale oil palm plantations in the permanent forest domain (PFD) and NPF is going to influence deforestation in Cameroon. It has been projected to double the production of some agricultural commodities, which is likely to increase deforestation. Cameroon is one of the REDD-FCPF (Forest Carbon Partnership Facility) starting countries, therefore receiving strong financial support from IUCN and WWF; and technical support from ASB, CIFOR, GIZ/GAF and others. The conflicting priorities and actions at governmental level has created confusion about the likely impact from the REDD action in Cameroon.

Peru: Overview of REDD in Peru by Glenn Hyman and Eloy Cuellar Bautista

Peru is the ninth country in the world in terms of forest cover with 67 million ha of natural forest. Peru has very high level of biological diversity. Logging, agri expansion, energy projects, gold mining and illegal coca leaf production are the main drivers of deforestation in Peru. Various policies and laws are in force to reduce deforestation in Peru. He then discussed the institutional arrangement for reducing deforestation in Peru. The current situation of the Forest Monitoring Plan, funding, policies and laws, capacity to address these issues were outlined.

Theme 2: REDD+ options to address the drivers

The session of the meeting was chaired by Vu Tan Phuong. He welcomed the participants.

A framework to design and assess policy by George Dyer

George Dyer presented the framework. Main thesis of his presentation was that informed policy design requires not only that we assess the impact of particular interventions but also that we interpret findings in light of a “theory of change,” that is, developing an understanding of the causal mechanisms involved. He described a general (theoretical) framework to design and assess policy interventions in the context of REDD. He also discussed the role of economic theory and methods in developing and putting this framework into practice. Economic theory provides the means to map (or trace) the effects of program design and local context across the processes of production, consumption and the distribution of value. Macro and microeconomics, econometrics and simulation models play complementary roles in policy design and assessment. Ways to tie this framework into research in other disciplines were discussed.

REDD WP4: Comparative Analysis of case studies by Onno Kuik

Onno Kuik presented the case studies which reviewed existing forest protection policies in case study countries (Vietnam, Indonesia, Cameroon and Peru) with a view to designing a successful REDD instrument. What works (where) and why (not) – remained the main question of the study. He then discussed the Vietnam case study in detail, including its conceptual framework, driving forces, organizational framework, links with intergovernmental forces, instruments studied, initial policy recommendation, and lessons learned. He then presented comparative analysis of indirect driving factors. Based on these he concluded that

- Forest definitions are conflicting and forest mapping is controversial.
- Major conflicts exist between national forest policies and development policies leading to overlapping and contradictory policies and authority
- Major conflict between national forest policy and sub-national policies (spatial, agricultural, etc.) leading to overlapping and contradictory policies and authority
- No clarity in pluralistic land ownership
- Many good mechanisms failing – e.g. Hutan Desa in Indonesia (although this conclusion was challenged by Meine van Noordwijk).

Agricultural intensification and deforestation in Cameroon: the REDD Camer model by Innocent Bakam

Innocent Bakam presented his work by outlining the reason for using agent-based models. He then described the data collected and preliminary observations drawn, as;

- In most cases, no permission is required to use land belonging to the larger family
- Only one household reported having title on their land
- 190 out of 286 households (66%) declared that their first reason of deforesting is fertility (actually 87% of those who answered the question)
- Other reasons include marking land ownership or creating a new plantation in anticipation of a special event such as a marriage

Then he discussed the design of his model and output from the model.

Actor analysis and agent-based modelling in Jambi by Herry Purnomo

Herry Purnomo presented the framework. Main thesis of his presentation was:

Forests are not empty. There are various rights and interest in forests as well as the people who live in and around forests. If the REDD+ mechanism is to work unilaterally by state and overlook the role of various actors, then it is likely that it will fail. From stakeholder analysis

and political mapping in Jambi, a priority province for REDD+ implementation in Indonesia, he showed that REDD+ actors with knowledge, power and leadership, can support or reject REDD+. Specifically, he discussed the implementation capacity and new directions in policy. The analysis also provides indications as to the readiness of Jambi to implement REDD+, who wins and loses in adopting REDD+ and intervention scenarios to make REDD+ work. The methods used in this study are general and could be implemented elsewhere in Indonesia or abroad.

Globalisation, land use changes and forest transition: land use changes and forest transitions: new pressures and opportunities for sustainable land uses by Patrick Meyfroidt and Valentina Robiglio

The study focused in assessing the global pressures on forestland and the role that policies in the agriculture and forestry sectors can play in perspectives for a global forest transition. Main points of his presentation have been given below:

Land use changes are increasingly influenced by global forces and remote demand, for e.g.

- Deforestation driven by exports and urban demand (DeFries et al. 2010).
- Reforestation associated with displacement of land use abroad (Meyfroidt et al. 2010).
- Four processes by which globalization influences land use are: displacement, rebound, cascade effects (ILUC), remittances and migrations (Lambin & Meyfroidt 2011).
- Land is increasingly becoming scarce on global scale (Lambin & Meyfroidt 2011).
- Increasing importance of Large-Scale Land Acquisitions (LSLA) (“land grabs”) (Friis & Reenberg 2010).

Patrick then presented evidence of forest clearance by large scale industrial agriculture projects. He also presented the pathways of forest transition, as;

- **Economic development pathway.** Agricultural intensification and industrialization drives labour scarcity in the agriculture and concentration of production in the most suitable land.
- **Globalization pathway.** Modern version of the economic development pathway in which national economies are increasingly integrated into and influenced by global markets and ideologies.
- **Forest scarcity pathway.** Scarcity of forest products and services drives tree plantation, forestry intensification and forest protection by private and public actors.
- **State forest policy pathway.** National forest policies, triggered by factors outside and within the forestry sector, play a central role in stirring the transition.
- **Smallholder tree-based land use intensification pathway.** Labour-intensive mosaics of forests, agroforests and crops.

