The World Agroforestry Centre Vietnam (ICRAF Vietnam)
Rewards for, Use of and Shared Investment in Pro-poor Environmental Services (RUPES-II)
Global Environmental Center (GEC)

Final working paper

How to apply PES experience and lessons learnt to Bac Kan project, 'Pro-poor Partnerships for Agroforestry Development'

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ABBREVIATIONS

ADB	Asian Development Bank
A/R credit	Afforestation and reforestation credit
CCBA	Climate, Community and Biodiversity Alliance
CIFOR	Centre for International Forestry Research
CDF	Community Development Fund
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CER	Certified Emission Reduction
CERUPT	Certified Emission Reduction Units Purchase Tender
CNA	CDM National Authority, Vietnam
CNECB	CDM National Executive and Consultative Board, Vietnam
CO2	Carbon dioxide (→ GHG)
COP	The Conference of the Parties
COP/MOP	Conference of the Parties serving as the Meeting of the Parties to the KP
CSR	Corporate Social Responsibility
CPM	Country program managers
D&G	D&G Company
DARD	Department of Agriculture & Rural Development
DNA	Designated National Authority
DOE	Designated Operational Entity
DONRE	Department of Natural Resource & Environment
DPC	District People Committee
DPI	Department of Planning & Investment

EB	Executive Board (→ CDM-EB)
EBI	Environmental Benefits Index
EE	Energy efficiency
ER	Emission Reduction
ERPA	Emission Reduction Project Agreement
ES	Environmental service
ET	Emission Trading (→ IET)
FCPF	Forest Carbon Partnership Facility
FIPI	Forest inventory and planning institute
FM	Forest Management
FSIV	Forestry Science Institute of Vietnam
GHG	Greenhouse Gas
GIS	Geographic information systems
GEF	Global Environment Facility
ICC	Indochina Carbon
ICRAF	The World Agroforestry Center
IET	International Emission Trading (= ET)
IFAD	International Fund Agriculture Development
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
ISC	International Steering Committee
IUCN	The International Union for Conservation of Nature
JI	Joint Implementation
JICA	Japan International Cooperation Agency
JIBIC	Japan International Bank for International Cooperation

JSCMAT	Joint-stock Company of Material and Agricultural Technique
KP	Kyoto Protocol
lCER	Long-term CER
LPG	Liquefied Petroleum Gases
LULUCF	Land-use, Land-use Change and Forestry
MoFI	The Ministry of Finance
MONRE	Ministry of Natural Resources and Environment
MPI	Ministry of Planning and Investment
MOU	Minutes of Understanding
N2O	Nitrous oxide (→ GHG)
NGOs	Non-Govermental Organizations
NPO	Non-Profit-Organization
PARC	"Creating Protected Areas for Resource Conservation using Landscape Ecology" project
PALA	Participatory Landscape Analysis
PDD	Project design document
PES	Payment for Environmental Services
PIN	Project Idea Note
PJM	Project Joint Management
PPC	Provincial People's Committee
PPM	Project Participatory Management
PPs	Project Participants
PRA	Participatory rural appraisal
RACSA	Rapid Carbon Stock Appraisal
RE	Renewable energy

RES	Rewarding Environmental Services
REDD	Reduced Emission from Deforestation and forest Degradation
RHA	Rapid hydrology assessment
RIT	Registration and Issuance Team of CDM-EB
RUPES	Rewards, Uses and Shared Investments in Ppro-poor Environmental Services
SF	Social Fund
SNV	SNV Netherlands Development Organisation
TANs	Technical Advisory Notes
TC	Transaction Cost
ToT	Training of Trainers
TEC	Technical Committee
TUL-SEA	Trees in Multi-Use Landscapes in Southeast Asia: A Negotiation Support Toolbox for Integrated Natural Resource Management.
tCER	Temporary CER: "tCER" shall be issued based on the net anthropogenic GHG achieved by the project activity since the project start date. Each tCER shall expire at the end of the commitment period subsequent to the commitment period for which it was issued.
ToR	Term Of Reference
UNFCCC	United Nation Framework Convention on Climate Change
VCUs	Voluntary Carbon Units
VER	Verified Emission Reduction
VCS	Voluntary Carbon Standard
VFU	Vietnam Forestry University
VND	Vietnamese Dong
WWF	The World Wildlife Fund

GLOSSARY

Additionality is the term for GHG emission reductions generated by CDM and JI project activities that must be additional to those that otherwise would occur. Additionality is established when there is a positive difference between the emissions that occur in the baseline scenario, and the emissions that occur in the proposed project.

Afforestation The direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources.

AR-CDM AR-CDM" project activity is an afforestation or reforestation measure, operation or action that aims at achieving net anthropogenic GHG removals by sinks. AR-CDM project activity could, therefore, be identical with or a component or aspect of a project undertaken or planned

A/R credit Afforestation and reforestation credit

CCBA Climate, Community and Biodiversity Alliance: is a partnership between companies, NGOs and research institutes seeking to promote integrated solutions to land management around the world.

CIFOR Centre for International Forestry Research

CDF Community Development Fund

CDM Clean Development Mechanism: a mechanism established by the KP for project-based emission reduction (or removals by sinks) activities in developing countries. CDM is designed to meet two main objectives: to address the sustainable development needs of the host country, and to increase the opportunities available to parties to meet their reduction commitments.

CDM-EB CDM Executive Board may establish committees, panels or working groups to assist it in the performance of its functions. CDM-EB shall draw on the expertise necessary to perform its functions, including from the UNFCCC roster of experts. In this context, it shall take fully into account the consideration of regional balance.

CER Certified Emission Reduction: The credit from the CDM is called "CER". Annex I parties can use CER to contribute to compliance of their quantified GHG emissions reduction targets of the KP.

Certification the written guarantee by the DOE that, during a specified time period, verifies a project activity having achieved the reductions in anthropogenic emissions by sources of GHG.

COP/MOP Conference of the Parties serving as the Meeting of the Parties to the KP:
"COP/MOP" has authority over and provides guidance to the CDM, decides on the recommendations made by the EB on its rules of procedure, decides on the DOE accredited by the EB etc.

DNA Parties (countries) participating in the CDM shall set up a "DNA" for the CDM. DNA is in charge of CDM approval of host country, building national guidelines on CDM, providing CDM information to

	developers/investors etc. CDM project participants shall receive written approval of voluntary participation from the DNA of each party involved.
DOE	An entity designated by the COP/MOP, based on the recommendation by the EB, as qualified to validate proposed CDM project activities as well as verify and certify reductions in anthropogenic emissions by sourc10es of GHG. DOE shall perform validation or verification and certification on the same CDM project activity.
GHG	Greenhouse Gas defined by the KP and consist of six gases: Carbon dioxide (CO2), Methane (CH4), Nitrous oxide (N2O), Hydrofluoro carbons (HFCs), Perfluoro carbons (PFCs), and Sulphur hexafluoride (SF6).
Host country	Host Country is where an emission reduction project (under JI or CDM) is physically located.
IET	International Emission Trading (= ET): is to trade a part of assigned amount between Annex I parties. The total amount of emission cap of Annex I parties will not change. Only Annex B parties of the KP can participate in IET. Through market mechanism, IET can decrease total cost of Annex I parties to achieve their collective emission reduction targets.
JI	Joint Implementation:a flexible mechanism under Article 6 of the KP with the purposes (1) to assist Annex I parties in achieving sustainable development and (2) to contribute to the ultimate objective to the UNFCCC and (3) to assist Annex I parties to achieving compliance with their quantified emission limitation and reduction commitments.
KP	Kyoto Protocol was adopted at the 3rd session of the Conference of the Parties (COP3) to the UNFCCC held in Kyoto, Japan, in December 1997. The KP would require countries listed in its Annex B to meet differentiated reduction targets for their GHG emissions relative to 1990 levels by 1st commitment period (2008-2012). KP came into effect on February 16 2005.
lCER	Long-term CER: lCER shall be issued based on the net anthropogenic GHG achieved by the project activity during each verification period. Each lCER shall expire at the end of the crediting period or, where a renewable crediting period is chosen.
Leakage	"Leakage" is defined as the net change of GHG emissions which occurs outside the project boundary and which is measurable and attributable to the CDM project activity.
PDD	Project design document presents information on the essential technical and organizational aspects of the project activity and is a key input into the validation, registration, and verification of the project as required under the KP to the UNFCCC. The PDD contains information on the project activity, the approved baseline methodology applied to the project activity, and the approved monitoring methodology applied to the project. It discusses and justifies the choice of baseline methodology and the applied monitoring concept,

	including monitoring data and calculation methods.
PIN	Project Idea Note: is a document prepared by a prospective project developer regarding a project proposed for DNA approval etc. A PIN is both a precursor to, and a less-detailed document than a PDD.
Project boundary	"Project boundary" shall encompass all anthropogenic GHG emissions by sources under the control of the project participants that are significant and reasonably attributable to the CDM project activity.
Reforestation	The direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land. For the first commitment period, reforestation activities will be limited to reforestation occurring on those lands that did not contain forest on 31 December 1989.
Registration	The formal acceptance by CDM-EB of a validated project activity as a CDM project activity. Registration is the prerequisite for the verification, certification and issuance of CERs related to that project activity.
Stakeholders	"Stakeholders" mean the public, including individuals, groups or communities affected, or likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity.
tCER	Temporary CER: "tCER" shall be issued based on the net anthropogenic GHG achieved by the project activity since the project start date. Each tCER shall expire at the end of the commitment period subsequent to the commitment period for which it was issued.
Validation	is the DOE's assessment of a project's PDD, which describes its design including its baseline and monitoring plan, before the implementation of the project against the requirements of the CDM.
VER	Verified Emission Reduction: Emissions reductions for voluntary markets that are not compliant with the KP are available for sale to corporations and individuals who want to offset their emissions for non-regulatory purposes. VERs is not a standardized commodity.
Verification	is the periodic independent review and ex post determination by a DOE of monitored reductions in anthropogenic emissions by sources of GHG that have occurred as a result of a registered CDM project activity during the verification period.

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Chapter 2. Summary of the project 'Rewards for, Use of and Shared Investment in Pro-poor Environmental Services - RUPES II'. This chapter is derived from the Summary of RUPES II concept note by Lei Beria and Meine van Noordwijk. The summary of the on-going PES projects in Vietnam was compiled by Pham Thu Thuy and Hoang Minh Ha.

Chapter 3. Further assessment of potential and constraints for PES in Bac Kan province, with a focus on the Ba Be/Pac Nam/Na Ri districts. This chapter was based on the May report and incorporates findings from the scoping survey in October 2008. This chapter was drafted by the following authors:

- Watershed in Ba Be and Na Hang by Pham Thu Thuy and Hoang Minh Ha

[1] Hoang, MH, van Noordwijk, M, Pham, T.T (eds). 2008. *Payment for Environmental Services: Experiences and Lessons in Vietnam*, World Agroforestry Center, Hanoi.

[2] A part of this thesis finding has been published on the article *'Pro-poor Payments for Environmental Services: Challenges for the Government and administrative agencies in Vietnam'* by Pham Thu Thuy, Hoang Minh Ha and Bruce M Campbell, 2008. The article appeared in the journal *Public Administration and Development*, 28, 1-11, published online in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/pad.513.

- CDM A/R, by Do Thi Ngoc Bich, Pham Xuan Hoan, Vu Tan Phuong
- CDM (energy), by Tran Quang Cu
- Voluntary Carbon Funding compiled by Hoang Minh Ha from Myfanwy, Carbon Aided' presentation.
- REDD by Ho Dac Thai Hoang
- Conservation fund, by Hoang Minh Ha and Pham Thu Thuy
- Readiness for PES by Suyanto and Nguyen

Chapters 5 and 6 by Hoang Minh Ha

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EXTENDED ABSTRACT

Rewards for, Use of and Shared Investment in Pro-poor Environmental Services **(RUPES)** is an innovative opportunity to create the institutional, investment, technical and social environment necessary to support sustainable, pro-poor growth in the Bac Kan province rural economy, while also protecting the environment.

This working paper presents recommendations to the project formulation mission for the GEF–supported components of the overall IFAD-GEF project in Bac Kan. The recommendations result from interaction between ICRAF Vietnam and RUPES II since May 2008, in close collaboration with the Global Environmental Centre (GEC), Bac Kan stakeholders and IFAD Vietnam. The on-going ICRAF Vietnam-RUPES II-GEC scoping study during September-November 2008 has contributed a more detailed design of Payment for Environmental Services (PES) and PES-like mechanisms for the three project districts in Bac Kan province: Ba Be, Pac Nam and Na Ri.

The Vietnamese Government's strong commitment to the global Agenda 21 and its inclusion of PES, albeit in a limited way, in environmental legislation and strategies, reflects the Government's greater attention to new ways of achieving realistic, conditional and voluntary incentive mechanisms for enhancing environmental services. Furthermore, Vietnam is already using some of the economic and financial instruments needed to implement PES. However, several limitations in central and local public administration show a need for a more careful piloting approach, whereby pilot Payment/Rewards for Environmental Services (PES/RES) mechanism development and capacity building should go hand in hand if PES is applied in Bac Kan province.

The lessons learnt from PES projects in Vietnam show that a lack of financial resources is not the issue, rather the lack of a supportive legal framework and ES buyer-led schemes. If the Bac Kan PES component uses a systematic and careful design, with good planning between the piloting and scaling up phases, high transaction costs (which are an acknowledged disadvantage in the reviewed small-scale PES projects in Vietnam) can be avoided.

The IFAD-GEF project in Bac Kan has four components:

1. Sustainable and Equitable Forest Land Management
2. Generating Income Opportunities for the Rural Poor
3. Innovative Environmental Opportunities
4. Project management

The recommendations for PES activities within sub-component 3.2 of Innovative Environmental Opportunities are:

1. **A two phased project**. **Phase I** is to design, develop and pilot several RES/PES mechanisms and policy investment models. These will support enhanced and connected multifunctional agroforestry and forestry landscapes, with close links between positive livelihood and environmental benefits. **Phase II** is to scale up the tested models in the relevant context/location across the province's three project

districts. The scaling up funds should come from the community development fund (under component 2) as well as from the potential PES buyers explored during Phase I.

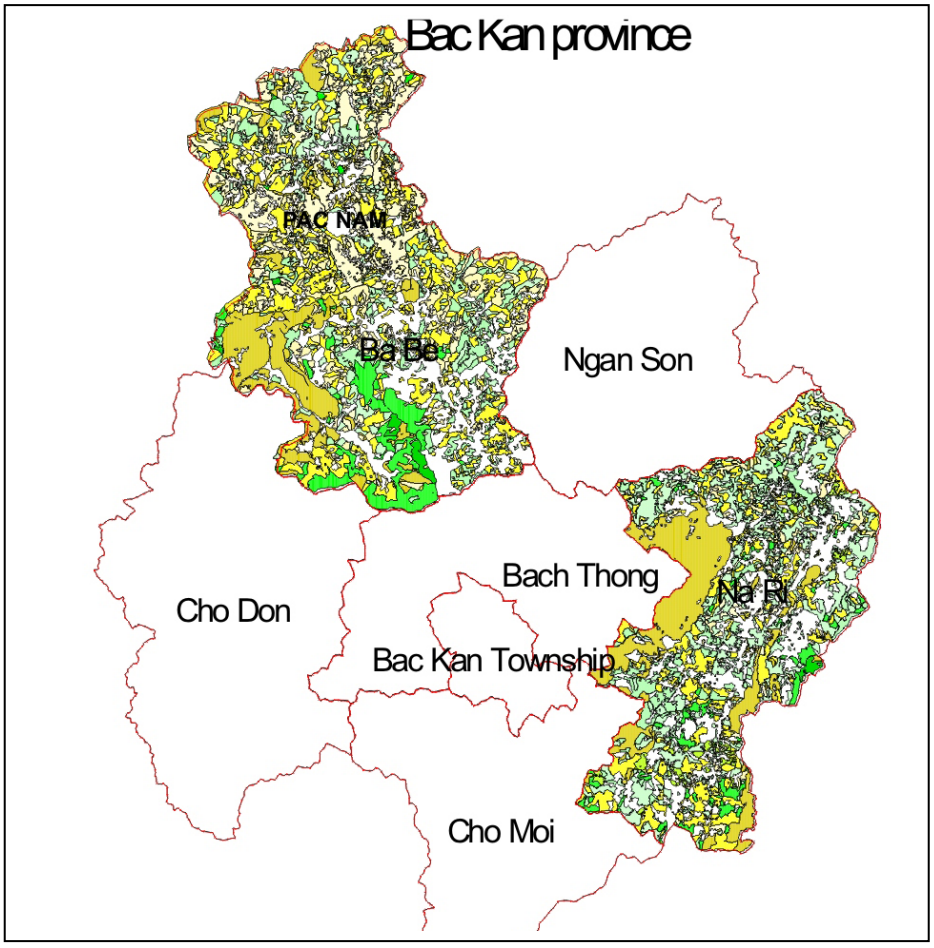
2. **Capacity building:** will be integrated into all piloting activities not only for stakeholders in the pilot area, but also other project areas in the three districts.
3. **An integrated watershed management approach** is proposed for achieving the triple goal of poverty alleviation, sustainable economic development and environmental protection in upland areas. The great number of small, meso and macro watersheds in Bac Kan proves the viability of applying this approach. Watershed analysis can easily map the most pronounced environmental 'hot spots' from a livelihood perspective, so that all project activities can be coordinated. The clear interactions between upstream and downstream practices, visualized through participatory landscape analysis, will empower local people in the planning, implementation and monitoring project stages.
4. **A number of options** have been reviewed as potential sources for sustaining financing for the PES and PES-like schemes developed with GEF-IFAD support during the project. Participation in the World Bank carbon market, government decisions on PES for watershed functions, and voluntary private sector carbon markets all provide opportunities.
5. **Four PES and PES-like pilots**, one at the policy level and three at the district level, are recommended for Phase I (i.e. three years). They are:
    a. Preparation activities to enable watershed integrated management, PES for watershed function and conservation fund mechanism (pilot at policy level).
    b. Applying PES-like conservation funds to conserve the protected forest in the buffer Zone of Ba Be National Park as well as preserve the natural forest in the Na Ri district.
    c. Obtaining voluntary market carbon credits for afforestation/reforestation (A/R) to generate additional income for local people and companies (besides income from forest planting) in Pac Nam through a Private-Public-Partnership (PPP) model.
    d. Exploring Clean Development Mechanism (CDM) (energy) possibility when promoting improved stoves and biogas within the project areas.
6. **Coordination**: The coordination of the GEF-IFAD PES-related activities (sub-component 3.2) could be contracted to ICRAF Vietnam by the Bac Kan project management board, with a local advisory group representing stakeholders. This would ensure both quality and in-time implementation of the planned pilot activities in Phase 1, and preserve the close link between the Bac Kan PES activities with the RUPES II national and regional program coordinated by ICRAF.
7. **Links with other sub-components**: Related activities in other components − for example Community Development Fund (CDF in Component 2) and capacity building (in all components) − should be planned annually with ICRAF (assuming ICRAF coordinates the GEF-IFAD PES-related activities). This would ensure the GEF-component integrates with the other sub-components of the IFAD loan project and assure the success of pilot testing as well as the subsequent up-scaling.
8. **GEF-IFAD budget:** The budget for this PES sub-component is US$390,700. The preliminary budget allocation for different piloting activities is as follows:

- Assessment of PES options and pilot projects design: US$50,600,
- Enhancing institutional and individual capacity for PES through policy guidelines development and promotional materials and training: US$76,200
- Pilot projects on water, reforestation, bio-energy: US$231,200.
- Review of PES pilots undertaken and recommendation up-scaling:
- US$33,700.

