

**IMPACT OF CHANGES IN LAND TENURE REGIMES ON
INCENTIVES FOR LONG-TERM LAND IMPROVEMENTS IN
VIETNAM**

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Declaration

In compliance with the rules of the Degree of Doctor of Philosophy of the Australian National University, it is affirmed that, except where otherwise stated, the work contained in this thesis is my own.



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Most of the names of my respondents have not been cited in the text and in the list of references to protect their interest.

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Abstract

Vietnam is a country dominated by agriculture. As in many other developing countries, land degradation has become serious in many places in rural Vietnam. Across the country from the north to the south, agricultural land has been degrading at an alarming rate, far beyond natural replenishment rates. In particular, in the midlands and highlands, soil erosion and deterioration of soil fertility have been serious problems due to unsustainable farming practices such as shifting cultivation with shortening fallow periods, monoculture, overuse of fertilisers, and excessive timber cutting and fuel wood collection. Scarcity of arable land has accelerated land degradation in the fragile areas. Often, investments in long-term improvement of land have not been undertaken in these areas, particular in the Collectivisation period.

The underlying causes of land degradation problem have been highlighted as rapid population growth, market and policy failures, ineffective institutional arrangements including insecure land tenure structure, institutional weaknesses and inadequate enforcement. Among those causes, in Vietnam, insecure land tenure and inappropriate agricultural policies have been seen as the most critical issues affecting land-use patterns and leading to unsustainable use of agricultural land. It encourages short-term exploitation of land rather than long-term sustainable use.

This research, inspired by the concept of ecologically sustainable resource management, explored the relationship between the security of land tenure associated with other agricultural policies and the attitudes and practices of farmers towards land use in North Vietnam. This part of the country comprises 50% of the total national territory and of the total population, and represents the different social, cultural, economic and biophysical characteristics of the country. The basic hypothesis of this research is that the more secure land tenure is, the more incentives there are for farmers' investment in land conservation. This hypothesis is examined here with reference to four sites of northern Vietnam: Vinh Phuc, Hoa Binh, Ha Tay and Hai Duong provinces.

The results show that the changes in the land tenure system and policies have affected farming practices from the Collectivisation stage to the Renovation stage, particularly on the propensity to invest in and practise land improvement. The current land tenure regime under the 1993 Land Law is preferred by farmers as it granted long-term land-use rights as well as the rights to use, manage, transfer, inherit and mortgage land-use rights to individual households. The changes in land tenure security from the Collectivisation period to the Renovation period led to changes in farmers' attitudes towards long-term land improvement. Recently farmers have been applying many soil conservation measures on their farm as they have more confidence in the security level of the current land tenure regimes.

However, there are a number of limitations in the 1993 Land Law and problems with its implementations such as difficulties in registering land certificates, constraint on land lease terms, the limitations on transferring and mortgaging land-use rights, and difficulties in enforcing these rights. These constraints that affect adversely the investment of farmers in land conservation need to be abolished or improved.

While the finding of this study may not be fully applicable to all locations of the northern region, they should contribute to the development of principles for sustainable land management for the region and indeed the whole country. As a general conclusion of this study, it may be said that well-defining land-use rights and obligations of using land will give incentives to farmers to invest in the long-term land improvement.

Acronyms and Abbreviations

| | |
|--------|---|
| \$US | US dollar |
| % | per cent |
| BS | Biological System |
| ES | Economic System |
| FAO | Food and Agriculture Organisation of United Nations |
| GDLA | General Department of Land Administration |
| GDP | Gross Domestic Product |
| ha | hectare |
| IUCN | International Union for the Conservation of Nature |
| km | kilometre |
| MARD | Ministry of Agriculture and Rural Development |
| MOSTE | Ministry of Science, Technology and Environment |
| NCC | North Central Coast |
| NMM | North Mountain and Midland |
| PCF | People's Credit Fund |
| RRD | Red River Delta |
| RSHBs | Rural Shareholding Banks |
| SA | Sustainable of Agriculture |
| SCARM | Standing Committee on Agriculture and Resource Management |
| SD | Sustainable Development |
| SEAC | State of the Environment advisory council |
| SS | Social System |
| STK | Thai acronym (Land certificate in Thailand) |
| UNDP | United Nations Development Programme |
| USLE | Universal Soil Loss Equation |
| VBARD | Vietnam Bank for Agriculture and Rural Development |
| VBP | Vietnam Bank for the Poor |
| VDC | Vietnam Data Communication |
| VNdong | Vietnamese currency unit |
| WB | World Bank |
| WCED | World Commission on Environment and Development |
| WCS | World Conservation Strategy |

Table of Content

| | |
|---|-----------|
| Declaration | I |
| Acknowledgements | ii |
| Abstract | iv |
| Acronyms and Abbreviations | vi |
| Chapter 1. Introduction - Land tenure and land management: A causative relationship | 1 |
| 1.1. Importance of the study..... | 1 |
| 1.2. Causative relationships between problems of land tenure and land management..... | 3 |
| 1.2.1. Global scale | 3 |
| 1.2.2. North Vietnam | 6 |
| 1.3. Research questions..... | 12 |
| 1.4. Objectives of the study | 14 |
| 1.5. Research Methodology | 15 |
| 1.5.1. Research sites..... | 15 |
| 1.5.2. Methods of collection and information collected..... | 16 |
| 1.6. Scope and limitations of the study | 19 |
| 1.7. Structures of the study..... | 19 |
| Chapter 2. Sustainable resource use and well-defined property rights: Theoretical perspectives | 22 |
| 2.1. Sustainable agricultural development..... | 22 |
| 2.1.1. Sustainability..... | 22 |
| 2.1.2. Sustainable Agriculture..... | 27 |
| 2.2. Conservation of land resources..... | 30 |
| 2.2.1. The World Conservation Strategy..... | 30 |
| 2.2.2. Land resources and their conservation values | 30 |
| 2.3. Sustainable land use in agriculture | 33 |
| 2.3.1. Sustainable land use | 34 |
| 2.3.2. Property rights..... | 36 |
| 2.3.4. Institutions | 45 |
| 2.3.5. Farmers' responses..... | 47 |
| Chapter 3. Land tenure arrangements and sustainable land management: An analytical framework..... | 50 |
| 3.1. Land legislation and land management..... | 50 |
| 3.1.1. Access to land | 51 |
| 3.1.2. Rights to transfer land..... | 59 |
| 3.1.3. Access to credit..... | 61 |
| 3.2. Enforcement mechanisms and land management | 63 |
| 3.3. Summary of the analytical framework..... | 66 |
| Chapter 4. Research Sites and Methodology | 69 |
| 4.1. Introduction..... | 69 |
| 4.2. Research Sites..... | 70 |

| | |
|---|------------|
| 4.2.1. Overview of northern Vietnam..... | 70 |
| 4.2.2. Agricultural development in the region..... | 72 |
| 4.2.3. Land tenure systems in North Vietnam | 77 |
| 4.3. Research Methodology | 82 |
| 4.3.1. Information collected and methods of collection and analysis..... | 82 |
| 4.3.2. The selected sites for the survey | 83 |
| 4.3.3. Farm-household survey..... | 94 |
| | |
| Chapter 5. Security of land tenure arrangements and sustainable land management in North Vietnam | 100 |
| | |
| 5.1. Introduction..... | 100 |
| 5.2. Security levels of land tenure arrangements in the Collectivisation and Renovation periods | 101 |
| 5.2.1. Definition of land tenure security..... | 101 |
| 5.2.3. Security level of land tenure arrangements in the Renovation period..... | 107 |
| 5.2.4. Comparison of the security levels of Collectivisation and Renovation tenure arrangements | 114 |
| 5.3. Impacts of changes in land tenure arrangements on long-term land improvement..... | 119 |
| 5.3.1. Land conservation practices in the research site | 119 |
| 5.3.2. The influence of change in land tenure security levels on the adoption of soil conservation in North Vietnam | 128 |
| 5.4. Conclusion | 139 |
| | |
| Chapter 6. The impact of land tenure duration on the adoption of long-term land improvements | 141 |
| | |
| 6.1. Introduction..... | 141 |
| 6.2. Land-use rights certificates..... | 142 |
| 6.2.1. Definitions of land registration | 142 |
| 6.2.2. The necessity of a land registration system..... | 143 |
| 6.2.3. Impact of land registration on land improvement in North Viet Nam..... | 149 |
| 6.3. Land lease term | 161 |
| 6.4. Land distribution | 166 |
| 6.4.1. Impact of farm size on land productivity | 166 |
| 6.4.2. Fragmentation of landholdings..... | 170 |
| 6.5. Conclusions..... | 173 |
| | |
| Chapter 7. Impact of transferability of land use rights on investment in land improvements | 175 |
| | |
| 7.1. Introduction..... | 175 |
| 7.2. Effects of land transferability on credit use and agricultural productivity | 176 |
| 7.2.1. Customary land tenure | 176 |
| 7.2.2. Collectivised regimes | 179 |
| 7.2.3. Other regimes..... | 181 |
| 7.3. The risks of land transferability | 186 |
| 7.4. Development of land markets in North Vietnam..... | 187 |
| 7.5. Impacts of land transferability on the adoption of soil conservation practices | 190 |
| 7.5.1. Perceptions of farmers about the right to transfer land-use rights | 190 |
| 7.5.2. The involvement of households in transferring land-use rights..... | 192 |
| 7.5.3. Causes of transferring land..... | 194 |
| 7.5.4. Effects of land transfer rights on investment in land improvement..... | 196 |