Theme 3: Impacts of REDD+ options

Fahmuddin Agus chaired the session.

Integration with NAMAs by Meine van Noordwijk and Peter Minang

M Van Noordwijk presented different aspects of REDD debate and the interactions between them which influences the impacts of REDD initiatives at local, national and global levels. Broadly interaction between three aspects (forest institutions, forest tree cover, and forest C accounting) decides the effectiveness of NAMAs. He then discussed NAMAs in the context of REDD+.

Effectiveness, efficiency and equity in REDD: lessons from an agent-based, general equilibrium approach by George Dyer & Robin Matthews

The analysis of the consequences of forest-management schemes is necessarily limited by the spatial and temporal characteristics of pilot studies. This is particularly the case of the implications of extending a program over the long term or across large areas. Simulation models can yield valuable insight on the long-term and large-scale effects of REDD+. In this presentation, we discuss the results of various simulation experiments using an agent-based, general equilibrium model of a remote community in a developing area. The model is used to explore the effects of program design and local context in the context of REDD+. Scenarios reveal ways to avoid the trade-offs involved or take advantage of the potential synergies in REDD+.

CGE analysis on REDD, world food and timber markets, and leakage by Onno Kuik

Onno Kuik presented results from the Dynamic General Equilibrium (GDyn) model he had been using. The conclusions of the study were:

- REDD may increase food and timber prices, amplifying the driving forces of deforestation
- The relative price increase is limited however. Industrialized countries, being net agricultural exporters, benefit from these price increases and can pay more for REDD
- Demand for first generation biofuels increases deforestation (3%~14%)
- Displacement/leakage seems quite limited (contrary to studies that consider forestry as the primary cause of deforestation).

Special talk: The I-REDD+ project by Ole Mertz, University of Copenhagen, Denmark.

“Impacts of reducing emissions from deforestation and forest degradation (REDD) + enhancement of forest carbon stocks”

O Mertz provided an overview of the I-REDD+ project. The objective of I-REDD+ Project is to study how the implementation of a REDD+ mechanisms may:

- reduce emissions of GHG and maintain or enhance carbon stocks in vegetation and soil in various land cover types
- impact the livelihoods and welfare of local communities
- impact forest resources important for biodiversity and habitats
- function under existing governance schemes and ensure accountability at multiple levels

Objectives of I-REDD are similar to that of REDD-ALERT project. The project is specific focus on:

- Asian countries
- Forest degradation and complex landscapes
- Sub-national and local level

The Project activities area divided into seven work-packages.

WP1 – Project management

WP 2 - Carbon storage and GHG emission

WP3 – Remote sensing based monitoring

WP4 – Community based monitoring

WP5 – Impacts on local livelihood

WP6 - Governance and institutions

WP7 - Monitoring, reporting and verification

Project is being implemented in China, Vietnam, Laos and Indonesia by 14 partner institutions. The project started in February 2011 and will run for three years.

At the end, Ole invited discussion on following issues:

- Results and lessons learned in REDD-ALERT to be considered in I-REDD+?
- Where are key research gaps that I-REDD+ could address?
- Possibilities for coordinating dissemination of results to policy makers at various levels?
- Will REDD+ research be relevant if no REDD+ agreement is achieved?

Day II: Thursday, 29 September 2011

Theme 4: Improved estimates and modelling of C stocks and GHG fluxes from land use change: Mineral soils

Robin Matthews chaired the session.

Effect of landuse change on soil organic carbon: a pan-tropic study by Oliver van Straaten

Oliver presented the study on soil organic carbon change in Jambi, Indonesia under WP3. Focusing on dynamics following landuse change in mineral soil sites across three REDD ALERT case study sites. The predominant landuse trajectories relevant for each region were or are in the process of being sampled using a clustered sampling design. These include, 1) deforestation trajectories: (a) from forest to plantations (rubber, oil palm or cocoa), (b) from forest to pasture, and (c) from forest to shifting cultivation and 2) landscape intensification trajectories: (d) from jungle rubber to oil palm and (e) from pasture to oil palm. This presentation included the first preliminary results from the Jambi, Indonesia case study.

Estimating ecosystem carbon stocks under different land-use and land-use changes at tropical forest margins by Shibu Muhammed and Robin Matthews

Shibu presented the progress with the changes in above-ground C-stock. The objective of the study was to derive simple relationships of carbon stocks with climate and soil variables under different land use changes by using secondary data and the process-based model (PALM). He outlined the progress with collection of secondary data to develop the model. The main points of his presentation were:

- Establishing relations between the ecosystem carbon and various climatic or soil factors is important to understand the effect of land-use change on the overall carbon stock changes
- The objective of this study was to develop some simple and robust models explaining the relationships between environmental variables such as temperature, water and soil variables such as clay and SOC content with the ecosystem carbon stock under a land-use or land-use change
- A literature review was done and collated 6 studies in six different countries giving information on carbon stock changes under both above and-belowground biomass and soil carbon in tropical forests.
- The multi-linear regression analysis of the collated data with mean annual temperature (MAT) and mean annual precipitation (MAP) for different variables under different land-use systems show a relation for AGBM-C ($R^2=0.23$), SOC ($R^2=0.21$) and Ecosystem-C ($R^2= 0.43$) for ecosystem carbon under forest.
- The People and Landscape Model (PALM) was used to simulate C stock changes of LU transition(s) following deforestation representing primary forest (PF)-to-agriculture and agriculture-to-secondary forest (SF) in the REDD-ALERT project sites in three case study countries (Cameroon, Vietnam and Peru) for about 100 years.
- From the large set of model output, relationships were derived by a stepwise multiregression analysis for above-and-belowground biomass and equilibrium SOC changes with changes in temperature, rainfall, solar radiation, clay% and initial SOC.
- These simple models were tested with the data compiled under literature review.