9. ICRAF co-funding: During the design period of the pilot sites in 2009, ICRAF is contributing US$66,656 as co-funding (55% of the total estimated costs). For the implementation of the piloting, ICRAF contribution will be at about 17 % of the total costs, mainly for training and lesions learnt survey to prepare for scaling up. Since Bac Kan will also be the action site of a RUPES II project, most administrative support for activities in the province will be carried out by ICRAF Vietnam office, under the umbrella of the RUPES II program.

Map 1. Forest cover map of three project districts in Bac Kan

(Yellow: Shrub forest forest, Ia, Ib, Ic, Green: Forest IIa, IIb, IIIa, IIIb, Dark: Stony mountain with natural forest)



(Source: Ho Dac Thai Hoang' own work, data from December, 2007)

INTRODUCTION

Staff of ICRAF Vietnam and RUPES II participated in the IFAD formulation mission in Bac Kan in May 2008, which resulted in a brief report with recommendations on how to link RUPES II activities with the IFAD project under design. This working paper builds on the May report and presents the first findings of a scoping study undertaken in October 2008.

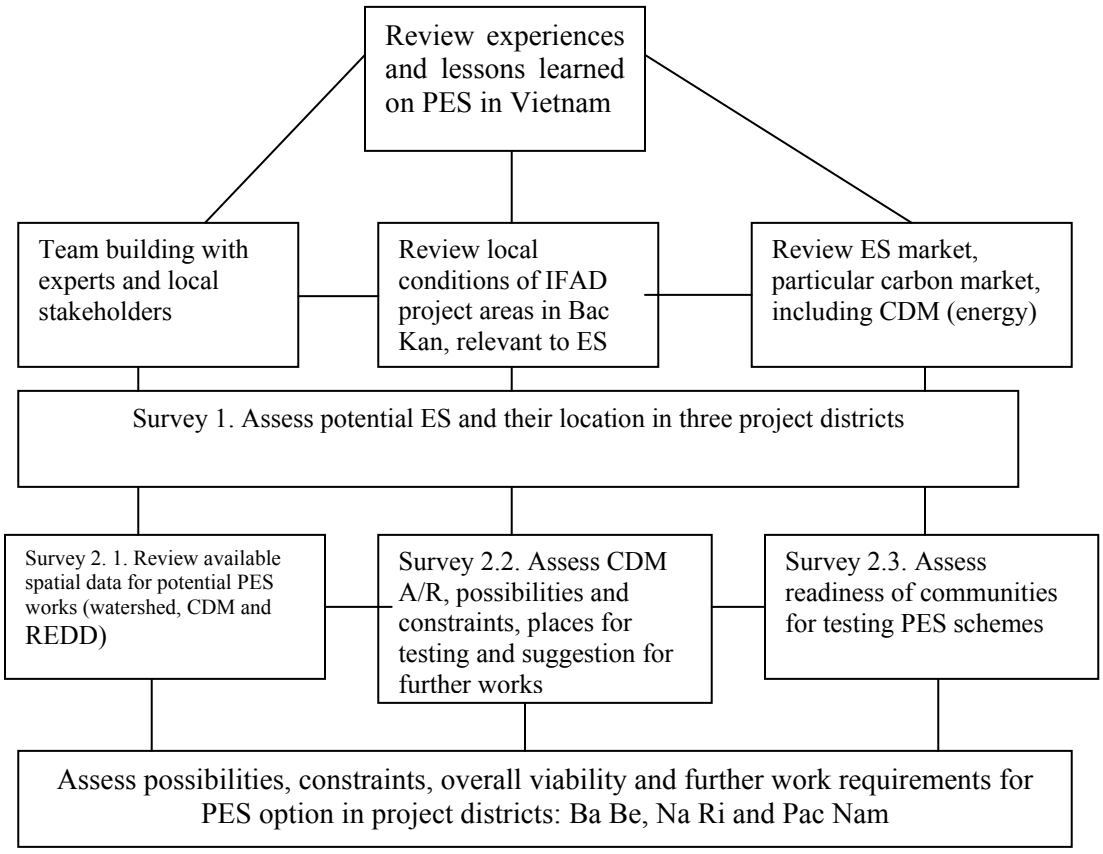
The ICRAF/RUPES II-GEF scoping study included two surveys. The first was undertaken from 30 September to 22 October. The initial findings were incorporated into a draft report and served as the basis for planning the second survey. The second survey, conducted from 22-30 October, delved deeper into each PES theme, and its findings were incorporated into the current working paper during November.

The team visited the three IFAD-GEF Bac Kan project districts, namely Ba Be, Pac Nam and Na Ri. The scoping study activities were:

- Identification of lessons learnt from Payment for Environmental Services (PES) in Vietnam, studying the IFAD-ICRAF project design and conditions in Bac Kan in order to design a PES component adapted to local opportunities.
- Rapid site assessments in the three project districts and consultations with key provincial and local stakeholders to identify/confirm perspectives on key environmental issues related to sustainable forest and land management.
- Identification of potential PES and PES-like interventions to address local priority issues. The relationships between upstream and downstream land uses in the Pac Nam and Ba Be districts were studied by analyzing Geographic Information System (GIS) information of the Nang and Len river basins (the Len River basin covers three communes above Ba Be Lake).
- Discussion with national experts and consultants to get guidance on the formulation process, feedback on the initial findings in the draft report, and planning more thematic survey activities to be carried out during the second survey .
- Feedbacks to GEC and synthesizing the thematic survey findings to finalise recommendations on the design of the GEF–supported components of the overall Bac Kan project, as well as RUPES II project action sites in Vietnam.

The scoping study process is illustrated in Figure 1. It involved a group of key international and national experts in the field of PES/RES in Indonesia and Vietnam. It was designed to equip the GEF formulation mission with sufficient information to support the formulation of the GEF-supported component of the IFAD project in Bac Kan. The findings will also determine the agenda for the RUPES II Vietnam action site.

Figure 1. Scoping study process



CHAPTER 1. PES IN VIETNAM– EXPERIENCES AND LESSONS LEARNED, CONSTRAINS AND OPPORTUNITIES

1.1. Background

A payment for environmental services (PES) is defined by Wunder (2005) as 'a voluntary arrangement where a well-defined environmental service is "bought" by a (minimum of one) service buyer who compensates a (minimum of one) service provider – and does so if, and only if, the service provider continuously secures the provision of that service (conditionality)'.

The concept behind payments (or other rewards) for environmental services[3] is to provide incentives and benefits to the people who utilize environmentally valuable ecosystems[4]. In return they agree to utilize these ecosystems in ways that protect or enhance environmental services for the benefit of the wider population. For the provision of such services, individuals or communities can be directly rewarded. Another way to express the concept behind PES is that *those who provide ecosystem services should be compensated or rewarded for doing so, and those who use the services should pay for their provision.*

The term ecosystem services rather than environmental services is used in the Vietnamese context because the term environmental service has been used for 'brown' issues such as pollution. The term ecosystem service is utilized in the Biodiversity Law *and the new policy framework by the Ministry of Agriculture and Rural Development (MARD).*

Over the last 10 years, the PES concept and its application have attracted increasing attention, not only among environmentalists and scientists, but also policymakers in Vietnam. Strong successes in PES and Rewarding the Upland Poor for the Environmental Services they provide (RUPES) programs in Vietnam have been observed. This is a direct result of the Vietnamese Government's interest and a considerable contribution from international RUPES partnerships over the last five years, including: Winrock International, World Agroforestry Centre (ICRAF), Centre for International Forestry Research (CIFOR), World Wildlife Fund (WWF) and The International Union for Conservation of Nature (IUCN).

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[3] Both terms 'environmental services' and 'ecosystem services' are used globally. Both are commonly defined in four services: (i) Watershed function; (ii) Biodiversity protection; (iii) Landscape beauty; and (iv) Carbon sequestration.

[4] Ecosystem services are the benefits people obtain from ecosystems, as described by the Millennium Ecosystem Assessment in 2003, and include provision functions (supply of goods) and regulating + cultural + supportive functions (or environmental services).
Ecosystem Services **–** *the provision of natural resources and healthy functioning ecological systems that produce environmentally and economically valuable goods and services. (Conservation Finance Guide, 2002).*

At the macro level, four ministries are currently working with policy development for and implementation of PES. MARD develops PES policies for forest environmental services. The Ministry of Natural Resources and Environment (MONRE) addresses PES dimensions concerning biodiversity conservation. The Ministry of Planning and Investment (MPI) coordinates and allocates the budget, as well as prepares sectoral plans for the nation in general and PES in particular. The Ministry of Finance (MoFI) establishes financial norms related to PES payments. Within MARD, the Department of Forestry, the Department of Forest Protection and the Legal Department are working on and influencing PES policies. Within MONRE, the Department of Environment and the Vietnamese Environment Protection Agency are working on PES. In MPI, the Department of Finance, the Legal Department and the Department of Agriculture Economics are involved in the development of PES policies.

1.2. Lessons learnt

Of seven PES projects in Vietnam (See Annex), only four case studies were carefully analyzed to draw out the lessons learnt[5]. They refer to Bach Ma, Nha Trang, Hoa Binh and Tri An. These case studies were selected using the following criteria:

- High poverty rates.
- Availability of previous and ongoing PES-like projects from which lessons can be drawn.
- Availability of project publications and reports.
- Willingness of project leaders and staff to be involved in the study.
- Active participation and engagement of central government, local authorities and key community members.
- The possibility of getting permission and access to the project area and information.

The selected studies fall into four types of environmental services: watershed protection, landscape beauty, biodiversity conservation and carbon sequestration. The buyers, sellers, their messages as well as the PES mechanisms in these case studies are summarized in Table 1.

[5] The analysis is done under RUPES Phase 1 and within the scope of PhD work carried out by Pham Thu Thuy on Pro-poor PES in Vietnam, funded by CIFOR, ICRAF and Charles Darwin University.

Table 1. Lessons learnt from PES projects in Vietnam

Environmental services	Buyers	Sellers	Proposed payment mechanisms	Key message
Watershed protection	Water sup-ply compa-nies, drin-king bottle company, Hydropow er companies	Bach Ma National Park, up-stream providers	• Via National Park entrance fee • Water bill • Water supply companies will have to pay VND20/m^3 sold • Hydropower com-panies will have to pay VND40/kwh sold • Forest Develop-ment Fund will be established and managed by Provincial PPC. The distribution of money to the buyers will be based on formula in Decision 380	• Demonstrating the costs and benefits from watershed protection is a key requirement to persuade buyers to become involved. • Enforcement from government is needed in addition to voluntary contracts between buyers and sellers • Initial funding is needed to enable changes in land use practices
Landscape beauty	Tourists	Bach Ma National Park and Nha Trang Bay Marine Protected Area Manage-ment Board	Entrance fee	• Substantial funds can be generated through tourism by introducing user fees for the provision of services (Nha Trang case). The entrance fee system should be diversified for different groups of tourists (Bach Ma case). • Funds generated are being provided to management authorities to maintain the environment. Challenges still exist in identifying a clear

				mechanism for allocating funds to local communities (Nha Trang case). • National parks characterized by considerable landscape beauty can reach sustainable financing through having reasonable expenditure and increasing their income from tourism, including community-based tourism (Bach Ma case).
Carbon sequestration	Honda Vietnam	Poor HH's	• Honda, Vietnam Forestry University, Forest Science Institute of Vietnam and JICA will all monitor the project • JICA, Vietnam Forestry University, Forest Science Institute of Vietnam will provide technical assistance to local people and the team • Payment of Honda will be put into a Non- Profit Organisation (NPO) fund • Poor HHs will receive 3 millions VND for their labour inputs for four years • 25% of logs will go	• Forestry development projects can be integrated with carbon benefits using voluntary payment mechanisms • Support from the Government is important in regards to project development, capacity building, and technical assistance • Clear benefit sharing arrangements and the involvement of local communities and local farmers are key to successful project implementation • High transaction cost for validation process

			back the NPO fund while 75% will be farmer benefits • Sold carbon credit will be shared 50-50	
Biodiversity conservation	Tourists	National Park	Entrance fee	Strong participation of the local counterpart and clear mechanism are needed

In all the presented PES cases, the issue is not a lack of financial resources, but the lack of a supportive legal framework. The environmental services (ES) and ES buyers and sellers are well defined in all Vietnam PES cases. However, the following PES dimensions are still at the planning stage in all cases:

(1) How the ES buyer and seller enter into agreements **voluntarily** within the existing framework of rules and regulations.
(2) Conditionality of payments and service delivery, with conditionality expressed in the level of the service, the condition of the land cover, the activities of the seller and/or the community-scale management of the resources.
(3) The **duration** and contractual form of the relationship.
(4) The degree to which agreements refer to **specific cause-effect relationships** linked to the continuation of the service(s) (such as avoided degradation) and/or restoration.
(5) The **form** of payment, such as freely usable financial capital, investment in public services, or trust funds for specified activities.
(6) The **level of payment** in relation to the opportunity costs for the seller and the costs of alternative provision of the service to the buyer.

There is no case study available in Vietnam to show the degree to which underprivileged (by wealth or gender) stakeholders are affected and included by PES; that is, the degree to which the mechanism can be considered to be pro-poor. Lessons learnt from RUPES projects show the importance of: (i) conditional tenure as a reward for watershed functions to reduce poverty; and, (ii) creating policy and institutional options for enabled ES reward schemes at local, national and international levels.

1.3. Opportunities

- PES has recently received increased attention from the Vietnamese Government.
- Donor interest in PES.
- Pro-poor PES has a good possibility of uptake given the Government's strong commitment to the global Agenda 21 and the inclusion of PES (albeit in a limited way) in diverse environmental legislation and strategies (e.g. Forest Protection Development Law, Law on Environmental Protection, and Vietnam National Forestry Strategies, Biodiversity Law).

- Hoang *et al.* (2008) also assert that Vietnam is already using some of the economic and financial instruments needed to implement payments for ecosystem services.

1.4. Constraints

At the macro level: Organizational, institutional and public servant constraints have been identified that can prevent PES being implemented.

a. Organizational limitations:

- Expansive and overlapping structures and functions among and within different ministries, which add to transaction costs
- Top-down planning and control is limiting agency independence in initiating and implementing new approaches.
- Lack of coordination is leading to duplication and high transaction costs.

b. Institutional limitations:

- **Lack of specific regulations for PES**: PES policies are at a very early stage in Vietnam. The Government only sees PES through a tax and fee lens, and therefore manages PES by collecting fees and environmental charges. Legislation relating to PES for watershed protection and landscape beauty is still lacking.
- **Low involvement by the poor and low payments for poverty alleviation**: per hectare payment levels and the forest areas that people manage are too small to significantly mitigate poverty. Many of the poor do not have land-use rights; largely only the rich have such rights. As a result, payments under Decision 380[6] are likely to benefit only the rich, with some trickle down to the poor who provide labour for the richer households.
- **Pervasive command and control approach.**
- **Insecure land tenure policies.**

c. Public service capacity

- Public officials have a poor understanding of pro-poor PES, while market orientation towards PES is lacking.
- Technical methods and skills in identifying, quantifying and monitoring PES are lacking.

At the local level

- Understanding of environmental issues and PES is limited.
- Local authorities lack capacity on PES development, management and monitoring.
- Private sectors and community responsibility towards environmental protection and PES is low.
- Instructions from the Government are unclear, and administrative and financial decentralization is weak.

[6] Decision 380/QD-TTg issued by the Prime Minister on 10 April 2008 on piloting Payment for Environmental Services (PES) on Watershed Function, for the period 2008-2010.

- Core PES schemes with all the specified criteria are difficult to implement in Vietnam, particularly in relation to the 'voluntary' and 'conditionality' criteria. PES-like schemes where only some criteria are met are probably suitable at this stage, with core PES only being possible perhaps later. Tailoring PES for Vietnamese conditions is certainly in the Government's interest, but this requires further research.
- Local authorities lack incentives to implement PES.

1.5. Conclusions

Contributions from multiple sectors will be required to address these challenges, including from the ministry responsible for poverty alleviation. Further studies are needed on how monitoring can be done cost effectively, how payments can be shared among multiple participants in PES contracts, and how contracting can be done given the issues around land tenure insecurity. The limited understanding of PES as a market-based mechanism will need to be overcome and supported by enhancing the relevant capacities.