| | |
|---|------------|
| 7.6. Conclusion | 197 |
| Chapter 8. Mortgaging land-use rights and investment in land improvements | 199 |
| 8.1. Introduction..... | 199 |
| 8.2. Security of land tenure with the right to mortgage land-use rights..... | 200 |
| 8.2.1. The role of credit in rural development..... | 200 |
| 8.2.2. Informal credit markets | 200 |
| 8.2.3. Formal rural credit markets | 202 |
| 8.2.4. Access to credit with collateral | 205 |
| 8.3. Access to credit in North Vietnam..... | 206 |
| 8.3.1. Formal sources of credit..... | 207 |
| 8.3.2. Informal sources of credit | 209 |
| 8.4. Impact of the ability to mortgage land rights on the adoption of soil conservation investment in North Vietnam | 210 |
| 8.4.1. Farmers' preferences about the right to mortgage land-use rights | 211 |
| 8.4.2. Farmers' purposes in using credit | 212 |
| 8.4.3. Access to credit from different sources | 213 |
| 8.5. Conclusion | 218 |
| Chapter 9. Institutions and enforcement for protecting land-use rights and land conservation investment..... | 220 |
| 9.1. Introduction..... | 220 |
| 9.2. Regulations and enforcement..... | 221 |
| 9.2.1. Types of enforcement..... | 221 |
| 9.2.2. Enforcing regulations | 223 |
| 9.2.3. Administrative systems | 228 |
| 9.3. Land administration and enforcement in North Vietnam..... | 231 |
| 9.3.1. Land administration system..... | 231 |
| 9.3.2. Regulation and administrative enforcement..... | 234 |
| 9.4. Conclusion | 242 |
| Chapter 10. Conclusions: well-defined property rights in land encourage sustainable land use | 244 |
| References | 254 |
| Appendices | 283 |
| Appendix 2.1. Relationship between secure title and productivity . | 283 |
| Appendix 2.2. Design Principles Illustrated by Long-Enduring Common Property Resource Institutions | 284 |
| Appendix 4.1. Questionnaires for the survey in northern Vietnam | 285 |
| Appendix 5.1. The survey data on households composition of the four villages in North Vietnam | 298 |

Appendix 6.1. A Land-Use Rights Certificate of household in My Giang village..... 299

Tables

| | |
|--|-----|
| Table 1.1. Global and continental extent of agricultural land, and the percentage of these areas affected by human-induced land degradation. | 4 |
| Table 1.2: Information requirements, sources and methods used | 17 |
| Table 2.1. Farm management practices which affect land and water quality | 35 |
| Table 2.2. Types of Property Rights Regimes with Owners, Rights and Duties | 37 |
| Table 4.1. The distribution of plantations belonging to French colonists in the northern Vietnam in 1918 | 78 |
| Table 4.2. Average per capita land area of farmer classes during pre- and post- land reform in rural areas in the North (Unit: m ² /person) | 80 |
| Table 4.3. Summary of data collected, data sources and analytical method for analysis of the impacts of changes in land tenure on farmers' perceptions and attitudes towards sustainable land management in the research sites in northern Vietnam | 84 |
| Table 4.4. Number of households selected for the survey | 97 |
| Table 5.1. Levels of land tenure security in two land tenure arrangements: Collectivisation and Renovation. | 115 |
| Table 5.2. Farmers' preference in land ownership and land tenure..... | 117 |
| Table 5.3. Farmers' attitudes toward the provision of permanent land use rights | 118 |
| Table 5.4. Socio-economic characteristics of 100 farm households in four villages | 130 |
| Table 5.5. Farmers' intentions about protecting soil quality under the two land tenure regimes | 134 |
| Table 5.6. Farmers' land improvement practices under Collectivisation | 136 |
| Table 5.7. Farmers' long-term land improvement practices under Renovation | 137 |
| Table 5.8. Lap Thach district cropped area, 1988 and 1993 (hectares) | 139 |
| Table 6.1. Incidence of land improvements for titled and untitled plots | 148 |
| Table 6.2 Correspondence between the issuance of land certificates and soil conservation practices of farmers in North Vietnam | 151 |
| Table 6.3. Factors influencing the adoption of land conservation..... | 155 |
| Table 6.4. Farmers' perceptions of the contents of land certificate | 160 |
| Table 6.5. Farmers' preferences on the lease term of land use rights | 164 |
| Table 6.6. Average farm size and number of farm plots of households in the four villages | 168 |
| Table 6.7. Effects of farm size on soil conservation practices | 169 |
| Table 6.8 Farmers' perceptions of the constraints on adopting soil conservation practices by villages (percentage %) | 170 |
| Table 6.9. Perception of the impact of land fragmentation on conservation practices | 172 |
| Table 6.10. Impact of fragmentation and the distance of plots on practising soil conservation..... | 173 |
| Table 7.1. Preference of farm-households for land transfer rights | 191 |
| Table 7.2. Preference of farmers for transaction types..... | 192 |
| Table 7.3. Renting land..... | 192 |
| Table 7.4. Selling and buying land..... | 193 |
| Table 7.5. Exchanging land | 194 |
| Table 7.6. Bidding for land..... | 194 |
| Table 7.7. Impact of the right to transfer land on soil conservation decisions | 196 |
| Table 8.1. Preferences of farmers about the right to mortgage farmland | 212 |
| Table 8.2. Number of farm households using farmland as collateral | 214 |
| Table 8.3. Ability to mortgage land-use rights has an impact on long-term land investment decisions? | 215 |
| Table 9.1. Farmers' attitudes about the dissemination of information on the Land Law | 235 |
| Table 9.2. Process of registering land use rights..... | 238 |
| Table 9.3. Perceptions of farmers about imposed obligations of land protection | 242 |

Figures

| | |
|--|-----|
| Figure 2.1. Conceptual Framework of Sustainable Land Use in Agriculture | 25 |
| Figure 2.2. Causes of soil degradation | 32 |
| Figure 2.3. Model of conservation practice behaviour | 49 |
| Figure 4.1. Vietnam's Agro-Ecological Regions Map | 71 |
| Figure 4.2. Map of Vinh Phuc Province | 90 |
| Figure 4.3. Map of Hoa Binh Province | 90 |
| Figure 4.4. Map of Ha Tay Province | 93 |
| Figure 4.5. Map of Hai Duong Province | 93 |
| Figure 4.6. Fieldwork Flowchart | 95 |
| Figure 5.1. Farming on steep land with paddy rice and maize in the valley of Bai Yen village | 122 |
| Figure 5.2. Forest-Garden-Pond-Husbandry Model | 122 |
| Figure 5.3. Thuy Dien farmers growing rice, cassava and fruit trees on round hills and plain field | 123 |
| Figure 5.4. Home garden and paddy rice in Thuy Dien village | 123 |
| Figure 5.5. Plain fields of paddy rice and home-garden in My Giang village | 124 |
| Figure 5.6. Interviewing key informants in My Giang village | 124 |
| Figure 5.7. Paddy rice fields in Co Cham village | 125 |
| Figure 5.8. Vegetables and fruit tree garden in Co Cham village | 125 |
| Figure 5.9. Farmers' perceptions of land degradation | 132 |
| Figure 5.10. Farmers' perceptions about the main causes of land degradation | 133 |
| Figure 5.11. Different impacts of land tenure regimes on conservation adoption | 138 |
| Figure 6.1. Factors influencing farmers' adoption of soil conservation practices | 156 |
| Figure 6.2. Farmers' perceptions of the advantages of land-use certificates | 157 |
| Figure 6.3. Farmers' perceptions of the constraints on adopting soil conservation practices | 169 |
| Figure 7.1. Reasons for selling land | 195 |
| Figure 7.2. Reasons for buying land | 195 |
| Figure 8.1. Reasons for borrowing money | 213 |
| Figure 8.2. Sources of loans | 214 |
| Figure 8.3. Farmers' perceptions of the constraints on their access to formal credit | 216 |
| Figure 8.4. Constraints on mortgaging land for long-term land investment | 217 |
| Figure 9.1. Linkages among rules and levels of regulation analysis | 224 |
| Figure 9.2. Relationship between sustainable development and land administration | 230 |
| Figure 9.3. Causes of inadequate and incorrect distribution of information on land policies | 237 |
| Figure 9.4. Causes of the slow and inaccurate process of registration | 240 |
| Figure 9.5. Reasons for farmers complying with rules and obligations | 242 |

Boxes

| | |
|--|-----|
| Box 5.1. Article 3, 26, 78 in the 1993 Land Law of Vietnam | 111 |
| Box 6.1. Factors affecting the adoption of soil conservation by upland farmers in Cebu city and Claveria | 148 |
| Box 6.2. The 1993 Land Law: Rights and Obligations of Land Users | 158 |
| Box 8.1. The failure of supply-led finance in the Philippines | 205 |
| Box 8.2. Strengths and weaknesses of formal financial institutions | 209 |
| Box 8.3. Strengths and weaknesses of semi-formal and informal financial schemes | 211 |
| Box 9.1. The need for information | 238 |

Chapter 1. Introduction - Land tenure and land management: A causative relationship

1.1. Importance of the study

In recent decades, land degradation has become serious in many places in the world. Arable lands are under increasing pressure from farmers as they try to increase production by intensifying farming practices. The increase in commercial logging and the over-exploitation of firewood and fodder has also induced serious degradation of forest and marginal lands (Gretton and Salma 1996; and World Bank 1998). The readily identifiable forms of land degradation include soil erosion, loss of organic matter content and natural fertility, the destruction of the soil's structure, and soil salinity and acidity. Despite the fact that the problems of soil degradation have been well-documented worldwide, farmers in some regions are not practising sustainable farming.

Across the world, there has been growing concern about the land degradation problem and the neglect of soil conservation practices (Otsuka and Place 2001). The underlying causes of this problem have been recognised and studied. They include market and policy failures, rapid population growth, and institutional weaknesses, including insecure land tenure structures. In most developing countries, insecure land tenure has been seen as the most critical issue affecting land-use patterns and leading to unsustainable use of agricultural land. It encourages short-term exploitation of land rather than long-term sustainable use (Brandon and Ramankutty 1993: 122).

