

REWARDING UPLAND FARMERS FOR ENVIRONMENTAL SERVICES

Experience, Constraints and Potential in Vietnam

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Developing Mechanisms for
Rewarding the Upland Poor in Asia for Environmental Services They Provide

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RUPES acknowledges the support that Sida Vietnam provided for this study. The results and recommendations arising from this study are presented as a starting point to further consideration of environmental service rewards in the Vietnamese context.

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PREFACE

This report presents the findings of a study to explore constraints and potential to addressing important aspects of poverty in Vietnam Uplands through rewarding the upland poor for environmental services they provide. The study was done by a team of three Vietnamese researchers, under the coordination and supervision of the International Center for Research in Agroforestry in South East Asia (ICRAF SEA). The study was done to provide information for use by the Program Rewarding the Upland Poor in Asia for Environmental Services They Provide (RUPES) and Swedish International Development Cooperation Agency (Sida) in planning future activities.

The study attempts to review RUPES-related experience of rural development projects in Vietnam, with particular focus on rural development projects that are funded by Sida and the International Fund for Agriculture Development (IFAD) in northern Vietnam. Given the “Terms of References” by ICRAF SEA, the projects included in the study were Vietnam-Sweden Mountainous Rural Development programme (MRDP) and five IFAD-funded projects, namely Ha Giang Development Project for Ethnic Minorities (HGDPEM), Participatory Resource Management Project (PRMP) and Rural Income Diversification Project (RIDP) in Tuyen Quang province, Agricultural Resources Conservation and Development Project (ARCDP) in Quang Binh province, and Ha Tinh Rural Development Project (HTRDP). Other relevant experiences were also discussed. Constraints and potentials for RUPES were identified based on the analytical review and field surveys.

This study was explicitly conceived as an analytical study, to attain better understanding of RUPES-related experiences, constraints and opportunities to the application of RUPES concept in Vietnam. This study is neither a project evaluation nor an operational planning. However, it provides a background for the development of future RUPES activities in Vietnam. The report contains five chapters and an appendix.

Chapter 1 explains research problem, objectives and methodologies.

Chapter 2 is a brief review of theoretical literature on environmental reward in several aspects such as environmental and economic basis for the rewards, type of reward, rewarding mechanism, issues associated with environmental rewarding.

Chapter 3 provides an overview of natural socio-economic and demographic situation of Vietnam uplands in general and the North Vietnam’s uplands in particular. Issues and challenges in environmental and natural resource management in the uplands were discussed.

Chapter 4 is an analysis of RUPES related experiences of selected IFAD and Sida funded rural development projects in Vietnam. This draws on a wide range of documents from these projects and data and information gathered from field surveys by the research team.

Chapter 5 attempts to synthesize major constraints and potential for RUPES in Vietnam and to provides recommendations for follow-up RUPES activities in Vietnam.

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LIST OF ACRONYMS

5MHP	Five Million Hectares of Forest Program
ADB	Asian Development Bank
AECI	Spanish Agency for International Cooperation
ARCDP	Agricultural Resources Conservation and Development Project
CARE	International
CEMMA	Committee for Ethnic Minority and Mountainous Areas
CG	Consultative Group
CIE	Centre for International Economics, Canberra and Sydney
CPRGS:	Comprehensive Poverty Reduction and Growth Strategies
DANIDA	Danish International Development Agency
Eco-Tourism	Environmentally and Socially Sound Tourism
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FLA/LUP	forestland allocation and land-use planning
GDP	Gross Domestic Products
GSO	General Statistics Office
HDI	Human Development Index
HGDPEM	Ha Giang Development Project for Ethnic Minorities
HTRDP	Ha Tinh Rural Development Project
ICDPs	Integrated Conservation and Development Projects
ICRAF SEA	International Center for Research in Agroforestry in South East Asia
IFAD	International Fund for Agriculture Development
IUCN	The World Conservation Union
JBIG	Japanese Bank,
JICA	Japan International Cooperation Agency
KfW	German Bank for Reconstruction
MARD	Ministry of Agriculture and Rural Development
MOF	Ministry of Finance
MOLISA	Ministry of Labor, Invalids and Social Affairs
MONRE	Ministry of Natural Resources and Environment
MRDP	Vietnam-Sweden Mountainous Rural Development Program
NGOs	Non-Government Organizations
NTFPs	Non-Timber Forest Products
PC	People's Committee
PPC	Provincial People's Committee
PRMP	Participatory Resource Management Project – Tuyen Quang Province
PROFOR	Project for Forest, MARD
RIDP	Rural Income Diversification Project – Tuyen Quang Province
RUPES	Rewarding the Upland Poor in Asia for Environmental Services They Provide
RUPES	Rewarding the Upland Poor for Environmental Services They Provide
SFEs	State Forest Enterprises
SFS	Sedentary Farming and Settlement Program
Sida	Swedish International Development Cooperation Agency
SNV	Netherlands Development Agency
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VASI	Vietnam Agricultural Science Institute
VDR	Vietnam Development Report
VLSS	Vietnam Living Standards Survey
VND	Vietnamese dong
WB	The World Bank,
WHO	World Health Organization
WTO	World Trade Organization
WWF	Worldwide Fund for Nature

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CHAPTER 1. INTRODUCTION

1.1 Research problem and justification

1.1.1 The RUPES Program in Southeast Asia

A number of existing 'environmental service reward' schemes are currently operating on the basis of general impressions of the importance of environmental services, instead of being based on the causal chain between land use, environmental services and impacts on external stakeholders. Such schemes often prescribe various land use systems for which the subsidy schemes apply, use public funding for these subsidies, and try to 'sell' the idea to the general public. The net impact of most current reward schemes on livelihood security of the upland poor, according to many opinions, is less than the 0 point depicted in Figure 1. The questions are (1) how can we increase strongly positive (+++) impacts for many of the upland poor? And (2) where should we start with the most likely 'winners'?

Although decisions involved in such 'environmental service reward' schemes reflect a political process involving various pressure groups and compromises, general trends towards transparency in public debate put limits on how far one can move away from schemes which achieve actual impacts that can be monitored by all stakeholders concerned.

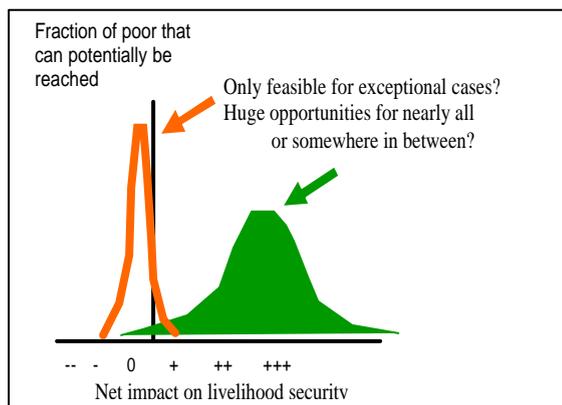


Figure 1.1. Net impact of current environmental rewards to upland poor

Our assumption is that RUPES instruments need to connect real 'buyers' to real 'suppliers' and their needs. The types of 'environmental service functions' that can be 'maintained' or 'restored' depend on overall pressures on land resources, and thus on population density and land use history. The environmental basis for such environmental rewards is identified as including watershed services, biodiversity conservation and carbon storage (Francisco, 2002; Gouyon, 2002).

A basic pattern of 'degradation' followed by 'rehabilitation' has been recognized in land use change in many parts of Asia. This pattern allows an initial approach to linking 'poverty profiles' to 'environmental services functions', as depicted in Figure 1.2.

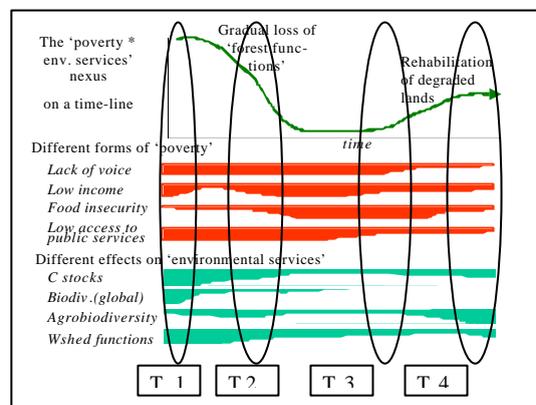


Figure 1.2. Links between poverty profiles to environmental service functions

Four types of setting, from left to right in Figure 1.2, can be recognized. These are:

T.1: Forest people ('indigenous') living in remote places in or close to the last remaining 'wilderness' areas of the world, rich in biodiversity of global significance, with high C stocks and intact watershed functions, but poor access to markets, no voice in policy debates and poor access to public services (health, education etc.).

T.2: Local and migrant people living in active forest conversion zones or derived 'agroforests' that still have (potential) biodiversity of global significance, with fairly high C stocks under threat and watershed functions that are fairly good (except for logging practices); but they have little voice in policy debates and low access to public services (health, education etc.).

T. 3: Local and migrant people live on degraded lands, often without tenurial security, with low productivity and food insecurity, low C stocks and poor watershed functions.

T.4: People live in landscapes that 'rehabilitate' with a partial restoration of agrobiodiversity, C stocks and watershed functions; various dimensions of poverty may be recovering.

The RUPES instruments should differ for these four different types of setting. For example, the RUPES instrument for T.1 can be conservation payments and ecotourism; for T.2 are C credit, eco-labeling and eco-agro-tourism; for T.3 may be tenure security, C credits and watershed payments; and for T.4 could be C credits, agro-tourism and watershed payments.

The RUPES project, coordinated by ICRAF SEA, covering several countries in Southeast Asia, has recently been approved for funding by IFAD for a 4-year period (2002 – 2005) under its poverty alleviation program umbrella. Under the RUPES project, a 5-step approach is applied through testing of a series of questions. These are (1) verifying and specifying the (presumed) causal chain between land use, environmental services, and impact on external stakeholders, (2) identifying 'triggers' for current and future land use choices in the uplands, (3) finding effective ways to influence these triggers, (4) balancing push and pull factors for long-term sustainability and transparency, and (5) improving the overall policy framework for negotiating, e.g. agreements.

While testing these questions, it is important to remain alert to identifying examples where short cuts have apparently been taken. Once a 'supplier' and 'buyer' typology is identified, it will be able to (1) look at 'candidate learning sites' across the various countries and institutional partners, and try to relate them to the overall 'types', (2) select a combination of 'learning sites' that will allow the consortium as a whole to derive experience on the 'how to go about it' level, and (3) have at least some idea about potential extrapolation domains beyond the initial set of sites.

1.1.2 Justification

The majority of the poor in Vietnam are living in the uplands, namely hilly and mountainous areas, which cover about two-thirds of the country's total area (Vo Quy, 2002). Through

environmentally friendly land use practices, such as agroforestry, forestry and other tree-based land use practices, many upland farmers provide environmental services to external beneficiaries. These services include watershed protection, biodiversity protection, and carbon storage. These environmental services are very important because they support ecological balance, serve as the base for economic activities, and provide amenity for society (Francisco, 2002). Unfortunately, in most case these upland farmers are not compensated for the environmental services they provide. When this is the case, farmers are likely to shift to land use alternatives that are oftentimes less environmentally friendly, but which yield short-term private benefit.

As regionalization and globalization processes proceed, Vietnam, like other countries, is becoming more integrated into the world economy. These processes also make upland agriculture transform at a faster pace to make use of its comparative advantage, but costs include some of environmental services it provides to society. Recognizing the importance to society of environmental services provided by sustainable land use practices of upland farmers, as well as possible un-desirable impacts of upland agriculture transformation, the Vietnamese government, international agencies and non-government organizations (NGOs) based in Vietnam have provided incentives/rewards to upland farmers to encourage them to maintain existing sustainable land use practices, and to adopt new/improved practices that will result in greater environmental benefits. A number of environmental reward mechanisms have been established, such as contractual rewards and other incentives for conservation activities and sustainable land use practices. Relevant mechanisms to reward upland people for these environmental benefits could encourage upland poor to maintain existing sustainable land use practices, as well as enabling them to shift away from environmentally harmful land uses. In addition, such reward mechanisms would contribute to poverty alleviation in upland areas of many developing countries.

Available information suggests that despite attempts to establish mechanisms to reward upland farmers, most environmental services provided by upland farmers remain principally public goods. If we would like upland farmers to continue providing environmental services, sustainable environmental service reward mechanisms should be developed to reward

them. The Vietnamese government and international agencies such as Sida, ICRAF, and IFAD have expressed their interest in developing such mechanisms. It should be noted that experience in environmental service payments differs from program to program, from agency to agency, and from country to country (Francisco, 2002; Jensen 2002; Gouyon, 2002). Therefore, a study of existing environmental service reward mechanisms, assessing constraints and potential for RUPES in Vietnam is very important. The findings from such a research would serve as important inputs into the development of environmental service rewarding mechanisms that would be both viable and relevant to the Vietnamese condition.

1.2 Research objectives

The general objective of this study is to assess constraints and potential for “Rewarding Upland Farmers for the Environmental Services they provide” – RUPES – in Vietnam. Specific objectives of the study are:

To review RUPES-related experience of rural development projects in Vietnam, with particular focus on Sida and IFAD-funded rural development projects in North Vietnam.

To identify constraints and potentials for incorporating RUPES approaches into a rural development project

To formulate recommendations for the development of a proposal of future RUPES activities in Vietnam.

1.3 Research methodology

The study was conducted in stages. The first stage focused on collecting relevant literatures, documents and statistics necessary for the study. These include theoretical literature on environmental rewards, statistics and publications and documents on Vietnam’s uplands, especially the northern Vietnam’s uplands. Given the “Terms of Reference” by ICRAF, the study focused on development project funded by Sida and IFAD. These are Vietnam - Sweden Mountainous Rural Development programme (MRDP) and five IFAD-funded projects, namely Ha Giang Development Project for Ethnic Minorities (HGDPEM), Participatory Resource Management Project (PRMP) and Rural Income Diversification Project (RIDP) in Tuyen Quang

province, Agricultural Resources Conservation and Development Project (ARCDP) in Quang Binh province, and Ha Tinh Rural Development Project (HTRDP). The documents, reports of these projects were collected. Following the analysis of the data and information gathered, a background document was drafted. Key issues and questions that need to be addressed to attain the study objectives were identified for further field investigation.

The second stage is an intensive discussion and exchange of ideas between members of the research team and the ICRAF advisers and experts involved. A seminar was held, preliminary findings of the first stage were put on the table. Information gap as well as key questions for the field survey were identified. A detailed plan for the field survey was made.

The third stage is a field survey of existing rewarding mechanisms adopted by the Sida and IFAD funded projects. Relevant experience of other projects also discussed. Several learning workshops at provincial and commune level have been organized with the participation of concerned stakeholders. Rapid Rural Appraisal techniques were identified as relevant and reliable techniques to collect information necessary for the study from the field sites. Semi-structured interviews were conducted with village and commune leaders, key management staff of the selected projects and government partners. These interviews are sources of information on the experience, constraints and enabling factors of RUPES activities.

The fourth stage of the study consisted of an analysis of data and information collected from the previous phases including the field surveys and the preparation of a draft report. The analysis of identified rewarding schemes focused on several aspects. These are the environmental services to be promoted by the schemes, service beneficiaries, kind of reward, the link between environmental services and the reward, and poverty alleviation. Constraints and potential for RUPES were discussed. Recommendations for the development of RUPES activity in Vietnam were formulated.

The fifth stage was a final workshop to discuss the findings of the study and formulate recommendation for the development of a project proposal of RUPES in Vietnam. The contributions of the workshop participants were incorporated into the final report of the study.

CHAPTER 2. THEORY OF ENVIRONMENTAL REWARDS

This chapter is devoted to the review of theoretical literature on environmental reward in several aspects such as environmental and economic basis for the rewards, type of reward, rewarding mechanism, issues associated with the design and implementation of environmental reward schemes.

2.1 Environmental basis for environmental rewards

The land use practices by upland farmers, which bring about environmental benefits, include forest plantation, agroforestry, tree-based land use alternatives and conservation measures. Three major types of environmental services are identified. These are watershed services, biodiversity conservation and carbon storage (Francisco, 2002; Gouyon, 2002). These functions are usually non-marketed, financially un-rewarded and only indirectly connected to economic activities.

2.1.1 Watershed services

Watershed services include soil protection and regulation of water flows. The maintenance of forest, and other dense vegetation covers is needed in the upper part of watershed to avoid erosion, to storage water from rains and regulate its flow to the lower part of the watershed, limiting the incidence of extreme droughts and floods. The availability of the services to external beneficiaries depends very much on the land use practices by those, especially farmers, who are based in the uplands. By their land use practices upland farmers can have a significant effect on soil conservation and water cycle. Negative effects occur when erosive land use systems are adopted. Positive effects are associated with the maintenance of a dense vegetation cover in the forms of forest, tree crops, and agroforestry plantations. The external beneficiaries of the watershed services are the population who live downstream, using water in a river basin (Francisco, 2002; Gouyon, 2002). The benefits that forests provide by protecting watersheds and fisheries, including the regulation of both the quality and quantity of water runoff, are

considered especially significant in hilly tropical areas subject to intense and heavy rainfall.

2.1.2 Biodiversity conservation

Biodiversity conservation is another environmental service provided by upland farmers, associated with their preservation of forest and the use of land in such a way that maintains biodiversity. The diversity of fauna and flora, both at micro and macro levels, is particularly high in tropical forest. The degree of biodiversity differs across agro-ecosystems. It depends on the choice of cultivation systems. The upland farming systems, especially in the poor areas, tend to be more diverse and less specialized than in lowland areas with good road access and easy mechanization. Land clearing, tilling, fertilizing practices have an important effect on the biodiversity, both below and above ground surface. The rural upland poor are likely to use less chemical inputs. This results in a relatively high degree of species diversity. The direct beneficiaries of the species diversity include biotechnology companies and laboratories, local tourism industry and the coming generation. The indirect beneficiaries are consumers, producers and industries benefiting from the better crop, medicine and other products derived from the use of genetic resource (Babcock et al., 2001; Gouyon, 2002).

2.1.3 Carbon sequestration

Carbon sequestration refers to the removal of carbon from the atmosphere to counterbalance the effect of fossil fuel emissions and mitigate their effects on global warming (Gouyon, 2002). Upland farmers can contribute to carbon sequestration in a number of ways. These include the conservation of the existing carbon storage (forest, conservation areas), the conversion of current land use to new ones with higher storage capacity (reforestation), and through the changes in the management of existing land use types, incorporating the practices which increase carbon sequestration.

Estimates of the benefits of forest cover for slowing down global warming by storing carbon in trees and other vegetation reported in the case studies reviewed by Bishop (1999) range from US\$650 to \$3,500 per hectare, in net present value terms. Kishor and Constantino (1993, p.19) reported a lower estimate of benefit of carbon sequestration of forest, USD 120 per ha per year.

Despite the apparent magnitude of carbon storage benefits, until recently there was no mechanism for recovering this value. Even today, despite the emergence of carbon trading and commercial sequestration services in response to national commitments made at Kyoto in 1997, most forest land owners cannot turn their carbon “assets” into cash as readily as they can do with timber and other forest products (Bishop, 1999).

Some of these environmental benefits by forest accrue at the local level (watershed protection), some at the national level (eco-tourism, scenic values), and some at the global level (carbon sequestration). Attempts have been made to estimate these values, at both the aggregate and per-hectare level (Kishor and Constantino 1993). It is also important to note that values may differ between plots.

It should be noted that the provision of watershed services, biodiversity maintenance, and carbon sequestration are joint products, with minimal tradeoff to be expected at some point in time (Francisco, 2002). It is very rare that these services can be separated in practices (Gouyon, 2002). Afforestation to enhance watershed services usually results in higher biodiversity and greater carbon storage. The three types of services are all associated with the maintenance of a dense vegetation cover. Clear air, clean water, wildlife habitat, preservation of biodiversity, and other natural resource values are in most cases achieved jointly. If environmental goods are produced jointly, the anticipated benefit from the provision of a single good will underestimate the total social benefit that is obtained (Babcock, 2001).

2.2 Economic basis for environmental rewards

Environmental services provided by upland farmers are often positive externalities or public goods. The primary economic arguments supporting environmental rewards are therefore based on their potential ability to correct two well-known failures of the market system: externalities and public goods. Environmental rewards can correct the externality market failure by rewarding farmers who adopt practices that produce fewer or none of these negative externalities. The reward/payment should be structured such that practices that provide a beneficial effect on the environment are encouraged.

It is important to note that a strong argument could also be made that generators of negative externalities should be taxed for generating the externality, rather than paid not to do so. From an economic efficiency perspective, these two approaches may be the same in that they both, appropriately structured, could result in reductions in negative externalities and increases in positive ones. However, the two approaches have different effects on incomes of farmers involved. Environmental rewards or taxes incorporate environmental benefits/costs into decision-making, and thus more socially appropriate levels of externalities are generated (Babcock, 2001).