It is expected that in three years time, more lessons will be learnt on the planned PES dimensions. The following concrete activities are recommended:

1. Supporting the Vietnamese Government in further developing a supportive legal framework for PES.
2. Undertaking studies to identify linkages between upstream land use and water quality downstream, and the costs for maintaining high quality water.
3. Creating mechanisms to enforce payments through taxes and water price reforms.
4. Encouraging local community involvement in signing contracts with beneficiaries.
5. Securing support from local government for payment schemes, especially in obtaining clear mechanisms to provide community-wide benefits from resource allocation.
6. Balancing the need for local benefits with the needs of the national system.
7. Using alternative mechanisms for carbon trading in forestry projects is recommended to attract funding. In this way, forestry development projects can be integrated with environmental protection through carbon trading benefits. Voluntary payment mechanisms may be another option for securing funding from the industry sector.
8. Making carbon benefits tradable, which requires government support through policy, capacity building, and in particular, raising awareness regarding climate change.
9. Developing a case study on RUPES, where reward mechanisms can address rural poverty dimensions. Such a model could include:
   (i) enhancing security of land tenure;
   (ii) promoting a stronger local voice in development decisions;
   (iii) payments for labour to protect environmental services at a rate at least equal to the opportunity cost of that labour being employed in other potentially degrading activities such as logging;

(iv) increasing access to investment funds such as microcredit for potentially profitable activities; and,
(v) Promoting entrepreneurship in selling environmental services as a commodity, such as eco-labelling.

The findings detailed in this chapter form an important basis for developing PES activities in Bac Kan province.

CHAPTER 2. SUMMARY OF 'REWARDS FOR, USE OF AND SHARED INVESTMENT IN PRO-POOR ENVIRONMENTAL SERVICES - RUPES II' AND OTHER ON-GOING PES PROJECTS IN VIETNAM

2.1. RUPES II in Asia

2.1.1. Background

From January 2002 to June 2007 the Rewarding Upland Poor for Environmental Services that they provide (RUPES) project was financed by an IFAD grant and implemented by the World Agroforestry Centre (ICRAF) along with a number of international and national partners.

The idea of payment (or other rewards) for environmental services is to provide incentives and benefits for people who now utilise environmentally valuable ecosystems in return for them agreeing to utilise them in such a way as to protect or enhance their environmental services for the benefit of a wider population – i.e. to be rewarded for the provision of environmental services. Maintaining or providing access to land, conditional to clear environmental standards, is the best many rural poor in Asia's forest margins can hope for.

RUPES had significant achievements in pilot schemes involving rewards on a more localised basis for watershed-related environmental services, and in developing tools for the rapid assessment of environmental values, so greatly reducing transaction costs between buyers and sellers. RUPES was also an effective advocate for the concept of pro-poor rewards for environmental services, generating a significant volume of high quality publications, organising workshops and other events. It supported the development of national Technical Committees (TECs) in Indonesia, Philippines and Sri Lanka as advocates for policy change – the Indonesia TEC members played a key role in that country's ratification of Kyoto. Of particular significance was the RUPES International Steering Committee (ISC) with representatives from ICRAF, IFAD, World Bank, CIFOR, WWF, International Institute for Environment and Development (IIED), Conservation International, Winrock International, IUCN, Ford Foundation, and Nature Conservancy.

RUPES I was conceived at the time of the Kyoto Protocol, at which time there were high hopes for substantial payments for people living in tropical forests in return for carbon sequestration. There are realistic hopes that the UNFCCC COP13 in Bali in December 2007 will call for a pilot phase on 'reducing emissions from deforestation and degradation' and that this will revitalize the multi-billion $ Carbon market for engaging with local communities to reduce both poverty and greenhouse gas emissions. Specific attention for 'pro-poor' versions is needed for IFAD's target groups. Bundling local benefits on watershed protection and global carbon payments will now be feasible. The IFAD evaluation of RUPES-I recommended a phase 2 (RUPES-II) that would build on Phase 1 successes, consolidate its gains, and reach out to further partners for widespread adoption.

2.1.2. Strategy for RUPES-II

The proposed strategy for RUPES-II is to work to develop and propagate RES on four levels: (i) at the national policy level to create an enabling environment for RES; (ii) at the buyer level (water users, eco-label owners, carbon funds, bio-diversity funds) to build demand for ES from the rural poor; (iii) incorporation of support for suppliers of ES into mainstream rural development projects (especially those funded by IFAD) and other initiatives; and (iv) support to develop brokers, certifiers and other intermediaries who link ES sellers to buyers.

RUPES-II will build on the policy work of RUPES-I to promote policies that enable pro-poor RES. In the current climate of concern over global warming and other environmental issues, there is an opportunity for IFAD to champion the interests of the rural poor in the context of actions and policies on climate change.

By focussing on actually emerging payment mechanisms, RUPES-I only worked in areas and locations where there is expressed demand for ES, often in the form of a hydropower plant or drinking water source. RUPES-I was less successful where it tried to identify 'buyers' for suppliers (upland areas and communities) outside of an (internationally) recognized 'ES hot-spots'. RUPES-II will work with potential buyers (government agencies and/or private sector) to expand the range of application of RES. To help do this, the project will continue its linkages with agencies (such as World Bank, ADB, and JBIC) providing funding for major projects such as hydropower and water supply. This will aim to get a RES approach built into measures to safeguard watersheds, or to mitigate environmental impacts such as loss of biodiversity. RUPES-II will inform buyers and funding agencies how RES can become a cost-effective means of achieving environmental objectives while increasing the operating efficiency of water infrastructure.

RUPES-II would also continue the work of RUPES-I in researching and developing new approaches to RES. Innovations that were just starting to be tested at the end of RUPES-I include reverse auctions to implement erosion control measures and payments linked to river silt loads. These make a more explicit link between rewards and environmental services than the more usual fixed payments to the occupiers of watershed or their community organisations.

RUPES-II would also seek to work more effectively with IFAD funded projects. RUPES-I only did so at Bakun in the Philippines (CHARM). Its design responds to IFAD's Asia and the Pacific Division's interest in programmes to combat the problems of land degradation and empower the poor in upland areas. RUPES-II has the potential to find new solutions for a prominent determinant of rural poverty in Asia and provide opportunities for sustainable rewards for environmental services, especially in IFAD's rural development projects. There are interesting new options for multi-scale solutions where (local) governments derive income from international markets, such as

involvement in newly designed carbon markets that secure local environmental benefits and reduce poverty.

RUPES-II need not be restricted to upland areas, but could also include lowland situations where RES may be applied – such as coastal mangrove forests. However the majority of opportunities for RES are likely to be in upland watersheds and involve poor upland communities, including indigenous groups. The target group for RUPES-II are small farmers in less productive environments and indigenous forest dwellers. RUPES-II will make a special effort to ensure that these benefits reach women. Much of the work on small farms and forests fall upon women, whose burden may be increasing as men migrate away in search of work. Actions to provide ES (such as soil conservation work) will be screened in terms of their impact on gender-defined workload.

2.1.3. Goal and Objective

The proposed programme will consolidate the gains made in RUPES-I, with the overall goal of "Rewards for provision of environmental services flow to poor people in a number of Asian countries". This would be achieved via the purpose of "Dissemination of appropriate RES mechanisms via national policies, buyers of ES and rural development initiatives". Achievement of these objectives would be measured via monitoring of the schemes that have been established with RUPES-II support. There would also be a systematic approach to gathering information on how schemes have affected the lives of women – both positively and negatively. Project objectives, together with proposed outputs and activities, indicators for monitoring and risks are shown in the log frame in Annex 1.

2.1.4. Outputs

RUPES-II will have the following five outputs:

- National policy framework: The project will contribute to policy frameworks for voluntary, realistic, conditional and pro-poor RES. It will help national policy makers to knowledgeably participate in international forums to establish and implement effective international payment schemes. RUPES-II will aim to have a significant impact on policy in at least four countries. It will also support local governments to develop RES schemes, and will examine institutional constraints, such as conflicting jurisdiction over the regulation of the environment services. RUPES-II will facilitate dialogues among the stakeholders to enhance the adoption of policy and institutional options in RES schemes.

- International and national buyer and investor engagement: RUPES-II will open opportunities for business partners in RES schemes and to engage in discussions of Corporate Social Responsibility (CSR) as a means of obtaining environmental benefit sharing. In the context of upcoming compensation mechanisms for reduced deforestation and degradation, RUPES-II will engage in testing innovative institutional arrangements for building partnerships. The component will research and develop mechanisms to make carbon markets and carbon finance accessible to IFAD's clientele. RUPES-II will publicize opportunities for buyers to participate in

reward schemes, and provide technical assistance to sellers to develop their business cases and draw up contracts.

- Environmental service intermediaries enabled: RUPES-II will provide support to brokers of RES, such as interested local Non-Governmental Organizations (NGOs) and local governments, in order to cost-effectively link ES supply to demand. RUPES-II, with funding from BMZ through the Trees in Multi-Use Landscapes in Southeast Asia: A Negotiation Support Toolbox for Integrated Natural Resource Management (TUL-SEA) project managed by ICRAF will further develop the rapid assessment methods pioneered in RUPES-I and work with universities in the region to create local capacity for cost-effective brokerage of RES in the scoping and negotiating stages.

- Innovations in effective, efficient and pro-poor RES mechanisms: RUPES-II will continue its partnerships with the current action research sites in Indonesia, Philippines and Nepal, forming these into centres to disseminate RES. RUPES-II will also test new options for RES. To gain experience with carbon, it is proposed to add two learning sites for new mechanisms under the Reduced Emission from Deforestation and forest Degradation (REDD) umbrella. Given the size of peat land emissions and prevailing poverty in these areas, one new site would be in this domain. Another would be in an upland forest area (possibly in Vietnam, associated with an IFAD project). For other ES reward schemes, RUPES-II will consider expanding networks of learning sites in Indonesia, India, the Philippines, Vietnam, Laos and China, with other sources of funding for site-level activities, and management by RUPES ISC partners.

- Mainstream RES into IFAD rural development initiatives: with at least 20% of new projects in Asia actively considering incorporating RES into their strategies. RUPES-II will disseminate communication materials and lessons, including Technical Advisory Notes (TANs), to national governments, IFAD CPMs, country teams and projects to raise awareness of the potential for RES. RUPES-II will provide opportunities for workshops and capacity building, and also offer to provide inputs at the design stage of new IFAD projects. At least two sites of IFAD Projects will benefit as action research sites of RUPES-II.

2.1.5. Key Activities

Key activities of the **four year** RUPES-II include studies and action research activities. However, compared with RUPES-I, there will a greater emphasis on outreach and dissemination via publications, workshops and training events, and websites. RUPES-II will aim to achieve a greater geographical spread, working in more countries and more closely with IFAD and IFAD partners. Action research will still be an important component of the project, and will be up-scaled through a greater emphasis on work by self-funded partner organisations at learning sites.

RUPES II Vietnam

RUPES II in Vietnam will cover all the activities mentioned above, with at least one action site and Bac Kan province tentatively selected as that site. The total budget for activities in Vietnam is US$90,000 over four years. The total budget is divided into two parts, with US$50,000 for setting up and maintaining a national policy network, and supporting collaborative RES sites, and US$40,000 for the action site. ICRAF intends to use the RUPES II budget as co-funding with other national and international support, particularly IFAD investment programs with common objectives. Through this strategy, synergy can be achieved in demand-driven applications, with better links between action research (RUPES II) and development works in the field with pro-poor Rewarding Environmental Services (RES). The strategy's first action will be a joint effort between RUPES II, ICRAF Vietnam and GEC to support Bac Kan province in the IFAD-GEF formulation missions.

2.2. Summary of on-going PES projects in Vietnam:

At the micro level and within the Forestry and Conservation sectors, there are seven PES projects (See Annex). These consist of two CDM projects; three watershed protection projects and two landscape beauty projects in combination with biodiversity conservation. Half the projects are small scale and only designed as pilot schemes for 1-2 years. The two models most relevant to Bac Kan are described below:

- **Successful A/R - CDM projects in Cao Phong, Hoa Binh.** Cao Phong CDM R/A project in Hoa Binh province started in 2007 and its PIN[7] was accepted the same year. Until now the project is under the approval process of Project Design Document (PDD), by the Designated National Authority (DNA) of Vietnam. The project partners are reported to be:

  (i) Financing: Honda and JICAs have donated VND3.5 billion based on an assumed sharing of the project costs and benefits between the social fund and the project participants. The amount is being paid in instalments over four years to reduce the financial burden on the donor. The funding was used for planting forests, promoting effective use of crops residue, establishing 30ha of fodder crops for improving cattle grazing and developing biogas. This measure was considered to be helpful in reducing using fuel wood. By doing

  (ii) GHG emission owner/project owner: Social Fund managed by Farmers Association and 300 households. Twenty per cent of the project's benefits from selling timber and carbon credits will go directly into the fund. This fund will be reinvested in forest establishment activities based on rotation, technical assistance, monitoring and carbon trading procedures.
  (iii) Project developer: Vietnam Forestry University contributes time and human resources while JICA provides technical assistance on CDM and PDD development.

[7] The development of AR CDM projects needs to follow seven steps: (i) Develop a Project Ideal Note (PIN); (ii) Develop Project Design Document (PDD); (iii) Submission of PDD to the host country for letter of approval; (iv) Submission of PDD and letter of approval to CDM Executing Board; (v) Validation by United Nations; (vi) Issuance of CER; (vii) Monitoring and evaluation for generating carbon credits.

(iv) 3rd party verification of the credits: in this case VERs (voluntary emission reduction) but may be CERs (certified emission reduction) can provide higher value A/R credits (afforestation and deforestation credits). The companies Nippon Koei CO., Ltd, SOJITZ RESEARCH INSTITUTE, Ltd. The support from JICA (Japan International Cooperation Agency) for validations scheduled in 2009 is estimated at US$15,000 (VND240 million). The amount is also counted as revenue for the purpose of financial analysis of the project. The bank interest is also counted as revenue;
(v) Potential buyers: Honda and unidentified buyers after four years. The estimated t-CERs (temporary CER's, as applicable to formal A/R-CDM) to be obtained at Years 5, 10, and 15 were estimated at 5,450, 18,608, and 37,546, respectively.

- **Two large-scale watershed protection projects** in Lam Dong and Son La provinces (Projects 4 and 5 in Table 2). Both are government-driven and in the preparation phase for piloting policy on payment for forest environmental services, under the umbrella of Decision 380/QD-TTg issued by the Prime Minister on 10 April 2008. According to Decision 380, the payment rate for watershed function is VND20/kw electricity and VND40/m^3 of domestic water. The payment scheme for forest environmental services in the two provinces is planned for implementation in 2009 and 2010. This policy is intended to test the scheme in the field before finalizing the policy and applying it nationwide, possibly in 2010 or 2011. The project implementation activities are:
    - Revision of forest classification and forest land allocation in order to map land owners and forest values, as the important basis for distribution of the payment
    - Identification of forest environmental value
    - Inventory, classification, identification of services users and services providers, so as to set up the payment scheme
    - Fund management and utilization

In Son La, the scheme will focus on protecting about 400.000 ha of forest areas located in nine districts in the watershed of the Da River. Two districts, Phu Yen and Moc Chau (with a 105 000 ha area of payment) have been selected for 2009 and the remaining seven districts are for 2010.

Table 2. ES payers in Son La watershed protection project

	Payers	**Unit**	**Amount**	**Price (VND)**	**Total (VND)**
1	Hoa Binh hydropower	KWh	5,491,800,000	20	109,836,000,000
2	Suoi Sap hydropower	KWh	26,700,000	20	534,000,000
3	Domestic water supplier Phu Yen	m^3	320,000	40	12,800,000
4	Domestic water supplier Moc Chau	m3	320,000	40	12,800,000
	Total				110,395,600,000

(Source: Vuong Van Quynh, 2008)

In Son La province, management boards at provincial, district and commune levels will be set up to manage the fund. Ninety per cent of the fund will be used to pay forest owners for forest protection and 10 per cent of the fund will be used to operate the management board. To channel the money payment to forest owners, a bank (preferably a Social Policy Bank – a non-profit bank) will be engaged to take responsibility for the payments.

In general, the major constraints on implementing these projects include limited understanding of stakeholders on PES and high transaction costs. All projects are at very initial stages, and all are user-led schemes. Interestingly, the sellers of the services are also government agencies acting on behalf of a large group of households with technical assistance from different intermediaries.

- **CDM (energy):** To date, of the 44 projects approved by the Vietnam Designated National Authority (DNA) for CDM, 38 are within the energy sector (63%), including 37 projects on Renewable Energy (RE) and one project in Energy Efficiency (EE). CDM (energy) is still to be gained from biogas or improved stoves, despite their promising CO2 equivalent reduction and the possibility of selling carbon in the voluntary carbon market (Improved stoves are about 30 per cent more efficient than traditional stoves[8], while the GHG reduction is estimated to be two TCO2 per biogas plant per year[8]).

  The largest on-going biogas program in Vietnam is named 'Biogas Program for the Animal Husbandry Sector in Vietnam'. The program is being implemented over nine years (2003-11) by the Livestock Production Department at MARD, in collaboration with the Dutch development agency SNV, and covering 50 provinces/cities nationwide. Lang son, and Thai Nguyen, the neighbouring provinces of Bac Kan, are involved. The project currently supports the construction of 50,000 biogas plants. In the second phase (2007-11), the project aims to support construction of 140 000 plants. The project will contribute around 420,000–700,000 tonnes of CO2 per year GHG, but substitute about 293,000 tonnes of agricultural waste, 377,000 tonnes of firewood, 3100 tonnes of coal, 7800 tonnes of petrol and 5600 tonnes of LPG (Liquefied Petroleum Gases) with a clean energy source that will improve livelihoods, the environment and public health in rural areas, reduce time and money spent on housework and create at least 2500 permanent jobs for 'biogas plant construction and services' in rural areas[9]. The project is trying to sell CDM (energy) in the voluntary market for 5 Euro per TCO_2.

  A case study on improved biomass cook stoves in Ninh Binh[10] is a good example of how to disseminate the technology using loan money. During 2001-05, the project got a VND1 billion (US$76,000) loan from the Government. The project loans

[8] Felixter Heegde, SNV, presentation at the workshop 'Making carbon market work for the poor in Vietnam. Hanoi, 5 November 2008.
[9] Poster of Biogas Project Division. WWW.biogas.org.vn.
[10] Nguyen Duc Cuong, 2008. Success, lesions from existing activities on energy services in rural areas (a case study on improved biomass cookstoves. Presentation at the workshop, 'Making carbon market work for the poor in Vietnam. Hanoi, 5 November 2008.