- The results showed a poor fit to those out of the scope (with MAT > 15 °C) within which the model has been developed.
- The results of the study show only limited studies or data are still available that can estimate the carbon pools at an ecosystem level and we need more field studies to fill the gap.

C stock and soil GHG flux changes in a forest transition into oil palm and rubber plantations of Indonesia by Fitri Aini

Fitri Aini presented her study conducted in Jambi (Sumatra) area of Indonesia. The objectives of the study were to quantify the effect of tropical forest conversion on greenhouse gas fluxes (N₂O, CH₄, CO₂) and to quantify the temporal variation in greenhouse gas fluxes in rubber and oil palm plantation. She presented detailed observations and concluded that N₂O fluxes were different over time but the effect of land use changes on N₂O fluxes was not evident. The N₂O fluxes were high during fertilisation and reduced after fertilisation. CO₂ fluxes were high in oil palm plantation.

Theme 4b: Improved estimates and modelling of C stocks and GHG fluxes from land use change: Organic soils

The session was chaired by Robin Matthews

CO₂ emissions under different land use and management systems from peatland by Fahmuddin Agus, Husnain*, Ai Dariah, Edi Husen, Setiari Marwanto and I. Putu Wigena

The study was presented by Husnain. Main thesis of his presentation was:

Different land uses lead to different management systems, especially the drainage depth, and in turn, cause different rates of CO₂ emission from peatland. We measured, using an Infra Red Gas Analyzer (IRGA), CO₂ emission from different land uses and management systems of peatland, in 2010 and 2012. CO₂ emission ranged from 13 to 96; 16 to 164; and 60 to 110 Mg ha⁻¹ year⁻¹ under rubber plantation in Kalimantan, oil palm plantation in Jambi and five land use types in Riau. Vegetable farms with high nutrient inputs emit significantly higher CO₂ compared to shrubland and maize farms. In most cases, CO₂ emissions increase with drainage depth. Laboratory measurements showed CO₂ respiration increase with increasing water filled porosity to about 50-70%, but it decreased when the porosity approaches saturation. Micro-spatial and temporal variations of CO₂ emission was high, and often obscured land use and management effects, implying a need for intensive and long term measurements.

In general CO₂ emission under different land uses and soil management were highly varied. To confirm this result, microvariation of CO₂ emission was studying at oil palm tree and at a measurement plot. Results showed that CO₂ emissions decreased with distance from the centre of the oil palm tree. However, CO₂ emissions were found to be high at distance about 2 m from the centre of tree, where the most active root and microbial activity are usually found. In addition, the effect of fertilization in decreasing CO₂ emissions was observed in bare peatland in Riau. CO₂ emissions were higher on the plot under treated with compound fertilizer (NP, NPK and NPK clay) rather than that treated with single fertilizer (urea and urea slow release). However, CO₂ emissions at three selected plots with three times repetition of measuring time (morning, noon and afternoon) were highly varied. Measurements of CO₂ emissions at the study sites in Jambi and Riau are continuing.

C loss associated with land-use change in tropical peatlands: Methods and estimates by Kristell Hergoualc'h

The work was presented by Kristell Hergoualc'h. The study estimated the C loss from wildfires using the stock change approach for aboveground biomass C loss and flux change approach

for peat C loss. She discussed the difficulties and limits of estimating peat C stock changes. She concluded a very large C loss from peat (60-90%). The global warming potential of N₂O is very high, but there are knowledge gaps on C cycle in tropical peatlands. The REDD mechanism should prioritise peat swamp forests due to the potentially high emissions from land use change on them.

Measuring and modeling CO₂ emissions from Indonesian peat soils by Jenny Farmer

To simulate of the impacts of land use and climate change on greenhouse gas emissions from tropical peats we require a model that functions at the scale at which decisions are made on land management, and can extrapolate beyond the environmental conditions of the data used to derive the model. ECOSSE (Smith et al., 2010) is one such model, including simple descriptions of all the major processes of soil C and N turnover, while using only data that is available at the plantation to regional scale. Here we provide an overview of the structure of ECOSSE, highlighting areas that are likely to require development including the simulation of the impacts of fire on carbon and nitrogen cycling. We describe experimental work that has been completed in Indonesia, that will allow simulations of CO₂ emissions to be evaluated and further developed, and discuss early results from the simulations. We present a summary of new experimental work planned for autumn 2011 to further evaluate and develop the simulations of N₂O and CH₄ emissions.

Effects of fire on the organic geochemistry of tropical peatlands by Leanne Milner

Leanne presented her PhD Research project. The study is investigating how the peat has changed over time following fire. Fires in terrestrial ecosystems, particularly peatlands have significant implications for the global C cycle. Fires in tropical peatlands have become a frequent phenomenon and little is known about the fire-induced modification of the peat substrate. Peat samples from a tropical peatland in Central Kalimantan, Indonesia were analysed using pyrolysis-gas chromatography-mass spectrometry (Py-GC-MS) to assess the impact of fire on the structure and composition of the organic matter (OM). Evidence for significant modification of C forms post-fire is presented. Further work on quantifying changes in organic matter pools and application for modelling was also discussed.

Carbon stock in biomass in different land use systems on tropical peat in Jambi, Sumatra by Sebastian Persch, Setiari Marwanto

Kristell presented the results on behalf of several other authors. The study concluded that aboveground biomass C stocks in trees were in the range of values found in the literature. Total C loss from peat swamp forest conversion into oilpalm plantation is very large (304 Mg C ha⁻¹).