The presence of externalities that are not internalized into market decisions provides a clear basis for environmental rewards. Another justification for intervention is the presence of “public goods” associated with agriculture. Farmers can make land use choices that generate environmental benefits, such as establishing and maintaining buffer strips, and preserving landscape (Babcock, 2001). These are examples of public goods provided by agriculture. A good is said to be a “public” good when consumption of the good by one person does not diminish enjoyment of the good by another, and when people cannot be prevented from consuming the good. Therefore, it is difficult to establish a market in which fees can be collected to cover the cost of providing these environmental services. Thus, provision of environmental public goods from agriculture is another strong justification for rewarding farmers to encourage provision of these environmental services.

2.3 Environmental rewards

Environmental rewards are rewards that are given in return for environmental services brought about by environmentally beneficial activities, such as reforestation, watershed protection, and soil conservation, etc. Environmental rewards can be defined as specific inducements that are designed and implemented to make it more worthwhile in financial and livelihood terms for individuals and/or communities to maintain, rather than to degrade, natural resources in the course of their economic activity. Environmental rewards present a valuable tool for both nature conservation and sustainable livelihood development (Emerton, 1999).

Environmental rewards could take various forms. Upland communities collaborating in the implementation of watershed management projects could be compensated in terms of wages for services rendered, provision of free planting materials, conduct of skills-training, technical assistance, and tenure security, among others (Francisco, 2002). The rewards can be classified into three groups (Gouyon, 2002).

Financial rewards: this is the case in which farmers receive subsidies or tax abatements in the exchange of environmental services such as not farming in a particular sensitive area. Financial rewards include subsidies, tax abatements, tradable permits, subsidized credit rates, higher prices for products and lower prices for inputs.

Rewards in kind: this is the case in which farmers receive free planting material, infrastructure or other services. The provision of such rewards is the strategy used in integrated conservation and development projects in which farmers are rewarded in the form of community development project.

Rewards in the form of improved access to resources and markets: they are given through the provision of better land tenure, conditional access to credit, or preferred access to public or private markets.

2.4 Environmental reward approaches and strategies

2.4.1 Approaches

There are two major approaches through which rewards/incentives for environmental services or natural conservation can be realized: indirect approach or development project-based approach and direct approach. The direct approach targets to specific objectives and encourage people to conserve natural by providing conditional rewards for changed behavior. The indirect approach encourages people to conserve nature by setting in place general enabling conditions (Emerton, 1999). In an indirect approach, rewards and assistance are given to an organization or group of people to help them to carry out a specified set of activities, which are expected to result in preservation of nature. By contrast, in a direct approach, incentives are provided to a community

or an individual to enable them to achieve specific goals (Kiss, 2002).

Indirect approach will not make ecosystem protection optimal for rural residents in many areas of the world. Ferraro (2000) identifies three principal problems associated with using development interventions to protect ecosystems. First, the links that indirect approach creates between individual well-being and habitat conservation are often vague and indirect, or simply nonexistent. Second, development interventions often produce undesirable effect from a conservation perspective. Third, even when desirable effects are generated, it is difficult to sustain them because the effect depends on market conditions that change frequently. In contrast, paying individuals or communities directly for conservation performance may be a simpler and more effective approach. In recent years, there has been widespread experimentation with contracting approaches to ecosystem conservation. Contracting approaches create markets through which individuals who provide ecosystem services can benefit from their efforts (Kiss 2002, Ferraro 2002). In developing countries, environmental incentives/rewards have been supported mainly through indirect approach.

2.4.2 Strategies

Gouyon (2002) provides a careful review of the main types of strategies and instruments which have been initiated by developed countries to reward rural populations for the environmental services. These strategies are: people-friendly conservation strategies, contractual rewards for environmentally-friendly agriculture and forestry, Environmentally and Socially Sound Tourism (Eco-Tourism), share of benefit of genetic resources, and trade in emission permit¹.

People-friendly conservation strategies

The people-friendly conservation strategies refer to all the projects in which conservation objectives are linked with interventions aimed at making sure that the rural population benefits from the conservation activities and has an interest in contributing to them. These strategies grew up upon the ruins of the pure-conservation approaches that based solely on the use of force to protect conservation areas, preventing human

¹ These strategies are carefully discussed in Gouyon 2001

activities. At the end of 1980s the conservation approaches appeared as ineffective, morally unacceptable and ill adapted to the task of biodiversity conservation.

The people-friendly conservation strategies attempt to integrate conservation and development so that rural people would benefit from the environmental services generated by conservation projects and have an incentive to contribute to the success of such projects. This typically includes Integrated Conservation and Development Projects (ICDPs), community forest, community-based resource management projects, etc. These activities are usually funded out of public expenditures, including taxes on environmentally harmful activities, local taxes, and international development funding. In some cases they are also financed or co-financed by private donors and NGOs.

Contractual rewards for environmentally friendly agriculture and forestry.

This type of reward mechanism attempts to integrate environmental concerns within agriculture and forestry practices. Contractual rewards typically include several types of instruments in which environmentally beneficial practices are defined, and rewards are proposed to their users on a contractual basis. There are two types of objectives within this contractual reward basis:

The first one is to reduce the negative environmental impacts of agriculture and forestry, such as soil erosion, pollution.

The second one is to promote activities that will result in an improved environment, like an expanded habitat for endangered species, or increased net carbon sequestration.

This contractual basis usually includes payments from a public source, sometimes from a private source, or certification of products to have an improved market access.

Environmentally and Socially Sound Tourism

In its broadest sense, eco-tourism is sometimes considered as encompassing any kind of ecologically-based tourism activities, giving the tourist the opportunities to enjoy the

recreational activities based on nature and local traditions. The main benefits of eco-tourism for the local people is the creation of employment and economic activities in hotel, restaurants, guided tours and nature conservation activities. This is the case when local people are able to seize the employment and business opportunities brought about by eco-tourism. Oftentimes not all the local people will be able to grasp the employment opportunities in eco-tourism. Other benefits to the local people from eco-tourism are the improvement of infrastructures by the government or private investors.

However, there are potential problems associated with eco-tourism. The poor may be hurt due to increased price; conflicts in local population may occur as the result of inequality in sharing the opportunities by eco-tourism. In most cases, farmers who provide environmental services and amenity of landscape for eco-tourism industry have limited ability to reap the potential benefits from eco-tourism.

Share benefit of genetic resources

The use of genetic resources covers several applications, mainly agriculture, pharmacy and biotechnology applications. The capacity to develop and market commercial varieties based on genetic materials tends to be in the developed countries, while developing countries are the major source of genetics resource. Therefore the issues of benefit sharing of genetic resource should be addressed using an international framework, which allows rich countries to reward poor countries for biodiversity conservation.

Rewards to rural people and other stakeholders in exchange for the conservation and the provision of genetic resources that can be used commercially by agriculture, pharmaceutical, and biotechnology industries are in most case realized through environmental and development programs funded by international agencies or NGOs.

Trade in emission permits and conservation credits

Environmental regulation in agriculture and in general has relied heavily on command-and-control approaches such as standards. Recently market-based instruments, such as tradable

mission permit, emission charge are increasing used in air pollution control and even in water pollution control. Because of the nonpoint source nature of many agricultural pollutants, the use of market based instruments faces more challenge in agriculture. A tradable permit or a credit system could require that farmers meet a particular standard for performance. If farmer do better than the standard, they would then be able to sell their credits at market prices. Conversely, farmers who do not wish to adopt activities that will meet the standard could purchase credits from the market, effectively paying others to provide environmental services (Babcock, 2001).

However, these systems are applicable when it is possible to actually monitor the quantity of water used by a particular user, or the quantity of waste and pollutants discharged by another entity. Such evaluation and monitoring would be impossible to use in rural areas of poor farmers in developing countries. Therefore, other mechanisms can be used to reward upland farmers, based on the principle “the polluter pays” or “the user pays”. This can be done through taxes or penalties on water use and discharge by large industrial firms. The fund generated then can be used for funding watershed conservation activities by upland farmers, using community development project or other forms of rewards (Gouyon, 2002).

2.5 Design and implementation of a reward/incentive scheme

The process of designing and implementing an environmental incentive/reward scheme for nature conservation involves a progression of logical steps and is based on a range of background information and analysis. Incentive schemes respond both to local needs, circumstances and economic activities, and to the broader market, policy and institutional failures which make communities unwilling or economically unable to conserve nature in the course of their economic activity. Understanding the dynamics of these economic systems and identifying the needs and opportunities they present for natural resource conservation forms the basis of designing an incentive scheme and setting them in place. There are five fundamental steps in designing and implementing economic incentives schemes, at community level for natural resource utilization (Emerton, 1999). These five steps are discussed.

Step 1: Gathering information on community livelihoods and natural systems

The dynamics of local livelihood systems forms the overriding focus of the design and implementation of economic incentives for community nature conservation. Community livelihoods both depend on and impact on natural systems. These dependencies and effects vary at different times and for different people. In turn, changes in the status and integrity of natural systems impact on local livelihoods. Identifying and understanding these interactions and their variability provides important information about needs and niches for economic incentives. The necessary information needed includes type and distribution of natural resources, status and availability of natural resources, management and allocation of natural resources, livelihood decisions, local livelihood systems livelihood differentiation and variability, livelihood dependence on natural resources, economic importance of natural resources, and socio-economic variation.

Step 2: Analysis of community economic influences on natural systems

Local economic activities can impact negatively on natural systems. The most common direct causes of nature degradation are over-exploitation of natural resources, destructive harvesting and land use practices, conversion of natural habitats and the introduction of wastes, effluents and other pollutants into the natural environment. Identifying these negative impacts and the related economic activities provides important information for targeting the incentives or disincentives. Although degradation occurs as a direct result of activities, which deplete or erode natural resources, these activities are in turn encouraged or permitted to occur as a result of much broader processes. Failures in legal, policy, institutional and market arrangements constitute the root causes of nature degradation because they distort the relative costs and benefits accruing from economic activities, thereby encouraging people to produce and consume in particular ways

Step 3: Identifying needs and niches for incentive measures

People will not find it desirable to conserve nature in the course of their activity when it does not economically benefit them to do so.

Identifying the direct causes of nature degradation and their underlying economic causes, helps determine where nature conservation is undesirable, who the relevant stakeholders are, under what circumstances, and at which times they are unwilling or unable to conserve nature. Where nature conservation does not make economic sense, to particular stakeholders or at particular times, there is a need for developing positive incentives and removing perverse incentives. Information on the direct and indirect causes of resource degradation helps to identify the most appropriate types of incentives and the nature of perverse incentives.

Step 4: Choosing economic incentives for community-based nature conservation

There is an array of economic incentive measures, which can be applied to community-based nature conservation. In the light of the status and integrity of natural systems and local socio-economic circumstances and livelihoods and with an understanding of the direct and underlying economic causes of nature degradation, it is possible to identify the appropriate types of incentives which are likely to be effective, locally acceptable and practically operational.

Step 5: Practical considerations in the implementation of incentive measures

Actually operationalising economic incentive measures for nature conservation involves identifying partners for their implementation, negotiating the roles and responsibilities of these partners, and translating incentives into concrete on-the-ground actions. Incentive measures never provide a permanent or absolute means of achieving nature conservation and community livelihood improvement goals. Both the status and integrity of natural systems and community livelihoods, as well as the exogenous forces, which impact on natural systems, change over time. The continuous review and re-examination and, where and when necessary, redesign of the incentive measures is critical for ensuring their long-term viability and effectiveness.

2.6 Issues in design and implementation of an environmental reward schemes

The success of an environmental incentive scheme depends critically on its design and implementation. There are a number of issues, which should be paid attention in the design, and implementation of an incentive scheme (Babcock, 2001).

It is important to establish a baseline, which determines “how new” a certain activities must be to be eligible for reward. Choosing a baseline will involve trading off the program cost against equity. From a static efficiency perspective, the payments should induce “new” activities and not reward environmentally friendly activities that have been already been taken without the payment. However, it may be perceived as unfair to good stewards. An efficiency problem also arises in that farmers who have already adopted such activities may temporarily end their conserving practices so that they can become “new adopters”, thereby qualifying to receive payment. The incentive should be designed to discourage such behavior (Babcock, 2001). In one study focused on carbon sequestration, it was found that paying all farmers for carbon gain would require a budget three times larger than if only new adopters were paid (Pautsch et al. 2001).

The next issue in designing an incentive program relates to which level of the government should be responsible for the program design, the degree to which the activities are rewarded, the rate structure, monitoring, and enforcement. Lower levels of government in general have better information about farmer activities and incur lower costs to monitor them. They may also know more about the environmental benefits of these activities if the benefits are local. However, local government may not give adequate attention to services that are global or regional and to the program costs if the central government finances the conservation payments (Babcock, 2001).

Kiss (2002) discusses the likely reasons, which make the application of direct approach challenging in developing countries. These reasons lie in the nature of developing country economies and legal and social systems. The direct

approaches are easier to use when land is privately owned than when it is held communally and/or without a legal title. In communal situations, there must first be a reasonably effective, legally recognized organizational structure to negotiate and implement contractual arrangements. Conservancies involving communally held land have often been difficult to put in place.

Another significant challenge is that rural populations in developing countries mostly earn their living directly from subsistence agriculture or extraction of natural resources. When land is dedicated to conservation through direct payments, people may become dispossessed if their land rights are not secured. Even if the local people become the direct beneficiaries of conservation-related payments, large numbers of people may become unemployed. This is likely to lead to social disruption, and many of the people are likely to continue their previous activities (Kiss, 2002).

In developed countries, the financial incentives provided to landowners for environmental services are often in the form of property tax breaks.

This is not applicable in countries where property taxes do not exist or routinely go unpaid. The financial incentives must therefore be provided as direct cash transfers, which is usually more difficult to obtain than tax relief. There is also the issue of enforcement and timing of payments. The weak judicial systems typical of many developing countries can make it difficult to obtain and enforce long-term legal commitments, so the most likely method is to provide the payments over time. However, the short-term opportunity costs to the poor landholders are high. A balance must be struck between effective short-term incentives and sustainable long-term incentives.

Poor upland farmers in the upper watersheds are the important potential supplier of environmental services. Rewards for environmental services could be an important addition to their income. It is important to ensure that the poor have access to the new opportunities created by the environmental reward scheme. However, it should be noted that working with small, dispersed farmers imposes high transaction costs. Organizing farmers into groups through which they can join the incentive program is one of the possible ways to reduce transaction costs (Pagiola and Platais 2002).

CHAPTER 3. AN OVERVIEW OF VIETNAM'S UPLANDS

This chapter provides a brief introduction of Vietnam's upland and a synthesis overview of the northern uplands. Natural and socio-economic features of the northern uplands were discussed and implied constraints and potential for RUPES were identified.

3.1 Introduction

Vietnam is a long, narrow and S-shaped country situated in Southeast Asia. Its total land area is 330,000 square kilometer with a population of about 80 million. Nearly three fourths of the country's land surface is mountainous and the arable area per capita is about 0.1 ha, a lowest rate in the world.

The country is divided into eight economic regions. These are North West, North East, Red River Delta, North Central Coast, South Central Coast, Central Highlands, North-East South and Mekong Delta. According to the classification of the Mountain and Ethnic Minorities Committee, Vietnam has nine teen (19) upland provinces², including ten high-land mountainous provinces (Ha Giang, Cao Bang, Lao Cai, Lai Chau, Son La, Bac Can, Gia Lai, Kon Tum, Dak Lak and Lam Dong) nine midland mountainous provinces (Lang Son, Quang Ninh, Yen Bai, Tuyen Quang, Thai Nguyen, Phu Tho, Hoa Binh, Bac Giang and Binh Phuoc). In addition, there are 114 mountainous districts (belonging to 26 provinces) that are dwelled by ethnic minorities.

Vietnam's upland has a complicated topography. The northern uplands are of steep slope, with high mountains, deep streams and rivers. The typical soil is gray feralit, which is quite poor. The central highlands has a flatter topography, the dominant soil type is basaltic, fertile and suitable for industrial crops and fruit trees. The rainfall varies considerably across different upland areas. Annual rainfall in the northern uplands is about 1800 mm and that of the Central High Lands and the Central Coast are around 2700 mm and 3200 mm respectively.

² The provinces of Gia Lai, Kon Tum, Dak Lak and Lam Dong are in Central Highlands; Binh Phuoc in the North-East South; and the rest in the North Mountain and Midlands.

Vietnam's uplands are characterized by a great social and cultural diversity. The population of Vietnam's uplands is estimated at twenty-five (25) millions people, of which ten millions belong to more than 50 ethnic minority groups. The rest is Kinh people, migrating from the lowlands. Three ethnic minorities with a population more than one million in the northern upland include Tay (1.5 million), Thai (1.3 million) and Muong (1,1 million). In the Central Highlands, the most populated ethnic minorities are Gia Rai (316 thousand people), E De (270 thousand people) and Ba Na (174 thousand people) (Chu Huu Quy, 2002).

The uplands are also characterized by a great ecological diversity. Accounted for about three fourths of the country's total area, uplands are endowed with nearly 90% of total forest area of the whole country, 70% of total fauna and flora species and over 90% of different categories of plants and animals. Upland regions are the source of water, wood, wild animals, medicinal plants and mineral resources (Vo Quy, 2002).

3.2 Poverty in Vietnam's upland

3.2.1 Poverty measurement

Poverty is a multi-dimensional problem. The definition of poverty extends beyond material deprivation. Poverty is commonly defined as a level of deprivation such that a person is unable to meet minimum standards of well-being. Aside from material deprivation there are other indicators of poverty such as low levels of education, social exclusion and high exposure to risk (CIE, 2000)

Vietnam address the general definition of poverty agreed at the Asian – Pacific Conference on poverty reduction organized in Bangkok, Thailand in September 1993: "Poverty is a situation in which a proportion of population does not enjoy the satisfaction of basic human needs that have been recognized by the society depending on the level of economic and social development and local customs and practices." (CPRGS, 2002).

There currently exist two main approaches to the measurement of poverty in Vietnam, one adopted by the General Statistics Office (GSO) and the other adopted by the Ministry of Labour, Invalids and Social Affairs (MOLISA).

The GSO calculates two poverty lines for Vietnam, the food poverty line and a general poverty line. The definition of the *food poverty line* is based on the standard used by most developing countries and WHO and as well as international organizations at present, i.e. average 2,100 Kcal daily calorie intake per capita. The general poverty line is based upon the food poverty line but allows for minimum non-food expenditure.

The GSO approach is commonly referred to as the international poverty line since it is based upon an internationally accepted methodology. GSO estimates the rate of poverty using the Vietnam Living Standards Survey (VLSS) that has been conducted in 1992-93, in 1997-98 and 2002. The 1993 expenditure-based total poverty line was VND 1.16 million per annum per person (55% higher than the food poverty line) and the 1998 one was VND 1.79 million (39% higher than the food poverty line). Based on these poverty lines, the total poverty incidence in Vietnam in 1993, 1998 and 2002 was 58%, 37.4% and 28.9% respectively while that of food poverty was 25%, 15%, and 10.9% respectively. It was estimated that Vietnam's total poverty incidence and food poverty incidence were 32% and 13% respectively in 2000 (CPRGS, 2002; CG, 2003)

MOLISA developed a poverty line for each region to identify who are the poor and which communes are poor with specific numbers and addresses. This helps to develop a list of poor households from the hamlet and commune level and that of poor communes from the district level upwards who are eligible for support from the National Targeted Poverty Reduction Program and other supporting policies. A new poverty line was published in 2001 to be applied to poverty measurement in the 2001-2005 period. This new national poverty line is defined at different levels depending on specific areas/regions, based on per capita income: VND 80,000 per month for island areas and rural mountainous areas, VND 100,000 per month for rural plain areas, and VND 150,000 per month in urban areas. In the future, Vietnam will move towards using one common poverty line for estimating poverty incidence in the country, taking into consideration international poverty standards for comparison purposes (CPRGS, 2002).

Poverty is widespread among households with low and unstable income. Although Vietnam recorded great achievements in bringing down the incidence of poverty, it is not yet on solid

ground in the struggle against hunger and poverty. The income of a large proportion of the population lies just above the poverty line, and even a small adjustment in the position of the line will put them below the poverty line. Most of the income of the poor comes from agricultural work. Given their very limited resources (land, labor and capital), their income is highly unstable and they are vulnerable to unexpected shocks at the family and community levels. The income level of many households is barely above the poverty line, so that a small downward shift in income can easily push them below the poverty line (CPRGS, 2002).