Vietnam is a country dominated by agriculture. Agricultural production is the major source of support for rural people, who account for over 80% of the total population. Moreover, 90% of Vietnam's poor also live in the rural areas. Thus, the government has been giving high priority to agricultural and rural development (Nguyen Q.H. 1997:1). However, in many rural areas in both the north and the south of the country, agricultural land have become degraded at an alarming rate, far beyond natural replenishment rates. In particular, in the midlands and highlands, soil erosion and deterioration of soil fertility have been serious problems due to unsustainable farming practices such as shifting cultivation with shortening fallow periods, monoculture, and excessive timber

cutting and fuel wood collection. Often, investments in long-term improvement of land have not been undertaken in these areas.

As in many other developing countries, in Vietnam, agricultural policy and institutional failures in the area of property rights have been identified as the important causes of land degradation and inappropriate farming practices, particularly in the northern part of the country. Through time, land tenure systems have been determined by the different political, socioeconomic, and legal institutions in existence. In the recent period of economic reform - the *Doi moi* process - which was launched in 1986, the Vietnamese Government clearly recognised the problems associated with the existing land tenure system. As a result, a new Land Law, which allocated land-use rights to farm households on a long-term basis, was promulgated in 1993. Under the law, land remains the property of the people and subject to administration by the State; basically, the ownership of land has not changed, but land-use rights can be privately held for long periods as well as being able to be transferred through sale or inheritance. This law granted long-term land leases in order to encourage farmer investments.

Although the land law is a significant improvement over the previous land tenure systems, problems remain in the major legislation and implementing regulations. Associated with these constraints, several agricultural policies, such as ceilings on farm size, fragmentation of farm plots, restrictions on what crops and livestock may be cultivated, also affect land holdings and farming practices. There have been several recent critiques of the strengths and weaknesses of the land law in terms of its support for sustainable agricultural development (Prosterman and Hanstad 1994; Le T.C. *et al.* 1996; UNDP/UNICEF 1996; World Bank 1996; Chung C.H. 1997; Nguyen N.H. 1998). However, these studies have not deeply examined the relationships between the security of land tenure and the attitudes and practices of farmers towards land use, particularly investments in the long-term sustainability or improvement of this important asset. This research takes up this challenge. Inspired by the concept of ecologically sustainable resource management, it explores this issue in northern Vietnam, in areas which represent the different socio-cultural, economic and biophysical characteristics of the country.

The study focuses on the impacts of the changes in the land tenure system and policies affecting farming practices from the **Collectivisation** stage (1956-1986) to the **Renovation** stage (1986-present), particularly on the propensity to invest in and practise land improvement. The study also explores provisions of the land law and the legislative actions, which are essential for effective implementation of land use rights and the contributions that forms of land tenure security and land holding policies can make as incentives for land improvement through a study of the midland areas of North Vietnam. From these findings, policy implications for land tenure legislation, agricultural policy and ecologically sustainable land management are formulated to provide support for achieving sustainable agriculture.

This chapter provides the background and rationale for the study. Based on the problems highlighted and the initial literature review in the second section, the research questions and objectives of the study are identified in the third and fourth sections. The next section addresses the methods that are used in searching for information, and the kinds of data collected for the case study. The scope of the study is also discussed in this chapter. The final section summarises the structures of the thesis.

1.2. Causative relationships between problems of land tenure and land management

1.2.1. Global scale

Land degradation is a worldwide problem that can occur for many reasons, some of which are associated with human activities. In particular, if degraded by agricultural use, land may inevitably become unproductive for that use (Gretton and Salma 1996:3). It was estimated that in 1989, 78 per cent of the earth's surface area was unsuitable for agricultural purposes; of the suitable land, 13 per cent had low productive capacity, 6 per cent medium capacity, and only 3 per cent was characterised as having high capacity for intensive crop production (Lal and Stewart 1992: 4).

According to FAO (1990), the agricultural land includes land under permanent crops and arable land that occupies 1475 million hectares Worldwide, 562 million hectares, or 38 per cent of the agricultural land is affected by human-induced land degradation as a result of agricultural mismanagement of the land and of industrial activities. Across the

world, in Central America almost 74 per cent, in Africa 65 per cent, in South America 45 per cent, and in Asia 38 per cent of the agricultural land suffers from land degradation (see Table 1-1). It is also estimated that around 20 per cent of the agricultural land worldwide is moderately degraded and 6 per cent is strongly degraded (Oldeman 1994: 115).

Table 1.1. Global and continental extent of agricultural land, and the percentage of these areas affected by human-induced land degradation.

| Area | Agricultural Land | | |
|-----------------|-----------------------------------|--------------------------------------|----|
| | Total areas (million hectares) | Degraded areas (million hectares) | % |
| Africa | 187 | 121 | 65 |
| Asia | 536 | 206 | 38 |
| South America | 142 | 64 | 45 |
| Central America | 38 | 28 | 74 |
| North America | 236 | 63 | 26 |
| Europe | 287 | 72 | 25 |
| Oceania | 49 | 8 | 16 |
| World | 1475 | 562 | 38 |

Source: Oldeman, L.R. (1994).

It is estimated that every year, five to seven million hectares are lost through soil degradation, equivalent to a rate of 0.3 to 0.5 per cent arable land loss in 1992 (Oldeman 1994: 115). Lal and Stewart estimated that the projected loss by the year 2000 would be 10 million hectares annually (0.7 per cent of the area presently cultivated). In other words, by the year 2000, the productivity of about one-third of the world's arable land may be severely impaired due to degradation (1992: 4). Nearly 40 per cent of agricultural land worldwide has been estimated to be degraded. Degraded agricultural land amounts to 120 million hectares in Africa and slightly more than 200 million hectares in Asia (WRI 1998)

In some countries, soil degradation is a serious problem in several ecologically sensitive regions; for example, 150 million hectares are subject to accelerated soil erosion in India and siltation of the reservoirs in northern India is about 200% more than predicted in their design. In China, the bed of the Yellow River has risen by as much as 10 cm annually due to the severe erosion of about 46 million hectares of the loess plateaus in the catchment area (Dent 1984). Here, uncontrolled and excessive grazing is responsible

for depleting vegetation and denuding the landscape, causing shifts in climax vegetation, soil compaction, and accelerated runoff and erosion.

For example, many of degraded soil in Australia is accelerated by some agricultural practices, such as by the use of pastures based on grasses and by using certain nitrogenous fertilisers on crops. As SEAC (1996: 6-32) reported, major problems with induced acidity in Victoria, southern New South Wales and Western Australia, covering around 29 million hectares in total. The Land and Water Resources Research and Development Corporation estimated in 1993 that soil structure decline is costing Australian farmers around \$200 million annually in terms of lost production (Industry Commission 1998: 40).

The human-induced land degradation implies a social problem in terms of causative factors. Deforestation, or removing natural vegetation for agricultural purposes, commercial forestry and fuel needs, overgrazing, agricultural practices, and industrial activities are some of the kinds of human intervention that have caused the land to be degraded. Agricultural mismanagement is believed to be the most important causative factor of land degradation in North America, Asia and Africa, while deforestation is thought to be the dominant causative factor of land degradation in South America and Asia (Oldeman 1994: 113).

This research addresses the root causes of human-induced land degradation. There are believed to be close links between farming systems and systems of land tenure that reflect a range of different factors. Environment, social organisation, population density and technology all influence the relationship between tenure and farming (Cleary and Eaton 1996: 17). Market failure, property rights arrangements, institutions and inappropriate regulations have been regarded as impediments to productivity. In Asia as well as in many other developing countries, these underlying causes are identified as: (a) market and policy failures - such as underpricing of land, input subsidies, and lack of information about viable technologies on marginal lands - that lead to land-degrading externalities; (b) a rapidly growing population that exerts pressure on land resources for both subsistence and commercial needs; (c) a land tenure structure that encourages short-term exploitation rather than longer-term conservation; and (d) institutional

weaknesses that encourage mismanagement of land resources (Brandon and Ramankutty 1993: 122).

Clearly recognising these causes and understanding how they influence land use and farming practices can help answer the central question of why land managers, such as peasants, pastoralists, commercial farmers and so on, are so often unwilling or unable to prevent soil degradation. Land degradation is thus a multi-disciplinary issue that can be resolved by the combination of analytical tools of both the natural and social sciences

1.2.2. North Vietnam

1.2.2.1. Overview of agricultural development

Agriculture is an important part of Vietnam's economy. Agriculture is the major source of subsistence for the country and of exports. The Red River Delta (RRD) and the Mekong delta are the 'rice bowls' of the country. The agricultural sector accounts for 70% of total employment and supports over 80 per cent of Vietnam's population. Thus the recent rapid growth of the agricultural sector has made a significant contribution to increasing incomes for the majority of the population. The share of agriculture in the Gross Domestic Product (GDP) declined from 34 per cent in 1992 to 27 per cent in 1998, but agricultural GDP has still grown at 4 per cent to 5 per cent per annum. It is expected that this sector will continue to provide a solid base for growth of the related industries (World Bank 1997: 75; Nguyen 1998: 1; UNDP 1998: 26; Centre of Institution for Economic Management 1999: 7; VDC 1999: 4).

The past 57 years from the August revolution in 1945 to the pre-renovation in 1986, and up until the present covers a transitional development process from small scale, monoculture, and self-sufficient agriculture to a larger-scale, multicultural, intensive and commercial approach. This change has been closely linked to the transformation in the nation's history, from the national democratic revolution to the socialist revolution, firstly occurring in the north and then spreading to the whole nation. This significant historical change laid the basis for Resolution No10 on agricultural management renovation in conjunction with economic reform in 1986. Recent agricultural development in Vietnam can be thus historically divided into the following stages:

- Pre-1957: before agricultural collectivisation
- 1957 - 1988 in the North and 1975-1988 in the whole country (**Collectivisation**): Agricultural collectivisation and introduction of Decree number 100 in 1981.
- 1988 - present (**Renovation**): "Resolution number 10" and the Land Law 1993.