Outline of the proposed book by Joyeeta Gupta

Onno Kuik presented Joyeeta's proposal for the book she is publishing.

Progress made

- Proposal was submitted to Routledge.
- Six review papers have been received
- A response to the reviews and new outline has been submitted
- Routledge is expected to give us a contract; but even if they don't, we will go ahead with this book project and submit it elsewhere (Springer and Edward Elgar are a possibility).
- This will be primarily the work of WP4. But we would also like to benefit from the work of others, so we would like to invite you to join on chapters that you feel are relevant to you.

Planned publication schedule:

- Data collection, completed, August 2011

- Zero order draft of whole book, October 5
- First order draft 31 December
- Review of chapters January- February 2012
- Second order draft 31 April
- Final draft 31 June 2012

Proposed chapters

1. The climate change, forest, REDD nexus;
2. The Comprehensive, Cosmopolitan, Conceptual Framework
3. Multi-level Policy Options for Forests
4. Global Governance on Forests
5. Global Climate Governance and Forests and REDD+
6. Comparative Case Studies: Part I
7. Comparative Case Studies: Part II
8. REDD policies, global food and timber markets, and “leakage”: A dynamic economic analysis focusing on the case study countries
9. Conclusions: Implications for the Institutional Design of Forest Policies

At the end, Onno invited contributions from relevant team members to contribute to book chapters.

General Discussion

Write-shop: Robin mentioned a plan to publish REDD-ALERT project outputs. The idea was to hold a write-shop in the middle of 2012 to provide a focus to getting these outputs out.

Project management issues by Madhu Subedi

- M. Subedi presented information related to management and financial issues, including:
- A brief update of the Project administration.
 - Partners were informed about the forthcoming reporting obligations.
 - Partners were informed about the recent updates of Project website and requested for information for further updates.
 - Partners were updated with the financial situation of the Project. Details of budget allocation and overall budget situation was presented.

Year 3 workplans

Vietnam Overall Workplan for REDD-ALERT implementation 2009 – 2012

Revised Version after Second Annual Meeting in Da Lat, October 2011

Coordinated by Vu Tan Phuong, Director of RCFEE

Name of work package	Planned activities	Tentative schedule for implementation	Expected outputs
<p>WP1- Understanding drivers of land use changes</p> <p>Led by UCL</p>	<ol style="list-style-type: none"> 1. Land cover change analysis for study sites for 2010; 2005 and 2000 using provided Aster and Landsat TM images; 2. Organize ground survey for land cover map of 2010 for study sites; 3. Collect and analyze statistical data on socio-economic from 2000 – 2010 (provincial & communal levels); 4. Collaboration with WP1 leaders in spatial analysis of drivers of land use changes for the study site based on remote sensing; GIS and socio-economic data. 5. Validation of land cover maps for 2000, 2005 and 2010 for study areas using high resolution images and cross check with REALU project. 6. Contribute to spatial statistical modeling of deforestation/degradation and reports/articles preparation 	<p>2009 - 2011</p>	<ol style="list-style-type: none"> 1. Images map interpretation for study sites for 2010; 2005 and 2000 2. Ground data on land cover check for 2010 3. Synthesis of statistical data at provincial and selected communes in study sites.
<p>WP2- Quantifying and monitoring land use changes</p> <p>Led by ICRAF</p>	<ol style="list-style-type: none"> 1. Collect and review of REALU data for Dak Nong (opportunity costs, assumption used etc) 2. Analysis of opportunity costs for additional land uses (based on REALU study) 	<p>2010 - 2012</p>	<ol style="list-style-type: none"> 1. Secondary data for OptCost analysis; 2. Additional OptCost analysis for land uses in study area
<p>WP3 – Quantifying emission from land use change</p> <p>Led by CIFOR</p>	<ol style="list-style-type: none"> 1. Review on exiting studies on forest biomass and carbon stock supporting national REDD and GHG inventory; 	<p>2011 - 2012</p>	<ol style="list-style-type: none"> 1. A review of forest biomass and carbon stock for REDD and GHG inventory in Vietnam.
<p>WP4- Policy options addressing tropical deforestation</p>	<ol style="list-style-type: none"> 1. Review of national forestry policies 2. Collaborate interview process in the country (at national & provincial 	<p>2011 - 2012</p>	<ol style="list-style-type: none"> 1. Policies review report 2. Survey sheets completed

Name of work package	Planned activities	Tentative schedule for implementation	Expected outputs
Led by VU	level) i.e logistic; interpreter etc; 3. Collaborate in engagement of REDD stakeholders		
WP5- Integration and modeling Led by MLURI	1. Collect needed data and information at national level for modeling; 2. Produce map linking land cover change and population growth for whole country for 2006 (forest cover map for 2006 & population data on 2006 at district level).	2011 - 2012	1. Secondary data 2. Maps of forest cover and population 2006
WP6- Development of REDD negotiation support system Led by ICRAF	1. Collect needed data and information for REDD negotiation support system; 2. Collaborate in development of REDD negotiation support system (Produce fact sheets: deforestation modeling; Opt. costs of land uses)	2011 - 2012	1. Needed data and information 2. Fact sheets printed

Workplan for Peru 2012

Prepared during Second Annual Meeting in Da Lat, October 2011 and revised in January 2011.