3.2.2 Geographical distribution of poverty

Poverty in Vietnam is largely a rural phenomenon and about 90 percent of the poor live in rural areas. The incidence of poverty is higher in rural areas (45 percent) than in urban ones (10-15 percent depending upon what estimate of unregistered migrants in poverty is used) and so is the depth of poverty. The percentage of poor and hungry households in Vietnam varies across region. Among the regions, poverty is clearly higher and deeper in the uplands regions.

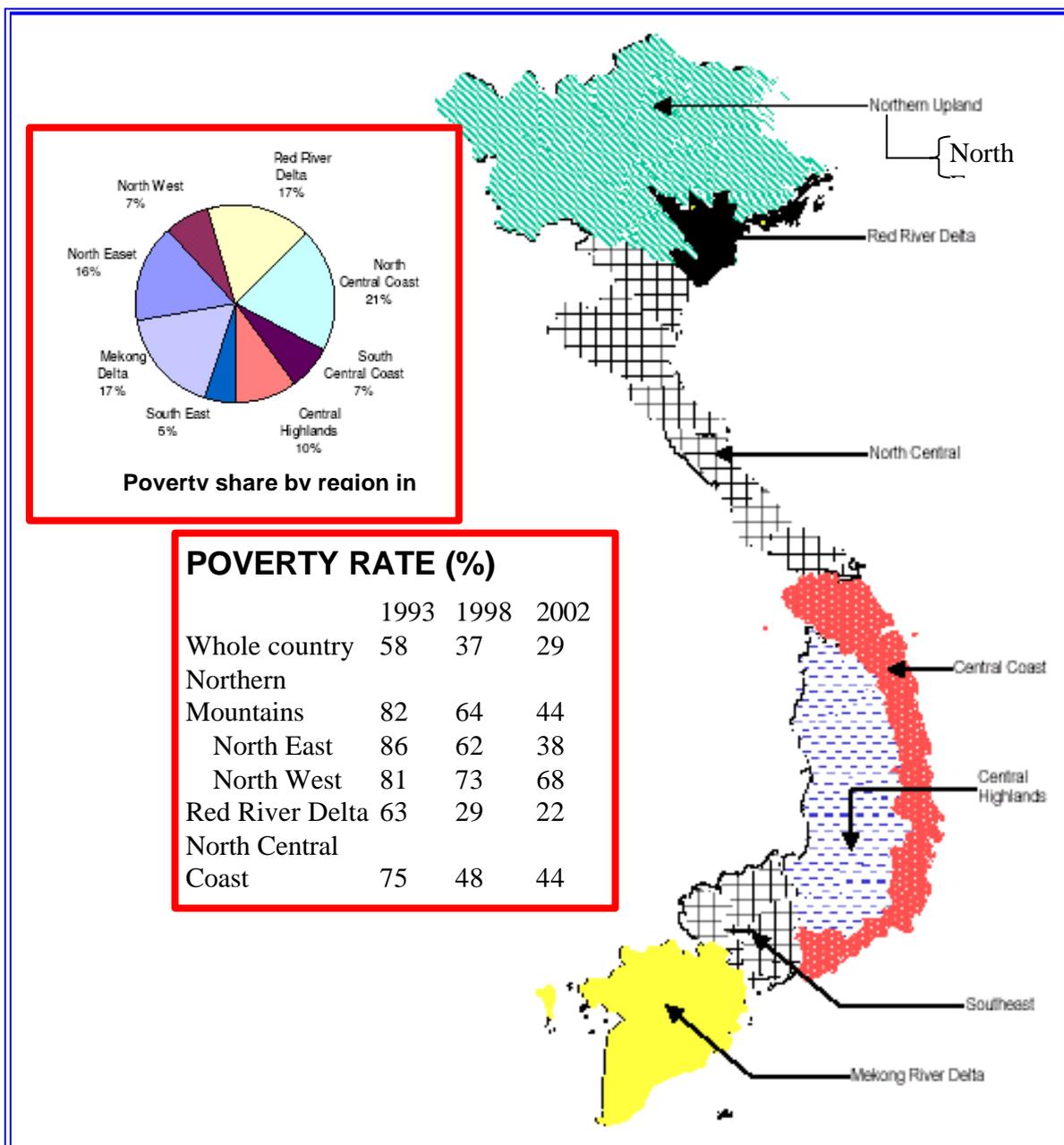
The Northern Uplands, and the Central Highlands are the three poorest regions with highest incidences of poverty in Vietnam. The persistence of poverty in the Northern Uplands and the Central Highland regions reflects the constraints these regions face in participating in the growth process. The major constraints are a difficult physical environment, which limits agricultural development and restricts access to infrastructure and markets. Many households living in the highland areas were simply too remote and deprived of land and capital to take advantage of opportunities. These households were also found to lack information on markets. Three regions account for almost 70 per cent of Vietnam's poor: Northern Uplands (28 per cent), Mekong Delta (21 per cent) and North Central (18 per cent) (CIE, 2000).

A majority of the poor live in areas that have very poor natural resources and harsh natural conditions such as mountainous, remote and isolated areas or in the regions such as North Central Coast where sudden weather changes (typhoons, floods, drought) make conditions for

living and producing difficult. In particular, the underdeveloped infrastructure of poor regions causes the gap between them and other regions in the country to widen (World Bank, 1999).

In the year 2000, there were 1,870 especially disadvantaged communes. The majority of them are in the uplands. These communes have a very poor infrastructure: 20-30% of them have not yet roads leading to commune centers; 40% have not

a sufficient number of classrooms; 5% have no health stations; 55% has no access to safe water; 40% of them do not have electricity lines to commune centers, 50% have no sufficient number of small-scale irrigation works; and 20% of them have no markets at commune or commune cluster levels. On average, the number of households that fall below the poverty line again each year remains large relative to the number of households that manage to escape from poverty (CPRGS, 2002).



3.2.3 Characteristics of the poor and causes of poverty

Over 80% of the poor in Vietnam are farmers with low professional and business skills, and poor access to productive resources (capital, know-how, technology...). They encounter many difficulties in selling their products due to unfavorable geographical conditions, low product quality, and poor product mix. Poor farmers have little access to information and limited possibility

Key Characteristics of Poor Households

The poor are predominantly farmers with low levels of educational attainment and limited access to information and functional skills. In 1998, nearly four fifth of the poor worked mainly in agriculture.

Poor households have small landholdings and limited access to credit. Landlessness is becoming more widespread. Households who are unable to make a living from the land find few opportunities for stable income generation off the farm. Poor households are frequently caught in a debt trap.

A majority of the poor live in rural, isolated or disaster prone areas, where physical and social infrastructure is relatively undeveloped. Poor households may be socially and physically isolated.

Households with many children or few laborers are disproportionately poor and are particularly vulnerable to high and variable health and education costs.

Poor households are vulnerable to seasonal hardship and household-specific and community-wide shocks.

The poor are disproportionately likely to be from an ethnic minority. Poverty among ethnic minority groups has declined, but not as rapidly as for the majority population.

The poor have limited education: people who have not completed primary education make up the highest incidence of poverty.

Source: Vietnam Development Report 2002

for shifting to non-farm employment. Female farmers in remote and isolated areas, especially unmarried female householders, and elderly females are among the most vulnerable poor groups. The working time of poor women is longer but their income is lower, they have a

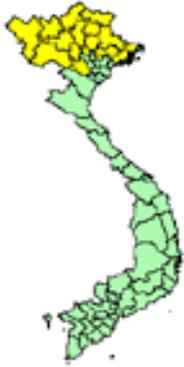
lesser voice in making decisions in their homes and communities; as a result, they have less opportunity to access resources and benefits brought about by policies (CPRGS, 2002).

In Vietnam, lowland ethnic Vietnamese, known as Kinh, are the dominant ethnic group and make up about 85 percent of the population. There are another 53 ethnic groups in Vietnam who constitute the category "ethnic minorities". Most of these are located in upland areas. The poverty rate is extremely high among ethnic minority groups. In past years, although the Government has actively invested in and supported ethnic minority communities, they continue to experience many difficulties and disadvantages. While accounting for roughly 14 percent of the total national population, the representation of ethnic minority groups among the poor is disproportionately high at approximately 29 percent. The poverty incidence of the ethnic minorities is extremely high. In 1993 and 2002 the general poverty rate of the ethnic minority was 86.4% and 69.3% respectively. The majority of ethnic minority people live in remote and isolated areas. They are geographically and culturally isolated, and lack favorable conditions for developing infrastructure and basic social services (CPRGS, 2002).

Poverty occurs in the uplands not only due to the lack of financial capital but also for many different reasons including geographical isolation, language differences, lack of outside information, lack of technology, disease, overpopulation, lack of a trained labor force and passive participation in development programs, lack of development planning ability, and misuse of natural resources (Le Trong Cuc, 2003).

3.3 North Vietnam's upland

North Vietnam' uplands includes fourteen mountainous provinces of the Northeast and Northwest regions and a number of mountainous districts of other provinces of the Red River Delta and the North Central Coast. It is estimated that the total natural area of the northern uplands is more than 11 million ha and a population of about 12.5 million people. As explained earlier, the discussion that follows focused mainly on the northern mountain region, which includes fourteen mountainous provinces of the Northeast and Northwest regions.



North West : (3 provinces)
Lai Chau, Son La, Hoa Binh

North East : (11 provinces)
Ha Giang, Cao Bang, Lao Cai,
Bac Can, Lang Son, Quang Ninh,
Yen Bai, Tuyen Quang, Thai
Nguyen, Phu Tho, Bac Giang

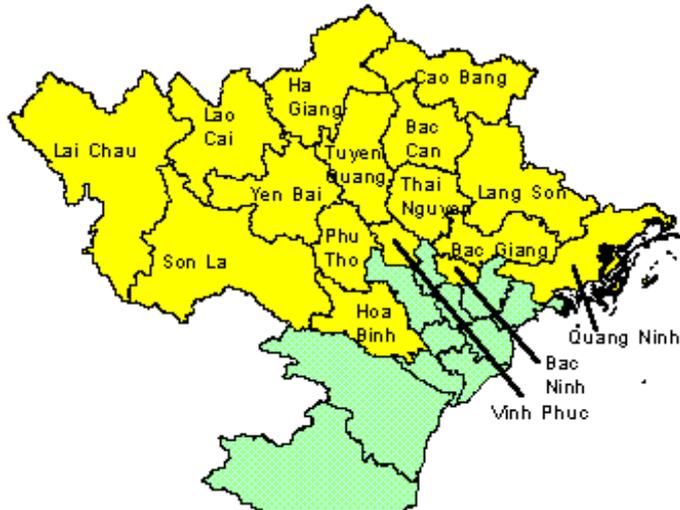


Figure 3.1 North Mountain and Midland Region, Viet Nam

3.3.1 Land, topography and climate

The northern mountain region has a total area of almost 10.1 million ha, of which agricultural land was 1.3 million ha and forestry land 3.7 billion ha. The uplands of the Northern Mountains regions form watersheds of the Red river and Black river. Much of the Northern Uplands consists of hills and low mountains with elevations between 500 and 1000 meters above sea level (Appendix Figure 1). Fan Si Pan, the highest peak in Vietnam at 3143 meters above sea level, is in the province of Lao Cai in the Hoang Lien Son range. The Red River enters Vietnam from the northwest, passing through Lai Chau, Yen Bai, and Phu Tho. The rugged Hoang Lien Son mountain range is running parallel to the Red River to the south.

The area encompasses astonishing topographical and ecological diversity. The northern uplands are of steep slope, with high mountains, deep streams and rivers. The mountains are topographically and edaphically varied, ranging from the rounded granitic hills of Vinh Phu and Yen Bai to the very steep limestone peaks in Son La and Lai Chau. The typical soil is gray feralit, which is quite poor. The area has a number of large, flat-floored intermountain basins and several river valleys,

which occupy a not inconsiderable part of the total area (Rambo, 1997)

About 65% of the region is 200 m or higher and 14 % lies at an elevation above 1000 m. The terrain of much of the northern maintains is badly broken with steep slope. More than 50% of the upland area have slope above 20 degrees (Bui Quang Toan et al. 1993). The steep and broken terrain makes road construction difficult and blockage by landslides is a constant threat (Rambo, 1997). Lai Chau is one of the least accessible provinces in the Northern Uplands, followed by Son La and Lao Cai. Provinces in the Northeast generally have better accessibility (Appendix Figure 2).

The region has a great diversity of soil types. Yellow-red feralitic are the most wide spread type (Be Viet Bang, 1993). There are extensive areas of fertile soil with high level of organic matter at higher elevation. The soils are found to be suitable for the growth of different crops, especially fruit trees such as litchi, longan, and orange. However, many of the soils of the northern mountains are deeply weathered, poor in nutrients and highly venerable to erosion when cleared of vegetation cover (Rambo, 1997).

Climate regimes vary across different part on the region (Rambo, 1997). On the right bank of Da River, the climate is generally warmer and considerably drier. Annual rainfall also varies across different provinces in the region due to, among other thing, the variation in elevation and slope, with an average of about 1800 mm. The climate of the region is characterized by two distinct seasons. The wet and hot season lasts for five months, from April through September. About 80% of the total rainfall concentrated in the rainy season, especially in the months of July and August. During the hot season the air temperature varies between 23- 29 °C. The dry and cold season starts in October through March. The average temperature in this season is 18 °C. Sometimes, the temperature fell to zero °C (Castella, 2002).

3.3.2 Population, ethnics and education

Population of the region was estimated around 11 million, about 14% of the national population. The upland's population grew at a rate of about 3%, much higher the national average of about 1.7%. This high rate is due to the high birth rate, reduced mortality rate and the net increase of in-migration over out-migration. Migration has been uncontrollable in many areas. Especially in Tay Nguyen, the population in 2000 increased by 58.42%, as compared to 1990. In 1991, the population in 3 provinces of the Central Highland was only about 1.98 million people. In 1999, that figure increased to 3.1 million people. The ethnical structure of the upland population changed. The proportion Kinh people in mountainous regions increased from 35-45% in late 1980s to 45-75% today (Le Trong Cuc, 2002). The population growth rate varies across different upland ethnic minorities (Khong Dien, 2002).

There exists the discrepancy between population size and surface area. The population density in the uplands is low and varying greatly across provinces, districts, and communes. The average population density in the northern uplands is about one third of the national average density of about 240 persons per km². Lai Chau province has a lowest population density of only 36 persons per km² (Chu Huu Quy, 2002). Especially, in remote upland communes the population density is extremely low, less than one person

per km² (Le Trong Cuc et al, 2001). The population density of the uplands increased remarkably during the last decades.

The dramatic difference in population densities between Vietnam's uplands and lowlands lead to the belief that the distribution of population and human resource has not been in line with that of natural resources. When looked at from the standpoint of the carrying capacity of the two environments, it can be argued that the uplands are already relatively more populated than the lowlands (Rambo, 1997).

The northern mountain region is characterized by a very great ethnic and cultural diversity. The region is home to 31 of Vietnam's 54 officially recognized ethnic groups. The largest ethnic groups in the region include Thai, Muong, Tay, Nung, Dao, Hmong people. Kinh people mainly live in plain area (Rambo, 1997). The migration of Kinh people to uplands was associated with the government policies of population redistribution, which was implemented in the north since 1960 and in the South since 1975. The aim of the policy was to establish new economic zones, having the people from densely populated lowland areas to settle in the uplands. At present, the number of Kinh people in mountainous regions occupies more than a half (Le Trong Cuc, 2002). A distinctive feature of the northern mountain region is that many distinct ethnic groups are found living intermixed with one another within the same delimited territory. More than one half of the number of districts in the region has 10 or more ethnic groups present. The vast majority of villages have three or more ethnic groups in residence; only three percent of the villages are monocultural (Rambo, 1997).

This interpenetration within the same territory of multiple ethnic groups, speaking different languages, sets the northern mountain region apart from the Central Highlands where each ethnolinguistic group occupies its own distinct territory. This unique form of ethnic settlement pattern has important implications for development policy and program. Ethnical and cultural diversity makes indigenous participation more challenging, especially when the minority people find it not easy for them to use the Vietnamese national language as a common communication language (Rambo, 1997).

The education and social infrastructure of the northern mountain region in particular and the

uplands of the country in general have improved remarkably during the last decade, thanks to the upland development programs and projects by the central and local governments and non-governmental organizations. Nowadays, upland people have a greater access to education. However, the levels of education of the mountain minorities still remain far below national average (Rambo, 1997). Among 14 upland provinces of the North Mountain and Midland, three provinces (Lao Cai, Son La, Ha Giang) have a literacy rate lower than 70%. The province of Lai Chau has an extremely high illiteracy rate of about 49% (Chu Huu Quy, 2002).

With respect to education and training, the situation is different in different areas of the northern mountain region. Literacy rate of better-off and accessible upland communities was 100%. For poor and limited-accessibility communities, school enrollment rate as well as literacy rate was very low, especially for women. In many cases, the rate was just several percent (Le Trong Cuc, 2001).

3.3.3 Economic growth, poverty

The current structure of the region's economy is somewhat traditional, with a big share of agricultural sector. Agricultural sector still plays a very important role in the economy of the northern mountain region. The majority of the upland population lives on agriculture and forestry. This sector accounted for more than one third of the region's GDP. During the last ten years, agricultural value of the region grew on average 7.1% per year, higher than the national average of 6% (Dang Kim Son, 2002). Industry and construction is not a strong sector of this region, accounted for only about one fifth of the region's GDP (Chu Huu Quy, 2002). Income earned from agricultural production and forest extraction occupies a large proportion in total income of mountainous households.

The average economic growth rate of Vietnam's uplands including the northern mountain region in the past ten years was 8-10% per year, higher than the average rate of the whole country (Ha Huy Thanh, 2002). However, compared with other regions, except for the Central Highland, the economy of the northern mountain region still lags far behind. The living standards of the mountain people are much lower than the

national average. By the year 1999, the GDP per capita of almost provinces of the northern mountain region was less than one thousand USD, about one half of the national average. GDP per capita of Ha Giang and Bac Can was about USD 550; meanwhile the national average was USD 1860. Except for Quang Ninh, other provinces of the northern mountain region have Human Development Index (HDI) lower than the national average. The HDIs of Lai Chau and Ha Giang were 0.486 and 0.503 respectively; the national average was almost 0.7 (Chu Huu Quy, 2002).

Although the government has implemented many programs and policies on economic development, hunger eradication and poverty reduction, to reduce the gap between urban and rural areas, between mountainous and plain area, upland regions in general and the northern mountain region in particular are still enduring highest incidence of hunger and poverty (Chu Huu Quy, 2002). North West region is the poorest region in the country with general poverty rate of 68% and food poverty rate of 46% in the year 2002 (World Bank, 1999). Hunger and poverty situation is one of the main reasons for the degradation of natural resources in the mountainous region. Little level land is available for paddy field, forcing farmers to clear their fields on steeply sloping hillsides.

Food production of the region has increased considerably during the last 10 years. The two major food crops of the region are rice and maize. In 2000, food output in paddy equivalent of the region was 3118.7 thousand ton, increased by 50% compared to the year 1995. However, the northern mountain region is still unable to produce sufficient grain to meet the minimal consumption needs of its population. In 2000, the gross per capita output of food in paddy equivalent was about only 270 kg; the national average was 443 kg. Different provinces in the region experienced different extent of food insecurity. Quang Ninh has a lowest level of gross per capita output of food, only 185 kg. Cao Bang and Tuyen Quang are quite sufficient in food, with per capita output of more than 330 kg. It should be noted that the food insecurity is really problematic in remote communities. For instance, 93% households in Thai Phin Tung hamlet, Dong Van District, Ha Giang province and 43% households in Tat hamlet, Da Bac district, Hoa Binh province are below the food poverty line (Le Trong Cuc, 2001).

3.4 Upland development programs

3.4.1 Major upland development programs by the Government of Vietnam

Being aware of the importance of mountainous regions, during the recent years, the Communist Party and the government have issued many policies and programs to attain sustainable development in the upland regions including the northern mountain region. These development programs and policies aimed at (1) developing the market economy in accordance with the natural conditions, cultural and socio-economic characteristics of each region to efficiently make use of local advantages, (2) developing upland education systems, giving special priority to people's education and training ethnic minority staff, (3) developing culture in the upland regions, paying attention to the conservation, and inheritance of the typical traditional value of ethnic groups, and (4) ensuring social equity in the uplands, giving special support to people in mountainous remote areas (Ha Huy Thanh, 2002).