1.2.2.2. Land degradation under farming practices

In Vietnam land is being degraded at an alarming rate. Degradation of agricultural land is apparent in various forms in almost all areas of the country. Soil degradation is identified as soil erosion, the depletion of soil organic matter and nutrients, deterioration of soil structure, soil salinity, and acidification.

It has been estimated that about 70 per cent of all land in Vietnam is seriously eroded. In the North, the amount of soil loss is estimated 124 tonnes/ha/year and every year 0.9 to 2.1 cm of the soil surface is lost, equivalent to 1 tonne of humus, 50 kg of nitrogen, 50 kg of phosphate and 500 kg of kali (Quat 1994: 12). It is estimated that the hill-slopes of the midlands, soil losses of approximately 147 tonnes/ha/year are common from mono-cropped cassava cultivation systems. Long-term mono-cultivation of tea crops has accelerated land degradation and soil nutrient impoverishment, soil tilth has decreased, and soil is gradually becoming more impacted. The lack of a dense understorey in introduced eucalyptus plantations on sloping hillsides has also resulted in severe soil erosion and a decline in soil fertility and soil physical properties (Le *et al.* 1996: 26-28).

Saline soils occur along the coast of North Vietnam, including Hai Phong, Hai Hung, Nam Ha, Ninh Binh, Thai Binh and Quang Ninh provinces. The area of saline soils is reported to be over 75,000 hectares. Soil salinity is a problem arising because of saline water intrusion as well as from over-use of fertilisers and waterlogging. In the RRD, particularly in areas of extremely intensive market gardening near urban areas, fertiliser application is extremely high (400 kg/ha/year). It has been estimated that 20,000 to 28,000 hectares in the RRD are water-logged per year. An estimated 44,000 hectares of acid sulphate soils are in Hai Phong, Quang Ninh and Thai Binh provinces (Binnie and Partners 1995: 44).

In the highlands and some parts of the midlands, shifting cultivation with shortening fallow periods has resulted in serious erosion and declining soil fertility. Because of population pressure and loss of forests, the fallow period in swidden farming is steadily declining. In many places fields are cultivated for three to four years then allowed to lie fallow only for a similar period, when a rest of 10 to 15 years is needed to fully restore productivity (Jamieson *et al.* 1998: 11). It is reported that every year 50,000 hectares of forest were lost due to unplanned agricultural clearance (Nguyen Q.H. 1993: 5), resulting in more than 13 million hectares of vacant land with barren hills widespread in the region (Be 1993: 131).

Scarcity of arable land has accelerated land degradation in the fragile areas. Vietnam has a great shortage of arable land. Of the 33 million hectares of land in the country, only about 7 million are used for agriculture, and there is little scope for expansion, except to less suitable agro-ecological zones and environmentally fragile areas. The per capita availability of cultivated land is 0.12 hectares; in order to increase this ratio, the Government is moving people from the overcrowded lowlands to the barren up-lands which have poor soils, steep slopes, are ecologically fragile and erosion-prone. Thus the increased population pressure and unsuitable farming practices in the areas have led to further land degradation (World Bank 1998: 13).

Improving the productive capacity of existing agricultural land is probably a better solution than attempting to expand agricultural land into the degraded land areas. Appropriate land policies and security of land-use rights is, however, vital if farmers are to be encouraged to protect and improve land productivity in the long-term.

1.2.2.3. Land tenure systems in rural areas

There is a close relationship between institutional arrangements and agricultural land management in Vietnam. In each recent historical period, land-use rights regimes have had crucial impacts on land-use patterns and farming practices, and hence influence the levels of land degradation and land improvement investments. Unsustainable farming practices have often resulted from the insecurity of the land tenure system.

Pre-1957: In the centuries before the French period, there were two classes of Vietnamese: large landowners and landless peasants. The Kings paid their officials for

their services and rewarded their servants for their loyalty with large domains of rice land. In addition to the growth of these landholdings, the policy of transforming a great number of peasants into serfs made many of them landless. The great reformers before the arrival of the French decreed that all salaries, pensions and other awards be paid only in money and rice; however, limiting landholdings of everyone but royalty to no more than 8.8 acres; distributing excess land to landless peasants in order to reduce landlord power, and allowing permanent ownership of new lands given to the landless were legalised to encourage a village economy. However, the feudal exploitation of landless peasants and smallholders by rich landowners remained, because the execution of the new decrees was usually controlled by the mandarins and the rich (Callison 1983: 36).

In the colonial period, the French administration sold large concessions of land cheaply to the French and to cooperative Vietnamese. In the Northern part, land temporarily abandoned by peasants fleeing areas ravaged by fighting was directly expropriated. Under the French regime, unequal land distribution increased in all areas of the country. Small landholders, a large percentage of all landowners, held only a small amount of the total private and communal land area; only a small number of landowners held the remaining large proportions of this land. This inequity was exacerbated because of the practice of usury and the ability of the wealthy to foreclose on the property of debtors who could not repay loans. In this period, many landlords preferred the urban life and conspicuous consumption to the more rigorous life of managing farm operations. The growth of absentee landlordism meant an increase in the area of land cultivated by tenants. Landlords' wealth was not reinvested in land development since these landlords-by-inheritance cared little about agricultural matters and provided almost no technical direction in the form of capital investment assistance to their tenants. Collecting rents was their only concern (Callison 1983: 39).

Following the defeat of the French, the new government rapidly attempted to eliminate feudalism and promote democracy. The policy meant that land owned by the French and the largest Vietnamese landlords, those who owned more than 50 hectares of land, was confiscated for redistribution, while contributions in the form of finance were taken from lesser landowners. This policy remained in effect until 1953. The redistribution was intended to give each peasant enough rice land to provide a little more than

subsistence for him and his family. Reallocated plots were usually less than one hectare, but in some areas families received 2 or 3 hectares (Donovan *et al.* 1997: 15).

1957 to 1988 (Collectivisation): From late 1955, agricultural cooperatives were established in North Vietnam. The regime of low-rank cooperatives preserved individual ownership of crop land, animals, and farm equipment, but each family's share of output was tied to the amount of land, animals and machinery they had contributed. In the late 1960s, the government organised these low-rank cooperatives into high-rank cooperatives. As an economic unit, the cooperative periodically distributed paddy land for cultivation, granted land to households for houses and home gardens, organised the tasks of the production brigades, determined the remuneration of labour, controlled agricultural inputs and products, provided information and technical advice, granted loans for special needs, and collected taxes (Le T.C. *et al.* 1996: 38). Land and tools formerly belonging to members were pooled and all work was done collectively under unified management. The output was distributed based on a work point system, which was calculated in terms of the amount of time spent working on the farm, but not on the value of the labour or the value of land and other assets contributed to the cooperative.

Collectivisation did not have the desired effect on rice production in the North. Production of cereal grains per capita dropped. In 1961 the North was producing 318 kg per capita, but by 1980 output had fallen to 215 kg per capita, despite the fact that during the 1970s the double-cropping of rice and improved rice varieties had been introduced and had become common in the RRD. Moreover, under collectivisation, in the 1970s only 30 to 40 per cent of farm household, income came from work performed on collectively farmed land, which accounted for 95 per cent of the land. The remaining 60 to 70 per cent of farmer income came from the 5 per cent of the land reserved for household plots (Prosterman and Hanstad 1994: 5). Especially in the north upland areas, where the existence of customary land tenure persisted (as this area was sparsely populated and had not been exploited by the French until the very late part of this colonial era), the effects of the resettlement program from the more densely populated RRD area, in conjunction with the State-owned resources regime, were serious. Land resources, as well as other related resources, have deteriorated severely as a result (Donovan *et al.* 1997: 11).

In 1981, decree No.100 of the Government introduced a new agricultural production management system in Vietnam: the 'product contract' system, under which the state allotted use of land plots directly to cooperative member families for a period of 2 to 3 years. Management and investment responsibilities still resided with the cooperatives. Land was contracted to households based on the amount of labour in the households rather than the total number of family members. This inequitable distribution of land and the short-term nature of the contract resulted in land deterioration and declining agricultural productivity because with no incentive to take care of the land, farmers mined its soil productivity (Le T.C. *et al.* 1996:39).

1988 to present (Renovation): Since 1986, cooperatives have been gradually abolished as the basic administrative unit in rural organisation. Peasant households were made the basic unit of decision-making. Until January 1988, the State Council promulgated the country's first land law (Resolution No 10), which reaffirmed existing systems of land ownership, so that the State could assign land to land users under 15 to 20 year inheritable leases. The land law also legitimised the rights to transfer, cede and sell the fruits of the farmer's labour and the results of investment in the assigned land when this land was assigned to other users. However, it strictly prohibited the purchase, sale, or lease of the land. Thus, this system of land tenure 'did not yet ensure long-term tenure security, a guarantee for any productive investment decision, nor did it pave the way for the establishment of proper land and credit markets' (UNDP 1996: 38).

The 1993 Land Law and its related implementation decrees were meant to complete the land reform process by establishing longer-term and secure land-use rights. Under this law, which specified rights and obligations of users, land-use rights may be transferred, mortgaged, rented, exchanged, or inherited. Leaseholders are given land-use certificates, through which they are assured of their right to the land. However, implementation of this law has revealed several constraints with respect to efficiency, equity and sustainability. A common observation has been that many households still have doubts regarding the security of their land holdings. There is a lack of transparency in the land-certificates such as the length of land-use tenure. The conditions for the use of land as collateral are also unclear. Many have reported that they were unwilling to mortgage their land because of the risk of losing it. Land-transfer taxes discourage land sales, thereby inhibiting an efficient market in land rights and causing administrative

problems. Particularly in upland areas, the allocation of land is facing challenges: by the end of 1995, only 7 percent of forest land had titles issued (UNDP 1996: 42).