WP1. Drivers, leakage, emissions embedded in trade (EET), etc [Coordinator: Glenn]

Activity	Team	Inputs	Expected outputs	Timing
Collect data	Glenn, Eloy, Doug, Ymber	Time and previous knowledge of data	Atlas Aguaytia, document data sets	Feb-11
Demographics and deforestation	Glenn, Meine,	1994, 2007 census; land use maps	Pop density/ deforestation graph;	Jul-11
Explain land use change (deforestation econometrics)	Glenn, Eloy, Doug, Patrick (Efra)	Statistical analysis software	Statistical analysis of driving factors	Sep-11
Illegal logging	Eloy, Patrick	Previous work	Match local - national	Dec-11 70% done
Replicate National level EET study for Aguaytia	George,	Census data, household data	Economic assessment	?

WP2. Above Ground Carbon stock [Coordinator: Eloy]

Activity	Team	Inputs	Expected outputs	Timing
Inventory of carbon stock data(J Alegre) and review of literature	Eloy, Ymber	INIA studies and government contacts	Definitive review of carbon stock data for Peru	Feb-11 Inventory 90% done Above-ground 100% done
Above ground carbon field campaign and assessment	Eloy, Katrin, Glenn	INIA field campaign; collaboration with Katrin	Integrated above and below ground carbon assessments	Sept - 11 100 % done
Thesis: quantification of above-ground biomass in (1) forest, (2) oil palm & (3) pasture	Eloy, Johanes, Eveline		Thesis (Spanish) & scientific papers (English)	
Update OppCost analysis	Doug, Glenn, Eloy	2. Better stock data, better land use	Revised OppCost estimates	Jul-11
Study with Asner, compare with ASB and INIA studies	Glenn, Meine	Contact Asner group	Resolution of C measures	Mar-11

WP3. Below ground carbon [Coordinator: Eloy]

Activity	Team	Inputs	Expected outputs	Timing
Background on transitions for selecting sites: Forest to swidden, forest to pasture, forest to oil palm	Glenn, Ed, Eloy	Existing work	One page doc & maps for selecting field sites	Dec-10 on website
Review literature on soil carbon	Eloy, Ymber, Rosa, Ed	Bibliographic sources, Julio Alegre	Definitive review of soil carbon in Peru	Feb-11
Field studies on below ground carbon	Ed, Eloy, INIA soil scientist	INIA vehicles; soil lab, field workers arranged by INIA; methods from Ed	Reports on field experiments, global comparative study	Nov-11 field work completed
Map soil carbon link IIAP soil map – Prepare results as input to OppCost	Eloy, Glenn, Oliver	1, 2, 3	Updated soil C info	Jan-12

WP4. Institutions and Policy [Coordinator: Douglas]

Activity	Team	Inputs	Expected outputs	Timing
Circulate reports	Eloy (Governance), Glenn (REALU), Doug (ASB)	Existing studies	n/a	Nov-10 on website
Write synthesis on forest policy	Doug, Constance and team	Existing studies	synthesis report for publication	Feb-11 on website
Identify interviewees	Eloy, Constance and Julio	REALU report; INIA experience	Report on interview work	Feb-11 done
Send questionnaire and objectives	Constance	WP4 planning work	n/a	Dec-10

Activity	Team	Inputs	Expected outputs	Timing
				done
Logistics and survey	Eloy and Constance	INIA	progress report	May-11 done
Analysis and report	Constance and others	Time of team	publication	?
Perceptions of forests and illegal logging in Aguaytia	Eloy, Mirian, Ymber			draft report done

WP5. Modeling, Simulation [Coordinator: Douglas]

Activity	Team	Inputs	Expected outputs	Timing
Share weather data	Glenn, INIA	Existing data	Report	Jul-11
Inventory household surveys	Doug, Roberto, Glenn, Ymber, Roberto (RAVA)	Existing studies	Report	Mar-11
Modelling data and analysis	George, Doug, Robin	Existing data, new data?	TBD	Workshop scheduled for October in Pucallpa
Map village boundaries in RAVA database	Eloy, Roberto, Julio		Maps	30% completed
Collect and collate secondary socioeconomic data for Aguaytia	Glenn, Efrain	Census and other reports	part of modelling work	70% completed
Modelling workshop in October in Pucallpa	George, Eloy, Mirian, Walter	INIA logistics, ICRAF office in Pucallpa	Plan and advances for different studies; integration REDD-ALERT & RAVA	Planned

WP6. Negotiation support

Activity	Team	Inputs	Expected outputs	Timing
Prepare scenarios and content from other WPs.	Team	Other WPs	Stakeholder workshop reports	2012
Plan future meetings with stakeholders	Team/Meine	Orientation from Meine	Stakeholder workshop reports	2012