From early 1990s up to now, the government has formulated and carried out many programs and hundreds of projects in mountainous regions. Apart from governmental programs, mountainous regions have received many projects³ funded by international organizations, bilateral aids, NGOs such as World Bank (WB), World Food Programme (FAO), European Union (EU), United Nations Development Programme (UNDP), IFAD, Sida, Germany, Japan. The fund from these organizations has played a very important part in socio-economic development and environmental protection in mountainous regions (Le Hong Thai and Chu Van Ty, 2002). The major governmental programs implemented in the uplands during the last decade include Sedentary farming and settlement program, Program 327, 5MHP, Eradication and replacement of opium crops and upland cash-crop promotion, New Economic Zone in the Uplands, Program 135 (socio-economic development program for especially disadvantaged poor, remote upland communes). Given the research objectives, four programs,

³ Le Hong Thai and Chu Van Ty (2002) provide a comprehensive list of on-going development programs and projects in the northern mountain region and Central .

which are explicitly targeted at poverty alleviation and environmental and agricultural resource use/conservation in the uplands are discussed.

Sedentary farming and settlement (SFS) program

In Vietnam, most ethnic minority people live in uplands, practicing slash and burn cultivation. Slash and burn cultivation has been one of the main causes of forest loss and land degradation. Furthermore, it also makes people management by the government difficult. Therefore, the SFS program was formulated to have the ethnic minority people to settle permanently and practice sedentary farming. The program is to move ethnic people living deep in the forest and mountains to suitable areas identified by the government. Supports from the SFS program include infrastructure, extension, health services and necessities so that the ethnic settlers have a modest life in new location until they can earn a living by themselves through sedentary farming. The SFS program was implemented in North Vietnam since 1954 and in South Vietnam since 1975.

Program 327

Program 327 is a government-sponsored program, started in 1993 and terminated in 1998. The program focused on re-greening barren hills and mountains, protecting the forests and the environment, utilizing unused land in mountains and midlands, coastal land and water surface to increase the production of commodities and materials for industrial production, and improving rural infrastructure such as rural roads, schools, medical stations, small irrigation projects.

Capital incentive was given to upland farmers people to plant forest in bare hills and to protect and manage natural forests. The subsidies for tree planting were VND 2.1 million per hectare, including establishment cost and maintenance cost of the next three years. Later on, the income from forest will be shared in accordance with agreed proportion. Regarding the protection and special use forests, the legislation stipulates that they should be allocated to and managed by state-run management boards. However, in reality large areas of protection and special use forests are under e.g. State Forest Enterprises (SFEs), which have been encouraged to contract their

management out to SFE workers and local farmers. The programme 327 provided a fixed payment of VND 50 000 per ha per year to such contractor. Most observers are of the opinion that this amount is too little to provide adequate incentive for the contractor to protect and manage the area effectively (Nguyen Xuan Nguyen *et al.* 1999).

Five Million Hectares of Forest Program (5MHP)

5MHP is a continuation of the PR-327. The general objectives to the year 2010 are: (1) to plant 5 million hectare of forest as well as to protect the existing forests in order to increase the coverage to 43%, contributing to the environment security, alleviation of natural disasters, increase of aquatic livability, conservation of genetic pools and biodiversity; (2) to make efficient use of the wild land and bald hills to create more jobs for laborers, contributing to hunger elimination and poverty reduction, settlements, increase of the income for mountainous inhabitants, socio-political stability, national defense and security, especially in the border area; (3) to provide wood as materials for paper production, plywood to meet the needs for woods and other forestry products for domestic consumption and production for exports as well as to develop the forestry processing industry in order to make forestry in important economic sector, contributing to socio-economic development in the mountainous areas.

5MHP allocates forestland and forests to different organizations households and individuals. The validity of the allocation or lease of land to organizations and allocation of land and forest to households and individuals is 50 years. If the organizations, households or individuals still need the land after that period has passed, and they have been using it for the correct purposes, the validity of the allocation or lease will be prolonged. If the land user has established a tree crop with a rotation period of more than 50 years, the validity of the allocation or lease will be prolonged at the 50th year, for the period remaining until the harvesting occasion. After land has been allocated or leased Land Tenure Certificates to organizations, households and individuals will be issued.

The program provides incentives to organization, household and individual engaged in forest

protection and reforestation. The payment for protection of special-use forests and protection forests in very essential and essential watersheds is not more than 50,000 VND/year over a period not exceeding 5 years. For contracts for assisted natural regeneration, the payment is not more than 1 million VND/ha and distributed over a period of 6 years. For reforestation and tending of the new forest in very essential and essential watersheds, the person responsible will be compensated by an amount of up to 2.5 million VND/ha. A support with an average amount of 2 million VND/ha is given to organizations, households or individuals who use their own funds to create production forests with especially valuable species.

Households contracted for protection of very essential and essential protection forests have the right to exploit fuel wood and minor forest products growing under the tree canopy. Households have the right to all products from thinning as well as minor forest products from planted protection forests and contracted forest for assisted natural regeneration in protection forests. A household who has invested in the creation of a forest plantation on production forestland is considered as the owner and has the right to decide when and how to harvest the forest. However, the area has to be reforested within two years after harvesting. All products harvested in planted forests as well as bamboo and minor forest products harvested in natural forests can be freely marketed. Logs and other forest products (except precious and rare species) exploited from natural production forest regenerated by households and individuals can be freely marketed (The Government of SRV, 1998)

Eradication and replacement of opium crops and upland cash-crop promotion

The program of eradication and replacement of opium crops is under the main responsibility of MARD in co-ordination with the Commission on Ethnic and Mountainous Areas, ministries, agencies and 10 provinces concerned. The purposes of this project are to basically eradicate the farming of opium crops and to assist the socio-economic development in replacement so that eradication of opium crops can be sustainable thus improving the people's livelihood. In 2001, opium crops are grown in 153 communes of 8 provinces covering an area of 325 hectares (as compared with 16,000 hectares during 1992-1993). The above-mentioned tasks are focused on

highlands, mountainous and remote areas. To carry out these tasks, apart from effective integration of various sources of funds, it has been identified that several issues need to be addressed. These include (a) policy adjustments and revisions; (b) scientific research and technology transfer in the high land and mountainous areas; (c) training for agro-extension workers, technicians for poor communes and provision of favorable conditions for their effective operations.

Aside from the program of eradication and replacement of opium crops, various programs to promote cash crop in the uplands have been initiated and implemented. Crops introduced to the upland regions include maize, sugarcane, cassava, rubber, and other fruit trees. The important objective is to address the problem of food insecurity, low income that is chronic in the upland.

3.4.2 Achievements and shortcomings

As mentioned earlier, this study is not a project evaluation. It is to provide a background for the development of proposal for future RUPES activities in Vietnam. Given this, several achievements and shortcomings of concerned upland development programs are discussed.

Achievements

Thanks to implementation of development programs by the government and non-governmental organization, Vietnam's uplands are now more accessible, with improved infrastructure. All districts in mountainous and remote areas have had motorway, 90% of them have motorway linked to commune central. By 2000, the percentage of communes having electricity in northern mountainous provinces and Tay Nguyen was 44.08% and 55.27% respectively. The percentage of households using electricity in the two regions was 49.2% and 41% respectively.

In the field of education, by 2000, all communes in mountainous regions had primary schools, enrolling majority of ethnic minority children to

school. Health services have been improved. All mountainous districts had hospitals or clinics. Common diseases in the mountainous regions such as malaria are under control.

The economic growth rate of mountainous regions in the period of 1990-2000 was estimated around 8-10%. The structural change of the uplands' economy is justified. The share of agriculture in the GDP decreased from 76% in 1990 to 58% in 1999 and that of industry and construction sector increased from 9% to 16%, and trade and service sector increased from 15% to 26% (Ha Huy Thanh, 2002). Poverty incidence in the uplands has been on decline. The poverty rate of North East regions reduced remarkably, from 86% in 1993 to 38% in 2002. For the North West region, poverty incidence also decreased, but remained the highest, about 68% in the year 2002 (World Bank, 2003).

Improved capacity of local upland communities is another important achievement associated mainly with the participation approach adopted by most programs/projects funded by international organization and NGOs. Many programs/projects have promoted decentralization and a bottom-up approach to development. Decentralization and participation has led to the empowerment of rural people, providing them an opportunity to identify, plan, implement and evaluate their development works and activities. Operational decentralization and the development and strengthening of grassroots institutions have been major determining factors in empowering local people and communities to take charge and be the prime drivers of their own development.

Shortcomings

Development programs in the upland during the last decade have gained lots of achievements in ensuring sustainable development in the mountainous regions. However, considerable shortcomings have also been found.

The management of socio-economic development programs in mountainous regions during the past time has been cumbersome among functional offices from central to local level. For example, in the case of the resettlement program, the management board frequently changed. At the beginning (1968), it was under administration of the government, then of Ministry of Agriculture (1971), of Forestry Ministry (1978), of the

Committee for Ethnic Minority and Mountainous Areas (CEMMA) (1992), and MARD (1996). Accordingly, local management system also changed, resulting in instability in management tasks (Le Trong Cuc, 2002).

The approach adopted by the governmental programs and projects are basically top-down, paying insufficient attention to participation of local people who should have had the right to participate, to discuss and to prioritize their socio-economic development needs. The resettlement program paid much attention only to basic infrastructure, houses, and roads while long-term conditions for households to earn their living were not taken care enough. The role of local authorities and people in villages in planning, monitoring and evaluation of program activities was limited. This limits the efficiency and sustainability of the project. The two programs, program 327 and 5MHP are not very much pro-poor. The programs focused on environmental protection rather than improvement of living standards for local people who were poor and paid attention only to their daily needs, not their future after 5 or 10 years. The incentive for environmental conservation of the program 327 has not been properly designed (Nguyen Xuan Nguyen *et al.* 1999).

The two programs, 327 and 5MHP, have little to do with supporting upland farmer's income. As per regulation, the compensation for taking care and protecting forest is 50,000VND/ha/year. However, in reality, the residents only received VND 30,000-40,000 per ha per year. This amount is too low to deserve their efforts on forest protection. In addition, farm household had to incur transaction cost to get a contract. The division of benefit from the contracted forest was unclear.

3.5. Major environmental issues

During the recent years, many efforts have been made to attain economic growth and to preserve natural resources in the mountainous regions. However, together with economic growth, the pressure of population increase has caused severe danger to the environment. There are a number of environmental problems in the uplands; the most important are discussed.

3.5.1 Forest quality reduction

Forest is a precious resource, which has the capacity to regenerate. Not only is the base for socio-economic development, forest has extremely important ecological function as well. Forest takes part in regulating climate conditions, maintaining stability and fertility of soil, limiting flood and drought, preventing soil erosion, reducing severe devastation of natural calamities, preserving surface and underground water, filtering water, reducing and air pollution. Environmental quality depends on the availability and the quality of forest (Vo Quy, 2002). Forest cover in Vietnam declined dramatically from 14.3 million ha in 1943 to only 9.3 million ha in 1993, an average loss of 100,000 ha/year. Especially, loss of natural forest cover during the period 1975 to 1990 was astonishingly high, with an average of about 190,000 hectares per year. The main causes of this forest decrease are deforestation and fire agriculture for expansion of food production, forest degradation because of agent orange and so on, and forestry development aimed at timber product (Nippon Koei Co., Ltd. 2003).

During the last decade, Vietnamese government and international organizations have endeavored to raise forest coverage, implementing reforestation programs and projects such as Program 327, 5MHP. As a result, forest-covering level in the whole country has improved considerably. However, the quality of forest in our country has decreased considerably (Vo Quy, 2002; Le Trong Cuc, 2003). Rich and closed-canopy forest are virtually extinct and medium-quality forests are steadily diminishing. Closed canopy forests make up only 13 percent, while poor and regenerating forests make up 55 percent of total forest area. The chances of regeneration are rapidly decreasing with the increasing isolation of the rich natural forest patches. Plantation forests, on the other hand, have almost doubled from 0.7 million ha in 1990 to 1.6 million ha in 2000 (Nippon Koei Co., Ltd. 2003).

In mountain provinces, natural forest coverage, especially rich forest, is very low. For instance, the coverage of natural forest remains only 5.83% in Lao Cai, 7.88% in Lai Chau and 12% in Son La. The area and quality of natural forest has continuously declined due to illegal logging and over-exploitation. It is assessed that only 2.4% of the existing forests is rich forest, 15.1% average

forest, 46% poor forest and 36.5% young forest. The area of plantation forest rises up moderately every year. However, afforestation mainly serves economic purpose; most tree species for afforestation/reforestation are exotic species such as acacia mangum, acacia auriculiformis, and eucalyptus. Indigenous plants with ecological value have been rarely afforested (Vo Quy, 2002).

Forest and land resources continue to decrease. Environmental and economic consequence of forest loss is huge, impossible to compensate. Forest degradation caused damage to the environment, hindering the long-term development, not only in mountainous regions but also in the whole country. The huge floods in the last few years throughout the country, which have caused serious damage worth of thousands of billions VND, partly resulted from forest degradation.

3.5.2 Land degradation and reduced cultivation area per capita

Vietnam consists of nearly 25 million hectares of sloping land (76% of natural land area) in mountainous regions, of which 12.5% is poor, severely degraded, and prone to severe erosion and of very thin topsoil layer. Soil erosion and land degradation is the common trend in mountainous regions where ecological balance is damaged. It is estimated that not less than 60% mountainous land is being degraded. From 1960 till now, every year 1.5 cm of the topsoil layer of agricultural land in mountainous regions has washed away (Vo Quy, 2002). Many steep slopes upland area in the country, especially in the Central Highlands and the Northern Mountains, are very susceptible to soil erosion during heavy rains. Potential soil loss due to erosion ranges from 50-3200 ton/ha/year (Nippon Koei Co., Ltd. 2003).

Land degradation is a very pronounced phenomenon in the upland regions, where the ecosystems are very fragile. This problem is caused by both man-induced and biogeographical factors. Erosive farming practice is often cited as one of the main causes of soil erosion (Bui Dung The, 2003). In the northern mountain region, slash and burn cultivation are still adopted by ethnic minority farmers. The inclement climate with intense rainfall and sloping topography make sloping uplands in the region the most threatened. Some observed important indicators of land degradation in the region include loss of

vegetation, loss of topsoil, frequent occurrence of flash floods during the rainy season, severe droughts during dry season, and reduction in biodiversity. These observations find their roots in, among other things, erosive land use systems that directly affect physical structure and biochemical characteristics of the soil, as well as the vegetation cover of the land. In recent years, such degradation has been accelerated by, among other factors, a rapid increase in population pressure, widespread rural poverty, and problems associated with open access (Dien et al. 1996).

Soil degradation on mountainous regions has posed many challenges. It has caused alarming decrease in area of agricultural land per capita. This consequently affected food security of the upland population. If there were no effective solutions to put an end to erosive land use practice in mountainous regions, in 20 years, soil degradation there will be more severe and it is impossible to recover soil quality (Vo Quy, 2002).

3.5.3 Lack of fresh water and water pollution

The mountainous regions in Vietnam used to be covered with natural forest and an abundant water source for daily activities of the residents, the production of hydroelectricity, agriculture and transportation. However, due to over-exploitation of forest and extensive conversion of forest to agricultural use, forest area is declining day by day. Consequently, flood and drought occur more frequently in the uplands. Most mountainous regions suffered from the lack of fresh water. The problem of lack of fresh water is extremely severe in the province of Ha Giang, Cao Bang, Hoa Binh, Lai Chau. During dry season, residents in many upland communities have to travel five to 10 km to fetch water. Several hamlets had to move to other places because of water shortage (Vo Quy, 2002).

Because of severe erosion, sedimentation has reduced storage capacity and shortened life of reservoirs. In 1991, the operation of the two biggest hydropower plants, Da Nhim and Tri An, in the Central Highland was interrupted in dry season due to severe shortage of water. During the last several years, thousands of hectare of rice and coffee in the upland were died or fruitless due to long severe droughts.

3.5.4 Dramatic loss of bio-diversity

Vietnam is one of the world's ten most biologically diverse countries. The country is endowed with many fauna and flora species (Nippon Koei Co., Ltd. 2003). It was reported that there are more than 13 thousand plant species, over 100 species of birds and 70 species of animals. The majority of these fauna and flora species are found in natural reserves and national parks in the uplands⁴. Upland forest of Viet Nam accounts for about 90 percent of the country forest cover and 90 percent of rare and endangered plant and animal species (Le Trong Cuc, 2003). Many rare species of animals are found in Vietnam's upland recently such as *Pseudoryx nghetinhensis*, *Megamuntiacus vuquangensis*, *Lophura hatinhensis*. In the recent years, the fauna and flora resources have been threatened by rapid economic growth and increasing population pressure. Many species of animals are rare and in danger of extinction (Vo Quy, 2002).

According to government statistics, of all Vietnam's endemic species, 28 percent of mammals, 10 percent of birds, and 21 percent of reptile and amphibian species are endangered mainly due to habitat loss and hunting. Even in most protected areas wildlife is not completely conserved. The poor farmers have still captured wildlife to meet the high demand for wildlife both from within Vietnam and from China. The animals are traded for medicinal use, as wild meat and tonics, as trophies and souvenirs, and as pets. About half the trade is in reptiles mainly snakes and turtles. Tens of thousands of animals are confiscated but these represent only about 5-10 percent of the entire trade volume.

In order to protect and conserve its rich biodiversity, Vietnam has been developing a protected areas system over the last three decades. In Vietnam, these protected areas are classified and known as "special use forests" consisting of national parks, nature reserves and cultural, and historical sites (Nippon Koei Co., Ltd. 2003).

There are a number of causes of bio-diversity loss in Vietnam's uplands identified. These include population pressure, wide spread poverty, shifting cultivation and the conversion of forest to agricultural use, forest fire. Human population growth is the first reason leading to biodiversity degradation. Ethnic minority groups' population in the upland grows rapidly, with a rate much higher than the national average of about 1.7%. For example the growth rate of H'mong, Ha Nhi is 3.4 percent; Sila 3.5 percent; Cho Ro, Pa Then 4.1 percent, and others such as Pu peo 6.1 percent, Khang 9.6 percent. Coupled with the mass migration from lowland to the upland, this has caused an increase in population to more than 25 million persons and a current average density of about 100 persons per square kilometer. This is a high number when viewed in terms of the limited amount of arable land (Le Trong Cuc, 2003).

In addition, a number of socio-economic policies have led to overexploitation of natural resources especially forest resource (Le Tran Chan, 2002). Mounting pressures from population growth, dam and road construction, and expansion of agricultural lands are resulting in serious habitat losses. Mature natural forests have been damaged or destroyed, logged, cleared and replaced by plantation forests. This habitat loss is threatening the country's biodiversity.

⁴ There are about 12 natural reserves and national parks in the uplands of North Vietnam.

CHAPTER 4. RUPES-RELATED EXPERIENCE IN VIETNAM

This chapter is an analysis of Rupes related experiences of selected IFAD and Sida rural development projects in Vietnam. This draws on a wide range of documents from these projects and data and information gathered from field surveys by the research team. The analysis of identified rewarding schemes focused on several aspects such as the environmental services to be promoted by the schemes, kind of reward, and poverty alleviation. Relevant experience of other projects is also discussed.

4.1 IFAD funded projects in Vietnam⁵

4.1.1 Introduction

To date, IFAD has funded five area-development projects in Viet Nam (Figure 4.1). These are Ha Giang Development Project for Ethnic Minorities (HGDPEM), the Participatory Resource Management Project (PRMP) and Rural Income Diversification Project (RIDP) in Tuyen Quang Province; Agricultural Resources Conservation and Development Project (ARCDP) in Quang Binh Province; and Ha Tinh Rural Development Project (HTRDP)⁶.

Three among these five projects, RIDP, HGDPEM and HTRDP are ongoing; the other two projects have terminated. So far, IFAD assistance to Vietnam is particularly directed to the poorest areas such as the Northern Uplands and North Central Highlands and the most vulnerable target groups and ethnic minorities, such as upland farmers and women-headed households. The primary objectives of all the IFAD-supported projects are to improve the incomes and living standards of poor rural households and to increase their participation in the development process. Project activities have focused on agricultural production; rehabilitation of essential infrastructure, such as roads, bridges and irrigation schemes; environmental conservation and management; agricultural extension; animal health services; aquaculture development; the provision of microfinance; and support for income diversification (IFAD, 2001)

The projects have been implemented under the overall responsibility of provincial people's committees (PPCs). Except for PRMP, in the other four projects, project coordination units were created to coordinate implementation at the provincial level. Actual implementation is the responsibility of provincial technical departments. For PRMP a project management unit was established for this purpose. The project management unit was to be supported by a working group at the provincial level, comprising representatives of various provincial technical departments.