Experiences in other countries show that insecure land-use rights can affect the behaviour of farmers in land improvement activities. For example, a cultivator would not be able to capture all of the benefits from land conservation if the government can evict him/her without compensation for the costs incurred in establishing and maintaining land improvements; if the rent or taxes are increased without compensation for the costs incurred; if the cultivator lacks the power to exclude others from encroaching on the improved land; and if the cultivator as tenant is unable to bequeath or sell the improved land. Insecure ownership will also affect a farmer's access to credit and thereby, affect improvements in land quality (Templeton 1994: 73).

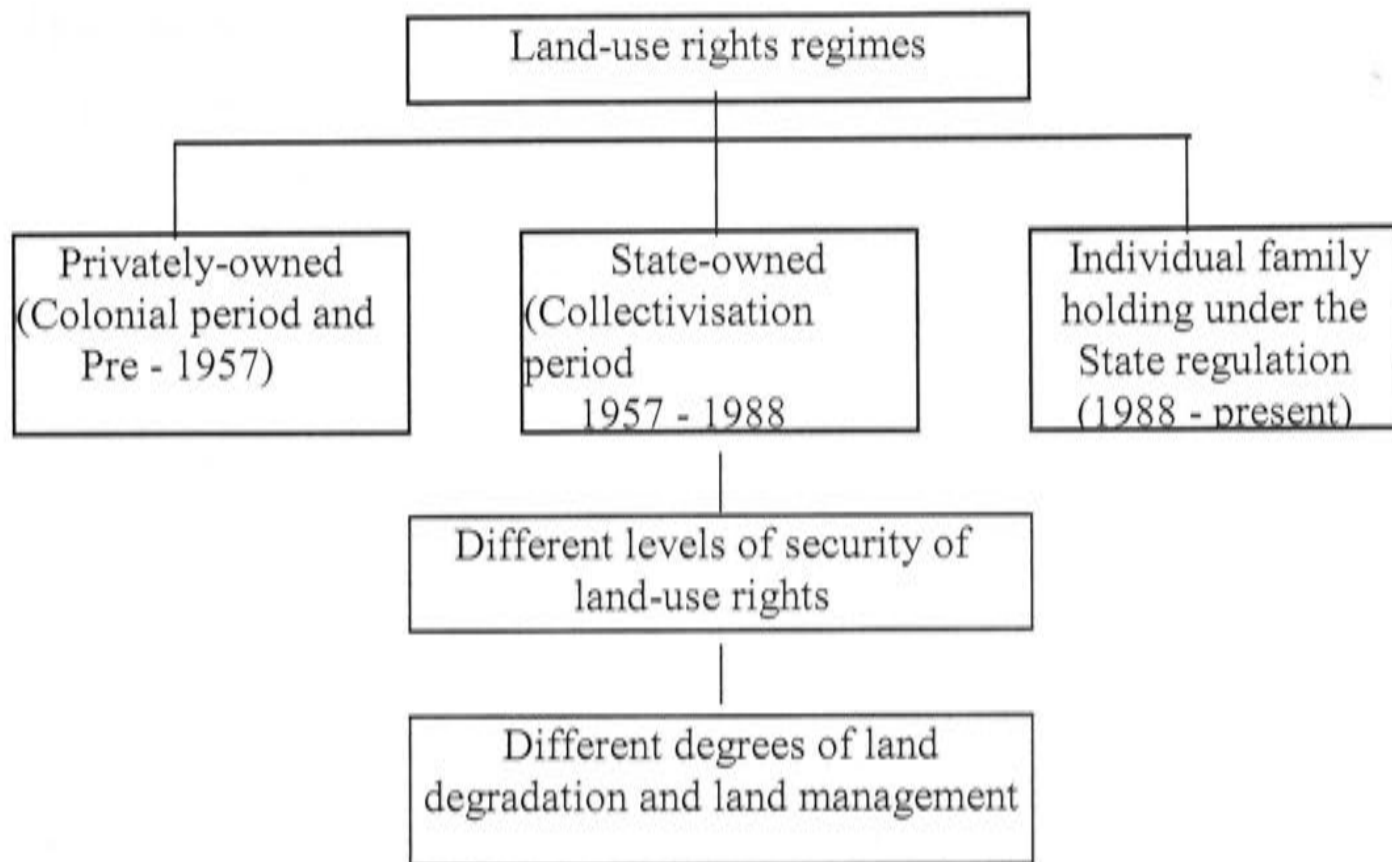
It is therefore clear that a study of the land allocation and management regime in Vietnam is necessary in attaining sustainable agricultural development, in general, and soil conservation in particular.

1.3. Research questions

Overall question: How do the rights and obligations of farm households in North Vietnam, with respect to land tenure, affect farmers' attitudes and practices towards land improvement in the context of sustainable agricultural development?

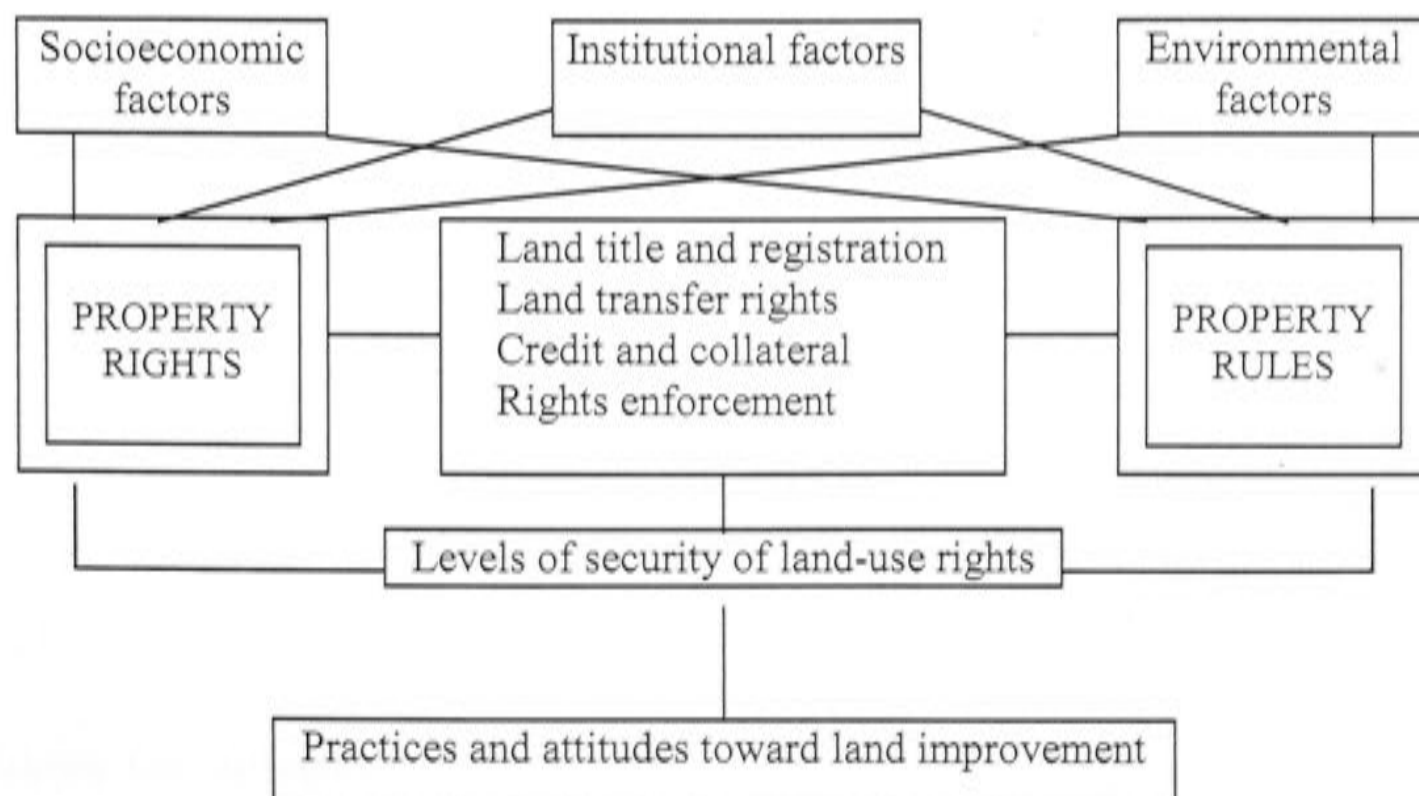
Question 1. How does a change of land tenure systems (change in security levels) affect farmers' perceptions and practices of land management?

- *What have been the arrangements (security levels) of the different land tenure systems (Collectivisation and Reform) and their related land management in North Vietnam?*
- *Has the change of land tenure system from Collectivisation to Land Reform significantly influenced farmers' attitudes and practices towards land management?*



Question 2. Do security of land-use rights, the obligations imposed and other policies affecting land use serve long-term land improvement purposes?

- *What is the security level of land tenure in the Land Reform period?*
- *Does each aspect of this land tenure regime (land ownership, rights to transfer, access to credit, land distribution and enforcement) have different influences on farmers' perceptions and practices of land management?*
- *Do these aspects of this land tenure regime give incentives to farmers to invest in long-term land improvement?*



- *Does the difference between perceptions of land management and practices of a farmer depend significantly on these aspects of land tenure?*
- *Will obligations of land protection imposed on farmers' use rights encourage them to manage their land in a sustainable manner?*

Question 3. What would be the changes in land tenure policy that would encourage land improvement as a contribution to development of sustainable agriculture based on the lessons learned from the research?

- *To what extent will well-defined land-use rights and effective implementation of these rights and obligations give incentives for adopting land conservation practices, and relieving constraints on land conservation?*
- *What changes should be made to the policy framework affecting land-use rights to enhance sustainable land management. In particular, what obligations might be imposed on land-use rights in particular areas to ensure good land management?*

1.4. Objectives of the study

The study aims to analyse the impact of land tenure regimes and agricultural policy on land management and assess the contribution of the security of land tenure to farmers' incentives to invest in long-term land improvement in order to develop an appropriate policy framework for sustainable land management.