VND 400,000 per household, with repayment within six months so the funds can be reinvested in a new household. The technology is reported to be saving fuel, saving cooking time, reducing smoke dust, and lowering CO2 emissions. Therefore the technology helps to improve the health of women and children and reduce deforestation.

CHAPTER 3. ASSESSMENT OF POTENTIAL AND CONSTRAINTS FOR PES IN BAC KAN PROVINCE WITH A FOCUS ON BA BE/PAC NAM/NA RI DISTRICTS

3.1. Provincial background

Natural- physical conditions

Bac Kan province is located at the centre of the VietBac region at about 21^{o} 48'N to 22^{o} 44' N, 105^{o} 26'E to 106^{o} 15'E, about 170 km to the north of Hanoi and about 200 km south of the border with China. The topography of Bac Kan province is complex with many valleys, hill and rocky mountains with average slope of 26°. It borders four provinces: Lang Son (to the east), Cao Bang (to the north), Tuyen Quang (to the west) and Thai Nguyen (to the south).

Located in monsoon tropical of North-East Vietnam region, the province has two main seasons, cold in the winter and hot wet in the summer. The annual average temperature is about 22.5 °C. The lowest temperature is recorded in February at about 15°C and the highest temperature in June at about 28°C. Because of complex topography, the variation in microclimate is large. Annual rainfall is in the range of 1,400 - 1,900 mm, highest in July and lowest in February. The main rainy season is from March to September, provides 75-80% of total annual rainfall. Average humidity is in the range of 85%.

The soil in Bac Kan is fertile, with thick soil surface and high nutrient contents that are appropriate for cultivation. Soil types in the project areas include (i) Alluvial soils along the banks of rivers and streams. The soil is light and acidic (low pH); (ii) Soils in the valley used for paddy is poor in potassium; and (iii) Weathered Ferasoil and Acrisoil on sloping land, that is clay reddish and yellow on schist, granite, and limestone.

The main crops are paddy, corn, soybean, tobacco, ground nut, and sugarcane and fruit trees. Rice yield is lower than the average yield of other province in Vietnam, at about 4, 5 ton/ha/season; corn yields are about 3.9 ton/ha/season, also below-average. The low yields are attributed to low investment and poor seed resources.

Bac Kan province has thousands of streams and rivers of different sizes, but the basin with the five rivers Cau, Day, Nang, Bac Giang and Na Ri, is particularly suitable for mapping ES buyers and sellers as well as specific cause-effect relationships linked to the services continuing. In each watershed, environment services and goods can be defined, and the relationship between upstream and downstream land users can be mapped in order to define ES providers and ES beneficiaries. This creates good conditions for negotiation and awareness raising, which are important for creating voluntary involvement and clear forms of conditionality.

The Cau River, one of the important national water suppliers to the Hong delta, starts from Cho Don District in Bac Kan province. While Hong delta provides enough food for the lowlanders, the providers of the environmental services in Bac Kan are often poor rural communities. They have often been geographically isolated, usually lack financial and other resources and are seriously under-represented in provincial and national decision-making processes. As a result, their views, interests, and needs have been neglected. These inequitable relationships between upstream and downstream people are

also potential issues in four other rivers basins within Bac Kan province. They are Day River (within Cho Don District), Nang River (crossing three districts such as Pac Nam, Ba Be and Ngan Son), Bac Giang River (crossing Na Ri and Ngan Son districts) and Na Ri river (crossing Na Ri and Cho Moi districts).

Figure 2. Five main river basins in Bac Kan province (Rivers are shown in green light, while red line shows main road).

In the basin of the five rivers, more than 100,000 ha of production forest land was allocated for local people for forest planting (Table 3) ─ about 50 per cent of total production forest (198,575 ha in 2005) and 40 per cent of the total production forest (268,339 ha in 2010).

Table 3. Five main river basins within Bac Kan province

River	District names belonging to river basin	Number of communes in each basin[1]	Allocated production forest land areas (ha)
Cau	Cho Don, Bac Kan town, Bach Thong, Cho Moi	29	44 766
Day	Cho Don	9	21 292
Nang	Pac Nam, Ba Be, Ngan Son	14	24 505
Bac Giang	Na Ri, Ngan Son	8	22 085
Na Ri	Na Ri, Cho Moi	9	19 532
Total	Pac Nam, Ba Be, Ngan Son, Cho Don, Bac Can, Na Ri, Bach Thong, Cho Moi	69	132 180

[1] In some communes, more than one river flows through

Source: Department of Natural Resources and Environment of Bac Kan 2008

With forest cover at 55, 1%, the province appears rich in forest resources. The rich natural forest is only about 9%, while poor forest and restoring forest (pioneer tree species) occupy more than 50%. About 20% of the total forest land is bamboo. About 64% of the total forest area is indicated for production forest, 25% for protection forest and 10% for 'special use' forest. About 124,000 ha of forest land lacks tree cover and can be a target of a forestation and reforestation programs. Of the three project districts, Na Ri has the largest natural areas, plantation forestry and special-use forest. Ba Be district has the highest protection forest area; while Pac Nam has less of all kinds of forest categories (see Table 4). From a carbon sequestration point of view, the focus for both Ba Be and Na Ri should be on conservation activities and REDD while Pac Nam, with its poor forest resources, requires more attention on forest planting through the CDM mechanism. For all three districts, there is a high potential for selling carbon from forest protection and planting as additional income for local communities.

Table 4. Land resource of the project areas

	Ba Be	Pac Nam	Na Ri	Total
Number of rural communes	15	10	21	46
Estimated project villages communities	150	100	210	460
Total households (HH)	9,886	5,198	8,310	23,394
Population	47,748	29,080	40,979	117,807
Percentage of households classified as	56.0	52.3	36.9	48.4
Average persons per household	4.8	5.6	4.9	5.0
Agricultural area (ha)	65,493	46,127	82,459	194,079
Cropped fields, ha per hh	0.69	0.85	0.94	0.81
Forestry area (ha) (of which)	54,876	35,214	74,761	164,850
- Special use forest (ha)	9,022	0	11,072	20,094
- Protection forest (ha)	11,451	8,959	7,763	28,173
- Production forest (ha)	34,403	26,255	55,912	116,570
% forest under commune management	46	84	66	63
Production forest, ha per HH	6.2	9.7	18.2	10.3

(Source: From Project statistic table in IFAD appraisal report)

Forests in Bac Kan are home to 110 families and 336 species of bird, reptile, amphibian and mammals, of which 64 species are listed in the Vietnamese Red Book. The flora is rich with 148 families, 537 genera and 826 species, of which 52 species are in the Vietnamese Red Book.

Socio-economic conditions

The province has a population of 306,000 people, living in an area of 4861 $km^{2.}$ It has seven districts, one town, and 122 communes. Most residents are poor (the poverty rate is 34 per cent, above the national average of 20 per cent in 2004) and belong to ethnic minorities (Tay, Dao, Mong, and Nung). Agriculture and forestry are the main source of income for 85 per cent of the population. GDP growth in 2007 was 13.1 per cent and the average annual income per capita was US$309 (VND 4.95 million). Per capita income was about 1.35 million dong per capita (100 USD) in 1997 and increased to 4, 95 million dong per capita (about 300 USD) in 2007. This is still low compared to the average income per capita of Vietnam at about 830 USD in 2007.

Rural households are highly vulnerable to natural disasters. Among the 7 ethnic groups living in the province, the Tay form 60,4% of the total population; Kinh: 19,3%; Dao minority: 9,5% and Nung minority 7,4%. Total population density is about 62, 8 perspon/km^2, with 85% of the population living in rural areas. About 65, 5% of the total population are between the ages of 18 and 60 year old, and form the labour force.

3.2. IFAD-GEF project

The province will receive investment of US$ 25.271 million over seven years starting from 2009, for a project intended to reduce poverty and promote sustainable development in the uplands. The project is called, '***How to convert natural assets of upland areas (forestry, landscape sceneries) into productive assets that provide sustainable***

livelihoods and integration with market and agribusiness/agroforestry/ecotourism value chains'. IFAD has loaned 84 per cent of the funds required, with 8.4 per cent contributed by the Vietnamese Government, 2.3 per cent (US$565,300) from the Global Environment Facility (GEF), and 5.1 per cent from beneficiaries.

Lessons learned from this project are expected to strengthen ongoing IFAD activities in Vietnam's upland areas, particularly the northern mountains region. The GEF contribution is committed to be provided for:

(a) Improving the knowledge of the underlying causes of forest degradation.
(b) Identifying and promoting lessons from past experience of sustainable forest management approaches.
(c) Strengthening methodological approaches, inter-institutional arrangements and capacity.
(d) Capacity building for local support service delivery and for land users to plan and invest in sustainable forest land management and livelihoods.
(e) Introducing innovative options for payments for environmental services, and developing incentives for long term forest stewardship (Appraisal report, 2008).

The **project area** includes the three Bac Kan districts of Pac Nam, Ba Be and Na Ri. With total natural areas of 2012 km2 and a population of 117,807, the three districts occupy 41 per cent of the province and contain 38 per cent of its population. The total forest land in the project area is 164,850 ha, compared with only 19,057.8 ha of agricultural land. This shows the high potential for forest resources to play a role in improving local livelihoods. The limited agricultural land (0.8 ha per average five-person household), and unexploited forest resources could be the main reasons for the high level of household poverty in Pac Nam, Ba Be and Na Ri (52 per cent, 56 per cent and 37 per cent respectively).

The project's direct beneficiaries are the upland poor. These collectively number about 11,300 households, or 36 per cent of the total households in the three districts and 51 per cent of the poor households in the whole Bac Kan province. The **indirect project beneficiaries** are all 23,400 households in the project area with additional spillover benefits to households in other Bac Kan districts through better policy and investment implementation (Bac Kan Appraisal draft report).

The project's proposed goal is to achieve sustainable and equitable poverty reduction and improved livelihoods among the rural poor in Bac Kan. The project's **purpose** is to establish a framework for sustainable and profitable agroforestry development in Bac Kan province, targeting rural poor households.

The project contains three components, including:

Component 1. Sustainable and Equitable Forest Land Management: Component 1 addresses forest land use planning and allocation, to promote the sustainable utilization of production and protection forest land as well as ensure poor households and women accrue income and benefits from forestry resources.

Component 2. Generating Income Opportunities for the Rural Poor: Component 2 promotes improved services and technologies provided through pluralistic, pro-poor, demand-driven transfer mechanisms. Under Component 2, public-private partnerships and community managed investment funds would enhance pro-poor agro-forestry investment.

Component 3. Innovative Environmental Opportunities: Under Component 3, forage-based conservation, sustainable land use management, bio-energy development and other innovative options will be assessed and promoted. Options for Payment for Ecosystem/Environment Services (PES) are to be assessed and tested through pilot projects including Integrated Watershed Management, A/R-CDM, CDM (energy) and conservation funds for soil and water resource management. Pro-poor ecotourism will also be promoted.

The potential and constraints for PES in Bac Kan province, with the focus on Ba Be/Pac Nam/Na Ri districts, will be assessed and fed into the formulation of sub-component 3.2, Payment for Environmental Services (PES).

3.3. Potential and constraints for PES in Bac Kan province with a focus on the Ba Be, Pac Nam and Na Ri districts

A. Potential

The potential for and constraints on PES in Bac Kan province were assessed according to how the project area conditions and opportunities could meet the most important PES requirements. These requirements include identification of ES buyers and sellers; the possibility of sustaining financing for ES; voluntarily, conditionality, duration and contract forms; agreements referring to specific cause-effect relationships linked to the continuation of the services; and, the form and level of payment.

Dominated by forestry and agroforestry upland terraces with Ba Be Lake, the Bac Kan provincial landscape provides all four environmental services: watershed function, carbon sequestration, landscape beauty and biodiversity conservation. On the basis of lessons learned from PES cases in Vietnam (Chapter I), it appears that the most successful PES schemes relevant to Bac Kan might be watershed function and carbon sequestration. The assessment of potential and constraints for PES in Bac Kan was therefore focused on these two kinds of ES.

3.3.1. The potential for water-related PES in Ba Be and Pac Nam

A number of (sub) watersheds were identified as having potential for PES development for watershed function within the project areas. They are:

- *The Nang River basin* begins in Pac Nam district in the NW of Bac Kan province, and runs through Ba Be Lake (Ba Be district) before feeding into the Na Hang Hydropower dam in Tuyen Quang province**.** The Nang watershed includes about 27 communes of Pac Nam, Ba Be and Ngan Son districts then flow to Ba Be Lake. The

average water flow in Na Hang Hydropower is 318 m^3/second[11]. The flow measured at Dau Dang Fall (4 km from Ba Be Lake) is only 40-50m^3/second[10], which means that Ba Be contributes about 15% of the water contribution to Na Hang. The interviewees state half of the total water flows in the Nang river basin originate in China, flowing via Ha Giang province. The Na Hang Hydropower started operating in the first quarter of 2008, with more turbines planned to come online later in the year. This shows the potential for Bac Kan to adopt lessons learnt from Son La in estimating the payment from Na Hang Hydropower to the service providers/foresters in Bac Kan. Further checks are needed on the seasonal pattern of flow at Dau Dang relative to water demand for Na Hang power plant, as the monthly patterns may differ. The specific 'buffering' the lake plus upper watersheds provide should be quantified as part of the environmental service quantification..

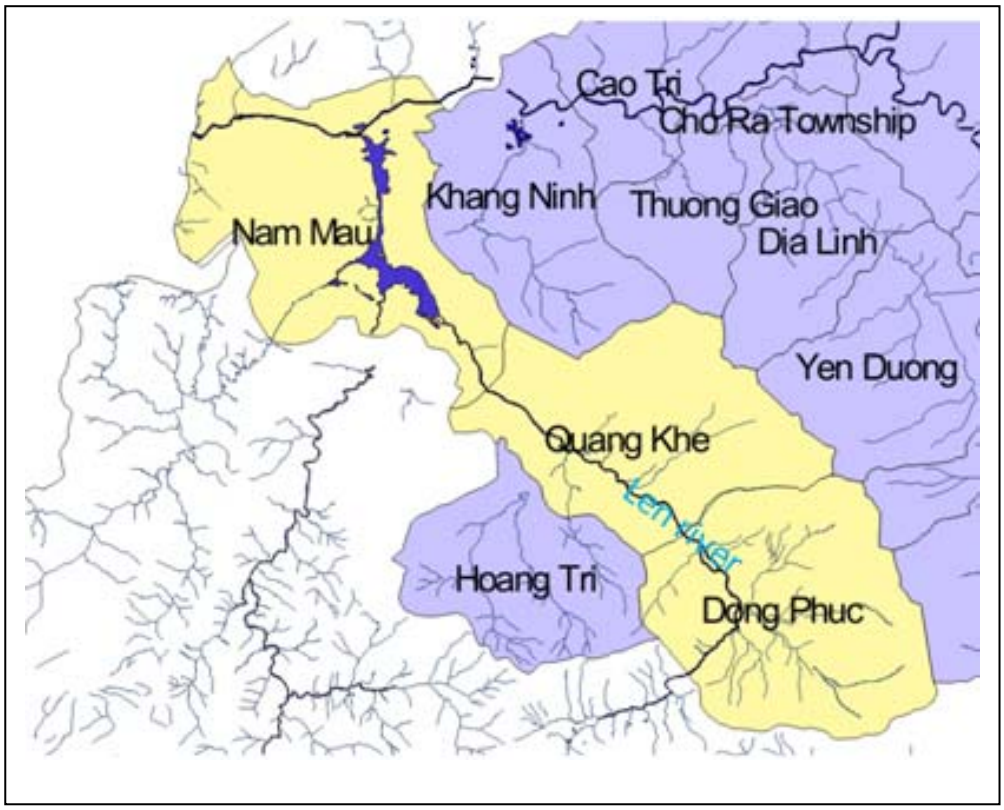
- *The Len River basin*, upstream of Ba Be Lake, has water flowing through the Quan Khe and Dong Phuc communes (see Map 2). This river basin is located within Ba Be district, with two communes in the core zone (Nam Mau commune) and the buffer zone (Quan Khe commune). Within Dong Phuc commune, the Ta Lang Hydropower plant is under construction and due to come online within the next few years. Construction may increase sediment flows into Ba Be Lake. The Ta Lang Hydropower dam will cover 38 km^2 and provides 4.5 Mw/h, which is little compared with Na Hang at 342 Mw/h[12] .

These two hydropower companies and tourists to Ba Be Lake should be the potential buyers of this water-related ES provided by land owners/foresters in the Ba Be and Pac Nam area. Ba Be national park depends on quality of the water flowing in to the park, and may want to negotiate agreements with upstream agricultural areas on pollution control and guarantees on water quality based on community-level monitoring of water quality.

As conditions in Bac Kan are similar to those in Son La, the PES experience in Son La (see Chapter 2 above) can directly inform stakeholders in Bac Kan. The provincial leaders' knowledge of water-related PES, gained through their involvement in implementing Decision 380, bodes well for applying this PES scheme in the province.

[11] Figure provided by Vietnam Electricity – Power Engineering Consulting Joint Stock Company I
[12] Figure provided by Vietnam Electricity – Power Engineering Consulting Joint Stock Company I

Map 2. GIS map of Len river basin (The watershed area of the Len River is marked in yellow).



(Source: Ho Dac Thai Hoang's own work)

3.3.2. The potential of REDD (Reduce deforestation and degradation) in Na Ri district

Before 2005, Na Ri district had a low rate of deforestation. However, since the end of 2005 and early 2006, deforestation has increased dramatically due to rising prices and demand for *B. hsienmu* timber from China[13]. In Na Ri district, *B. hsienmu* can be found at two communes of Bach Thong district and 5 communes at Na Ri district, totally is 14,720 ha. It grows in limestone area, together with many other high value timber *Cinnamomum iners, Garcinia dafracoides, Markhamia stipulate and Pseudotsufa sinensi.* Most of limestone forest is managed by local communities.

The main threat to *B. hsienmu* stands are:

- Illegal forest cutting by local people of Na Ri district and people from Thai Nguyen and Lang Son provinces.
- Local authority (forest ranger, communal people committee-CPC and district people committee-DPC) do not have enough technical equipment, knowledge, skill and altitude to protect this high value forest.