REDD-ALERT- Y3 activities in Indonesia

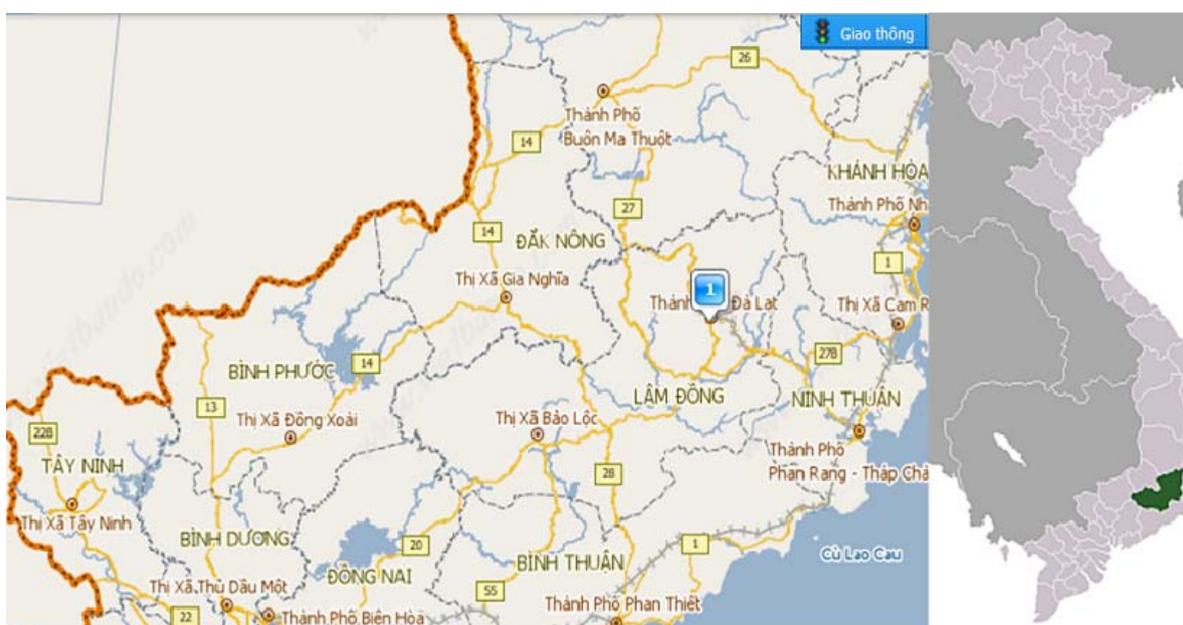
WP	Institution	Activities
1	ICRAF	?
2	ICRAF	? Land cover maps and C stocks
2	U Goet.	Oliver will continue data analysis of soil C stocks in Indonesia
2	CIFOR /J. Hutton I.	<p>Complement missing components of C stocks inventories in peatlands</p> <p><u>Shallow peat site</u> (Tanjung Jabung Barat)</p> <p>Logged Forest: total CN analysis of peat samples and vegetation (?)</p> <p>Burnt Forest: total CN analysis of peat samples and vegetation (?). C stock assessment if not already done by ISRI (see below)</p> <p>Oil palm: total CN analysis of peat samples and vegetation (?). C stock assessment if not already done by ISRI (see below)</p> <p><u>Deep peat site</u> (Berbak & Bakrie)</p> <p>Intact Forest (Berbak): No complementary measurement. If already done by ISRI, ISRI's data will be used. If not, inventories from another CIFOR project (TWINCAM) will be used. This latest data could be used by Jenny Farmer for ECOSSE modeling.</p> <p><u>Logged Forest</u> (Bakrie)</p> <p>Inventory of dead wood and litter on the ground. Total CN analysis of vegetation. Depending on Sebastian Persch's results, a new inventory of trees may be necessary.</p> <p>Jenny should check if peat samples collected in May are still at ISRI laboratory for further total CN content analysis.</p> <p>Peat C stock inventory, including total CN content and bulk density for Jenny Farmer (ECOSSE modeling). For further total CN content analysis Jenny should check the cost in Aberdeen, availability of tin capsules and well plates.</p> <p><u>Oil palm plantation</u> (5 y old in 2011)(Bakrie)</p> <p>Phytomass inventory & total CN analysis of vegetation</p> <p>Jenny should check if peat samples collected in May are still at ISRI laboratory for further total CN content analysis.</p> <p>Peat C stock inventory, including total CN content and bulk density for Jenny Farmer (ECOSSE modeling). For further total CN content analysis Jenny should check the cost in Aberdeen, availability of tin capsules and well plates.</p> <p><u>Oil palm plantation</u> (3 y old in 2011)(Bakrie)</p> <p>Phytomass inventory & total CN analysis of vegetation (Jenny?)</p> <p>Jenny should check if peat samples collected in May are still at ISRI laboratory for further total CN content analysis.</p> <p>Peat C stock inventory, including total CN content and bulk density for Jenny Farmer (ECOSSE modeling). For further total CN content analysis Jenny should check the cost in Aberdeen, availability of tin capsules and well plates.</p> <p><u>Oil palm plantation</u> (6 y old in 2011)(Bakrie)</p> <p>Phytomass inventory & total CN analysis of vegetation (Jenny?)</p> <p>Peat C stock inventory, including total CN content and bulk density for Jenny Farmer (ECOSSE modeling). For further total CN content analysis Jenny should check the cost in Aberdeen, availability of tin capsules and well plates.</p>
2	ISRI	<p>Fahmuddin will check Setiari's C stocks inventories in peatlands:</p> <p><u>Shallow peat site</u> (Tanjung Jabung Barat)</p> <p>Logged Forest: Peat and vegetation measurements</p> <p>Burnt Forest: Peat and vegetation measurements</p> <p>Oil palm: Peat and vegetation measurements</p> <p><u>Deep peat site</u> (Berbak & Bakrie)</p> <p>Intact Forest (Berbak): Litter and dead wood measurements</p>
3	ISRI	Spatial variation of peat respiration until November 2011 in a 6 y old oil palm plantation of Arang Arang and shrubs, oil palm plantation, rubber plantation,

		Acacia plantation and bare land in Riau Peat microbial study until December 2011
3	J. Hutton I.	Peat respiration and root density measurements until December (Jenny)
3	CIFOR	Peat respiration partitioning using the trenching method until June 2012 (Louis-Pierre Comeau) Fitri Aini will continue analyzing her results on greenhouse gases emissions from mineral soils Sebastian Persch will continue analyzing his results on C stocks in coarse roots
5	J. Hutton I.	Modeling of peat C and N dynamics using the ECOSSE model until June 2012 (Jenny) Inclusion of peat biochemical properties after fire in the ECOSSE modeling until June 2012 (Leanne)
5	CIFOR	1 field visit in January 2012 to refine the agent-based model (Herry) Organization of a workshop depending on budget availability (Herry)