⁵ The materials used in this section are mostly produced by IFAD

⁶ HTRDP was excluded from the review because it has very little to with RUPES

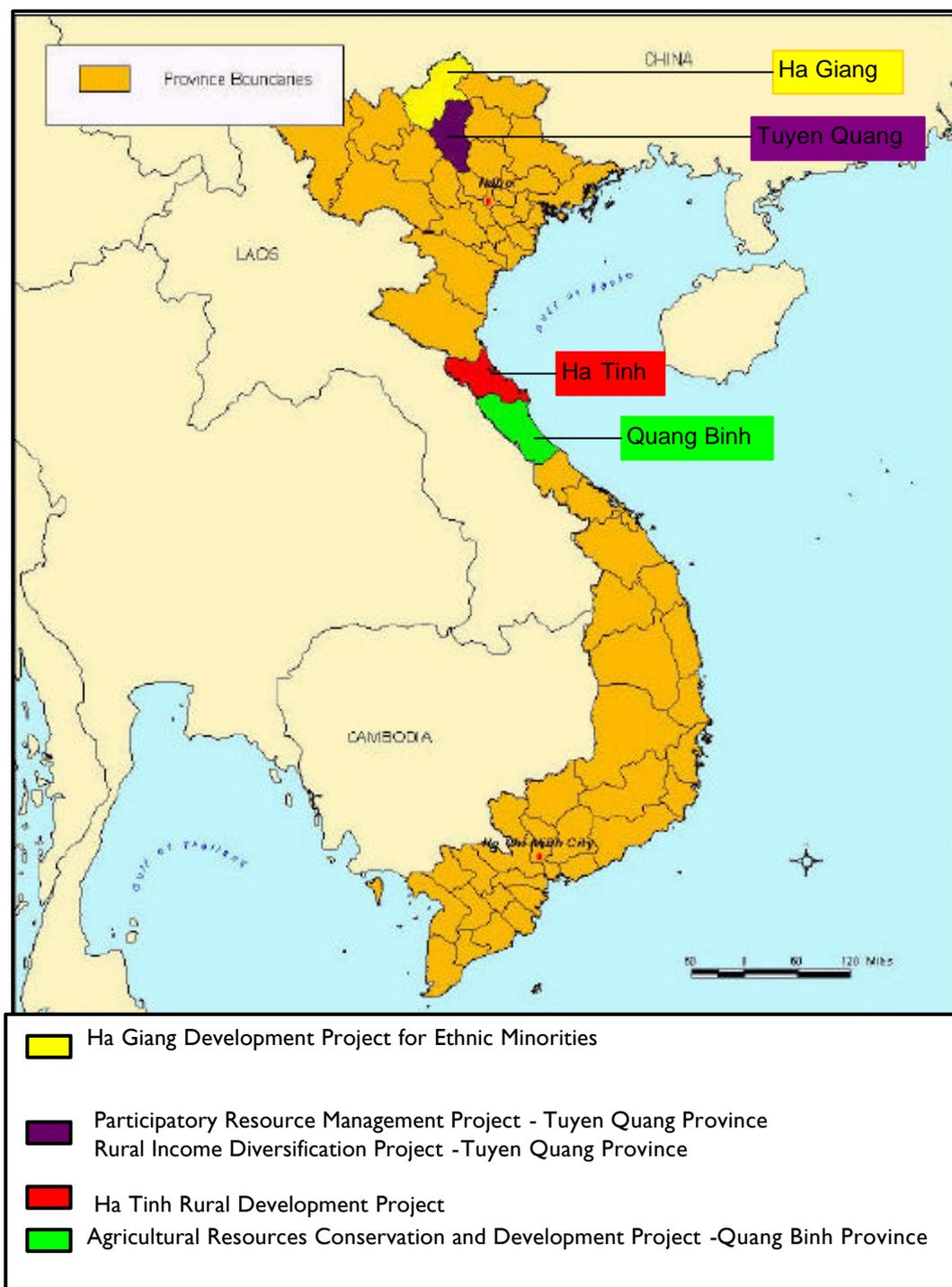


Figure 4.1: Vietnam's Provinces with IFAD Funded Projects

4.1.2 Environmental rewards

IFAD Ha Giang

HGDPEM includes eleven components. The forestry component of HGDPEM aims to support existing forest programs in critical watershed areas, principally by developing participatory protection models and the issuance of forest protection contracts for critical protection forests. Protection contracts for 20 000 ha of forest have been issued. The policy of granting forest protection contracts to local farmers whereby farmers were paid over five years for the protection and improvement of forest areas was working well in that it gave individuals a sense of responsibility for the forests and encouraged their conservation (IFAD, 2001)

The issue of sustainability of protection contract was raised: what would happen when project expires? This question led to a consideration of alternative, more sustainable, options. The forestry protection contracts established under HGDPEM may not be sustainable unless income generated from the protected forest can be secured. The thought that income generation from NTFPs would replace the payments made by HGDPEM has not been systematically supported by efforts to enable such income. However, the forest protection groups established under the project present a good institutional base for community forestry schemes.

Market issues are critical for the successful development of forestry as well as agroforestry models. Farmers' willingness to invest in such schemes depends on the perceived market potential of both wood and NTFPs. This is linked to the policy framework for forestland use and marketing of forest products, calling for a stronger focus on a continued development of forestry policies that enable upland farmers to increase their income from forestlands.

It was recommended that the Government enhances its efforts to develop participatory forest protection models including formation of participatory soil conservation associations and issue forest protection contracts to farmers. Specific provisions for such participatory forest protection models and soil conservation associations should be included in the design of all future development interventions. Incentives may be necessary for reforestation activities, against

the direct cost of the accelerating cycle of flooding and drought in the region. The mission recommends the enforcement of a strict ban on the cultivation of the upper slopes of threatened areas. Extra rice rations may be necessary as a temporary measure and should be made as payment for reforestation activities. The cost of this should be set against the direct cost of the accelerating cycle of flooding and drought in the region.

IFAD Tuyen Quang

There is no forestry component in PRMP, but its work complemented and aided the process of re-greening by contributing to food security and thus reducing pressure on the forests. The process of forest allocation is well advanced in most districts, and farmers are able to meet their fuel wood demands from their own forest plots, allocated on a 50-year lease basis. The most obvious indication of improved security of tenure has been the widespread planting of fruit trees (oranges, plums, long an), some of which, such as cinnamon, require ten years or more before the first harvest.

The RIDP just started in late 2001. Main activities under its forestland management sub-component include:

forest land management assessment;

development of a participatory process for forestland allocation and land-use planning (FLA/LUP) to ensure the allocation of forestland in an equitable and transparent manner within the project communes. Participatory approaches to FLA/LUP will examine the quality of forestland to be allocated and determine the most appropriate levels and types of allocations to individual households, communes and villages;

implementation of FLA/LUP activities in all project communes and villages. Preliminary estimates are that up to 100 000 ha of forest land may be suitable for allocation within the project area;

provision of technical support to the Department of Land Administration with regard to mapping, surveying and the issuance of land-use certificates;

defining methods for improving the management of forestland allocated to communes and villages; and training of Forest Protection Branch staff at

all levels related to implementation of the FLA/LUP program and village/commune-level pilot activities.

IFAD Quang Binh

Under the sand-dune fixation component of ARCDP, 2 700 ha of casuarinas have been planted in 12 southern communes in the dune area to promote the emergence of microclimates that would allow both cultivation and settlement. Such plantations were undertaken in a participatory arrangement with people living at the local level and their communities. All planting and maintenance were carried out by farmers. About 70% of local farmers, most of them women, benefited from employment opportunities. Seedlings are being produced by the farmers themselves. A self-management board within a co-management framework has been set up in each commune for promoting the sustainable utilization, management and conservation of forests. The active participation of local residents would materially add to the longer-term protection of the young trees. However, it should be noted that since forestlands are owned by the state, mechanisms need to be developed to encourage farmers to continuously engage in forest protection work.

In Quang Binh, the destruction of the young casuarinas plantations in the sand dune areas was caused mainly by de-branching for fuel wood. Such is the shortage of combustible material in the coastal region that unless alternative sources of cheap fuel are made available, the depredations will certainly continue in all areas except where existing trees are understood by local villagers to be performing a vital role as a physical barrier against sand. Thus, for the new plantations to survive, it is imperative to address, as a matter of urgency, the fuel situation.

4.2 Vietnam-Sweden mountainous rural development program⁷ (MRDP)

4.2.1 Introduction

The MRDP supports rural development projects in five provinces of Phu Tho, Yen Bai, Tuyen Quang, Ha Giang and Lao Cai in Northern

Vietnam, as well as the Ministry Project within the Ministry of Agriculture and Rural Development (MARD) in Hanoi. The program objectives were (i) institutional development in the whole structure from central to province, to district, commune and village levels of the five provinces, to enable rural households to achieve what they want, (ii) development and testing of working methods and production systems to sustainably convert the barren uplands and mountains in the five provinces to productive land use, and (iii) creation of policies, recommendations and guidelines for sustainable upland and mountain rural development. Main project activities include (i) commune and village development budgets, (ii) community and household forestry management, (iii) rural financial services, (iv) extension services, and (v) business development and market information.

The MRDP works in 250 villages of 64 communes in 19 districts in the 5 provinces. The project provinces are home to several ethnic groups, speaking different languages and having their own cultural and social structures, their ways of living, and their traditional agricultural production. Between 1996 and 2001, the number of villages included in the programme has increased in each one of the five provinces. In order to focus more on poverty alleviation, over the years, the MRDP shifted more and more towards mountainous and remote communes and villages.

MRDP was a method development programme, but it is clear that the meaning of this in forestry has changed over the duration of the programme. In some cases the Provincial projects interpreted this as being a support for the methods being developed by the Government of Vietnam in terms of Programme 327, and more lately, the 5MHRP. The development of forest policy at a national level has led to the opening of a number of areas for the development of local approaches to forestland management. The program has developed and tested a number of community forest management models. It is clear from the work undertaken in MRDP that local forest management, household and community based, has a strong role to play in developing effective forestland management in Vietnam. This forest management can contribute significantly to developing both the quantity and quality of forest cover in the remoter areas, facilitating the use of forestland by households for poverty reduction and livelihood development. However, the performance and impacts of this forest management approach differs across local setting.

⁷ The materials used in this section are mostly produced by MRDP.



Source: MRDP report

4.2.2 Community forest management models in MRDP⁸

As discussed in Chapter 2, community based resource management is one of the strategies to reward upland farmers for environmental services they provide. MRDP has developed and tested a number of community forest management models. Hereafter is a summary of the evaluation of these several models. The evaluation of community forest models was focused on several aspects such as (1) land use rights by the community (2) forest status allocated to the community (3) level of impact by the Government (4) degree of community participation (5) shared benefit from community forest (Vu Huu Tuynh, 2001).

Nam Ty village, Hoang Xu Phi, Ha Giang

Nam Ty commune is located 1460 m a.s.l with a total area of 4235 ha. There are 6 villages in Nam Ty commune: Nam Ty, Tan Xa Phin, Nam Pien, Ta Ho Pien, Tan Thuong and Ong Thuong. The commune consisted of 383 households with 2284 people, of which 1802 people are Dao and 482 H'mong. Most of forest in Nam Ty commune belongs to critical protection forest category, but located fragmentally among agriculture land and villages. Therefore, no Forest Management Board has been set up, but management responsibilities have been allocated to communes. In Nam Ty commune, food production is mainly on terraces and hills. Slash and burn cultivation has been stopped. Food production in paddy equivalent per capita was 370 kg in 2000. Food security has been improved.

There are 74 households in Nam Ty village with 428 people. Most of them are Dao. The Red Book on residential land, forestland and garden land has been issued to farmers. Since 1998, 134 ha of natural rehabilitation forest have been allocated to communities by the District People's Committee for protection and management. These forests play a very important role in watershed management and providing drinking water for the whole community. Forest areas allocated to villages are far from residential areas. The forest has strong rehabilitation potential

⁸ This review draws largely on Vu Huu Tuynh (2001).

Village meetings were held to discuss and draft forest protection regulations. First of all, the forest is allocated to 3 groups of households, who are allowed to collect byproducts such as firewood, leaves, and bamboo sprouts. If the households need timber for house construction, they have to apply for community approval. The Commune People's Committee can issue harvesting license, but only for harvesting trees marked by village heads and forest protection staff. In addition, the MRDP supports protection contract allowances for 134 ha allocated to the communities with 50,000 VND/ha /year. This amount of money is to contribute to the village fund for forest protection. The regulation says when forests are restored and are ready for large scale harvesting; communities will enjoy the benefits as stated in current law. But there is still no official decision by the Government so farmers do not feel confident of their rights.

The benefits that local community attained from forest management in Nam Ty included NTFPs, selected timber harvest for domestic use, and forest protection from MRDP. However, there were no more allowances for forest protection since 2002 when the MRDP closed while forest products were not yet available.

Len village, Viet Lam Commune Vi Xuyen district, Ha Giang

The total area of Viet Lam commune is 3790 ha of which forestland is 1915 ha. Forestland and garden land have been allocated to households for rehabilitation. The commune has proposed to the District People's Committee to issue and grant Red Books for farmers with forest garden lands. The poorer secondary forest, which was far from residential areas, was allocated to the communities for management.

Len village had 113 households with 596 persons, dominated by the Tay group. The agricultural land per capita was 1,350 m². The problem of slash and burn cultivation has been basically solved. The village is quite sufficient in food production with food in paddy equivalent per capita was 420 kg. Only 6 households in the village are poor.

Len village was allocated 159 ha of rehabilitation forestland in the soil mountains and 305 ha of very poor forest on rocky mountains. To protect the forest, MRDP has supported an allowance for the village to manage 159 ha with 50,000 VND /

ha/year. This does not include the 305 ha on rocky mountain, because there is no danger of forest destruction in this area. Six forest protection groups have been set up in the village; each group had 5 to 6 people taking turns to patrol the forest. Forest fires and illegal logging have been stopped. The group members get payments from MRDP to support forest protection. Payment level depends on their labor days. Members of the community are allowed to harvest NTFPs. It would take several years more before community could have considerable income from NTFPs, as the forest was very poor.

Ma La Thang village, Ze Xu Phinh commune, Mu Cang Chai district, Yen Bai

Ma La Thang village is located in the North East mountains and extends to the North South, at an altitude of 1,560 m a.s.l. Traveling in and out of the village is on small, steep, potholed paths. There are 37 households in the village, and 8 out of the 37 households are poor. All of villagers are H'mong people. The households live on terrain that alternates between terraces and forest. Food production is enough for only 10 months of the year, so the household has to buy food in Nga Ba Kim market, 8 km from the village. An alternative is to collect roots in the forest to use instead of rice.

Ma La Thang village contracted 87.5 ha natural critical protection forest for protection from Pung Luong SFE. The forest is poor regenerated forest, including mostly bushy trees and some regenerated trees. It needs to be enriched and protected well for some decades until it is ready for harvest. The protection allowance is 28,000 VND/ha/year and is taken from the program 327 and 5MHP. Ma La Thang village has organized village meetings to establish a forest protection group of four (4) people and to formulate regulations on community forest management.

The People's Committee of Mu Cang Chai district has approved the regulations. The community is allowed to collect non-timber forest such as firewood, H'mong apples, medical herbs and mushrooms. The village extracted 1,500 VND/ha/year from the protection allowance to pay the forest protectors. The remaining was distributed to community members. It should be noted that the forest is owned not by the community but the SFE and benefit the

community member got from the contracted forest was limited.

Giang Cai village, Nam Lanh commune, Van Chan district, Yen Bai

The commune of Nam Lanh is situated west of Van Chan, 300 m. a.s.l, at a gradient of 25-30 degrees. The majority of villagers are Dao people. The commune is not food-sufficient, 30 per cent of households are still suffering from food shortages. Giang Cai, a village of Nam Lanh commune, was allocated with 1091.7 ha of less critical protection forest, out of which 75.9 ha of critical protection forest belongs to Van Chan enterprise. The village has also sign a contract to protecting and periodically harvesting 34 ha of Cinnamon grown by the former agriculture cooperative. The village established five (5) groups for protection and management.

Villagers can enjoy the benefits of collecting NTFPs for home use and the pieces of harvested timber left by the enterprise after harvesting. The communities get a protection allowance of 28,000 VND/ha/year for the 75.9 ha of critical protection forest. In addition, the communities can benefit from 40 ha of terrace field for rice planting in Nam Lanh. This improves food security in the area. The cinnamon area is now being well protected without government support; the community enjoys all products of the cinnamon area. Benefits to the local people include NTFPs products and small protection fee from protection of contracted critical forest. Communities are not allowed to harvest the main products.

Dong Ke and Deo Thao villages, Tan Nguyen commune, Yen Binh district, Yen Bai

Tan Nguyen is a mountain commune in the Northwest of Yen Binh district. There are 992 households, belonging to 6 ethnic minorities, of which 70 per cent are Nung and Dao. The economy is mainly based on wet rice and tea cultivation, orchards and forest plantation. The commune's poverty incidence was quite high. The total forestland of the commune was 1,678 ha, including 813 ha natural forest, 507 ha plantation forest and 358 ha of bare land and bushy area. The commune has allocated 1,232 ha of forestland to households, with Red Book provided by the district PC. The area of regenerated natural forest is protected actively by households. Forests are growing well.

The commune allocated 678 ha of natural forest far from residential areas to the two villages of Dong Ke and Deo Thao (250 ha to Dong Ke, 428 ha to Deo Thao). With support from the MRDP, village meetings were held to discuss plans on forest protection, designing joint forest management models, formulating regulations on forest protection, development and utilization. These regulations have been approved by the district PC for implementation. Forest protection groups were established in each village and the groups operate effectively. Slash and burn cultivation and illegal forest extraction have been stopped.

The villagers are allowed to collect by-products such as bamboo, mushrooms and firewood for home use from the community forest, but are not allowed to harvest timber. A fund for forest protection and regeneration was established in Deo Thao village to pay for the community forest protection and management activities. This fund was established with the MRDP supported budget, and 10 per cent of income from selling forest products harvested from community forest. Fines from violations of forest protection regulations also went to the fund.

The District People's Committee has not yet been issued official decisions on forest and land use rights to Dong Ke and Deo Thao villages. Community's benefits from the forest are small. There are no policies on harvesting or utilizing timber. Compared with Deo Thao village, the forest of Dong Ke village is poor; farmers currently enjoy no benefits from it. There is no fund for forest protection and regeneration in the village, so it is lacking resources for forest protection. Therefore, the village proposed that the Government provide them with budget support for forest protection for 5 to 7 years initially, when NTFP benefit are not considerable.

Village 7 and Village 8, Tan Dong commune, Tran Yen district, Yen Bai

Tan Dong is a mountain commune in Tran Yen district. The commune had 675 households, including Kinh, Tay and Dao people. There are 8 villages in the commune. Village 7 and 8 are remote and inhabited only by Dao people. The economy is based mainly on wet rice cultivation, cinnamon production and production forest, which provided materials for pulp factory. The

commune has a high hunger incidence of 17 per cent.

Land and forest have been allocated to most of households (in average 2.5 ha/household), and 451 households have been provided with the Red Book. After being allocated land, farmers were very active in planting trees. Technical support and seedlings are provided by commune and village authorities, and farmers have full ownership on their forest. Forest is protected well.

The commune allocated 168 ha of very critical forest to the villages, 80 ha to village 7 and 88 ha to village 8. With MRDP support, village meetings have been organized in village 7 and village 8 to discuss the community forest protection plans, make surveys and define borders of community forests and the forests of other owners. Forests were better protected, and slash and burn cultivation and illegal harvesting has been stopped. Currently, farmers have obtained inconsiderable benefits from their forest. Both villages have to use MRDP supported budget to pay the allowance to the Forest Protection group (12,000 VND/person/month).

Regulations, however, on community forest protection policies have not yet indicated all the rights and responsibilities of community members. For example, there are no clear indications on rights and responsibilities of the stakeholders involved. Farmers of other villages are allowed by the commune PC to harvest forest products of village 7, without the permission of the head of village 7. The forest allocation to village 7 may not be secured because no official decision about its management has been made by the district people's committee.

4.3 Other community forest management models

4.3.1 Local initiatives

Tinh Dong and Lung Vai village, Phuc Sen commune, Quang Hoa district, Cao Bang

Phuc Sen is a mountainous commune with a population of 2,027, of which the majority is Nung ethnic minority. The main production activities of the commune are agriculture, forestry

and handicrafts such as bamboo products for export. The annual average household income was VND 10,000,000. The commune is food secured. During the 60s and 70s forests were exhaustively harvested and converted to agricultural use and then turned into bare hills. In the late 1980s, forestland was allocated to households to establish forest gardens. Forest areas far from residential areas were assigned to villages for protection.