[13] This information needs to be approved by land use change analysis using satellite image

- Huge market of *B. hsienmu* in China
- High price of *b.hsienmu* timber at about 14,000,000 VND/m³
- Local people cut *B. hsienmu* for chopping board, each chopping board at the forest cost 450,000 VND and can be higher than 700,000 VND at the boundary market. More survey is needed to check this information.
- Poor capacity of local forest protectors. Need more training and support

A possible solution is to mobilize all households in the villages near the natural forest to participate in the forest guard scheme by compensating them with cash and/or in-kind payments. The efforts to reduce deforestation and degradation at this site are eligible for national REDD program. To join this program, however, Vietnam in general and the province in particular, should invest in the preparation stage (readiness), so as to establish the baseline data for measuring the amount of carbon emissions or rate of deforestation using GIS analysis and modelling work.

The REDD mechanism can be set up based on the existing forest protection program (project 661), with some improved modifications including:

- Quantifying the amount of carbon emissions under 'business as usual' and the emission reduction that can be attributed to new efforts
- Increasing the forest protection payment to villagers above the opportunity cost for the labour actually invested in protection, conditional to forest conservation (realistic and conditional)
- Increase the community's social capital and bargaining power to more effectively deal with outsider involvement in logging and for obtaining a fair share in the benefits of emission reduction.

The current allocation of forest land for protection within Program 661 of the Vietnamese government is not a PES scheme, as it lacks negotiations on the local levels of compensation while its 'conditionality' is limited. The payment for protecting the forest is only VND100, 000 per ha per year, or equal to two days wages. The wage rate for the villager who patrols the forest is lower than the wage rate for work in agriculture. The current program may be seen as cost saving for the government by shifting the responsibility for protecting forests to local communities with very low payments. But, the basic mechanism of 661 programs in paying villagers could be an advantage as a lesson learnt for adapting the mechanism for REDD. The experience in program 661 also creates a basis for community and local government readiness to adopt the REDD mechanism.

Vietnam was recently accepted by the World Bank as a member of the Forest Carbon Partnership Facility (FCPF). Vietnam REDD plans to prioritize REDD capacity building and awareness raising activities during the first phase, and focus on the forest areas under a high threat of deforestation and degradation such as the north-west of northern Vietnam and the highland plateau in the central part of Vietnam. According to a MARD REDD leader, there is a possibility that Bac Kan could join the REDD national activities, if the province gets financing support from IFAD-GEF.

To define the *boundaries* of the proposed REDD project activity, we need to use an historical reference period (10–15 years) and start at 1995, with 1998 data (satellite images (spot 5: cell size 2, 5 x 2,5m) and spot image 2008 (RS: satellite image). The first survey during the scoping study indicates the availability of maps is as follows:

- Sources of image from GIS unit at ICRAF SEA
  - Landsat TM p127r044, 27 October 1994 (30m)
  - Landsat Tm p127r045, 27 December 1993 (30 m)
  - Landsat ETM p127r044, 4 November 2000 (30m)
  - Landsat ETM p127r045, November 2000 (30m)
- Sources from FIPI
  - Spot 5 (2.5m), spot 4 (5m) of Bac Kan province (2008)
  - Landsat image: 2000, 2002, 2004 (30m)

Further survey on the map and image quality, the need for image interpretation, methods for carbon measurements, market for REDD is required before any PIN will be prepared for REDD.

3.3.3. The potential for a conservation fund to conserve protection forest in Ba be district

Land conflict is a serious problem between local ethnic shifting cultivators and Ba Be National Park in five villages in the Quang Khe commune, Ba Be district. In this area, the protected forests have been allocated to Ba Be National Park since the 1990s. Ba Be National Park was established in 1992. The core area (protected area) is 10,048 ha and the buffer zone is 34,702 ha.

Before the 1990s, the community used this land for shifting cultivation. They continue their practices now, as they have no other land available for food production. At the moment, villagers cultivate around 210 ha of 10,048 ha (about two per cent of the park) for growing upland crops such as maize, soybean and cassava.

The national park wants to stop the farming activities in that land, and this has created a land use conflict with the villagers. Both national park and villagers want to stop this conflict, but lack a solution. This is not a conflict of land claim/tenure because villagers recognize that the land is designated for conservation. But the villagers have little choice but to grow crops because they need the food and income due to limited opportunities for alternative livelihood sources and activities.

According to the park managers, the conflict area remains the same or has slightly decreased since 1992. This indicates the tension of the conflict is not too serious. However, supporting and creating new livelihood sources is necessary to solving this problem; villagers will stop growing crops if they have alternative sources of income.

The development of a PES-like conservation fund to solve this conflict and improve livelihood of the five villages dependent on the forest in the buffer zone is of great interest to Ba Be National Park as well as Ba Be district. Some factors show that the local conditions are ripe for the change. They are: (i) local people are quite familiar with conservation contracts, adopted by the project "Creating Protected Areas for Resource Conservation using Landscape Ecology" (PARC) - an Integrated Conservation and Development Project[14] during 1999-2004; (ii) The park recently got the proposal 'Strengthening community-based management in Ba Be National Park' approved by the Vietnam Conservation Fund and funded by World Bank. The support is around US$50,000 for two years, 2008-09.

One avenue that can be explored is to focus on issues of actual water quality at the point where the Len River enters the park and create a performance-based contract. To the extent that swiddens in the park contribute to sedimentation of the river, such a contract would provide local incentives to deal with them at community scale – but it might also imply that factors other than the swiddening are of more immediate importance.

3.3.4. The potential for CDM Reforestation/Afforestation in Pac Nam district:

Erosion and landslides during the rainy season are a serious threat in a large area of bare land in the southern part of Pac Nam. This affects the local poor people's livelihood as well as water -flow in the Nang River. The Nang River runs through Ba Be Lake and feeds Na Hang hydropower station.

A joint venture for planting forest, between D&G Company (a private company[15]) which has money and individual households and communes who have land, is under approval by the Provincial People Committee planning commission. The plan covers four communes in the southern part of Pac Nam, including Nghiem Loan, An Thang, Xuan La and Cao Tan. The company will provide consultancy, technology, seeds for forest planting and protecting, as well as sharing the benefits with involved households when selling woodchips. The benefit gained after eight years will be shared 50:50 between the company and farmers, if farmers contribute with land. The income gained by participating in forest planting will be higher than the income farmers get today through shifting cultivation.

The D&G Company has shown an interest in linking this forest planting to AR- CDM, in order not only to sustain a source of exported woodchips, but also to establish their

[14] From 1999 to 2004, PARC piloted a landscape ecology approach for conserving Vietnam's diverse biological heritage. This approach integrated conservation and development by using resource use planning as a basis for project activities in the landscapes of three sites: Yok Don National Park, Ba Be National Park, and Na Hang Nature Reserve. The project was funded by UNDP and GEF.

[15] D&G Vietnam Co., Ltd. (D&G Vietnam for short) was founded on 15 March 2005, with charter capital of VND81 billion, head quarters at No.3B Quoc Tu Giam Str, Dong Da Dist, Hanoi; and six branches at Hoa Binh, Quang Ninh; Ninh Binh; Bac Kan; Đa Nang and 01 Agent at Nanning City, Quangxi, China

products' social value through job provision, stabilization of local life, and environmental protection. This combination will strengthen its commercial advantage.

The successful JICA A/R CDM in Hoa Binh province is another good example for Bac Kan to follow. The involvement of national CDM experts from Xuan Mai University and Forest Science Institute of Vietnam (FSIV) in this scoping study will make the application of lessons from Hoa Binh to Bac Kan viable.

Sources of spatial information on forest changes over time in Bac Kan for A/R CDM allow us to trace back forest status or coverage to 1988, 1989 or 1990:

Forest status/forest coverage of Bac Kan province

From Forest inventory and planning institute (FIPI):

- Map of natural forest of Bac Thai province (1992) is available in hard copy (paper). They will digitalize and transfer all information to appropriate data (Mapinfor). Map scale: 100000.
- Map of natural forest of Na Ri district (1992) is available in hard copy (paper). They will digitalize and transfer all information to appropriate data (Mapinfor). Map scale: 10000

From Vietnamese academy of science and technology:

- They may support all data base on forest cover from 1998 (Analysed information from Landsat 1998)

3.3.5. The potential for co-investment for PES:

The co-funding from IFAD-GEF to Bac Kan for planning and piloting PES schemes will help the establishment phase in the first four years. The costs for scaling up PES schemes are recommended to be covered by the community development fund. It is planned that communes will be allocated on average US$63,000 per year (up to a total of US$252,000 per commune over four years). If the two-year pilot policy on PES for watershed function under Decision 380 is rolled-out nationwide after 2010, the payments captured through the PES scheme for two potential watersheds Ba Be-Na Hang and Ta Lang (see section 1 above) could be reinvested into the provincial forest protection fund in Ba Be and Pac Nam districts. Income obtained through selling A/R CDM carbon credits for Pac Nam (see section 2 above) in the first five years could be reinvested in forest establishment in following rotation, technical assistance, monitoring and carbon trading procedures. Similarly, income from selling carbon through REDD would be reinvested for forest protection in Na Ri. Additional co-investment sources could be the poverty reduction money (135 program phase II) and environmental tax that should be able to link with this pro-poor PES.

3.3.6. Strong local structures embed PES implementation

Lessons learnt from PES in Vietnam as well as in South East Asia have shown that:

- Social mobilization is an important step in implementing PES to improve awareness and understanding of the opportunity, role and impacts of being an "ES Seller", and increase the community capacity to implement PES.

- The social mobilization of PES can be channelled through the existing village unions.
- The social mobilization is not only for community but also for government officers. The role of government officers is critically important in Vietnam because of its top-down governance approach.

High commitment, ownership and interest among local stakeholders for PES in Bac Kan are very important factors for the success of the institutional aspects for PES. At the grassroots level, Vietnam has long had four unions for setting national policy: the farmer union, women's union, youth union and veteran union. Therefore, at least those four sub-unions exist in each Vietnamese village. In addition, some informal community organizations such credit unions and shared labour groups have also formed. The percentage union membership out of the total village and the percentage of members attending meetings varies. The number of households in villages is also small (20-50) and the houses are located close each other. In our opinion, the bonding capital of the village is good. One role of the unions is to disseminate information about the Communist Party and the Government to villagers at a communal level.

3.3.7. Project design enabling PES development

The project design, starting with forestland allocation and issuing land use certificates in Component 1, gives pre-requisite conditions for developing the PES mechanism, as unclear land tenure is known as a constraint. With good planning between the piloting to scaling up phases, high transaction costs (acknowledged as a disadvantage in the reviewed small-scale PES projects in Vietnam) can be avoided.

3.3.8. Good partnership of project developers

A partnership, established during this scoping survey and project formulation, will work closely to support Bac Kan during the planning and implementation of PES–related activities. The consortium contains:

- ICRAF Vietnam under the umbrella of the RUPES II project provides technical assistance in developing the PES mechanism as well as coordinating the PES piloting in Bac Kan. Part of the time and human resources for both technical and administration works for Bac Kan will be covered by RUPES II project (see Budget in Chapter 5 below).

The following partners are committed to work under ICRAF/RUPES II coordination for Bac Kan:

- Xuan Mai University, Forest Science Institute of Vietnam (FSIV) has experience of A/R CDM when working with JICA in Cao Phong, Hoa Binh. It is committed to providing technical assistance on CDM and PDD development.
- Thai Nguyen University (TNU), Hue University of Agriculture and Forestry (HUAF) and Ha Noi Agricultural University (HAU) has extensive experience in participatory methods, rural development and GIS. It is ready to provide Training

of Trainers on community involvement for PES, as well as technical assistance for GIS analysis.

- As project developer on REDD projects and a provider of advisory services on REDD, the Indochina Carbon Company (ICC) is committed to providing technical assistance (ICC has provided these services to SNV Netherland development organisation, WWF and UN-REDD in Vietnam). The company was established in 2008 but its staffs has more than 25 years of experience designing, negotiating and managing projects in the region, and an experienced REDD team based in Hanoi.

3.3.9. Clear potential buyers and third party verification:

There are carbon buyers such as the World Bank and the private sector. At present, the World Bank manages or jointly manages 11 funds and facilities as follows:

- Prototype Carbon Fund (PCF)
- BioCarbon Fund (BioCF) Tranche 1
- Community Development Carbon Fund (CDCF)
- Danish Carbon Fund (DCF)
- Spanish Carbon Fund (SCF)
- Umbrella Carbon Facility (UCF) Tranche 1
- Netherlands CDM Facility (NCDMF)
- Netherlands European Carbon Facility (NECF)
- Italian Carbon Fund (ICF)
- BioCarbon Fund (BioCF) Tranche 2
- Carbon Fund for Europe (CFE)

In addition, the World Bank is designing two new facilities namely:

- Forest Carbon Partnership Facility (FCPF), and
- Carbon Partnership Facility (CPF)

ICRAF is also exploring the prospects with two international companies well-known in the voluntary carbon market:

- *Tricorona AB* is a Swedish company and a major player in the international carbon market. The company supplies credits from CDM projects to the retail market, and also provides customised climate neutralisation packages to companies and other organizations. It also packages these offsets with sophisticated tools for calculating climate impacts, on which this website is based (Please see http://www.tricoronagreen.com/app/page.php?p=whoweare)
- CarbonAided is a company has a long experience in energy, environment, sustainable development, engineering, emissions trading, strategy and marketing. The company develops innovative carbon footprint and carbon management solutions for businesses and individuals (please see: http://www.carbonaided.com/aboutus/

Potential values suggested by Cao Phong AR- CDM project implementers are:

- JACO CDM, Ltd.
  Address: 2F Address Building, 2-2-19 Akasaka, Minato-ku, Tokyo, Japan
  http://www.jaco-cdm.com/english/index.html
- Ms. YAMANOSHITA Makino (macchino@akane.waseda.jp, makinoyam@mac.com)

B. Constraints

- A lack of supportive legislation for PES in Vietnam, particularly for landscape beauty and watershed protection.
- The lack of base line data creates difficulty in monitoring conditionality of PES.
- Poor understanding and capacity among public servants and the public.
- High transaction costs for information searching, contracting, negotiation and the large number of poor sellers who need to be included.
- Lack of expertise and experts in the field of CDM in Vietnam

CHAPTER 4. REVIEW POSSIBILITIES, CONSTRAINTS, OVERALL VIABILITY AND FURTHER WORK REQUIREMENTS OF PES OPTIONS IN PROJECT DISTRICTS

4.1. Water-related PES in the Nang River basin

A. Possibilities

Legislation setting

To establish Payment for Environmental Services in Vietnam, the MARD has developed the two-year pilot policy on Payment for Forest Ecosystem Services under the Government's Decision 380. The policy is being piloted in Lam Dong and Son La provinces from 2008-10, and is expected to be rolled out nationwide after 2010 (see Chapter 2). Experience with PES in Bac Kan province can be transferred to the pilot in Son La, which is Vietnam's northern agro-economic zone. Payments captured through the PES scheme could be reinvested in the provincial forest protection fund, whereby MARD distributes payments to local forest land owners based on the forest land registry and a pre-determined "K Factor" (i.e. forest classification, forest type and forest quality).

The potential ES buyers

Na Hang Hydropower Company is a potential buyer. The VND20/kwh payment will be taken from each Kwh of electricity the company sells (Decision 380). Each year Na Hang sells 1329 billion Kwh, which means VND26,580 billion/year could be potentially raised for the Nang River basin's watershed function. GIS analysis has mapped a clear link between the Nang River basin and Na Hang hydropower. However, more careful hydrological assessment is required to define the proportion of water contributed from the Ba Be and Pac Nam districts to Na Hang. This is needed to negotiate an accurate and appropriate payment level.

How the money obtained can be used?

According to Decision 380, a forest owner will be paid based on the following calculation:

Total amount of Payment (VND) paid to forest owner	=	Average fee per hectare of forest (VND/ha)	x	Forest area managed for services (ha)	x	Coefficient K

Where:

- The average fee per hectare of forest (VND/ha) is the total received from ES users, less the management costs of provincial authorities; divided by the total forest area in the catchments as approved by the responsible agency for the PES agreement.

- The forest area managed for services includes allocated forest areas, rented areas and contracted areas.
- Coefficient K depends on the forest categories managed (protection forests, special use forests, production forests); the forest status (rich, medium, poor, restoration

forest); and, the forest history (natural forest, plantation) – as based on the justification of the Provincial People's Committee.

In the Son La case, 90 ninety per cent of the fund possibly can be used to pay forest owners for forest protection while 10 per cent is used to run the management board, potentially at the province (Bac Kan) and district levels (Pac Nam and Ba Be). A bank (preferably Social Policy Bank – a non-profit bank) can be engaged to take the responsibility for channelling payments to forest owners. The activities at the commune level can be linked closely with the Community Development Fund (CDF). The project boundary will determine how many households and which communes in Pac Nam and Ba Be districts is eligible as beneficiaries.

B. Constraints

The Son La case[16] shows some limitations in the pilot program under Decision 380:

- Inaccurate document and field data leads to difficulty in defining the project boundary and beneficiaries.
- Complicated and inappropriate forest classification status does not entirely support the PES requirements made by Decision 380.
- Missing in-depth study/research on PES values as a basis for identifying forest environmental services and K factor.
- Absence of method on monitoring and adjustment of forest status in accordance with the practical changes of resources.

The constraints seem very much related to scientific knowledge. This may also explain why the current piloting methods within the Decision 380 framework are so focused on scientific knowledge. The gaps between scientific knowledge and reality have lead to the obstacles observed.

In light of the problems mentioned above, the piloted PES in Bac Kan will test a new payment distribution scheme, modified from that used in Son La and Lam Dong. In this scheme, all knowledge, including scientific knowledge, public knowledge and local knowledge, will be combined to define the project boundary and equity in payment distribution.

This can be done because:

- ICRAF, within the RUPES II framework, has developed a tool named 'Rapid Hydrological Assessment (RHA)'. This will help to overcome the problems of Decision 380, including the lack of methodologies and approaches to assess hydrology characteristics as a basis to establish and implement payment for

[16] Vuong Van Quynh, 2008. Payment for Environmental Service in Son la. Presentation at the workshop on "Managing forests in Mekong Countries for Carbon sequestration and REDD", 27- 30 October, 2008

watershed protection. Through applying RHA, Bac Kan will get the best technical assistance provided by ICRAF through its regional project 'Trees in Multi-Use landscape in Southeast Asia (TULSEA): A negotiation support toolbox for Integrated Natural Resources Management'.