WP	Institution	Outputs
1	ICRAF	?
2	ICRAF	?
2	U Goet.	?
2	CIFOR	Master thesis (Sebastian Persch, October 2011)
2	CIFOR/IS RI	Abstract submitted to the ICOPE (International Conference on Oil Palm and the Environment; February 2012) for an oral presentation (Sebastian Persch)
2	CIFOR/IS RI	Paper on peat C stocks (Sebastian Persch, Setiari Marwanto et al., June 2012)
3	J. Hutton I. /CIFOR	Paper on peat respiration and its partitioning into auto- and heterotrophic components (Jenny Farmer et al., June 2012)
3	ICRAF /CIFOR	Abstract submitted to the ICOPE (International Conference on Oil Palm and the Environment; February 2012) for an oral presentation (Etik Handayani)
3	ICRAF /CIFOR	Paper on the effect of N fertilization on greenhouse gas emissions from an oil palm plantation on peat (Etik Handayani et al., June 2012)
3	CIFOR	Oral presentation at the NCGG6 congress on the effect of land-use change on GHG emissions in Pasir Mayang, Indonesia (Fitri Aini et al., November 2011)
3	CIFOR	Paper on the effect of land-use change on GHG emissions in Pasir Mayang, Indonesia (Fitri Aini et al., June 2012)
3	CIFOR	Oral presentation at the NCGG6 congress on changes in soil CH ₄ fluxes from the conversion of tropical peat swamp forests: a meta-analysis (Kristell Hergoualc'h and Louis Verchot, November 2011)
3	CIFOR	Paper on the effect of land-use change on soil emissions of NO and N ₂ O: a meta-analysis (Kristell Hergoualc'h and Louis Verchot, June 2012)
5	J. Hutton I.	Paper on peat biochemical properties after fire (Leanne, June 2012)
5	J. Hutton I.	Oral presentation at the NCGG6 congress on a review of peat models (Robin Matthews on behalf of Jenny Farmer, November 2011)
5	CIFOR	2 papers (Herry Purnomo et al., March 2012)

Day III: Friday, 30 September 2011 (Field visit)**Payments for Forest Environmental Service (PFES) - Pilot sites in Da Nhim commune, Lac Duong district, Lam Dong****1. Site information**

Vietnam is located in Southeast Asia, having 54 ethnic groups distributed across 63 provinces with rich cultural pattern. The total population is 86 million with main group is Kinh accounted for 85% population. Lam Dong province is located in the Central Highlands (Tay Nguyen) region, 300 km from Ho Chi Minh City in the northeast. There are five provinces in the Central Highlands and Lam Dong is the largest plateau province. It is also the highest province lying on a plain the average altitude is about 1,500 meters above sea level. Lam Dong is a forest province with forest coverage accounting for about 70% of the total area.



PFES is piloted and managed by the Management Board for Watershed Forest of Da Nhim river (MB) with the total area of 28,511 ha distributed across the three communes of Da Nhim, Da Sar and Da Chais in Lac Duong district which is watershed catchment feeding water to Da Nhim lake for operation of hydropower plant and irrigation of agricultural cultivation in downstream.



Da Chais located is about 50 km to the northeast of Da Lat City. The total population is 1,474 people in 318 households, of which 255 are ethnic minority households (80%). There are two main minority ethnic groups named Chil and K'Ho. The commune consists of five villages with a total land area of 34,105 ha, of which planned forestry land is 32,212 ha, and 1,893 ha is used for agriculture and other purposes. The area of forestry under a PES scheme is 15,908 ha of which 2,806 ha and 13,102 ha is implemented by Da Nhim MB and Biduop National Park, respectively. A total of 257 households in the commune are participating in PFES activities. The main land use platforms are agriculture (cash crops and coffee) and forestry. In recent years, under pressure of population and market driver (high value of coffee), a large forest area was cut for coffee plantation conversion. PFES trial is an alternative option to help improve the livelihoods of local people and the environment.

- PFES pilot was started in Da Chais in 2009 by arranging yearly contracts with a group of households. Local people are engaged with forest protection and tending activities and receive the payments at the end of year based on the forest area they contracted.

Year	HH involved	Area contracted (ha)	Average area ha/HH	Payment VND/ha	Income from PFES VND/HH/Yr
2009	151	3,911.5	26	200,000 (10\$)	5,200,000 (260\$)
2011	99	2,806,6	28	400,000 (20\$)	11,200,000 (551\$)

- The fund for these activities is from the provincial Forest Protection and Development Fund set up under Decree 99/ND-TTg. Contributions to this fund come from Da Nhim hydropower plan, water plants and ecotourism service companies.
- The main change is that local people understood clearly now that their payments/rewards are for the environmental services they provide by forest protection and development activities rather than support from development of forest plantations funded by Government in the past.