Specifically, the objectives of this study are to:

- evaluate the security levels of the different land tenure systems in the different historical periods of North Vietnam
- analyse the impact of changes in the land-use rights regime from the Collectivisation to the Renovation stage on the attitudes and practices of farmers in land improvement investments.
- address the influence of the duration of the current land tenure system on the adoption of long-term land improvement.

- assess the advantages and shortcomings of the rights to transfer land-use rights and of the rights to use land as collateral. Hence, examine the impacts of those rights on land improvement investments.
- investigate the mechanism for protection of land-use rights and enforcement through assessment of the strengths and the limitations of the administrative system in implementing the land law.
- recommend an appropriate policy framework for land-use rights and agricultural land management regimes based on the lessons derived from the above research.

1.5. Research Methodology

1.5.1. Research sites

The study area is the northern part of Vietnam, which covers 25 provinces from Quang Binh province of the north-central-coast region to Cao Bang province of the northern highland region. The changes in land tenure systems from the French period to the present were similar in all of these provinces but there are differences in biophysical and cultural conditions between the provinces. Thus, within this region, four study sites were chosen as case study areas: Bai Yen village in Hoa Binh province, Lap Thach district of Vinh Phu Province, Phuc Tho district of Ha Tay Province, and Viet Hong district of Hai Duong province. These sites were selected because their features meet the necessary criteria of the research outlined below:

Different topography: Bai Yen is a highland area comprising forestlands and valley lands. Lap Thach is located in the uplands of the Midland area comprising mountains and rolling hillsides interspersed with flat valley lands. This district has poor soil fertility, although some forest remains at higher elevations; however many hilltops are barren rocky wastelands displaying deep erosional gullies. Phuc Tho and Viet Hong, in contrast, are located in a lowland area and are comprised mostly of plains, with old and young alluvial soils of moderate to good fertility; only a small proportion of the land area is saline or acid sulphate.

Different farming practices: In Bai Yen and Lap Thach, paddy rice is the main crop in the flat land valleys; other crops such as cassava, sweet potato, maize, tea and peanuts

have been cultivated on the hill-slopes, while shifting cultivation is the farming system in the upland and forestland areas. About a half of the forest area is cleared and the remainder consists primarily of eucalyptus and acacia plantations. In Phuc Tho and Viet Hong, paddy rice and other crops such as soybeans, maize and vegetables are cultivated in almost all areas of the district. However, the typical feature of the farming system in Viet Hong district is a range of fruit tree gardens such as lychee, jack fruit, longan, and oranges. Vegetable gardens are more common in Phuc Tho which is located very close to Ha Noi city.

Different cultures and land tenures: Before 1954, Bai Yen and Lap Thach were occupied by ethnic minorities who have a long settlement history with customary rights over the land. After 1954, the *Kinh* people were settled in those districts, and they brought their lowland production technology with their own knowledge and beliefs to the uplands. Nevertheless, Bai Yen retains the typical culture of its ethnic minorities. In contrast, Phuc Tho and Viet Hong districts, in a typical lowland area in the RRD, have been occupied only by the *Kinh* people who are by age-long tradition skilled paddy farmers.

These research sites are also different in some other respect such as information availability, local willingness to participate, and availability of people who know the area well.

1.5.2. Methods of collection and information collected

The information collected included primary data, secondary data and case studies at local, regional and national levels. Primary data was obtained from interviews, questionnaires, participant observation, experiments and surveys. Secondary data included census statistics and reports, government publications, institutional documents, books and journals, newspapers, and television and radio programs (Blaxter *et al.* 1996: 141-166).

The data collected was in a number of forms, including interview notes, responses to questionnaires, recordings, copies of documents, notes of readings, notes of observations, measurements of behaviour, charts, maps, tables and diagrams. Among these different kinds of data, two major categories can be recognised: the quantitative

(numbers) and the qualitative (words). These kinds of data have a tendency to merge into each other. Qualitative data may be quantified, and quantitative data qualified.

Qualitative data was obtained through interviews with farmers, administrators at local and regional levels, bank officers and scientists. Quantitative data was obtained by using household questionnaires, documents from government departments, such as the National Archives, National Library, the General Bureau of Statistics, General Department of Land Administration (GDLA), the Ministry of Agriculture and Rural Development (MARD), the Institute of Soil and Fertiliser, the Institute of Agricultural Planning, the Agricultural Bank of Vietnam, the Ministry of Science Technology and Environment (MoSTE), and a number of foreign-aid development projects and programs.

The data/information requirements under each objective and their sources and methods of collection are presented in Table 1.2.

Table 1.2: Information requirements, sources and methods used

| Objectives | Information requirement | Data sources | Collection methods |
|---|---|--------------------------|---|
| 1. Evaluate the security levels of the different land tenure systems in the different historical periods | General information on the North Vietnam: biophysical and socioeconomic characteristics | Secondary | Literature review |
| | General information on agricultural sector of the North: agricultural development and its contribution to Vietnam's economy, agricultural land management or land degradation in three historical periods | Secondary | Literature review |
| | Information on historical land tenure systems or institutional arrangements related to agricultural productivity in three periods. | Secondary Primary | Literature review Farm-household survey |
| 2. Analyse impacts of changes in land-use rights regime from Collectivisation to Renovation stage on the attitudes and practices of | General social economic and political changes of these period | Secondary | Literature review |
| | Institutional arrangements: land ownership; land-use rights regimes, the changes in land laws and its influence on farmers. | Primary and Secondary | Interviews and literature review Discussions with scientists |
| | Land management: soil fertility, water quality, the use of fertilisers; | Primary and Secondary | Literature review Farm-household survey |

| | | | |
|---|--|---|--|
| farmers in land conservation. | Farmers' preference and practices in land conservation. Additional information on agricultural production, farmers' incomes, labour and other socioeconomic information. | Secondary | Literature review Interviews |
| 3. Address the influence of duration of the current land tenure system on the adoption of land conservation | General information on economic and political conditions social of the period of Renovation Land registration system, process of land certificates issuance, land redistribution Preferences and practices of farmers on land improvement | Secondary and Primary Primary and secondary Primary | Literature review and interviews Farm-household survey Farmers and scientists interviews |
| 4. Assess the advantages and shortcomings of the rights to transfer and mortgage land-use rights on land conservation investment. | General information on land tenure system related to sell or rent agricultural land in the region Information on implementing the rights to transfer land-use rights and use it as collateral Preferences and practices of farmers on land conservation related to these rights | Secondary Primary Primary | Literature review Farm household survey Farm household survey Scientists interviews |
| 5. Investigate the mechanism for protection rights and enforcement through assessment of the strength and limitations of the administrative system in implementing the land law | Operation of the administrative system in implementing the land law; decision making process; enforcement mechanism in protecting land-use rights for farmers. Imposed obligations of protecting land rights and land conservation Farmers' attitudes on these obligations and the enforcement | Primary and Secondary | Farm-household survey Government official interviews |
| 5. Recommend and develop an appropriate policy framework for land-use rights regime and agricultural land management. | Summary of findings from the above studies of changes in land tenure arrangements, its impacts on farmers' land management. Perspective of the policy framework for security of land tenure and sustainable land use | Studies of above sections | Analyse and conclude from studies of above sections |

1.6. Scope and limitations of the study

The research focuses on the northern part of the country, which is characterised by its wide physical, socioeconomic and cultural diversity, particularly from highlands to midlands and to lowland areas. However, only some villages of the highlands, midlands and the RRD could be chosen for the case study and since field study is inevitably restricted, the collected information may be biased in terms of where the study sites are located. Hence, the outcomes of this study may not be fully applicable to all locations of the northern region, but the study's outcomes will at least contribute to the development of principles for sustainable agricultural land management for the whole region, and even for the whole of Viet Nam, through its contributions to general principles of security of land tenure and the other institutional arrangements.

The major focus of this study is on how to promote sustainable land management in agriculture through the analysis of the relationship between security of land tenure and land management obligations, and land conservation. Thus the issues of farming practices, land productivity, property rights, institutions, and policy making and their enforcement are explored deeply while other related issues such as the biophysical characteristics of land, the technical methods for land improvement, the costs and benefits of soil conservation, the use of other resources and other aspects were inevitably paid less attention. However, there has to be a comprehensive understanding of these biophysical issues in order to develop appropriate policies on obligations to be imposed on leaseholders.

The data set used in this proposed study will also have some biases. There was little available information about land productivity and land management during the French period, even in the more recent studies. Most of the documents about the northern part of Viet Nam in this period were published in French, which limited the author's use of data. However, documented information about land management in the two later periods (Collectivisation and Renovation) is more readily available and is published in Vietnamese. Therefore, the study emphasises the latter two periods.

1.7. Structures of the study

Following this introduction chapter there are nine other chapters in the thesis.

Chapter 2 critically reviews the literature relating to a conceptual framework for sustainable land use in agriculture. This theoretical framework includes a number of concepts related to the research questions. These concepts range from broad issues, such as sustainable development, sustainable agriculture and conservation strategies, to specific issues, such as land resources, land management, property rights, land tenure security, institutions and perceptions of farmers about land tenure and land management. Chapter 3 formulates an analytical framework for examining the hypotheses of the study. This analytical framework concentrates on why and how land rights and rules influence farmers' attitudes to land management and to what extent well-defined land-use rights and effective implementation of these rights and obligations can give incentives for adopting soil conservation practices and relieve constraints to land conservation.

Chapter 4 describes the methodology used in the study. This includes the survey conducted in four villages in northern Vietnam to collect data. Tabulation and content analysis are the main methods for analysing data collected from this survey. Chapters 5, 6, 7, 8 and 9 present the main analysis. Each chapter analyses the relationship between one aspect of land tenure regimes and land management. The structures of these chapters are similar. In the first part of each chapter the concepts or definitions of each term and the related issues in the different countries have been reviewed. Based on these reviews an analysis of the empirical data is carried out in the remaining parts of the chapter.