- Since Decision 380 is only in the piloting phase, the findings from the Bac Kan pilots will certainly contribute to finalizing the Government policy, which is planned for roll-out nationwide in 2010. This will provide a good legislative foundation for scaling up the initiative after 2011, with about eight new hydropower plants planned in Bac Kan province.

C. Overall viability

Water-related PES in the Nang River basin related to the Na Hang Hydropower dam is a realistic option due to:

- A good legislative foundation.
- Available data showing links between watersheds within the province with the hydropower dam.
- Clear purposes for where the money obtained from PES will be invested (i.e. to protect forests and prevent soil erosion and landslides).
- Potential links with the activities of the Commune Development Fund (CDF), leading to lower transaction costs for payment distribution.
- Suitable methods and technical assistance available for local needs. The Rapid Hydrological Assessment (RHA) in combination with the Participatory Landscape Analysis (PaLA) were trained for Vietnamese partners during November, 21-25 2008 in Thai Nguyen province. It has been shown that the methods are very suitable for Cong river basin in Thai Nguyen, that is quite similar for Nang and Len river basin in Bac Kan

D. Further work requirements: designing the pilot site requires investigating some aspects further:

1. Rapid Hydrological assessment, to define the project boundary, the proportion of water contributed from Ba Be and Pac Nam to Na Hang, and potential ES buyers in addition to Na Hang Hydropower Company.
2. Rapid Hydrological assessment to define the boundary of Len river watershed down to Ba Be River, in order to define the impacts of cultivation in the upstream to the water quality and quantity of Ba Be lake. All water users of Ba Be Lake will also mapped in order to define potential buyers of watershed function provided by Len river basin.
3. Linking piloting work in Bac Kan with the piloting activities of Decision 380, to ensure that the Bac Kan policy outcomes can be integrated into the national policy.
4. Mapping all on the basis of (1), (2) and (3) above, an economic assessment of the option will be undertaken. A detailed plan of activities and budget will be developed in consultation with local stakeholders during the design survey.

4.2. CDM (Afforestation/Reforestation) – options for community involvement/credits for reforestation of community lands

A. Background

The Clean Development Mechanism (CDM) was developed within the framework of the Kyoto Protocol approved in 1997, under the United Nations Framework Convention on Climate Change (UNFCCC). CDM aims to **quantify and sell** greenhouse gas emission reductions achieved **in developing countries. Industrialized countries** can buy the 'offsets' to help them comply with their mandatory emission reduction targets under the Protocol. CDM is applicable to several sectors, for example, energy, industry and agriculture. In forestry, reforestation and afforestation activities/projects are eligible under CDM (the so-called AR-CDM).

The United Nations Intergovernmental Panel on Climate Change (IPCC) has defined forests as part of the land eligibility criteria for AR-CDM. This definition states that forests are an area of woody trees covering 0.5 –1.0 ha, with tree height of 2-5m and crown cover of 10–30 per cent. Based on this definition, each country is asked to choose specific criteria for defining the forests suitable to its national circumstances. In Vietnam, forests were defined as follows:

- a minimum area of 0.5 ha; and
- a minimum forest crown cover of 30 per cent; and
- tree height of 3m at maturity.

It must be noted that AR-CDM projects are similar to regular reforestation projects. The differences are that AR-CDM projects have to be formulated, registered, implemented/monitored, and verified according to certain rules and procedures set by the UNFCCC. The development of AR-CDM project needs to follow the steps below:

- Develop a Project Ideal Note (PIN).
- Develop Project Design Document (PDD).
- Submission of PDD to the host country for letter of approval.
- Submission of PDD and letter of approval to CDM Executing Board.
- Validation by the United Nations.
- Issuance of Certified Emission Reductions (CER).
- Monitoring and evaluation for generating carbon credits.

Additionality is another important criterion, whereby the project scenario is compared to the baseline scenario to assess whether total carbon stocks will increase. Project managers must explain why carbon stocks would NOT increase WITHOUT the AR CDM project. The additionality is assessed using barriers analysis. At least one of the following needs to be taken into account:

- Investment barriers.

- Institutional barriers.
- Technological barriers.
- Local tradition related barriers.
- Barriers to prevailing practices.
- Barriers to local ecological conditions.
- Barriers due to social conditions.
- Barriers relating to land tenure, ownership, inheritance and property rights.

To join the CDM, developed and developing countries have to meet the following requirements:

- voluntary participation;
- ratify the Kyoto Protocol; and,
- establish a CDM Designated National Authority (DNA);

Reforestation and afforestation can generate carbon benefits, which are gained by selling the carbon credits generated by the projects. Carbon credits have two forms: CER (Certified Emission Reduction) and VER (Verified Emission Reduction). In the market, the CER price is normally much higher than VER, and CER credits are easier to trade.

- CER is generated from CDM projects. CER has to meet stringent procedural rules for validation by the UN through an accreditation by a Designated Operational Entity (DOE).
- VER is generated from sequestration activity and is certified by an independent verification body which the project developer can choose (it is not compulsory to go through the UN). The VER price is not applicable to the CDM market, but set instead by negotiation between the parties.

AR-CDM, has two kinds of CER: temporary CER (tCER) and long-term CER (lCER).

- tCER shall be issued based on the net anthropogenic GHG removal achieved by the project activity since the project's start date. Each tCER shall expire at the end of the commitment period for which it was issued.
- lCER shall be issued based on the net anthropogenic GHG achieved by the project activity during each verification period. Each lCER shall expire at the end of the crediting period or where the crediting period is renewed.
- tCER and lCER shall be issued through the process of "Monitoring", "Verification" and "Certification" of GHG removal. Project participants can decide the timing of the first verification. Verification shall be undertaken every five years after the first verification. The maximum crediting period is 60 years.

To develop AR-CDM the following needs to be considered:

- Land eligibility (land without forest cover sine 1 January 1990).
- Baseline scenario (the scenario that reasonably presents the carbon stock change in the project boundary if the AR-CDM project activity is NOT implemented).

- Future scenario (the scenario that presents the carbon stock change in the project boundary when the AR-CDM project is implemented).
- Project boundary.
- Project operation plans.
- Estimation of net anthropogenic greenhouse gas removals by sinks (CERs).
- Environmental and social impacts.

B. Possibilities

AR-CDM opportunities within national reforestation programs and projects in Vietnam: Vietnam ratified the Kyoto Protocol in September 2002 because Vietnam is one of the nations most vulnerable to climate change. It then set up the Clean Development Mechanism National Authority (CNA) under the Ministry of Natural Resources and Environment (MONRE). The Vietnamese Government has tried to promote AR-CDM as a way to develop some of the nation's 5.6 million hectares of bare land as well as a sustainable development option for poor rural communities.

In Bac Kan province in general and the Pac Nam district in particular, reforestation is considered one of the most important livelihood activities. This activity places the large 'areas of forest land without forest' under community management for the dual purpose of improving local livelihoods and environmental protection. This land category is claimed to occupy more than 30,000 ha of the whole project area, and about 7000 ha in Pac Nam district (see Table 4). Pac Nam has good potential for AR-CDM given its recent attention from both the Government (through its program 661) and the private sector for investment in forest planting. Therefore the procedure for AR-CDM can be integrated into the planning for new reforestation projects.

Two main forest planting programs/projects are the most relevant for AR-CDM: program 661 (2003-10) and private sector investment, in this case by the company D&G[17].

Under program 661, afforestation projects can be implemented for both production and protection forests. In production forest, farmers receive planting material, technical assistance and cash for taking care of the planted forest during its first three years (VND1.2 million in the first year, VND800,000 in the second and VND600,000 in the third). Farmers agree to follow the government technical assistance, achieve at least an 85 per cent survival rate for the planted trees, and commit to replacing dead trees. Farmers have a right to harvest the timber, but they should pay tax (4%), 80 kg rice to the commune and 40 kg rice to village.

The payment for afforestation in protection forests is bigger, with farmers receiving VND1.5 million in the first year. However, because farmers are not allowed to harvest protection forests, they are more interested in being involved in planting production

[17] D&G Vietnam Ltd was founded on 15 March 2005, with charter capital of VND81 billion. Its headquarters are at No.3B Quoc Tu Giam Str, Dong Da Dist, Hanoi, with six branches at Hoa Binh, Quang Ninh; Ninh Binh; Bac Kan; Đa Nang and 01 Agent at Nanning City, Quangxi, China.

forests. All farmers with a forest land allocation are eligible to join the program. However, since the budget is limited, the priority is given to households with the most available labour and poor households. Regarding land ownership, farmers have a right to both trees and land, but they should follow the land use purpose/planning already determined by the Government (eg. production and protection forest). In theory, farmers can choose the tree species to plant but most follow suggestions from the technical assistants.

Private sector investment: D&G Vietnam Ltd has surveyed land availability in accessible areas and prepared a commercial plantation project for about 5000 ha across four communes in the southern part of Pac Nam, including Cao Tan, Nghiem Loan, An Thang and Xuan La. The company proposes to rent community and farmers land for planting Acacia spp.', to produce woodchips for export to Japan. The duration of rent is 50 years, starting from 2008. The company is the investor while Provincial People's Committee (PPC) of Bac Kan is the manager. The project aims to create a sustainable source of woodchips for export. This can be achieved through a good partnership with local stakeholders. The company and local stakeholder have developed a benefit-sharing arrangement together, as described in Chapter 3. The proposal has been approved at the district level, but is waiting for final approval at the provincial level.

The potential pilot site for AR-CDM in Pac Nam

During the scoping survey, two villages in the Nghiem Loan commune belonging to areas planned for forest planting by D&G Vietnam were visited. A set of criteria was used to assess the site suitability for AR-CDM. The criteria were developed on the basis of (UNFCCC) requirements, Vietnam's forest definition and experience from the successful Japan International Cooperation Agency (JICA) AR-CDM project in Cao Phong, Hoa Binh. Of 1100 ha in the Nghien Loan commune covered by the D&G proposal, about 400 ha was found to be eligible for AR-CDM. The remaining area is regeneration forest and therefore ineligible.

The eligible forest located in the Nam Vam and Khau Nen villages was deforested for crops before 1980. After a period of cultivation, this land was left fallow. If we want to sell carbon credits in the strict CDM market, this information will need to be confirmed by better evidence such as aerial photos, satellite images, land-use maps from before 1990 and interviews with local stakeholders by participatory rural appraisal PRA. About 60 households, who have land, will be involved in the project. Currently this land is claimed as community land. However, according to 'local land tenure', most is used by and belongs to different households.

The buyers: Identifying the market for AR-CDM in Pac Nam was the first step in our scoping survey. Two companies, Trecorona and Carbon Aid (for more information, see Chapter 3), who are well-known as wholesalers in the international Carbon Voluntary Market (CVM), were contacted to discuss the market opportunities in Pac Nam. The two companies are now studying the PIN of this small-scale AR-CDM opportunity.

To highlight the potential income for local farmers, the CER and VER in Pac Nam area have been is estimated and presented in Table 5.

Table 5. Estimation of additional income obtained by CDM after seven years (The planted species are hybrid acacia).

	CER	**VER**
Total carbon for one rotation (T CO2)	194	194
Time of one duration (year)[18]	7	7
Baseline Carbon (T CO2)	3	3
Total area of planting forest for CDM (ha)[19]	1100	4400
Total carbon absorbed (T CO2)[20]	213400	853600
Total baseline C (T CO2)[21]	3300	13200
Removal Carbon	**210100**	**840400**
Possible price (USD per T CO2)[22]	5	3
Total possible income	1050500	2521200
Transaction cost[23] (USD)	75000	75 000
Total possible benefits (USD) after the first rotation	975500	2 446 200
Possible income per ha (USD) after the first rotation	10,55736	6,618506494
Possible income per ha (VND) after the first rotation	**179475**	**112515**

Carbon credits can be sold in two occasions, after 7 years and after 15 years of planting. That means the income will be double the amount given in the table above. The possible income from selling carbon in the voluntary market is lower than in the CDM market. However, the possible income per ha is about the same as income gained when selling watershed function services under Government Decision 680, as estimated in the Son La case (see Chapter 2). One needs to note that this is only additional income, besides the income gained by harvesting planted forest.

The manner/mode of AR-CDM project management

D&G Vietnam will collaborate with the community and households who will be the CDM project participants. In this case, D&G is willing to be the investor in forest planting, protection and management. D&G can sign contracts or Memorandums of Understanding with communes, villages and groups of households.

[18] The project cycle is usually 17-20 years but this estimation is used for IFAD project duration

[19] Proposal for the project area from Forest Science Institute of Vietnam

[20] Calculation by the Forest Science Institute of Vietnam for project area

[21] Source : Forest Science Institute of Vietnam

[22] The price is the minimum and based on the presentation of Trecorona and Carbon Aid at the workshop 'Making carbon market work for the poor in Vietnam. Hanoi, 5 November 2008.

[22] Transaction costs, including searching for information, marketing products, negotiations and meetings with stakeholders, and management costs, given by Trecorona and Carbon Aid at the workshop 'Making carbon market work for the poor in Vietnam. Hanoi, 5 November 2008.

The provincial leaders agreed that if it was possible to develop AR-CDM in the Pac Nam district, the forest land in the AR-CDM project site would be allocated and/or reallocated to the households, so that local farmers can enter the partnership with D&G. Forestry staff at the provincial level have experience in forestry project management as well as agroforestry extension, although further capacity strengthening is also needed.

How the income will be used

The money obtained by CDM can be used to improve the livelihoods of local farmers, if D&G continues to invest. If not, local farmers can use the money themselves for replanting forests.

C. Constraints

- A new methodology for baseline carbon estimation may be required in order to be suitable with the condition of this site.
- Farmers, local leaders and staff at the district, commune and village levels lack general experience in forestry and in forestry project management in particular, although a few plantations have been developed under 661 programs and under forestry enterprises.
- This is assumed to be a low-income area; therefore, short-term income opportunities will be necessary for households.
- Most people in the communes are from ethnic groups such as Tay, Nung and H's Mong, who are only recently acquainted with crop cultivation and animal raising. So it could take time to explain and assist them with forest activities on their own land, if they are allocated and or reallocated forest land to develop CDM forests.
- At the moment, the land use right is unclear in the Pac Nam district in general, and in Nghien Loan in particular. It was mentioned that the local government has been carrying out forestland allocation/reallocation, but progress has been delayed by big differences between the data on the maps and the reality of land use.
- Normally, the AR-CDM rotation is at least twice longer than the normal forest production plantation. This may lead to the rising demand for raw materials, which in turn might put pressure on forestry protection.

D. Overall viability: The AR-CDM option in Pac Nam district is realistic due to:

- Clear procedures.
- A good project investor and carbon buyers.
- Clear purposes for investing the money obtained from PES (i.e. to protect/reinvest in planting forests).
- Potential links with Commune Development Fund (CDF) activities, leading to reduced transaction costs for payment distribution.
- A suitable method and technical assistance for local needs.
- Best practice examples and experiences from successful AR-CDM in Hoa Binh.
- Technical assistance and advice from leading AR-CDM experts in Vietnam.

- Rapid Carbon Appraisal (RACSA) that is developed by ICRAF can be applied for this site. The method has been shown in the recent training in Vietnam to be suitable. This will help to reduce the high transaction costs of the AR CDM work.

E. Further work requirements: additional survey work is required to design the pilot site in Pac Nam. The main activities are:

- Surveys in all four communes to define exact land and household numbers that will be involved.
- Further review to more accurately measure baseline carbon and predict the carbon absorbed by *Acacia sp*.
- Collecting and studying maps to define how many hectares meet the 1990 baseline requirement.
- On the basis of 1, 2, 3 above, a PIN and first draft of PDD will be prepared. The main aspects to be studied are:
    - Vegetation classification for the baseline stratification (stratification and mapping on each vegetation type).
    - Baseline biomass measurement.
    - Soil analysis.
    - Demonstration of land eligibility.
    - Socio-economic condition (by questionnaire).
    - Survey on leakage.
    - Willingness, consensus of local stakeholders (by participatory discussion, especially with the landowners with land use rights).
    - Justification for a small scale AR-CDM – Additionality.
- Further dialogue with companies and donors on a good price for selling CER and VER.
- Preparing spatial data in order to apply RACSA method at the site.

4.3. CDM (energy)

A. Background

CDM (energy) is a part of the CDM developed in the Kyoto Protocol approved in 1997 under the United Nations Framework Convention on Climate change (UNFCCC). This CDM is applicable to the energy sector, in contrast to A/R CDM in the forestry sector (introduced in Section 4.3). The CDM energy reviewed in this scoping study includes:

- Option 1: Reduction in fuel-wood use for cooking by introducing efficient stoves, household woodlots and so forth.
- Option 2: Introduction of biogas linked to semi-intensive livestock and household waste.

The review was done on the basis of the CDM energy requirement, the potential for opportunities in the Bac Kan project areas, as well as lessons learnt from other CDM (energy) projects. From the reviewed findings, a questionnaire was designed to frame further work.

In order to be a CDM project, the projects should be "additional" and the selected baseline approaches "eligible". Additionality can be demonstrated in different ways:

(1) That the CDM project reduces anthropogenic greenhouse gas (GHG) emissions below the level that would have occurred in the absence of the registered CDM project activity.
(2) Using an economic or financial analysis to show the project is not the least cost or most economically attractive option.
(3) Using a barrier analysis, whereby without the CDM, the project could not be realized due to lack of finance, inaccessible technologies or other resources, or a lack of appropriate incentives or information, among other barriers.
(4) Using a common practice test, with evidence that the project is not common practice in the host country.

The barrier analysis and common practice test are the most suitable ways to demonstrate the additionality of our two sub-projects. Normally, the "additionality tool" approved by the executive board of UNFCCC will be used for additionality assessment.