Tin Dong village had 20 ha of community forest; that of Lung village was 120 ha. Village meetings were often organized by farmers to discuss and formulate regulations on community forest management and protection. January and July every year, the villagers undertook tendering activities jointly. Each household contributed 2 to 4 working days to tender forests and got 100 to 150 kg of wood in return. Forest products gathered from community forests can be used for several purposes such as construction of public facilities, building houses for poor households, supporting wood to households holding funerals or weddings. The villages did not receive any fees for forest protection from the State's budget and had not set up a fund for forest protection and rehabilitation. Whenever necessary, villagers were mobilized to contribute working days. Forests in two villages in Tinh Dong and Lung Vai were well protected, and forest products satisfy urgent needs. Phuc Sen's community forest management model really brought the benefits to community members and received a lot the support from households.

4.3.2 PROFOR trials in Thua Thien Hue

*Thuy Yen Thong village, Loc Thuy commune, Phu Loc district, Thua Thien Hue*⁹

The justification to conduct the community forest management trial at Thuy Yen Thuong is associated with three problems of paying fee for natural forest protection in Program 327 and 5MHP. First, the State pays VND 50,000 per ha per year for protection during five years only. Then who is going to be responsible for forest protection after that period? Second, the State

cannot afford to cover the entire area of natural forests in the country. Third, in many cases the contracts for protection are not attractive to local households because the forests are located far away from their homesteads. This has often led to conflicts between the households contracted for protection and other members of the community (Vo Van Dzu, 2000)

Thuy Yen Thuong is the poorest village in the district of Phu Loc. The village's population was estimated at 1860 people and most of them are Kinh people. Agriculture and forest extraction were the main income sources for the villagers. The average area of agricultural land per capita was 590m² and the annual average food production in paddy equivalent per capita was 200 kg. There are almost no non-farming activities. Floods and draught occur frequently. People of Thuy Yen Thuong had to extract forest timber illegally or to go to earn a living elsewhere.

Natural forests in Thuy Yen Thuong were protection forest. The forests were far away from residential areas. This makes effective forest protection difficult. Local people in the village did not pay much attention to the protection of forests because they considered forest protection a duty of forestry inspection staff or contractors. With support of PROFOR and Forest Inspection Station of Phu Loc district, Thuy Yen Thuong village requested the PPC to assign the village to manage, protect and utilize natural forests close to villages. If the forests in this area are well protected, it will prevent the destruction of other forests, because it is the entrance to other natural forests.

The forest for which the management agreement has been made is classified as an essential watershed protection forest, located in an area with difficult access. The best part of the forest of 404 ha was selected for the trial. The forest inventory shows that the forest is medium-rich with the average stock of 76 m³ per ha and the annual average growth of 1.5 m³ per ha. Main tree species were *Desmos dumosus* (29%); *Eugenia brachyata* (19%); *Parashorea stellata* (11%). Other species account for 42%. If the forest is protected well, it will grow fast. It will provide both productive and protective functions (Vo Van Dzu, 2000)

In December 2000, the People's Committee of Thua Thien Hue Province issued the Decision on assigning the above forest to the village for long-

⁹ Information used in this case is from field interviews with local people and from Vo Van Dzu (2000)

term management, protection and utilization. According to this decision, village households are recognized as the forest owners and must take the responsibility to protect and develop forests. Village communities discussed and came up with regulations on forest protection. They set up a team to go on patrols around the forests, and established a fund for forest protection and regeneration. Each person has to contribute 5 days to protecting and tending forests every year. Those who cannot work will contribute money to the fund for forest protection in accordance with the regulations approved by the provincial People's Committee.

Thuy Yen Thuong's villagers enjoy most of the NTFPs and they are allowed to hunt animals not listed in the Red Book. In the first 10 years, when forests are not mature enough for harvesting, villages can selectively harvest dead and old trees. The maximum logging must not exceed 50m³ of timber annually. This could solve the urgent need of communities for timber (for building schools, tables, coffins, and tools). The remaining timber will be sold to establish a fund for village forest regeneration.

It should be noted that the protection forest allocated to Thuy Yen Thuong is a part of the Suoi Tien stream's watershed. This is an eco-tourist site. During the summer, hundreds of visitors come to the site to swim and entertain the beauty of the nature. The eco-tourism activities generate employment and income opportunities for the local people including Thuy Yen Thuong villagers. The local villagers do understand that this eco-tourism activity depends very much on the availability and the quality of water of the Suoi Tien stream, which in turn depends on, among other things, the forest in the upper part of the watershed protected by their village. Furthermore, Suoi Tien stream is the important water source for agricultural activities of farmers of Thuy Yen Thuong and other villages in the areas. It is learnt from the field visits to the site that the forest has been well protected; the forest grows well. Villagers of Thuy Yen Thuong have seen increased water availability during the summer season. As a consequence, more tourists go to the site and wet rice yield improves.

*Thuy Duong village, Song Thuy Cooperative, Phu Loc district, Thua Thien Hue*¹⁰

Song Thuy cooperative is one of the four agricultural cooperatives of Loc Tien commune, Phu Loc district. The cooperative consists of two villages, Thuy Duong and Thuy Tu. The villages are located at the bottom of steep high mountains of the Truong Son. To the south of the villages are several peaks such as Hon Chay 1,400 m a.s.l., Hon Mu 1,060 m a.s.l and Hon Ong 1,20 m a.s.l.

In 2000, Thuy Duong village was allocated with 500 ha of protection forest. Similar to the case of Thuy Yen Thuong, the allocated forest forms a part of the watershed of Suoi Voi stream running across the cooperative area. Suoi Voi plays a very important role in the livelihood of local people. The stream actually is a beautiful eco-tourist site. It is estimated that every year about 20,000 tourists visit the site and the number is increasing. This industry has created employment and income opportunities for Loc Thuy people. The eco-tourism activity at Suoi Voi is managed by Loc Thuy cooperative. Suoi Voi stream furthermore is the important water source for agricultural activities of farmers of Thuy Duong and other villages in the areas.

The policy and the institutional arrangement of community forest management at Thuy Duong is similar that of Thuy Yen Thuong. The villagers are allowed to collect NTFP and to hunt animals not listed in the Red Book. In the first 10 years, when forests are not mature enough for harvesting, villages can selectively harvest dead and old trees. Future expected income from timber harvest is subject to forthcoming policy by the government. The most important reward that the village gets from forest protection is more availability of water for eco-tourism activities and agricultural production. These rewards encourage active and responsible participation of the local people in protection of the allocated forest.

Although these two pilot cases of Thua Thien Hue just started recently, it has received much support from local people. Improved forest quality, more availability of watershed services have been seen. Farmers are rewarded for their forest protection services. However, further supports, both institutional and technical, are needed.

¹⁰ Information used in this case is provided by Loc Thuy Cooperative and collected from field visits

4.4 Remarks on the experience reviewed

4.4.1 Summary of cases reviewed

Table 3.1: Summary of community forest management cases reviewed

Review case	Resource	Resource ownership	Key E. S to be restored/conserved	Rewards to the community
HA GIANG				
Nam Ty village, Hoang Xu Phi district.	- Poor protection forest with strong rehabilitation potential	- Long-term allocation	Watershed function Carbon stock	NTF, selected timber harvest for domestic use, protection fee up to 2002, more availability of water for the community
Len village, Vi Xuyen district.	- Poor regeneration protection forest	- Long-term allocation	Watershed function Carbon stock	NTF, protection fee from MRDP.
YEN BAI				
Ma La Thang village, Mu Cang Chai district	- Poor critical protection forest	- Contracted with a SFE	Watershed function Carbon stock	NTF, protection fee from program 327
Giang Cai village, Van Chan district, Yen Bai	- Critical protection forest - Less critical protection forest	- Contracted - Long-term allocation	Watershed function Carbon stock	NTF, protection fee from program 327, 40 ha of terrace rice field
Dong Ke & Deo Thao villages, Yen Binh district,	- Protection forest	- Long-term allocation (without district PC decision)	Watershed function Carbon stock	Deo Thao: NTF, protection fee from program MRDP Dong Ke: limited NTFP
Village 7 and Village 8, Tran Yen district	- Very critical protection forest	- Long-term allocation	Watershed function Carbon stock	Considerable NTFP, protection fee from program MRDP
CAO BANG				
Tinh Dong and Lung Vai villages, Quang Hoa district	- Natural protection forest	- Long-term allocation	Watershed function Carbon stock	Considerable NTF & selected timber harvest for community and household uses.
THUA THIEN HUE				
Thuy Yen Thong village, Phu Loc district	- Medium rich critical protection forest.	- Long term allocation	Watershed function Carbon stock	NTF, selected timber harvest for domestic use, more availability of water for Eco-tourism and agriculture, credit, expected timer harvest
Thuy Duong village, Song Thuy Cooperative, Phu Loc district	- Medium rich critical protection forest.	- Long term allocation	Watershed function Carbon stock Biodiversity	NTF, selected timber harvest for domestic use, more availability of water for Eco-tourism and agriculture, expected timber harvest

Note: E. S stands for "environmental service"

4.4.2 Natural resource and environmental services

The natural resource that the incentives/rewards by IFAD projects, MRDP and other projects discussed above aimed to conserve/restore in most of the cases is forest/forestland, especially critical and less critical protection forest and bare land. The forests to be protected and developed were of low or medium regeneration capacity. The key environmental service of interest is watershed protection, increase of water availability, reduction of soil erosion and sedimentation, improvement of local microclimate. Land allocated to households is treeless land, and bushy land with few regenerated trees. Land allocated to communities, however, is either forestland or land that can be rehabilitated. Rehabilitated land can become forest through zoning, enrichment and regeneration.

It is obviously that aside from forest protection and rehabilitation there are other land use practices could generate off-site benefits to the society. Vietnam Agricultural Science Institute (VASI) has been developing and testing different cropping technologies in Cho Don, Bac Can provinces. It is expected that these cropping technologies could improve soil fertility, reduce soil erosion, and increase economic return to farmers. Environmental protective functions of these land uses have been validated. However, the economic efficiency of these land use practices have not been studied yet.

4.4.3 Rewards

Property right

Farmers or communities were provided with long-term ownership (red book) or temporary ownership (contract) of the natural resources, forest and forestland. The local authorities (district or province PC) issued the decision to allocate land and forest to communities and households. There was also case that community and household got forest protection contracts with SFEs. It is arguable that community's rights to make decisions on forest management, protection and utilization in conformity with their benefits were limited. The communities are actually protecting the Government's forests, rather than the communities' forests.

Despite the revised Land Law (1998), forestland allocation has been implemented slowly and many farmers have still not received the land use certificate. In many areas, the forestland is either under the responsibility of logging companies or the local authorities. Regarding land use certificates, of those involved in forestry or logging activities 62% have a red book and 17% have a green book. Of the one-fifth of farmers who do not hold either, half of them have asked for one and have been waiting for about a year, the other half do not think they need one (MARD, 2003).

The progress of forestland allocation varies across provinces. By 2001, Lao Cai province had allocated 267,505 ha (49% of its total forest land) forestland and issued land use certificates to households and organizations and Ha Giang allocated 32% of forestland (165,345 ha) and issued land use certificate to different types of owner. By that time, Tuyen Quang province had only carried out forestland allocation with red book on a pilot scale. Only 4,823 ha of forestland have been allocated, which is 1% of the total forestland of the province. Compared with the other provinces Phu Tho was quite ahead, 54% (or 108,787 ha) forestland of the province had been allocated (Rolf Gilliusson, 2001).

It should be noted that secure land tenure is a necessary condition for better natural resources uses, but not sufficient to ensure that the use of resources will be sustainable. Upland farmers in Bac Can provinces adopt soil conservation practices mainly to obtain long-term land use certificates under new land law. In contrast, intensive land use under mono cropping without soil conservation practices is found in Son La province where land use rights are relatively secure due to recent land reforms. Improved land tenure security does not automatically lead to higher long-term investment and to a more sustainable land use (Neef, *et al.* 2000).

Cash incentive, free planting materials, employment and income opportunity

For forest protection, two levels of protection incentive, VND 50,000 and VND 28,000 per ha per year have been reported. The rates were perceived too low. There is no information on how these levels were set. It is likely that MRDP adopted the rate that was determined by the Program 327 and 5MHP. Afforestation activities

were undertaken in a participatory arrangement with people living at the local level and their communities. An important aspect of the IFAD project is the promotion of private tree growing by supplying seedlings, training and credit to farmers. This generated employment opportunities for local people. The farmers themselves produce seedlings, plant and maintain the forest.

How to set an appropriate incentive level is often questioned. The valuation of environmental services could provide a reference to justify the incentive levels. From economic efficiency perspective, the environmental benefit gained should be greater than the costs incurred. From farmer perspectives the incentive level has to be able to cover the incremental costs of the adoption of land use practices that yield greater environmental benefits. This means that the incentives/rewards should be able to make the environmentally friendly land use option at least as profitable as the alternative land use or alternative employment. Therefore, RUPES should consider this issue in designing a reward scheme.

A study by MARD (2003) recommends that for better forest protection and reforestation, all households participate and work in a group with a leader. The payment of VND 50,000 per year per ha is quite low for forest protection and should be increased. In order to improve forest development activities and to attract and motivate farmers, forest extension officers suggest setting up demonstration models on agro-forestry.

There was an argument that the money paid for protection is, in most cases, acting as a perverse incentive. It encourages households to protect forests for money from government rather than for the flow of benefits from the forest. This encourages dependency on government subsidy particularly in poorer areas and may lead to the situation where removal of subsidy leads to farmers ending protection of the forest and then unsustainably using the forest. The need to move from an objective of sole protection to protection through production is one means of trying to remove dependency on subsidy and to increase the link between sustainable use of the forest and development of sustainable rural livelihoods (Hobley *et al.* 1998).

NTFP and timber harvest

The communities and households were allowed to harvest NTFPs such as dry firewood, bamboo, mushroom, and fruit from the allocated/contracted forest. In some cases, community members are allowed harvest timber using selective logging from contracted protection forests. Given the low/medium growth rate of the contracted forests, the NTFPs benefits that the community can gain from the forests are limited. Especially, for degraded protection forest, the income from NTFPs is almost nil.

There used to be an idea that harvest forest products in protection forests must be prohibited. In fact, the forest is a living body with a natural cycle of regeneration, development and decline. When the forest develops to a specific level, it will begin to shrink. This is the right time to harvest old and diseased trees to improve forests, both to gather forest products and avoid waste, and to maintain the protection function of forests. From this point of view, international experts have proposed and MRDP has tried some models carrying out the so-called policy "From protection to protection through production" (Hobley M. *et al.* 1998). On this issue, the Vietnamese Government (2001) has issued the following specific policies:

For important protection forests, it is possible to harvest dead trees, broken trees and diseased trees, and trees in thick density with the harvesting intensity of a maximum of 20 per cent of volume.

For protection forest of natural bamboo, when the cover reaches 80 per cent, it is allowed to be harvested annually with an intensity of 20 per cent of the volume.

For the very critical and critical protection forests planted by funds from the State budget, it is permitted to harvest the auxiliary trees and the by-products. When the main trees are mature, periodical harvesting is possible but the intensity must not exceed 10 per cent of forest area.

It is found from the review cases and from the field visits that it is difficult to monitor the implementation of these regulations. It depends very much on the local capacity. Currently, there is little technical advice provided to households and the community for management of

forestlands. Thus advice is limited to the development of protection rules for natural forests, and advice on plantation establishment. There is, however, little or no advice provided on management of natural regeneration or multi-storey forests (Hobley M. *et al.* 1998). Given the policies, the harvest of NTFPs could reach the equilibrium of the open access case, not the optimal level to ensure that ecological and watershed function of the forest is well maintained. Income from NTFPs depends very much on the type and quality of the forest. In some case the income may be considerable, in other cases it may be trivial and can be realized in years to come.

Improved local environmental services

Improved local environmental service is also an important reward to the community undertaking conservation or restoration of natural resources. Villagers of Thuy Yen Thuong and Thuy Duong have seen an improvement in water quality and availability during the summer season as a reward for their natural conservation activities. As a consequence, more tourists visit Suoi Tien and Suoi Voi, crop yield, especially wet rice, increases. Improved water availability reduces water use conflicts between different purposes and different users.

4.4.4 Rewarding strategies

As discussed earlier, there are several strategies to reward the upland farmers for the environmental services. Each strategy has its own advantages and disadvantages. For the cases reviewed in this study, the contractual approach has been adopted. One of the advantages of this approach is that it establishes a clear link between the reward and the conditional changes in natural resource use practices. The recipient of the reward knows for what the reward is. To ensure that the expected changes are realized it need effective monitoring.

However, in reality there are a number of issues associated with protection contract. One of the issues is the length of the contract. Uncertainty about length of contracts could leads to limited interest in the future of the forest. Another issue associated with transaction cost and the transparency of the reward policy is that in many cases, households did not know what was contained in the contract (often because illiteracy

and being unable to read the contract). In Yen Bai province it was found that the province could only afford to pay VND 30,000 per ha but in effect by the time administration charges had been removed by the forest enterprise, this amount had been reduced to VND 27,000 per ha (Hobley M. *et al.* 1998)

4.4.5 Performance and sustainability

In most cases, the contracted forests were well protected. The protection fees that community or farmer got was very small. However, this was appreciated by local people for several reasons; (i) this shows the concern of the project or the Government, (ii) community/farmer felt responsibility to protect forest when receiving protection fee, (iii) for the very poor this small amount could support schooling expenses of their children.

The sustainability of the forest protection contract could be a serious issue. If people get used to receiving fund for the protection of forest, they may expect payment to continue after expiry of the project/program. Given the budgetary constraint it is not likely that the provincial government could be able to continue paying the fee. The need to move from an objective of sole protection to protection through production is one means of trying to remove dependency on subsidy and to increase the link between sustainable use of the forest and development of sustainable rural livelihoods (Hobley M. *et al.* 1998). On this regards there are a number of question need to be addressed. These are (1) is it possible to make forest protection a rewarding activity? (2) Could available agroforestry and forest enrichment technologies help? (3) If yes, under what conditions and how to encourage farmers to adopt the viable technologies?

4.4.6 Poverty alleviation impact

As discussed earlier, poverty is a multi-dimensional problem. Recognition of the value of environmental services provided by the uplands to the national economy and establishment of a system to recover the true costs of providing these services is a possible approach to poverty alleviation. It is justified from economic, environmental and social perspectives. However, how much environmental reward could contribute to poverty alleviation depends on the local natural socio-economic conditions, the

macro environment as well as how the rewards are designed. It is too early to make any conclusion based on the cases reviewed in this study. However, there are evidences showing that environmental rewards are highly appreciated by upland farmers. The contribution of the rewards to household income and community welfare is quite considerable in some cases and is quite limited in the other cases.

4.4.7 Environmental impact

Positive in-situ environmental impacts have been

reported. The contracted or allocated forest were well protected; allocated bare land were green. More availability of water has been reported in the cases of Thuy Yen Thuong, Thuy Duong and Nam Ty. However, out-situ impacts were hardly reported. There was an argument that the improvement of environment in the upland is due to a number of reasons. The introduction of new crop varieties and expansion of wet rice has increased food security in upland and consequently reduced pressure on forest and other natural resources. This is an important reason often cited.

CHAPTER 5. CONSTRAINTS AND POTENTIAL FOR RUPES IN VIETNAM AND PROPOSED FOLLOW-UP

5.1 Constraints to RUPES in Vietnam

Given the RUPES approach and the natural and socio-economic features of the country's uplands in general and the northern upland in particular, a number of constraints to RUPES have been identified. These include physical constraints, environmental constraints, economic constraints, cultural and ethnic constraints, institutional constraints, and intellectual constraints.

5.1.1 Physical constraints

The northern uplands are topographically and edaphically varied, ranging from the rounded granitic hills of Vinh Phu and Yen Bai to the very steep limestone peaks in Son La and Lai Chau. The terrain of much of the northern maintains is badly broken with steep slope. The region has a great diversity of soil types. Yellow-red feralitic are the most wide spread type (Be Viet Bang, 1993). Many of the soils of the northern mountains are deeply weathered, poor in nutrients and highly vulnerable to erosion when cleared of vegetation cover. Climate regimes vary across different part on the region (Rambo, 1997).

The heterogeneity of the physical conditions implies that no single site can possibly represent a diverse region. This implies that a larger sample of sites is needed to represent the most important and typical physical conditions in the upland of North Vietnam. The same land use practices under different physical condition could bring about different benefits or cost to the society. A forest in a fragile area of a watershed could yield greater benefit in terms of watershed function as compared to a forest in a less ecologically sensitive area. Society may put a higher environmental value to a forest in a buffer zone.

The diverse physical conditions also imply varying costs to upland farmers to adopt the same land use practices. The diverse physical conditions pose challenges in indenting the linkage between different land use practices and the externalities. The complicated topography with broken terrain

could make the monitoring of RUPES program expensive. Therefore, physical feature should be used as one of the criteria in the selection of RUPES site. To do this we need much information and we have to classify the physical information using appropriate criteria.