Chapter 5 assesses the security levels of land tenure in two different systems - Collectivisation and Renovation; and compares the impacts of each land tenure system on land management. Chapter 6 investigates the influence of land tenure duration and land distribution on soil conservation practices. Chapters 7 and 8 examine the contributions of the rights of land transferability and the rights to use land as collateral in increasing the security level of the current land tenure system and to give incentives for investing in soil conservation.

Chapter 9 critically analyses the operation of the administrative system and its regulations in respect of land tenure regimes. The effectiveness of self-enforcing mechanisms and the governance of state enforcement for protection of land-use rights,

and the compliance of farmers with any obligations that accompany their land rights are also assessed in this chapter. Finally, chapter 10 presents the implications of the research for increasing land tenure security and suggestions on how these should be implemented in the future in order to promote sustainable land management.

Chapter 2. Sustainable resource use and well-defined property rights: Theoretical perspectives

Since the overall theme of the research is concerned with agricultural land management in a sustainable development context, the analytical framework of the research must be based on a number of concepts related to the research questions. These concepts range from broad issues, such as sustainable development, and sustainable agricultural development and conservation strategies, to specific issues, such as the land resources, land management, property rights, land tenancy, obligations and institutions. Understanding the interrelationships between these concepts contributes significantly to answering the research questions. This section discusses these concepts in order to formulate a conceptual framework for sustainable land management in agriculture.

2.1. Sustainable agricultural development

2.1.1. Sustainability

The emergence of the sustainability concept is vital in the evolutionary process of development, as the depletion of natural resources and the decline in environmental quality have been increasing dramatically across the world. The idea of sustainability gained recognition in the early 1970s within the movement towards environmental conservation. In the development debate of the 1980s, the sustainability concept in relation to natural resources, including the environment, became an important part of the discussion. Various definitions of sustainable development were provided from various institutions and countries to suit their specific focus on the development problem. These definitions stemmed from a common question: how to conserve life-support systems while maintaining and enhancing human utility and social equity. The broad definition given by the Brundtland Commission Report in 1987 stressed the ultimate goal of sustainable development as integrating the production process with resource conservation and environmental enhancement, and

It is development that meets the needs of the present without compromising the ability of future generation to meet their own needs.

(WCED, 1987: 43)

Thus the essence of sustainability must be captured in both the temporal and the spatial dimensions so that 'before acting, we must consider the consequences of our actions for the next seven generations and the next seven watersheds' (D'Souza and Gebremedhin 1998: xiv). Therefore, 'No generation has a freehold on the earth. All we have is a life tenancy - with a full repairing lease' (Thatcher 1988 in Industry Commission 1998:1). Since humanity and life-support systems are interdependent, all economic activities which use natural resources should be undertaken within the carrying capacity of nature. The carrying capacity of an area can be understood as 'the maximum rate of resource consumption and waste discharge that can be sustained indefinitely without progressively impairing the functional integrity and productivity of relevant ecosystems' (Diesendorf and Hamilton 1997: 47). Thus, it is important to take into account that any decision on resource use must satisfy the limits of exploitation, and also consider the process people use to access resources, including the rights to access and use the resources to ensure intra- and inter-generational equity. This means that the health and productivity of resources, and the benefits from use of resources, are maintained and enhanced for all of the present generation (*intra-generation*) as well as future generations (*inter-generation*).

Sustainability is applied broadly, encompassing the biophysical context and socioeconomic aspects of resource exploitation. For instance, sustainability applies to harvesting of fisheries, forests, soils and groundwater only up to the point where the regenerative capacity of these renewable resources is maintained while the livelihood of local communities that rely on the resources is sustained. Figure 2.1-A shows the goal of ecologically sustainable development as that of attaining the level of sustainability that is determined through integrating the objectives of three systems: the Biological System (BS), the Economic System (ES), and the Social System (SS) (Barbier 1987: 103).

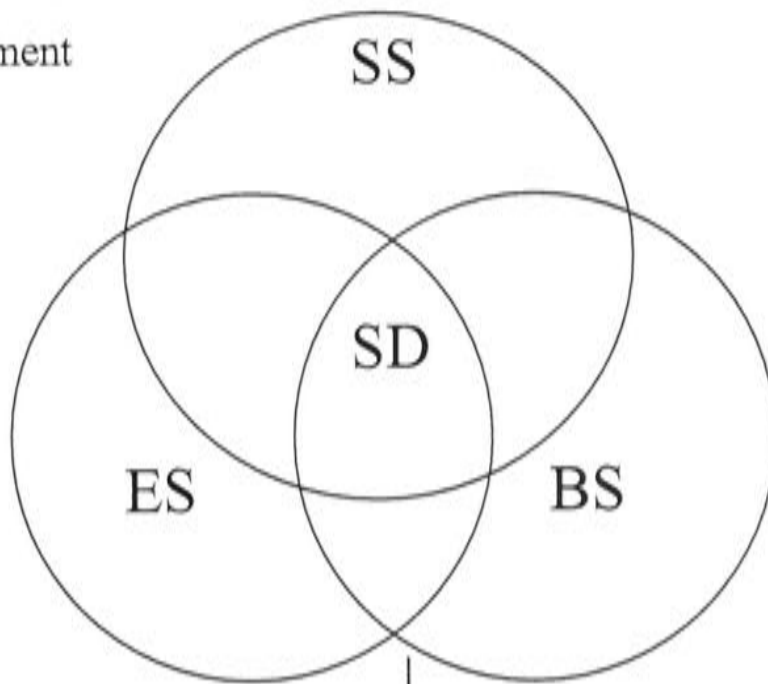
All economic activities impact on and depend on natural resources while the ecosystems are recognised as resource bases and a waste sink for economic activities (Diesendorf and Hamilton 1997: 47-51). Therefore, economic growth and improvement of environmental quality should not be in conflict, but rather be pursued together in the same direction, so that environmental resources support economic activities while good economic performance can reduce pressure on environmental resources. Also, there is a close link between social conditions and economic growth and environmental decay.

Sustaining social conditions such as empowerment, equity, accessibility and participation lead to sustained exploitation of natural resources, whereas wealth can have importance as an instrument for expanding human capability. The higher the average income of a country, the more likely its population will be healthy and able to enjoy a full and long life (Khan 1995:64). Conservation of biodiversity, minimisation of pollution and sustainable resource use can be seen as the essential conditions for poverty elimination, and hence for an equitable and stable society.

Nevertheless, not all three objectives of sustainable development can be achieved at the same time and at the same level. The framework within which to approach sustainable development is one of trade-offs between systems. For example, there is a trade-off between increased production and environmental degradation because environmental resources have to be exploited for production at any point. Similarly, exploitation of resources for economic growth can affect the culture or traditional beliefs of local people. Thus, it is important that the policies of development integrate biophysical, social and economic goals, and ensure that all characteristics of sustainability are taken into account.

Figure 2.1. Conceptual Framework of Sustainable Land Use in Agriculture

SD: sustainable Development
 SS: Social System
 ES: Economic System
 BS: Biophysical System

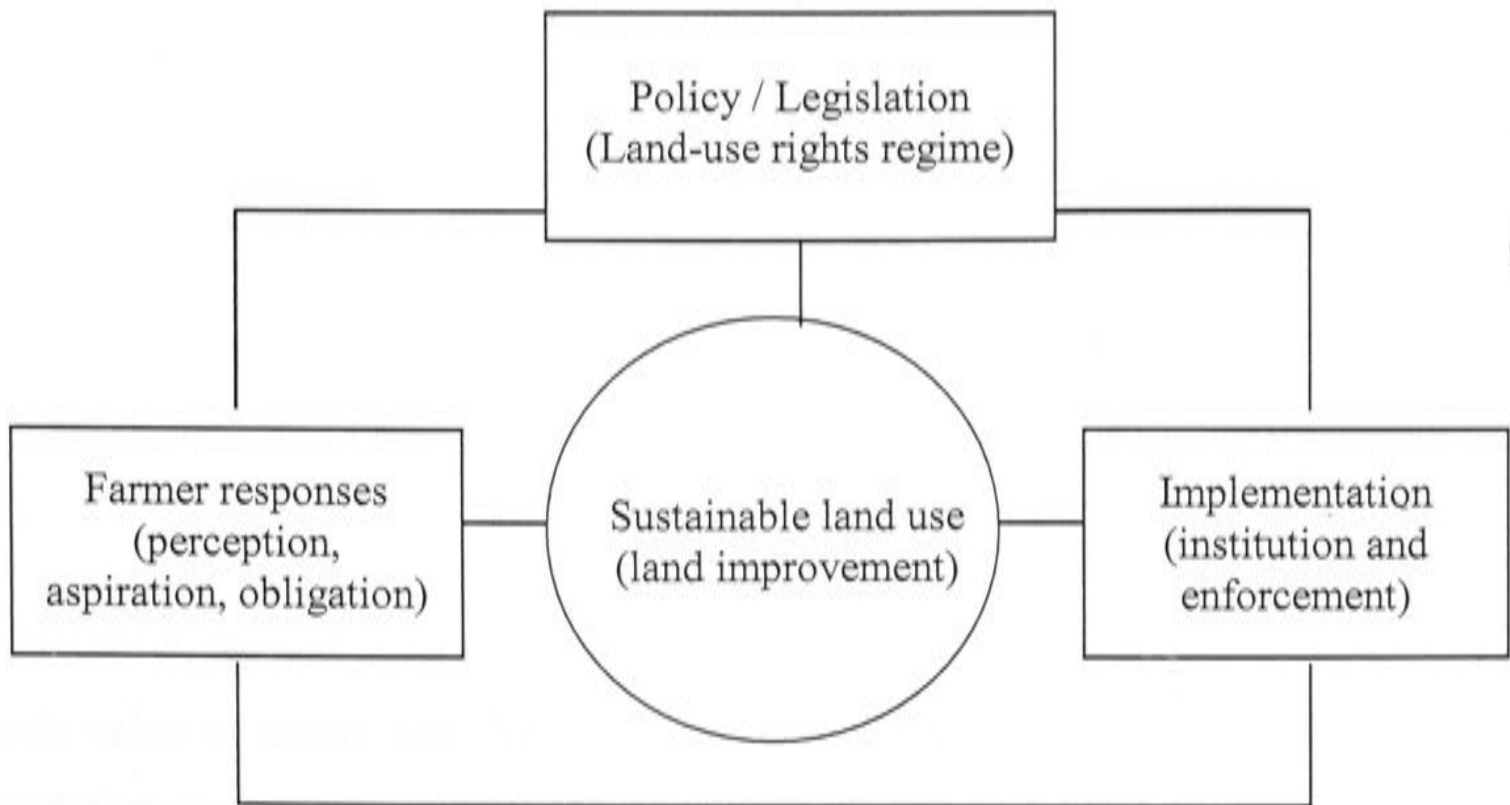


A

SA: Sustainability of Agriculture
 - Agricultural productivity
 - Conservation of natural resources
 - Livelihood security



B



C

Source: Adapted and modified from Barbier 1987.