Generally, the eligible baseline approaches for an emission reduction CDM project may be selected from the following options:

- Existing actual or historical emissions.
- Emissions from a technology that represents an economically attractive course of action, taking into account barriers to investment.
- Average emissions from similar project activities undertaken in the previous five years, in similar social, economic, environmental and technological circumstances, and whose performance is among the top 20 per cent of their category.

For biogas, the "existing actual or historical emissions" is the most suitable baseline approach. However, selecting an appropriate baseline approach for efficient fuel-wood stoves is more difficult. If the selected baseline is traditional fuel-wood stoves, this sub-project activity does not reduce emissions. In cases where reducing (or saving) fuel-wood by using more efficient stoves leads to reduced deforestation, the selected baseline would be the actual status of deforestation. The problem is how to prove a link between the actual use of fuel-wood and the level of deforestation.

To sum up, sub-project 2 (biogas) can be definitely demonstrated as a CDM project. However, sub-project 1 (efficient fuel-wood stoves) will be more difficult to demonstrate as a CDM project in the strict carbon market. However, in the international voluntary carbon market, the buyers have reported success in selling carbon for biogas and improved stoves from neighbouring Asian countries, such as India and Bangladesh. The main factors leading to success in the voluntary carbon market are reported in Chapter 4.4.

B. Who are the possible buyers?

If our proposed sub-projects are demonstrated as CDM projects, we can sell the emission credits to the World Bank through the following funds:

- Community Development Carbon Fund, and/or
- BioCarbon Fund Tranche 2.

The under-designed Forest Carbon Partnership Facility (FCPF) and Carbon Partnership Facility (CPF) could be also considered.

The Carbon Aid company (for more information, see Chapter 3 above) is well-known as a wholesaler in the international Carbon Voluntary Market (CVM), and has been successful in selling CDM for improved stoves in India and Bangladesh. SNV Netherlands Development Organisation (SNV) in Vietnam, in collaboration with MARD, is trying to sell carbon credits for its biogas to a Dutch rock band that wants to 'compensate' about 250 tonnes of CO2 for their frequent air travel)[24]. Furthermore, Carbon Aid may fund scoping and/or design surveys for CDM (energy) if they get interested in our PIN.[25] The possibility of linking our Bac Kan efforts with the CDM (energy) market should be explored further with Carbon Aid and SNV.

C. How the money can be obtained and used in PES works in Bac Kan?

During the project life in Bac Kan, support for the installation of biogas and improved stoves possibly could be seen as in-kind rewards for the forest protection proposed under the CDM, REDD and conservation fund programs. In parallel, the procedures for obtaining carbon credits are proposed for investigation and preparation. If the scoping survey shows the project has high potential, securing up-front financing for further CDM (energy) development should be covered by the IFAD project (under the community fund) during the first 3-5 years. By Year 5, revenues generated from the sale of VERs are anticipated to support longer-term project costs.

D. Overall viability and constraints:

Several key factors account for the success of a pro-poor renewable energy project using efficient fuel-wood stoves and biogas technology:

Technical factors:

- *Introduced technology (i.e. efficient fuel-wood stoves, biogas digester, and biogas stoves) should be proven and suitable to the local climate conditions.* Both options have been observed in Bay Mau commune in the core zone of Ba Be National Park. The Ba Be National Park Management Board has reported that the models were adopted by the project "Creating Protected Areas for Resource Conservation using Landscape Ecology" (PARC) - an Integrated

[24] Felixter Heegde, SNV, presentation at at the workshop 'Making carbon markets work for the poor in Vietnam. Hanoi, 5 November 2008.

[25] Personal communication with the DG of Carbon Aid at the workshop 'Making carbon market work for the poor in Vietnam. Hanoi, 5 November 2008.

Conservation and Development Project[26], which began in 2004. The main advantage of biogas is in sanitation, thanks to its usefulness in dealing with household waste. The improved stoves and woodlots help to reduce the workload of women and children who otherwise have to travel long distances to collect fuel wood. However, ethnic groups prefer open stoves both for cooking and heating during cold months. The Energy Institute of Vietnam has advised that it can help in designing improved stoves appropriate to local conditions and culture. A combination of both open and improved stoves is an option in the project areas in all three districts.

- *On-the-job training on operation and maintenance of introduced technologies* for participants, so that they can properly operate and maintain the equipment provided. This training can be planned and linked with phase II of the MARD-SNV biogas project.

Financial factors:

- A grant at a reasonable percentage of the total project cost should be provided to the participating households. This should be investigated in the further study for CDM (energy). The revenue from selling carbon credits generated from this project can be reinvested in these grants.
- The poor can borrow from the fund for project costs. This certainly can be a part of the Community Development Fund (CDF) for the Bac Kan project.

E. Further work requirements: A further survey for designing the project is recommended. Questions could be:

- What is the scope of the project?
- Where are the most suitable locations in the project areas, i.e. local people who are interested and can adopt the technologies?
- What is the right GHG emission level?
- How can these options be used as in-kind PES for forest protection?
- What is the current use of fuel/energy for cooking/lighting in the area?
- What is the current status and the usage of fuel-wood?
- What is the usage of animal husbandry?
- What is the current status of human waste disposal?

4.4. Voluntary Carbon Funding:

The options for community involvement/credits for reforestation of community land (since much of area may have forest in 1990), forest conservation and CDM (energy) can

[26] From 1999 to 2004, PARC piloted a landscape ecology approach for conserving Vietnam's diverse biological heritage. This approach integrated conservation and development by using resource use planning as a basis for project activities in the landscapes of Yok Don National Park, Ba Be National Park, and Na Hang Nature Reserve. The project was funded by UNDP and GEF.

be obtained in the Voluntary Carbon Market (VCM). This opportunity is reviewed through studying what VCM can offer and what are their requirements.

A. Voluntary Carbon Market (VCM) – A source of Funding for Poverty Reduction[27]:

VCM represent a source of funding for forestry and energy projects. Buyers buy 'offsets' voluntarily for Public Relation (PR) reasons, for Kyoto compliance or to prepare for/influence future regulations. The buyers are predominantly companies based in North America, Europa, and Australia. Currently voluntary carbon projects are predominantly in China, India, Latin America and North America (Asia provides 39% of voluntary offsets). VCM expected to grow significantly and to represent a source of funding for poverty reduction projects in Vietnam. Funding can cover full or partial project development costs and can be obtained once concrete project plans have been developed. Funding available is currently 300 M Euro but expected to grow to 2 billions euro – comparable with development funding.

If any activity can reduce/avoid GHG emission it can generate a carbon 'credit' or 'offset'. Income from the sale of offsets is a source of funding for energy and forestry projects in Vietnam. Many buyers have a preference for projects with social/development benefits. Project examples are cooking on biogas in India (20000 households with annual emission reduction 120 000 T CO2), improved cooking stoves in Banglades (7000 stoves during 2003-2005 collectively saved about 13 000 T CO2).

B. How does the voluntary market link to the CDM?

Some voluntary buyers buy only offsets from CDM projects. Many voluntary projects are pre-registered CDM project: voluntary carbon market can provide a bridging source of funding whilst projects await CDM approval. VCM can finance the 'proof-of-concept' phase of a project before it is scaled up to comply with CDM rules. VCM can provide an alternative to the CDM for projects that can not carry CDM transaction costs. Many accreditation requirements of voluntary market and CDM market are the same (methodology, proof of addtionality, etc.,) but transaction costs are lower for voluntary projects.

C. Main voluntary carbon offset buyers:

- Businesses as final buyers: 50%
- Businesses for investment/resales: 29%
- NGOs: 13%
- Individuals: 5%.
- Other: 3%
- Government: 0.4%

D. What projects will be able to attract funding?

[27] From Myfanwy, Carbon Aided' presentation at the workshop ''Making carbon market work for the poor in Vietnam. Hanoi November, 5.

Projects that provide a 'nice story', and/or with strong environmental and development co-benefits, and/or would not be implemented without the help of carbon finance. The funding can be obtained for administration or capacity building. Up scaling effort costs are funded in most cases. Partial subsidy of the costs to beneficiaries can be provided to make equipment/product affordable to target beneficiaries.

E. Route for acquiring this funding:

1. PIN ---- PPD development, at the same time looking for a buyer
2. Validation by accredited auditor – registration with a standard/registry. This goes together with carbon purchase agreement.
3. Monitoring report.
4. Verification by accredited auditor.
5. Credit issuance.

G. Proposed options for VCM in Bac Kan project:

CDM R/A in Pac Nam district: It is estimated that about 4,400 ha of production forests designed by D&G company (se Chapter 4.2. above on CDM R/A) can be feasible for VCM. It is estimated that the area of 4,400 ha with its operation plan and 7 year rotation of Acacia hybrid spp. can generate an income of more than 100 000 VND per ha, if the VER can be sell at the price of 3 USD per TCO2 (see Table 5 above).

There are possibility for selling VER of CDM (energy) in the project areas (to be defined after the further survey) and REDD in Nari (see Section 4.5 below) in the voluntary market.

The VCM possibility is being explored with the Trecorona, CarbonAid and IndoChina Carbon companies. IndoChina Carbon (ICC) would like to work with ICRAF and other project partners to further assess the potential for voluntary carbon markets, including REDD, afforestation/reforestation (AR); improved cooking stoves; and household-scale biogas initiatives. ICC would develop concept notes for each activity, which would then be used to secure buyers and establish proper methodologies for establishing the voluntary carbon credits produced.

4.5. Conservation payments

A. What is the purpose of the conservation payment?

Conservation payments can be defined as a PES-like mechanism, where no specific ES is defined or monitored or paid for. However, conservation payments share characteristics with PES, such as voluntarity, conditionality, and defined buyers and sellers. Conservation payments for application in Bac Kan can be developed both for forest conservation, and soil and water conservation. The scheme can have various component/activities, which might include forest protection/guard training, policies to counter threats such as commercial plantations in the buffer zone and some community forestry efforts.

B. How the conservation payment can be settled up in a more participatory manner?

Innovations that were just starting to be tested at the end of RUPES I include reverse auctions to implement erosion control measures and payments linked to river silt loads. An auction is an example of price- and market-based instruments designed to influence behavioral change. Price-based Market Based Instruments can be used to address externality, public good and information market failures by working to correct price signals and encourage a change in behavior, leading to the adoption of more sustainable practices.

In an auction, the land managers in the region consider tender bids for these contracts and the purchaser (such as government or a community group) then assesses the bids, ranks them and finally awards the contracts. The bid assessment process is a key element of such auctions. Typically, the government or community group assesses the bids by using an Environmental Benefits Index (EBI), or similar technique.

C. What are the potential conservation payments in the project area?

At least three Conservation Contract options can be developed in the Bac Kan project:

(1) A conservation contract for protection forest in the five villages in Quan Khe commune, Ba Be district. The conservation payment will be used to solve land conflict in the buffer zone in Ba Be National Park. The commodity, such as planting or taking care of planted forest in protection forest areas cleared by shifting cultivation, can be auctioned. An auction can help the purchaser (for example, the Community Development Fund management board) to understand the cost of conservation practices. At the same time, they develop an understanding of the forest's value to the community.

(2) A conservation contract for managing stream banks and adjoining lands to improve water quality within a small river basin in upper part of the Len River basin, in Dong Phuc commune, Ba Be district. The approach includes mapping the risk of further degradation compared to the improved resource condition assessment used in an auction. Risk is measured as a function of environmental value (watershed function) and degradation risk (siltation, erosion). Accordingly, the EBI ranks highest (for funding) those bids that remove or reduce threats to high-value assets at the best price.

(3) A conservation contract for protection forest in the most deforested areas in Na Ri, located on the boundary with Lang Son province. This deals with the increasing deforestation of natural special-value forest in Na Ri's stony mountains; this forest covers about 2000 ha within five communes: Cu le, Hao Nghia, Duong Son, Xuan Duong and Lien Thuy. The conservation payment will be used to mobilize all households in nearby villages to guard the forest in return for cash or in-kind compensation.

In order to define the efficient payment norm, an auction mechanism can be applied to help understand the costs of guarding the forest. The efficient payment norm, as suggested by the district leader, should be around VND2 million (around US$100) per ha per year. This amount is equal to the income that farmers can get if they get involved in forest planting works with D&G Vietnam in Pac Nam or raise cattle. According to the

project leader, this allows local farmers to work as forest guards full-time. By applying an auction, this suggestion can be cross-checked.

Participatory monitoring will also be carried out. The mechanism, including the auction approach, and monitoring should be tested in some villages first, before issuing technical guidance for the implementation in all areas with similar issues.

D. Constraints

Monitoring to ensure the forest is in good quality and quantity is time-consuming and requires good community management. In order to secure the success of conservation schemes, any options developed need to take into account the social aspects of local livelihoods. It may take much time to develop the scheme, so it will hard to assess the impacts before the scheme needs to be scaled up.

E. Overall viability of the options

- Findings from the recent readiness survey show the potential role of organisations at the grassroots level in the social mobilization needed for conservation payment and contracts.
- ICRAF can provide training in several Rapid Appraisal methods that are useful for assessing the current status of natural resources such as forests, water and biodiversity. This is needed to create a basis for conservation payment contracts and auctions.
- Local stakeholders are very interested in guarding and conservation works, but still do not know which measure is most suitable and how money can be obtained for the works.

***F. Further work requirements*:** A design survey needs to be carried out in the Ba Be (Quan Khe and Dong Phuc communes) and Na Ri districts (Hao Nghia commune), to define the scope (geographical areas, number of households involved, and so forth) for the conservation payment pilot scheme. The role of potential groups such as Ba Be National Park and grassroots organizations such as farmers and women's associations will also be defined during the survey.

4.6. Reduced Emissions from Deforestation and Degradation (REDD)

A. Background

The UNFCCC Conference of the Parties (COP13) in Bali affirmed the importance of Reduced Emissions from Deforestation and Degradation (REDD), after it was reported that ggreenhouse gas emissions from forest conversion/deforestation account for 20 per cent of total anthropogenic emissions. Carbon finance can help to change this calculated deforestation. In general, deforestation generates a low return per ton of CO2 released (>80 per cent of emissions generate less than US$5 per TCO2). This can be much less than the CER price in AR-CDM[28]. Almost all bilateral and multi-lateral donors want to

[28] Brent Swallow, presentation on REDD, 2007.

know and will need to report climate change mitigation and adaptation as primary or co-benefits of their investment.

REDD initiatives are now being developed and tested in many countries. However, challenges include:

- Developing an accurate method for estimating the baseline carbon stock of forests, particularly in tropical forests.
- Monitoring and verification of changes in carbon stock due to land use changes and vegetation cover changes over time.

The REDD scheme seems to be a promising solution compared with CDM in developing countries where a high rate of deforestation and degradation releases extensive emissions. The REDD is also regarded as suitable in the Vietnamese context because it integrates forest protection and poverty reduction. That is why Vietnam recently join the World Bank Carbon Partnership's REDD effort.

In Bac Kan, options for developing a pilot REDD project that will enhance the protection of Special Use Forests and Protection Forests need to be explored and can be piloted in Na Ri district. In recent years, local people cut *Burretiodendron hsienmu,* a high-value timber, for market. It led to 1000-hectares of rich, native forests being degraded and deforested. In first six months of 2008, 145 cases of illegal timber cutting were recorded. This REDD option is considered as a funding source for a long-term investment against forest loss.

B. How can REDD money be obtained?

The nine methodology steps that will lead the project to validation are summarized in Figure 1. The findings from a review of the World Bank REDD method and the first visit to the Na Ri district show that the reference region could be Na Ri district as a whole, while the project areas should be the limestone forests located in the east of the district. Where the current situation within the *project area* is expected to change, the *reference region* can be stratified into levels representing a chronosequence of current and future conditions within the *project area*.

An initial **Forest Cover benchmark map** is required to report only gross *deforestation* going forward. This map has to be updated for the starting date of each period analyzed and at the beginning of each new *crediting period*. It should depict the locations where *forest* land exists.

The starting date should not be more than 10-15 years in the past and the end date as close as possible to the project start date. In the Na Ri case, we can start at 1989 or 1990.

The duration of the REDD *project activity* must be at least 20 years. If the starting year for Na Ri is 2008, then the milestones should be 2018 and 2028. The *crediting period* can be up to, but no more than, 10 years. The minimum duration of a *monitoring period* is one year and the maximum duration is the one *crediting period*. Five of the six carbon pools are potentially eligible in this methodology.

Some forest modelling will need to be developed to determine the current and future deforestation rate. These numbers can then be used to apply for the Voluntary Carbon Standard (VCS) standard (for forest carbon) and Climate, Community and Biodiversity Alliance (CCBA) standard (for climate, community and biodiversity safeguards). The buyer will want us to obtain these standards for the project, which will be verified by a third party, to ensure that we do what we say we are doing.

During the piloting period, it is suggested that we develop this activity using this project-based model, as we can move forward now to develop the project concept and project design note, which are the first steps to getting the VCS and CCBA standards. Meanwhile, buyers interested in REDD credits will be defined over the first six months of project.

Figure 2. *Ex ante* methodology steps

Source: Biocarbon fund

C. Who are the REDD project partners?

Every carbon market project requires the following project partners:

1) Financing.
2) GHG emission owner/project owner (usually the Vietnam electricity-EVN).
3) Project developer (Indochina Carbon).
4) Third-party verification of the credits to be produced - in this case VERs but may be CERs if higher value AR credits are desired).
5) A buyer for REDD projects, an additional partner, is needed
6) Conservation organization(s) to tackle the causes of deforestation and work over a long, 30-year period to get the deforestation rate down from a projected future rate.

D. Constraints

Lack of methodology: REDD requires accountability at country rather than project level, as the issues of 'leakage' (negative effects outside the project area) are difficult to address at a smaller scale.

F. Overall viability

All partners required for the success of the REDD project have been investigated.
Contingent on available funds, IndoChina Carbon (ICC) will develop project development documents (PDDs) and support ICRAF and local partners in negotiating the Emission Reduction Project Agreement (ERPA). This agreement clearly defines the roles of the project stakeholders and the distribution of credits obtained. ICC would follow the project throughout its cycle, from conceptualization, development and throughout the project's life, which will likely be a minimum of 10 years.