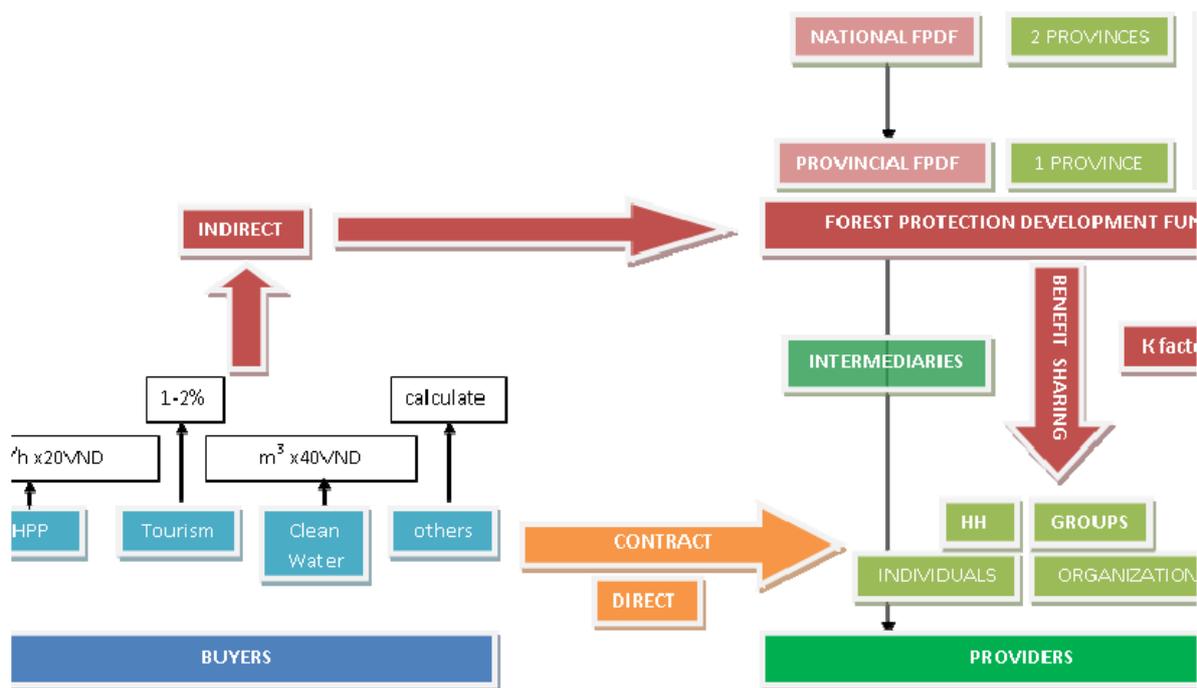
2. Brief background PFES policy and structure in Vietnam

- Decision 380/QĐ-TTg issued on 20 April, 2008 by Prime Minister for piloting PFES in Lam Dong and Son La provinces. Policy payment for forest environmental service (PFES) is a new national policy development on forest governance. It is piloted for testing on PFES during 2 years period (6/2008 – 6/2010) at Son La and Lam Dong

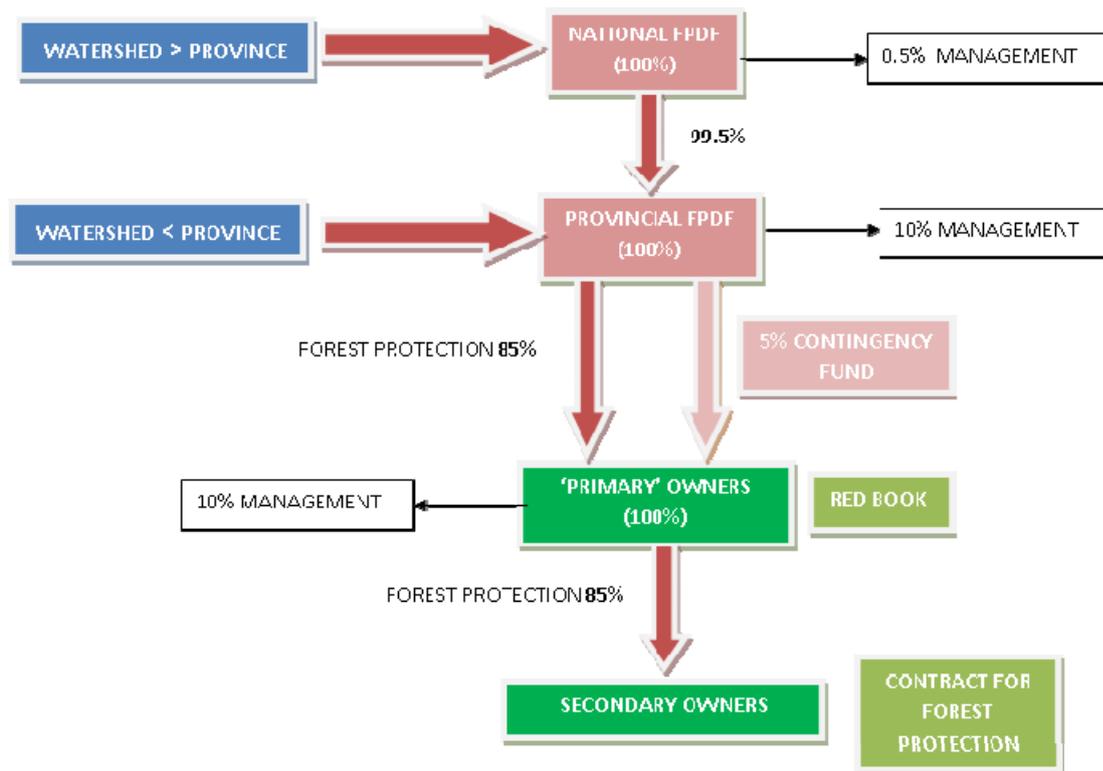
provinces before it could be applied at nationwide scale. The PFES in Decision 380 clearly identified hydro-electricity power plants, water used companies and ecotourism companies who are benefited from water supplied that should be targeted as payers for PFES. All forest owners in the watershed areas who managed all types of forest are eligible payees.

- Decree 99/ND-TTg issued on 24 September, 2010 by Prime Minister: After two years of trial, taking the review and consultation from all functional agencies, the Government decided to issue this legal document for guiding PFES implementation nationwide from 2011.

General scheme



Money flow



Day IV: Saturday, 30 September 2011

Depart to home destinations.



*Prepared by M. Subedi and R Matthews.
Photos by M. Subedi and Pham Duc Thanh.*