5.1.2 Environmental constraints

As discussed earlier, the major environmental challenge in the northern mountains today is not only that of conserving the existing natural resources but also of restoring already severely degraded ecosystems. The magnitude of the environmental problem is difficult to appreciate (Rambo, 1997). Therefore, different RUPES schemes should be designed to address different problems, encouraging the maintenance of existing environmentally practices and promoting the adoption of land use practices that bring about greater environmental services or the abandonment of land use practices that harm the environment. From a static efficiency perspective, the reward should induce "new" activities and not reward environmentally friendly activities that have been already been taken without the reward. However, it may be perceived as unfair to good stewards. An efficiency problem also arises in that farmers who have already adopted such activities may temporarily end their conserving practices so that they can become "new adopters", thereby qualifying to receive reward. The rewards should be designed to discourage such behavior (Babcock, 2001).

The restoration of degraded ecosystem is costly, requiring labor, capital and a long time period before it provide full returns on this initial investment (Rambo, 1997). This has a cost and time-span implication for RUPES. Without sufficient external support, only better-off farmers can afford to take restoration and therefore they are eligible for rewards. This is consequently contributing to the increased economic gap of households within the uplands.

5.1.3 Economic constraints

The living standards of the mountain people are much lower than the national average. The northern mountain region are still enduring highest incidence of hunger and poverty. For most upland provinces, revenues from tax are not enough to cover the local government expenditure. Local government budget is largely subsidized by the central budget. The region is

still unable to produce sufficient grain to meet the minimal consumption needs of its population. Food insecurity is really problematic in remote communities. For instance, 93% households in Thai Phin Tung hamlet, Dong Van District, Ha Giang province and 43% households in Tat hamlet, Da Bac district, Hoa Binh province are below the food poverty line (Le Trong Cuc, 2001).

Low living standards, widespread of poverty, and food insecurity implies a high discount rate, poor upland farmers give very high priorities to land use practices would yield short-term benefits. If RUPES is concerned with poverty alleviation, the target group should be the poor and therefore income support should be taken into consideration when designing a RUPES scheme. However, if the objective of RUPES is to improve environmental quality at lowest cost possible, the target group of RUPES is likely to be better-off farmers who often have more environmental services to offer at a price possibly lower than poor farmers. A trade-off has to be made when low-income farmers have few environmental services to offer or farmers with significant environmental services have high income.

Given the land policy and the land allocation practices, the problem of fragmentation arises. The area of land allocated to a household varies across locality. On average each upland household has on average from two to seven hectare of land, fragmented in three to eight plots, which are scattered in different places (Bui Dung The, 2003; Le Trong Cuc, 2003). This implies a very high transaction cost if working with individual household.

The national economy in general and the upland economy in particular of Vietnam is transforming to a market economy. Trade between the Vietnam and other countries, especially China, is expanding rapidly. China's accession to the WTO, the rapid growth of its bilateral trade with Vietnam, and the planned WTO accession of Vietnam itself, are driving and will continue to drive changes in factor endowments and in product prices in Vietnam that influence both the availability of labor for agricultural production at a sectoral level, and the mix of agricultural goods produced. This 'globalization' process has implications for pressures to clear forest land for agriculture, and well as for the intensity with which upland lands are cultivated (e.g. annual vs. perennial crops) and the emissions of agricultural

firms into water (erosion, coffee processing wastes, etc). Market incentives and disincentives induce changes in land use. This poses a great challenge to RUPES that how a RUPRES scheme should be designed to be able to adaptable/adjustable to the changing market conditions. Therefore, it is important to study possible land use changes induced by changes in environmental and natural resource values and uses that will follow from changes in the Vietnamese economy following WTO accession.

5.1.4 Cultural and ethnic constraints

The northern mountain regions are characterized by a very great ethnic and cultural diversity. The region is home to 31 of Vietnam's 54 officially recognized ethnic groups. Many distinct ethnic groups are found living intermixed with one another within the same delimited territory. More than one half of the number of districts in the region has ten or more ethnic groups present. The vast majority of villages have three or more ethnic groups in residence; only three percent of the villages are monocultural. This unique form of ethnic settlement pattern has important implications for development policy and program. Ethnic and cultural diversity makes indigenous participation more challenging, especially when the minority people find it not easy for them to use the Vietnamese national language as a common communication language (Rambo, 1997).

As discussed earlier, poverty is multi-dimensional problem, not simply a question of monetary income. Many upland people lack money, food, access to natural resources and services and start to see themselves poor and backward. The problem is not just that they lack cash and access to some of the good things in life. More problematic is upland people's perception of themselves, self-consciously feeling themselves to be poor. They are and in danger of losing their self-confidence and self-respect, the most precious resource of all (Jamieson, Le Trong Cuc, and Rambo 1998).

Another cultural and ethnic constraint is the outsider's view of the ethnic minority groups. A worldview is that the minority people are backward, plagued by superstition and resistant to changes. This view undervalues the indigenous knowledge and people participation. This view encourages the use of the top-down approach in development, which has many limitations. It is not

easy for the outsiders to have a proper view of the minority groups. RUPES program should be alert with this issue.

5.1.5 Institutional constraints

In Vietnam, all lands are state property, collectively owned by the people and managed by the government. The state ownership is a comprehensive ownership which determines/governs other forms of ownership. In practice, the right to use and enjoy the benefits accrued from lands is given to organizations and individual. The Government allocates land including forestland to organizations, households and individuals for long-term use. Farmers or communities were provided with long-term ownership (red book) or temporary ownership (contract) of the natural resources, forest and forestland. The local authorities (district or province PC) issued the decision to allocate land and forest to communities and households. There was also case that community and household got forest protection contracts with SFEs.

Along with the formal institutions the land use practices and resource management of the ethnic minority groups are governed by the informal regulations of the local communities. There exists the discrepancy the customary laws and state policy. This has created a mismatch between local practices and policy implementation, which in turn, has increased forest degradation (To Xuan Phuc, 2002). The community-based forest management practices have existed for a long time in ethnic minority communities in Vietnam. The practices differ across different minority groups. They are associated with indigenous knowledge, tradition, and culture of the community. However, this form of management has not been officially and legalistically recognized in Vietnam. In parallel with private and state-based form, this type of community-based resource management is believed relevant and effective in the northern mountain region's context. It needs to be formally recognized (Tran Duc Vien, 2002).

Despite the revised Land Law (1998), forestland allocation has been implemented slowly and many farmers have still not received the land use certificate. In many areas, the forestland is either under the responsibility of logging companies or the local authorities. Regarding land use certificates, of those involved in forestry or logging activities 62% have a red book and 17 %

have a green book. Of the one-fifth of farmers who do not hold either, half of them have asked for one and have been waiting for about a year, the other half do not think they need one (MARD, 2003).

The progress of forestland allocation varies across provinces. By 2001, Lao Cai province had allocated 267,505 ha (49% of its total forest land) forestland and issued land use certificates to households and organizations and Ha Giang allocated 32% of forestland (165,345 ha) and issued land use certificate to different types of owner. By that time, Tuyen Quang province had only carried out forestland allocation with red book on a pilot scale. Only 4,823 ha of forestland have been allocated, which is 1% of the total forestland of the province. Compared with the other provinces Phu Tho was quite ahead, 54% (or 108,787 ha) forestland of the province had been allocated (Gilliusson, 2001).

It should be noted that secure land tenure is a necessary condition for better natural resources uses, but not sufficient to ensure that the use of the resources will be sustainable. Upland farmers in Bac Can provinces adopt soil conservation practices mainly to obtain long-term land use certificates under new land law. In contrast, intensive land use under mono cropping without soil conservation practices is found in Son La province where land use rights are relatively secure due to recent land reforms. Improved land tenure security does not automatically lead to higher long-term investment and to a more sustainable land use (Neef, *et al.* 2000).

5.1.6 Intellectual constraints

Although the government has implemented many policies on education development in mountainous regions, education level of mountainous residents is lower compared to the people in plain area. In 1999, the percentage of people at the age of 5 and older who have never gone to school in plain areas was 7.41% while that in remote areas was more than 50%, even approximately 70% in some ethnic minorities (H'mong 69%, Mang 71.64%, La Hu 90.52%). There are ten ethnic minorities whose majority of women (about 70%) has never gone to school (Le Trong Cuc, 2002). This implies that it is challenging to have active participation of local people.

The educational level of Vietnamese farmers is fairly low. Approximately 65% of them have attended primary or secondary school and 16% have never been to school. In the upland the illiteracy is much higher. For example, for the North West regions about 40% of farmers have never been to school and for those who have finished primary school many of them are now unable to read and write (MARD, 2003).

The northern mountain regions have a great diversity of natural socio-economic conditions. Every sub-region, every province, every village, in deed every field is somewhat different than every other (Rambo, 1997). Though more literature and information on the northern uplands are available, it is difficult to have adequate understanding of the so changing and diverse regions.

In such a very high diversity, no single environmental reward/incentive scheme can be applicable and be successful everywhere. The major principle to be followed is that the institutional framework should be location-specific and should respect the cultural, ecological and economic circumstances of the commune. As such flexibility should be retained within the contract framework for each commune to negotiate the optimum institutional arrangement that best reflects the social conditions of the area (Hobley *et al.* 1998).

5.2 Potential/enabling factors for RUPES in Vietnam

5.2.1 Concern of the government

Development of Vietnam's upland in general and the northern upland in particular has been a priority of the Vietnam government. The important role of the uplands for the development of the country is highly appreciated. The government has made every effort to conserve and restore the upland's natural resources. The most striking examples include the Program 327, the 5MHP, and Program 135. The RUPES program which is to enhance livelihood and resource security for upland poor and to maintain/enhance environmental functions of the upland is really what the upland people and the government expect. It is learned from our field survey that concerned provincial departments and local communities would welcome the RUPES concept. This is for sure that

RUPES program will receive good cooperation from the central and local government and the local people.

5.2.2 Decentralization and enhanced local capacity

Upland poor as individual or as a community will be the focus of the RUPES program. The effective participation of upland poor is of great importance to the success of the program. With the Government's adoption of Decree 29 on Vietnam's Grassroots Democracy and the introduction and adoption of participatory development approach by international and non-governmental organizations, local capacity in planning, managing, organizing development activities has been improved remarkably. Mass organizations have a potential role in assisting poor sections of rural society to participate in local governance. Women Union (WU) and the farmers' association (FA) play an important role to connect the government and the civil society. The women's union, in particular, has developed strong implementation capacity, providing assistance in training and group formation of rural women for development projects. This implies the development of social capital, both bonding bridging, in the local communities.

IFAD supported projects have placed emphasis on the active participation of the rural poor in the process of design, implementation and evaluation of projects and programmes aimed at benefiting the poor in their social and economic advancement. The projects have involved the poor communities through PRA methodology to determine the content of research and extension priorities and in classifying households into wealth categories that provided the main targeting instrument in the project areas. The projects have also formed a variety of self-help groups, which are involved in planning and managing micro-irrigation and drinking water schemes, access to credit, road programmes, sand dune fixation, forest protection and agricultural extension activities. Apart from promoting efficient and sustainable management of resources, these self-help groups have created opportunities for the poor to participate in decision-making processes.

Viet Nam now has some 300 international NGOs operating in the country, of which about 50 are involved in agriculture, rural development, environment, forestry and aquaculture including Oxfam UK, Oxfam Belgium, and Save the

Children Fund (UK). These NGOs provide a rich experience to encourage development of local NGOs. The civil society plays a greater role in the development process. More community-based groups/organizations are established. They operate in remote upland areas in close association with mass organizations and with capacity building support from local or international NGOs. The coalition with mass organizations and suitable local/international NGO's, with hands-on experience in mobilizing and empowering rural communities and women specifically, could generate added value in a cost-effective manner, for the benefit of rural poor. Experienced NGOs could supply technical support and provide a sustainable link between the private sector and the rural communities in terms of inputs and marketing opportunities and facilitate the use of modern technologies with the view to optimizing costs and promoting sustainability of services.

5.2.3 Experience from related programs and projects

There are many development programs with environment components/concerns have designed and implemented different incentive/reward to encourage upland farmers to adopt land use practices that bring about more environmental services to the societies. MRDP has developed and tested several community forest management models. IFAD financed projects in Tuyen Quang, Ha Giang, Quang Binh also have environment related activities/components. Other international organizations such Worldwide Fund for Nature (WWF), the World Conservation Union (IUCN), Habitat are rich of experiences in natural resources conservation. The RUPES-related experience of these projects and organizations could be helpful for RUPES program in dealing with the above-discussed constraints.

5.2.4 Greater availability of environmentally friendly agricultural technology

It is obviously that aside from forest protection and rehabilitation there are other land use practices could generate off-site benefits to the society. Academic and research institutes have made efforts to design environmentally friendly and economically viable land use technologies for sloping land. For example, Vietnam Agricultural

Science Institute (VASI) has designed and tested different cropping technologies in Cho Don, Bac Can provinces. It is expected that these cropping technologies could improve soil fertility, reduce soil erosion, and increase economic return to farmers. Environmental protective functions of these land uses have been validated. However, the economic efficiency of these land use practices have not been studied yet.

The extension system in Tuyen Quang as well as in Quang Binh and Ha Giang, backed by a system of applied and adaptive research, has been effective in generating appropriate technical packages and messages and in interacting closely with farm households that provide to both researchers and extension agents local knowledge and feedback on the effectiveness of the innovations and technologies being tested. The extension center became the flag bearer of decentralization and participation and the extension staff became the key facilitators of most project activities. Increases have been achieved in crop yields and in forest cover with more forest areas remaining intact. Commune-level PRA has identified many development problems that need to be researched and find sustainable solutions for the benefit of the highland farmers, including varieties of potatoes, maize, soybean and fruit trees; a programme on hybrid rice; and poultry production by very poor households.

The successful integration of agro-forestry and livestock into cropping systems in the uplands by the participatory extension service has validated the relevance of both the PRA methodology and multi-disciplinary and farming systems approach to developing sustainable livelihoods, rather than optimizing land-based production in the short-term. Experience shows that the extension system, backed by a system of applied and adaptive research, has been effective in generating appropriate technical packages and messages and in interacting closely with farm households that provide to both researchers and extension workers local knowledge and feedback on the effectiveness of the innovations and technologies being tested. This is highly important in orienting research and extension to development activities that are relevant and acceptable to people living at the grass-roots level. It is recommended that Projects press for the strengthening of the demand-driven participatory research and extension system through additional investments in training of staff and essential infrastructure, improved access to micro-credit at market related interest rates, and clear land-use rights to

stimulate investment and uptake of improved technology.

5.3 Proposed follow-up

5.3.1 Awareness of RUPES concept

The implementation of RUPES interventions requires the collaboration of different stakeholders involved and potential partner, including governmental, non-governmental, international organizations and local people. Therefore, it is necessary to inform policy makers of RUPES program and to have a common understanding of RUPES concept among the stakeholders and explore the common interest and possible joint efforts. A workshop with participation of concerned organizations would be appropriate.

Important governmental partner/stakeholders would include MARD, Ministry of Natural Resource and Environment (MONRE), and CEMMA and line provincial departments of the provinces where pilot RUPES application will be undertaken. Academic and research institutions engaged in natural resources conservation/management and poverty alleviation in the upland are also identified as important stakeholders. Other potential partners include WWF, IUCN, Sida, UNDP, WB, ADB, German Bank for Reconstruction (KfW), CARE International, Ford Foundation, Netherlands Development Agency (SNV), The Royal Netherlands Embassy, Danish International Development Agency (DANIDA), Spanish Agency for International Cooperation (AECI), Japan International Cooperation Agency (JICA), United States Agency for International Development (USAID), and the European Union (EU).

5.3.2 Pilot RUPES action research

Priority area

It is obvious that aside from forest protection and rehabilitation there are other land use practices that could generate off-site environmental benefits to the society. In the mean time, it is suggested that forest conservation, rehabilitation and sustainable management/use should be the priority area for RUPES pilot applied studies in Vietnam. This is justified for several reasons.

First, upland forest of Viet Nam plays a very important role for the development of the national economy in general and the upland economy in particular. Accounted for about 90 percent of the country forest cover, not only is the base for socio-economic development, upland forest has extremely important ecological functions. Forest takes part in regulating climate conditions, maintaining stability and fertility of soil, limiting flood and drought, preventing soil erosion, reducing severe devastation of natural calamities, preserving surface and underground water, filtering water, reducing and air pollution. Environmental quality depends on the availability and the quality of forest (Vo Quy, 2002). This natural resource is continuing to degrade. Environmental and economic consequence of forest loss is huge, impossible to compensate. Forest degradation caused damage to the environment, hindering the long-term development, not only in mountainous regions but also in the whole country. The huge floods in the last few years throughout the country, which have caused serious damage worth of thousands of billions VND, partly resulted from forest degradation.

Second, forest conservation, rehabilitation, and sustainable management have been one of the first priorities of the Government of Vietnam. It has made every effort to conserve and restore the upland's natural resources. The most striking examples include the Program 327 and the 5MHP. The RUPES program that is to enhance livelihood and resource security for upland poor and to maintain/enhance environmental functions of the upland is really what the upland people and the government expect.

Third, the majority of the poor in the uplands lives on forest. The poorer upland farmers are the more they depend on forest. The management/use pattern of these natural resources could significantly affect income of the poor in the short-term and long-term and the environmental services to the society.

Fourth, RUPES-related experience by development projects undertaken by governmental and non-governmental organizations in forestry sector indicates that the RUPES concept would work. There are on-going RUPES-typed schemes in the forestry sector. It is necessary to further study and validate the feasibility of these schemes and explore the possibility for replication.

Fifth, interventions by international organizations engaged in natural resource conservation such as IUCN, WWF, and Habitat have much to do with the forest resource. This means that there is common interest to collaborate, combining efforts to gain synergy effects for common aims, i.e. to reduce poverty, increase food security and achieve environmental protection.

Proposed sites

A set of criteria for site selection has been developed by RUPES South East Asia. Based on the findings from this study we would like to suggest that the choice of RUPES site for pilot applied studies should not only ensure the typicality of the site for possible generalization and extrapolation but also maximize the probability of success.

The North Vietnam uplands, as discussed earlier, include uplands of the North East, North West and North Central Regions. In the Northern Mountains (North East and North West) there are six highland mountainous provinces (Ha Giang, Cao Bang, Lao Cai, Lai Chau, Son La, Bac Can) and eight midland mountainous provinces (Lang Son, Quang Ninh, Yen Bai, Tuyen Quang, Thai Nguyen, Phu Tho, Hoa Binh, Bac Giang). The North Central Region consists of six provinces (Thua Thien Hue, Quang Tri, Quang Binh, Ha Tinh, Nghe An, and Thanh Hoa). The regions are very diverse and rapidly changing, thus, a large sample of sites representing poverty and natural resource use patterns is needed. However, the number of site to be selected is constrained by the availability of fund and the policy of potential funding agencies. It is might appropriate to select three provinces, including two provinces representative for the highland and midland provinces of the Northern Mountain, one province representative for the North Central region. For the sake of discussion, potential sites are proposed.

Given what has been learnt from the study, it is though that the province of Ha Giang might be a good representative for the six highland mountainous provinces. The province's upland has high incidence of poverty. The province's IFAD funded project, HGDPEM, is on going with

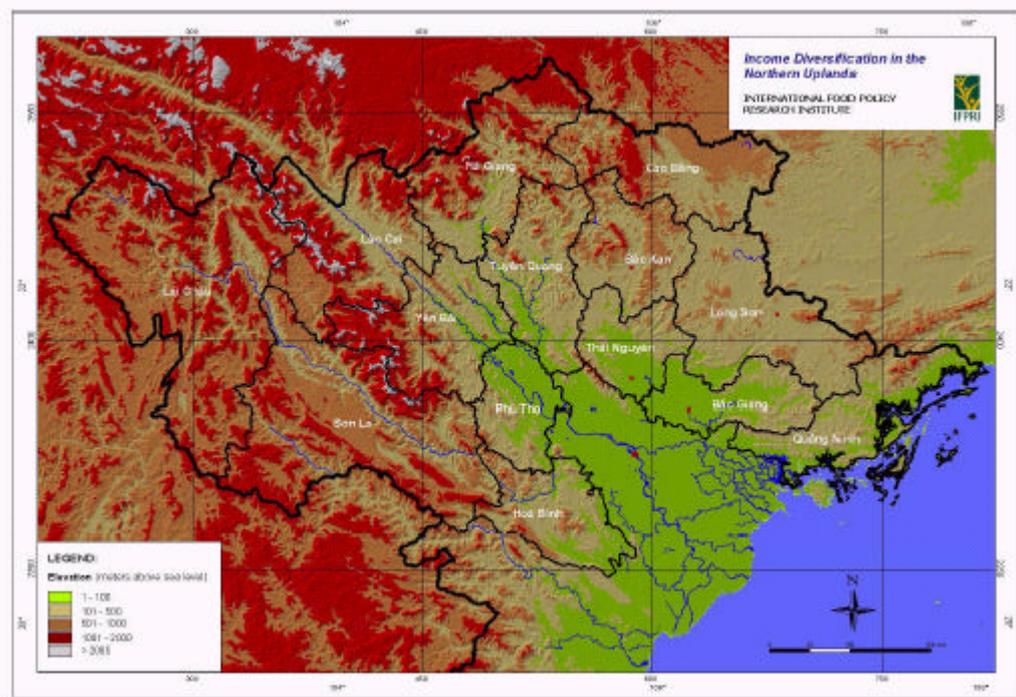
activities related to RUPES concept. Ha Giang was also a target province of MRDP. It is learnt from the field survey that provincial department and the project management board of HGDPEM has expressed interest and willingness to collaborate with RUPES. Furthermore, it has been reported that there is case that some institutional arrangements have been made by local communities to have the environmental service providers compensated by the beneficiaries. This local initiative needs further supports and follow-up.