Securing up-front financing to develop the REDD project is often a challenge in getting these projects established. Hence, the few but proliferating REDD projects to date have managed to secure multilateral or bilateral development assistance to fund the first 3-5 years. By Year 5 of this project, it is anticipated that revenues generated from the sale of VERs will support the longer-term project REDD cost, through to the end of a proposed 30-year project cycle.

E. Further work requirements

- Further investigations of the existing data and methods that can be used to develop REDD sceNa Rios.
- To develop REDD mechanisms, we need to know the potential cost effectiveness: if current emissions lead to larger economic benefits, emission reduction would be difficult; if not, incentive systems will be feasible.
- The concept note for PIN and PDD needs to be developed together with the search for REDD carbon buyers.

CHAPTER 5. OVERALL RECOMMENDATIONS FOR PES OPTIONS TO INCLUDE IN THE PROJECT DESIGN, INCLUDING INDICATIVE ACTIVITIES AND POSSIBLE BUDGET FRAME

The overall recommendations derive from the analysis of potential and constraints for PES in Bac Kan (Chapter 3), and the possibilities, constraints and overall viability of different PES options (Chapter 4). The recommendations were also discussed and agreed on with Bac Kan provincial, district, communal and village leaders during the scoping survey in October 2008. Sites for piloting activities were selected using criteria developed in consultion with provincial, districtrical and communal stakeholders.

The criteria are:

(i) Where 'hot' environmental issues are within a watershed.
(ii) Village/s within a defined commune with strong social capital and potential for good social mobilization for the pilot activities.
(iii) Villages with good road access.
(iv) Where spatial data and baseline data are available and/or can be obtained.
(v) Where representativeness of the condition and issues allow the pilot schemes to be scaled up.

1. PES piloting in watershed function in Ba Be – Na Hang watershed.

Objective: to test a new payment distribution scheme, modified from what was tested in Son La and Lam Dong under Government Decision 230 (see Chapter 4.1). In the scheme to be developed, all knowledge, including scientific knowledge, public knowledge and local knowledge, will be combined to define project boundaries and equity in payment distribution. The outputs include policy development at the provincial level and contributing to the finalizing of the Government's PES policy, which is planned for roll-out nationwide in 2010. This will provide a good legislative foundation for scaling up the initiative in the project areas after 2011.

The indicative activities are:

- Preparing documents to support PES for watershed functions in Ba Be-Na Hang.
- Mapping watershed and administrative boundaries using GIS and participatory methods.
- Survey to document local, public/policy and modellers' ecological knowledge (LEK, PEK and MEK, respectively) on watershed functions and impacts using Rapid Appraisal tools
- Developing the negotiation support tool, based on the findings from map analysis and surveys, and using participatory methods.
- Disseminating the documents to prepare for the Ba Be-Na Hang watershed being involved in the national PES scheme for watershed function.
- Developing the PES-like mechanism for sharing benefits gained due to the watershed PES scheme.

- Training organized through policy dialogue workshops, negotiation skills for local policy makers and grassroots levels, Rapid Appraisal and monitoring tools (RHA, PaLA, and RACSA).
- Developing policy and technical guidelines in watershed management

2. PES conservation fund pilot in Ba Be for conserving protection forest:

Location and participants: Integrated micro-watershed management within the Len River basin, upstream of Ba Be Lake. The participants could be five villages in Quan Khe and two villages in Dong Phuc, with about 250 households involved in total. The exact location of the site will be confirmed further during the design of pilot sites.
Objectives of conservation payment: forest, soil and water conservation.

The indicative activities are:

- Defining conservation practices using participatory methods
- Developing the conservation contract mechanism. This includes: (i) testing the auction approach to define the costs of conservation practices; (ii) defining the roles of partners; and, (iii) arranging the conservation contract and monitoring its impacts
- Developing policy and technical guidelines

3. PES piloting for REDD, in combination with a conservation contract for protection forest in the most deforested areas in Na Ri:,

Location and participants: about 120 households within two villages in Hao Nghia commune, on the boundary with Lang Son province.
Objective: to protect natural forest through guarding to stop intensive, ongoing deforestation.

The indicative activities are:

- Defining guarding practices using participatory methods.
- Developing the conservation contract mechanism. This includes: (i) testing the auction approach to define the costs of conservation practices; (ii) defining the roles of partners; and, (iii) arranging the conservation contract and monitoring its impacts.
- Developing policy and technical guidelines.
- Developing the PIN and PDD for REDD.

4. PES piloting for AR-CDM in Pac Nam

Location: Two villages in Nghien Loan, with about 300 ha of bare land, or all bare land planned for forest planting by D&G Vietnam in four communes in the southern part of Pac Nam (to be defined during the design period).

Objectives: to obtain additional income for local farmers through planting production forest and selling CER and VER.

The indicative activities can be:

a. Developing a PIN and Project Design Document (PDD).
   - Baseline carbon measurement
   - Project operation plan and carbon removal scenario
   - Procure aerial photos
   - Social economic survey
   - PDD writing and finalization.

b. Identifying concerned partners for AR-CDM implementation.
   - Capacity assessment of local authorities
   - Set up and run a management organization
   - Training for management board and M&E

c. Validation.

d. Develop and test a payment mechanism for carbon.
   - Assess forest resources and carbon
   - Monitoring and evaluation techniques

(v) Community management, including organizing a carbon management board in collaboration with D&G Vietnam.

Budget: The total budget for piloting period is US$ 510,347, where GEF-IFAD budget for this PES sub-component is US$390,700 (77%) and ICRAF contribution is US$118,647 (23%). ICRAF strategy is to contribute more at the pilot project design (55%). The contribution is reduced to 17% during the implementation of pilot activities, focusing mainly for training and the documentation of the lesions learnt to prepare for scaling up (Table 6).

Table 6. GEF-IFAD and ICRAF contribution to PES piloting activities (in US$ and in percentage)

Number	Piloting activities	GEF-IFAD	ICRAF	Total
Activity 1	Assessment of PES options and pilot projects design	50,600 (45%)	60,660 (55%)	111,260 (100%)
Activity 2	Enhancing institutional and individual capacity for PES through policy guidelines development and promotional materials and training	76,200 (83%)	12,954 (17%)	89,154 (100%)
Activity 3	Pilot projects on water, reforestation, bio-energy	231,200 (83%)	39,304 (17%)	270,504 (100%)
Activity 4	Review of PES pilots undertaken and recommendation up-scaling	33,700 (83%)	5,729 (17%)	39,429 (100%)
	Total (USD)	**391,700**	**118,647**	**510,347**
	Total (percentage)	**77**	**23**	**100**

The detailed activities of Activity 1 (Assessment of PES options and pilot project design) and its budget plan are presented in Table 7, while detailed activities and budget for Activities 2,3,4 will be one of the outputs of Activity 1.

Since Bac Kan will also be the action site of a RUPES II project, most administrative support for activities in the province will be carried out by ICRAF Vietnam office, under the umbrella of the RUPES II program.

Table 7. Project design activities during 2009 and estimated budget (thousands US$)

Activities	GEF-IFAD	ICRAF contribution			
		RUPES II Vietnam	TULSEA Vietnam	Rupes II and TULSEA SEA	ICRAF PhD
1. Watershed function in Ba Be - Na Hang and Len river basin					
*International expert in RHA (1 person month)	5			5	
*International expert in modelling (1 person month)					2
*International expert in PES (1 person month)					2
*National expert on hydrology (1 person month)	1				
*National expert on GIS (1 person month)	1				
Technicians for PaLA (6 person months)			1,8		
* Operation costs for survey in 3 communes in Len river basin	2		3		
Subtotal 1.	**9**	**0**	**5**	**5**	**4**
2. Design CDM A/R, CDM (energy) and REDD for carbon trade in voluntary market					
* International expert to produce PIN, PDD and exploring VCM (1 person month)	8				
* Carbon modeling for scenario development for REDD (1 person month)				4	
* National expert on CDM A/R (1 person month)	1				
* National expert on CDM energy (1 person month)	1				
* National expert on REDD (1 person month)	1				
Technicians for working with questionnaires (3 person months)	0,9				
* Operation costs for survey in 4 communes in Pac Nam			5		
* Operation costs for survey in 5 communes in Na ri		3			
Subtotal 2	**12**	**3**	**5**	**4**	**0**
3. Conservation fund design					
* International expert in Integrated				5	

Conservation (2 person months)					
* National expert in rural development (1 person month)	1				
* National expert in environment (1 person month)	1				
*Operation costs for survey in 3 communes	3				
Sub-total 3	**5**	**0**	**0**	**5**	**0**
4. PES policy dialogues and awareness raising for designing PES policy					
* International expert on PES mechanism (1 person month)				5	
* International expert on policy (1 person month)					2
*Operation costs for policy and training		4	5		
Subtotal 4	**0**	**4**	**5**	**5**	**2**
5.General costs for both watershed and Carbon PES					
* International expert on spatial analysis (1 person month)				5	
*International expert on PaLA for RHA and Carbon (1,5 person month)	11.57				
*International technical coordinator of the whole study		3.856			
*purchasing map	5,05	5			
* Project assistant (4 person months)	3,08				
Sub-total 5	**20**	**9**	**0**	**5**	**0**
Total	**45.598**	**15.856**	**14.8**	**24**	**6**
Overhead (11%)	**5.016**				
Grant total	**50.614**				

Co-funding GEF-IFAD : ICRAF	**GEF-IFAD**	**ICRAF**	**TOTAL**
In thousands USD	**50.614**	**60.656**	**111.270**
In percentage	**45**	**55**	

6. The outcome of Phase I include:

(i) Developing several technical models, PES mechanisms and methods for watershed management, with a focus on forest land management.

(ii) Proposed policy frameworks for adaptation and replication of the technical model/s and mechanisms at provincial level.

(iii) Enhanced capacity for stakeholders at all levels within Bac Kan province, to disseminate the models in Phase II.

(iv) Lessons learnt are documented and used to scale up within the province as well as directly support the goal and strategy of the Country Program Framework for Sustainable Forest and Land Management (CPFSFLM).

The development outcome includes: (i) upland communities benefitting from forest land allocation, (ii) increased forest cover, and (ii) sustainable mechanisms developed and plan of action being implemented for PES to upland communities.

7. **Institutions involved**: Two main departments of Bac Kan province, including DONRE and DARD are recommended to carry out the activities of this PES component, in close collaboration with mass organisations (farmers association and women's association), as well as communities and households in the piloting watershed. While DONRE is responsible for forest land allocation and land consolidation for forest planting through private-public partnerships, DARD will help with forest production and protection methods as well as market links for forestry and Agroforestry (AF) products. Mass organisations are important in supporting local communities in the negotiation process for RES/PES. Staff in these organisations will be trained in participatory methods to be used in defining ES, in PES/RES contract development, and ES impacts monitoring. Close communication with other IFAD projects in Vietnam as well as with MARD is recommended throughout the project's life to promote dissemination of its findings.

CHAPTER 6. PROPOSED/POTENTIAL LINKS BETWEEN IFAD PROJECT AND RUPES/ OTHER PES PROJECTS

To link the Bac Kan PES efforts with other PES activities in Vietnam and in the region, the Bac Kan pilot sites are suggested to be included in the RUPES II network, REDD national network at MARD, and the AR-CDM development projects of JICA. This will provide opportunities for local stakeholders in Bac Kan to get relevant capacity building from the network, to share information and lessons learned, and help in supporting national efforts to reform the forest sector with policies on forest land allocation and forest development, and protection and community involvement.

Link with RUPES II: to ensure both quality and in-time implementation of the planned pilot ('action research') activities in Phase I, it was suggested that the Bac Kan project management board, with a local advisory group representing stakeholders, contract to ICRAF Vietnam the coordination of the PES sub-component of the GEF–IFAD related activities. Furthermore, the RUPES II leadership agrees to have Bac Kan as the action site of Vietnam. This means RUPES II can shadow some costs of the PES piloting activities as well as the main coordination costs of the IFAD-GEF component (if the coordination role is contracted to ICRAF). Furthermore, through this link, Bac Kan will get all the best technical assistance and experience-sharing with the RUPES II regional network, as well as RUPES II national network in Vietnam. This will enable appropriate RES mechanisms to be disseminated via national policies, buyers of ES and rural development initiatives.

The link between RUPES-II and the GEF-IFAD project during the design stage of this new IFAD project in Bac Kan will provide a good example of how an IFAD grant project can contribute to an IFAD investment project.

Link with REDD national network at MARD: since the key REDD national network person at MARD is also involved in the national RUPES II advisory network, a close link with Bac Kan will automatically be obtained.

The methods and procedure to be developed in relation to REDD in Bac Kan will be shared with other experiences within the network. Joint organisation of capacity building activities is another potential opportunity.

Link with the AR-CDM development projects of JICA: the lessons learnt in Cao Phong, Hoa Binh are the most relevant to Pac Nam. A close collaboration between stakeholders in the two districts should be established through study visits and workshops. This will enable the experience of organising a carbon fund management board to be transferred from Cao Phong to Pac Nam. Experience in forest planting and caring can also shared between farmers in the two places.

Links with PES piloting in watershed function at the national level: key MARD experts who are involved in implementing Decision 380 (PES for watershed function) will be involved in the RUPES II national advisory network and will help to facilitate the links.

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ANNEX: PES PROJECTS IN VIETNAM

Case/provinces	Environmental Services		Who buys	Who else benefits	Who sells	Who initiated	Project period	Spatial scale and current size	Obstacles to implementation
	Target/ Objectives	Paid for							
I. On-going PES projects									
1. Small scale AR CDM project at Cao Phong district, Hoa Binh province, Vietnam	• Carbon dioxide reduction; • Poverty alleviation; • Environmental protection.	CER (Certified Emission Reduction) – about 40,000 tons of CERs	Honda for the first 4 years Later, to be identified after issuance of CER	Farmers households and community Capacity building for research institutes in Vietnam	Farmer association	1.JICA 2.Vietnam Forestry University 3. Research Centre for Forest Ecology and Environment (RCFEE)	2008 - 2012	Small scale and 350 ha	• Strict procedures for approval and validation; • High costs for validation and issuance of CER • High transaction cost • Weak capacity of community and local authorities toward CDM
2. Sustainable financing opportunities in Vietnam protected areas: A case study – Bach ma National Park, Thua Thien	• Livelihood improvement • Sustainable financing for protected	• Watershed protection • Landscape beauty	Tourists, hydropower plants, water companies and tourism companies	Local community	Bach Ma National Park	Vietnam Trust Fund for Forest (TFF) funded the Forest Protection Department (FPD) in Hue	2007 - 2008	Nationally important forest National Park of Bach Ma (32,157.8 ha) and its surroundin	• Low participation of the National Park • Poor tourists facilities • Political influences of private sector to implement • Low environmental understanding and responsibility of private sector, local authorities and

Hue province	area via trust fund contributed from different users					province and WWF Vietnam		g buffer zone (21,300 hectares).	community
3. Creating incentives for Tri An watershed protection, Dong Nai province	Address water pollution in the Tri An reservoir and the lower Dong Nai River.	Watershed protection	Water supply companies and those groups polluting the river upstream,	Local communities	Upstream community Vinh Cuu Nature Reserve and the Tan Phu protection forest management board	Danida funded for WWF Vietnam, DARD, DONRE Dong Nai	2008 - 2009	A total basin area of 38,600km2 and a river length of 437km	• Local stakeholders want to focus on addressing pollution problems rather than working with PES • Unclear contract arrangement between buyers and sellers
4. Pilot PES scheme in Lam Dong province	Piloting Payments for Forest Environmental Services	Environmental Services of forest (watershed protection)	Hydropower companies, water companies and tourism businesses.	Local communities, Forest management board	Forest protection management boards, businesses, communities, households and individuals	Government of Vietnam with Decision 380 Winrock International support	2008 - 2009	????	High transaction cost Weak capacity of provincial leaders Lack of research methodologies Limited understanding on PES and environment of public,

						for Forest Protection Department- MARD			private sector
5. Plot PES scheme in Son La Province	Piloting Payments for Forest Environmental Services	Environmental services of forests (watershed protection)	Hydropower companies, water companies and tourism businesses	Local communities, forest management board	Forest protection management boards, businesses, communities, households and individuals	Government of Vietnam with Decision 380 GTZ support for Forestry Department - MARD	2008 - 2010	400 000 ha	Inaccurate data indicated on the document and on the field. Complicated and inappropriate forest classification status that does not entirely support PES requirements. Missing in-depth study/research on PES values to have basis for identification of forest environmental services and K factor. Absence of method on monitoring and adjustment of forest status in accordance with the practical changes of resources.
Case/provinces	**Environmental Services**		**Who buys**	**Who else benefits**	**Who sells**	**Who initiated**	**Project period**	**Spatial scale and current size**	**Obstacles to implementation**
I. Completed PES projects									
6. Sustainable Financing -	• Increasing interest	Landscape beauty	Tourists	Local communitie	Management Board of	World	2001 -	16,000 hectares of	• Unclear mechanism on allocation of funds to local

MPAs Case Study from Nha Trang Bay-Marine Protected Area, Khanh Hoa Province	in "user-pays" financing for protected area • Provides core and / or additional funding for protected area management	Marine biodiversity conservation		s	Nha Trang Bay Marine Protected Area +Khanh Hoa PPC	Bank/GEF, Danida, IUCN fund for the Ministry of Fisheries and Khanh Hoa Provincial People's Committee.	2005	the MPA	communities and return money to conservation and protection activities • Low environmental understanding and responsibility of stakeholders
7 Golden Forest- CDM project in A Luoi, Thua Thien Hue province	• Assist farmers previously not engaged in forestry to replant the CDM eligible allocated land in	CER (Certified Emission Reduction)	Unidentified	Local people	Local people	Managed by a project team supervised by the Office of Agriculture and Rural Development (OARD)	2004 - 2005	100 hectare appetizer for the full-scale, 5000-hectare reforestation AR-CDM project in A Luoi - North	Impractical approaches to the buyers High transaction cost

	Hong Trung commune. • Get hands-on experience of the requirements for AR-CDM in reforestation, to feed into the full-scale AR-CDM project. • Publish guidelines and lessons learned to be of use for other AR-CDM project					under the A Luoi DPC. SNV Vietnam, supported the program with technical assistance, thus combining experience and knowledge in the land use and forestry sector from a local and international organization		Central Vietnam	

	developers in Vietnam.								

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