For the North Central regions, it is thought that Thua Thien Hue might be a relevant site for a pilot RUPES applied study. The province is a good representative for the partly mountainous provinces in the Northern Central region. A part of the province's upland is in the buffer zone of Bach ma national park. This makes its upland settings really interesting to RUPES. Buffer zone functions should deserve a special attention. The upland provides environmental services for various economic activities, including agriculture, shrimp farming, fisheries, tourism, sand/gravels exploitation, transport, and industrial production. It also provides life-supporting ecosystem services, particularly for the river-mouth lagoon, Tam Giang, one of the biggest of its kind in Asia. Thua Thien Hue Province is shaped like a bowl to the west with mountains rising abruptly to an altitude of 700 to 1500 meters. Some of the main rivers are Huong, Bo, Truoi and O Lau, running eastward across the province. The rivers are quite short and steep. This makes the interactions between upland and lowland visible. The Huong river basin is relatively small and lies within one province. This makes the watershed linkages more manageable and visible. Furthermore, the forest management models of Thuy Duong and Thuy Yen Thuong, a RUPES related trial, is promising and in need of further support and follow-up. The current and future activities of IUCN, WWF and other organization in Thua Thien Hue would create an opportunity for collaboration and synergy effects.

The choice of representative site for the midland provinces requires more information and analysis. It is advisable to disseminate the selection criteria to relevant organization and call for proposals.

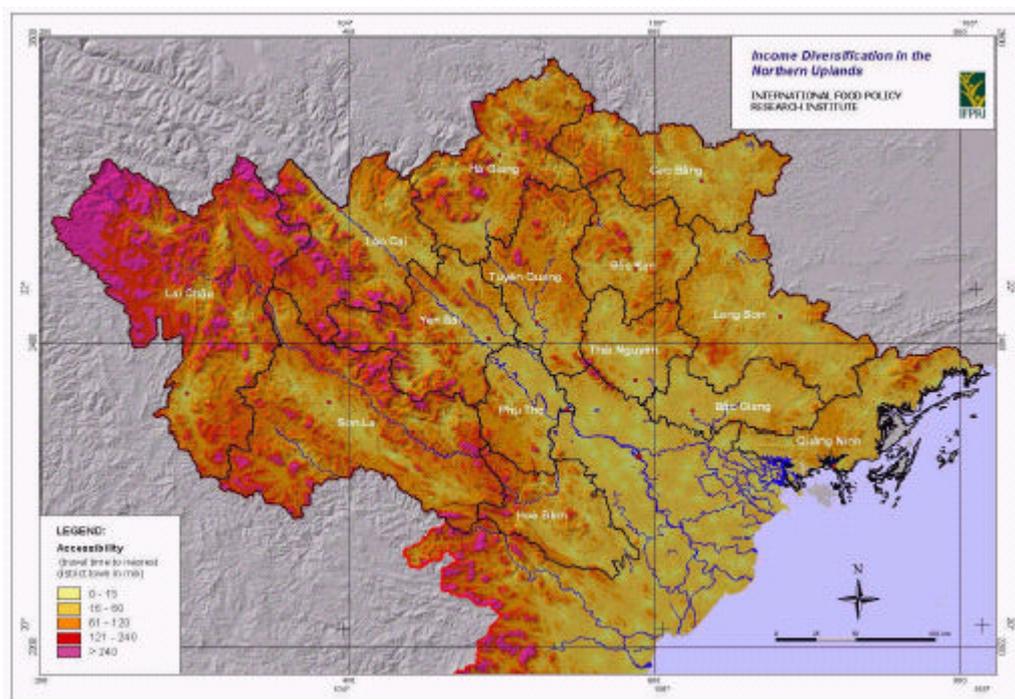
APPENDIX

Appendix figure 1. Elevation of the Northern Upland region



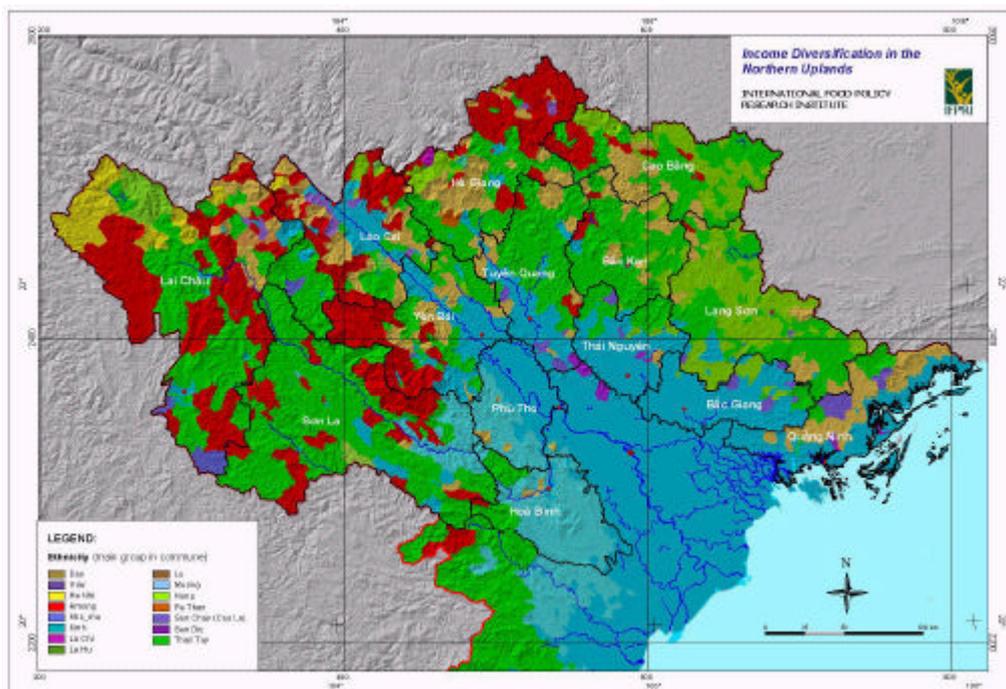
Source: Income Diversification in the Northern Uplands of Vietnam, IFPRI (2003)

Appendix Figure 2. Index of accessibility in the Northern Upland region



Source: Income Diversification in the Northern Uplands of Vietnam, IFPRI (2003)

Appendix figure 3: Main ethnic group in the Northern Uplands



Source: Income Diversification in the Northern Uplands of Vietnam, IFPRI (2003)

Table 1: Poverty Rates and the Poverty Gap

In percent	1993	1998	2002
Poverty rate	58.1	37.4	28.9
Urban	25.1	9.2	6.6
Rural	66.4	45.5	35.6
Kinh and Chinese	53.9	31.1	23.1
Ethnic minorities	86.4	75.2	69.3
Food poverty	24.9	15.0	10.9
Urban	7.9	2.5	1.9
Rural	29.1	18.6	13.6
Kinh and Chinese	20.8	10.6	6.5
Ethnic minorities	52.0	41.8	41.5
Poverty gap	18.5	9.5	6.9
Urban	6.4	1.7	1.3
Rural	21.5	11.8	8.7
Kinh and Chinese	16.0	7.1	4.7
Ethnic minorities	34.7	24.2	22.8

Source: Vietnam Development Report 2004, World Bank (2003)

Table 2: Poverty across Regions

In percent	1993	1998	2002
Poverty rate	58.1	37.4	28.9
Northern Mountains	81.5	64.2	43.9
North Easet	86.1	62.0	38.4
North West	81.0	73.4	68.0
Red River Delta	62.7	29.3	22.4
North Central Coast	74.5	48.1	43.9
South Central Coast	47.2	34.5	25.2
Central Highlands	70.0	62.4	51.8
South East	37.0	12.2	10.6
Mekong Delta	47.1	36.9	23.4
Food poverty	24.9	15.0	10.9
Northern Mountains	42.3	32.4	21.1
North Easet	29.6	17.6	15.4
North West	26.2	22.1	46.1
Red River Delta	24.2	8.5	5.3
North Central Coast	35.5	19.0	17.5
South Central Coast	22.8	15.9	9.0
Central Highlands	32	31.5	29.5
South East	11.7	5.0	3.0
Mekong Delta	17.7	11.3	6.5
Poverty gap	18.5	9.5	6.9
Northern Mountains	29.0	18.5	12.3
North Easet	29.6	17.6	9.6
North West	26.2	22.1	24.1
Red River Delta	18.3	6.2	4.3
North Central Coast	24.7	11.8	10.6
South Central Coast	17.2	10.2	6.0
Central Highlands	26.3	19.1	16.7
South East	10.1	3.0	2.2
Mekong Delta	13.8	8.1	4.7

Source: Vietnam Development Report 2004, World Bank (2003)

Appendix table 3: Poverty share

In percent	The Poor			Population
	1993	1998	2002	2002
Poverty rate	99	100	100	100
Northern Mountains	23	25	22	15
North Easet	19	20	16	12
North West	4	6	7	3
Red River Delta	24	18	17	22
North Central Coast	16	18	20	13
South Central Coast	5	8	7	8
Central Highlands	3	5	10	6
South East	11	5	5	13
Mekong Delta	17	21	17	21
Food poverty	100	101	101	100
Northern Mountains	26	32	28	15
North Easet	22	24	17	12
North West	4	7	11	3
Red River Delta	24	13	11	22
North Central Coast	18	18	22	13
South Central Coast	5	9	7	8
Central Highlands	3	8	16	6
South East	9	5	4	15
Mekong Delta	15	16	13	21

Source: Vietnam Development Report 2004, World Bank (2003)

REFERENCES

- Babcock A. B. et al. 2001. Conservation Payments: Challenges in Design and Implementation *Briefing Paper 01-BP 34*. Prepared by the Center for Agricultural and Rural Development and Iowa State University Department of Economics, Iowa State University, USA. <http://www.card.iastate.edu>
- Be Viet Bang. 1993. Economic and cultural changes in the northern mountainous provinces. Social Science Publishing House. Hanoi. Vietnam (in Vietnamese).
- Bishop, J.T. (ed.) 1999. *Valuing Forests: A Review of Methods and Applications in Developing Countries*. International Institute for Environment and Development: London.
- Bui Dung The, 2003. Land use system and erosion in the uplands of the Central Coast, Vietnam. *Environment, Development and Sustainability* 5:461-476.
- Bui Quang Toan et al. 1993. *Recent research findings on the midlands and mountainous region*. In Agricultural planning and Projection Institute. *Agriculture in the midlands and mountainous region: Current status and prospect*. Agricultural Publishing House. Hanoi. Vietnam (in Vietnamese).
- Castella, J.C. and Dang Dinh Quang (eds.). 2002. *Doi Moi in the Mountains: Land use changes and farmers' livelihood strategies in Bac Kan Province, Viet Nam*. Agricultural Publishing House. Hanoi.
- Castella, J.C., Tran Quoc Hoa, O. Husson, Vu Hai Nam, and Dang Dinh Quang. 2000. "The declining role of ethnicity in farm household differentiation: A case study from Ngoc Phai Commune, Cho Don District, Bac Kan Province, Viet Nam." In Castella, J.C. and Dang Dinh Quang (eds.). *Doi Moi in the Mountains: Land use changes and farmers' livelihood strategies in Bac Kan Province, Viet Nam*. Agricultural Publishing House. Hanoi.
- Centre for International Economics (CIE). 2002. Vietnam poverty analysis. Australia
- Chu Huu Quy. 2002. "Ten Years of Socio-economic Development in the Uplands." In Le Trong Cuc and Chu Huu Quy (eds). *Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues*. Agricultural Publishing House. Hanoi.
- Dang Kim Son. 2002. "Ten Years of Agricultural and Forestry in the Vietnam's Upland Areas and Arising Issues." In Le Trong Cuc and Chu Huu Quy (eds). *Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues*. Agricultural Publishing House. Hanoi.
- Deininger K and Jin S. 2003. Land Sales and Rental Markets in Transition: Evidence from Rural Vietnam. World Bank Policy Research Working Paper 3013. The World Bank, Washington DC.
- Dien T. V. et al. 1996. *Sloping Land Agriculture: Challenges and Potentials* (in Vietnamese). Agricultural Publishing House, Hanoi.
- Donovan D., Rambo A. Terry. Fox Jeffereson, Le Trong Cuc, and Tran Duc Vien (eds). 1997. Development Trends in the Vietnam's Northern Mountain Region. Vols. 1 and 2. National Political Publishing House. Hanoi. Vietnam
- Emerton L. 1999. Community-based incentives for nature conservation. IUCN-The World Conservation Union Eastern Africa Regional Office and Economics Unit. <http://economics.iucn.org>
- Ferraro J. P. and Simpson D. R. 2002. Effective Investments for Habitat Conservation. Discussion Paper.
- Ferraro P. J. 2000 *Constructing Markets for Ecosystem Services: limitations of development interventions and a role for conservation performance payments*. Paper presented at "8th International Association for the Study of Common Property Conference", Indiana University, Bloomington, IN, May 31– June 4 2000.
- Francisco H. 2002. "Environmental Service Payment: Experiences, Constraints and Potential in the Philippines". Paper presented at RUPES Regional Inception/Planning Workshop, Pancake, Indonesia, 6-8 February 2002.

- Gilliusson R. and SCC Natura. 2001. Forestry and forest land management activities in MRDP in 1996-2000: Lao cai Ha Giang, Tuyen Quang and Phu Tho Province. Report of Vietnam Sweden Mountain Rural Development Programme (MRDP).
- Gouyon A. 2002. "Rewarding the Upland Poor for the Environmental Services: A Review of Initiatives from Developed Countries". Paper presented at RUPES Regional Inception/Planning Workshop, Puncak, Indonesia, 6-8 February 2002.
- Government of the Socialist Republic of Vietnam. 1997. 10th National Assembly resolution on establishment of five million ha of new forest. No. 08/1997QH10. Hanoi.
- , 1998. Decision of the Prime Minister on objectives, tasks, policies and organization of establishment of five million ha of new forest program. Decision No. 661/QD-TTg. Hanoi.
- , 2001. (Decision No.08/2001/-TTg dated January 11, 2001 by the Prime Minister)
- Government of the Socialist Republic of Vietnam. 2002. The Comprehensive Poverty Reduction and Growth Strategy (CPRGS). Hanoi, Vietnam.
- Ha Huy Thanh. 2002. "Overview of Ten Years' Implementation of Socio-economic Development Policies for Mountainous and Ethnic Areas." In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.
- Hobley M. et al. 1998. "From protection to protection through production: A process for forest planning and management in Ha Giang and Yen Bai provinces." Project Report. Vietnam Sweden Mountain Rural Development Programme. Vietnam.
- IFAD, 2001. Vietnam country programme review and evaluation agreement at completion point and executive summary. Report No. 1143 Rev. 1
- IFAD. 2001. "Vietnam country programme review and evaluation agreement at completion point and executive summary. Report no. 1143 rev. 1
- International Food Policy Research Institute (IFPRI). 2003. Income diversification and poverty in the Northern Uplands of Vietnam. Washington, D.C. USA
- Jamieson, Neil L., Le Trong Cuc, and A. Terry Rambo. 1998. The Crisis of Development in Vietnam's Mountains. Honolulu: East-West Center Special Report.
- Jensen C. 2002. "Development Assistance to Upland Communities in the Philippines". Paper presented at RUPES Regional Inception/Planning Workshop, Puncak, Indonesia, 6-8 February 2002.
- Khong Dien. 2002. "Population Issues in the Development of Upland Area and Ethnic Minorities Group of Vietnam." In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.
- Kishor N., and Constantino L., 1993. Forest Management and Competing Land Uses: An Economic Analysis for Costa Rica. World Bank LATEN Dissemination Note 7. Latin American Technical Department, Environment Division. The World Bank, Washington D.C.
- Kiss A. 2002. Making biodiversity conservation a land use priority. Environment and Biodiversity Lead Specialist The World Bank Africa Environment and Social Development Unit.
- Le Tran Chan. 2002. "Biodiversity Issues in Vietnam Upland Areas: Current Status and Development in the Last Ten Years." In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.
- Le Trong Cuc and Rambo A. Terry. 2001. Bright Peak. Dark Valleys: A comparative analysis of environmental and social conditions and development trends in five communities in Vietnam's Northern Mountain Region. The National Political Publishing House. Hanoi. Vietnam
- Le Trong Cuc. 2002. "Ten Years of Development in Vietnam Upland Areas: Socio-Economic, Cultural and Environmental Issues." In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.

- Le Trong Cuc. 2003. Uplands of Vietnam. In *Landscapes of Diversity: Indigenous Knowledge, Sustainable Livelihoods and Resource Governance in Montane Mainland Southeast Asia*. Proceedings of the III Symposium on MMSEA 25–28 August 2002, Lijiang, P.R. China. Xu Jianchu and Stephen Mikesell, eds. pp. 113–119. Kunming: Yunnan Science and Technology Press.
- MARD. 2003. Project VIE/98/004/B/01/99. Farmer Needs Study. Statistical Publishing House. Hanoi.
- Neef, A., et al. 2000. “Does Land tenure security enhance sustainable land management? Evidence from mountainous regions of Thailand and Vietnam. Discussions paper No 02/00. Institute of Agricultural Economics and Social Sciences in the Tropics and Subtropics. University of Hohenheim, 70593 Stuttgart, Germany.
- Nguyen, X. N. et al. 1999. Overview of Financing Mechanisms for Sustainable Forestry Development in Vietnam. PROFOR Vietnam Issues Paper No. 2. MARD-UNDP. Hanoi-Vietnam
- Nippon Koei Co., Ltd. 2003 Environment sector study for Japanese ODA in the Socialist Republic of Vietnam. March 2003.
- Pagiola S. and Platias G. 2002. Payments for Environmental Services. Strategies Note, No.3
- Pautsch, G., L. Kurkalova, B.A. Babcock, and C. L. Kling. 2001. “The Efficiency of Sequestering Carbon in Agricultural Soils.” *Contemporary Economic Policy*. 19, 2(April): 123-34.
- Rambo, A. Terry. 1997. Development Trends in Vietnam’s Northern Mountain Region. Chapter 2 in Donovan D., Rambo A. Terry, Fox J., Le Trong Cuc, and Tran Duc Vien (eds). 1997. Development Trends in the Vietnam’s Northern Mountain Region. Vols. 1 and 2. National Political Publishing House. Hanoi. Vietnam
- The World Bank. 1999. Viet Nam Development Report 2000, Attacking Poverty, Country Economic Memorandum. World Bank Vietnam.
- To Xuan Phuc. 2002. “Discrepancy between Customary Laws and State Laws in Forest Management: A Case Study of a Dao Upland Community in Northern Vietnam.” In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.
- Tran Duc Vien. 2002. “Land Use Policies with Management of Community Forests.” In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.
- Vo Quy. 2002. “Environmental Overview of Vietnam Uplands in the Last Ten Years: Current Status and Arising Issues.” In Le Trong Cuc and Chu Huu Quy (eds). Sustainable Development in Vietnam Upland Areas: A Look at the Last 10 Years and Arising Issues. Agricultural Publishing House. Hanoi.
- Vo Van DZu. 2000. A Trial agreement on management of natural forests with the community in Thuy Yen Thuong village, Loc Thuy commune, Phu loc District, Thua Thien-Hue province. Paper presented at the Field Component Workshop, 29-30 December 2000 in Hue, MARD – UNDP Programme on Forests (PROFOR) Viet Nam
- Vu Huu Tuynh. 2001. “Evaluation of the impact of forestry policies in some joint forest management models in Yen Bai and Ha Giang. Recommendations of policies and approaches on community forestry development”. Project Report. MRDP.
- World Bank. 2003. Vietnam Development Report 2004. Hanoi. Vietnam