In terms of implementation, the different approaches to sustainable development could be handled according to the emphasis on development in each nation. These approaches have been categorised by a number of writers (Barbier 1987:104; Pearce, Markandya and Barbier 1989:21; Dodds 1995:6; Diesendorf and Hamilton 1997: 83-97) into five schools: reconciliation, restraint, recognition, redistribution and revolution. Each approach reflects the way to sustain and improve the welfare of human beings based on the identification of a particular type of threat to sustainability. Each approach can also be viewed as parts of a hierarchy, where each builds on the previous approach. Only the last two approaches identify a need to change the relationships between humans and between humanity and the non-human world.

Reconciliation: bringing economy and environment together in consideration of sound environmental management and conservation of natural resources. The implication of this approach is to obtain as much output as possible from the natural resources, without undermining the resource base, i.e., sustainable yield.

Restraint: maintaining social and environmental capital, which are the asset base of society, to ensure the variability of the resource base for the generations to come, while accepting the desirability of reconciliation of economic and environmental policy.

Recognition: maintaining and improving social welfare through the distribution of goods and amenities in relation to wants and needs and people's satisfaction. This approach involves the recognition of local attitudes and priorities, as these differ across cultures and countries.

Redistribution: attacking poverty or the causes of poverty because it is one of the factors leading to environmental degradation. Rapid population growth with a given resource base leads to the over-consumption, and hence to poverty. Environmental management is more sustained when the self-sufficiency and security of the poor have increased.

Revolution: some forms of environmental revolution involve increased attention to the intrinsic value of nature and the natural process. The interpretation of this approach is that if the environment is treated solely as a commodity that exists for human benefit, it

leads to unsustainability. This approach to sustainability may seek the rejection of the predominant human-centred worldview and the adoption of an eco-centric ethic.

Using this broad concept of sustainable development, it is possible to devise a sustainable agricultural management framework. The specific objectives of this theoretical framework are discussed in the following section.

2.1.2. Sustainable Agriculture

In the 1970s, environmental degradation began to be regarded as a serious problem affecting economic growth and society. The natural resource base essential for agricultural production has been damaged in many parts of the world. Land degradation, deforestation, lowered water quality and rising ground water had had a serious impact on people whose lives depend totally on natural resources because they have no opportunity for alternative livelihoods. The development of the concept of sustainable agriculture appeared in conjunction with the broad concept of sustainable development in the early 1980s. These early concepts have evolved into a construct of agriculture based on principles of ecological interaction such as the concepts of regenerative agriculture and the articulation of sustainable agriculture practices such as organic, alternative, and low-input agriculture (Harwood 1990:3; Schaller 1998:156), although these methods have not been applied widely.

Mainstream definitions of agricultural sustainability recognise the links among agricultural production activities, the environment, communities, and society at large (Blum 1998). Some selected definitions are provided below to illustrate the major ideas of the sustainable agriculture concept:

Sustainable agriculture should involve the successful management of resources to satisfy changing human needs while maintaining or enhancing the quality of the environment and conserving natural resources.

(Technical Advisory Committee 1988 cited in ADB 1991:3)

Such sustainable development (in agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, and is environmentally non-degrading, technically appropriate, economically viable and socially acceptable.

(Food and Agriculture Organisation 1990 cited in ADB 1991:3)

Sustainable agriculture systems are those that are economically viable, and meet society's needs for safe and nutritious food, while conserving or enhancing Canada's natural resources and the quality of the environment for future generations.

(Agriculture Canada 1990 cited in ADB 1991:3)

Because the broad concern of this research is to achieve the goal of sustainable land-use management, the sustainability of agriculture is regarded as an essential framework for defining the appropriate approaches to this task. This framework, shown in Figure 2.1-B, has been based on a number of studies of the concept of sustainable agriculture. The crucial objective of agricultural sustainability is integrating its three goals: economic (increased agricultural production), social (security of livelihood) and environmental (conservation of the natural resource base). The indicators of each system are identified below:

Economic system (agricultural productivity): maintaining and raising adequate production; providing food of acceptable quality and diversity; and increasing productivity in a sustainable manner by developing more productive biotypes, maintaining crop diversity and practising rotations.

Environmental system (conservation of the natural resource base): use of natural resources in a manner that conserves and enhance the quality of the environment; minimising or avoiding adverse impacts on the natural resource base of agriculture; and maintaining and enhancing the productive capacity of land and related natural resources.

Social system (livelihood security): improving social equity by achieving greater equality of access to, and security, of the means of production, such as fertile land, credit, and agricultural information between communities, households, men and women, and individuals; eliminating poverty by encouraging labour-intensive technologies to facilitate employment of the landless in rural areas and developing alternative livelihoods for the poor; empowering local people in decision-making processes.

(Harwood 1990:13; Firebaugh F.M., 1990: 674; Roberts 1995:12; Garforth and Harford 1997:24; Diesendorf and Hamilton 1997:189; Schaller 1998: 167; Smith and McDonald 1998:22-26).

As in the framework for sustainable development, these systems depend on and interact with one another. Agricultural production can only be sustained on a long-term basis if the natural resources upon which it is based, such as soil, water and forests, are not degraded or destroyed by inappropriate farming practices or other impacts. On the other hand, increased agricultural productivity, and the wealth arising from this, has brought with it improvements in the quality of environmental resources. Security of livelihood of rural people has also been obtained only when agricultural productivity is sustained over the long term. As well, sustainable institutions can encourage farmers to conserve and invest in ecological productivity. However, there are trade-offs between the three objectives of agricultural development and the level of sustainability will be determined by the extent of the integration of the three systems (Barbier 1987:105).

It is important to be recognised that sustainability does not mean things never change, or that given practices or uses must be maintained. Certain types of land use may be replaced by new ones, while others are modified or abandoned (Zweifel 1998: 992). The basic challenge for sustainable agriculture is to make better use of available biophysical and human resources. This can be done by minimising the use of external inputs, by regenerating internal resources more effectively, or by combinations of both. Use of improved crop varieties, pest control measures, increased farming mechanisation and other technologies are alternative ways for sustaining agricultural land. Many productive and sustainable systems, needing few or no external inputs, have been developed in a number of countries. They stop erosion, produce food and wood, and can be cropped over long periods. For instance, the utilisation of the no-tillage system can improve the chemical, physical and biophysical properties of soils, altering the rates of land degradation and making sustainable agriculture possible (Pretty 1998).

Thus, the challenge in the decision-making process of agricultural development is to implement this framework successfully in terms of conservation and management of the natural resource base, particularly in agricultural land management. Conservation strategies have been established in many countries through environmental policies following on from and modifying the broad goal of the World Conservation Strategy published in 1980 by the IUCN.

2.2. Conservation of land resources

2.2.1. The World Conservation Strategy

Since the 1870s, as more people realised how quickly and dangerously the vital resource base of soil, water, forests, grazing land, and wildlife was being degraded and depleted, the beginnings of a conservation movement emerged. Two major schools of thought about resource conservation have developed. The preservationist school believes that remaining public lands such as forests and wetland areas should be left untouched so they can be enjoyed in their present form now and in the future. In contrast, the resource conservation school believes that all public lands should be used and managed efficiently and scientifically to provide needed resources to people. In other words, natural resources should be wisely used to enhance a nation's economic growth and to provide the greatest benefit to the greatest number of people (Miller 1996:37-41).

In 1980, the IUCN published its *World Conservation Strategy* (WCS). The aim of the WCS was 'to stimulate a more focused approach to the management of living resources and to provide policy guidance on how this can be carried out' (IUCN *et al.*1980:vi). The implied aim of the conservation of irreplaceable environmental resources is conservation of the capacity of ecological systems, which provide those resources (Perrings 1996:231). Thus conservation is positive, covering protection, maintenance, sustainable utilisation, restoration, and enhancement of the natural environment. From this comprehensive objective, the specific policies and plans of conservation for each natural resource have been guided and formed to suit the situation of each nation.

2.2.2. Land resources and their conservation values

Generally, an area of land may have a range of perceived values. For a long time, land was regarded as the source of potential riches through saleable products of the earth. In recent decades, there has been increased demand not only for raw materials from land, but also of its services and amenities (Roberts 1995:15). When the Chinese say that 'the soil is the mother of all things', they state simply the importance of agricultural land to the life of all living creatures because the quality of the soil has a profound effect on the health and productivity of a given ecosystem and the environments related to it:

Soil is a dynamic, living, natural body that plays key roles in terrestrial ecosystems...The quality of a soil is largely defined by soil function and represents a composite of its physical, chemical, and biological properties that (i) provide a medium for plant growth,

(ii) regulate and partition water flow in the environment, and (iii) serve as an environmental buffer in the formation, attenuation, and degradation of environmentally hazardous compounds

(Doran and Parkin 1994: 5).

Thus, land resources are valued as wealth-generating materials as well as important contributions to the quality of life of both current and future generations (Industry Commission 1998: 75).

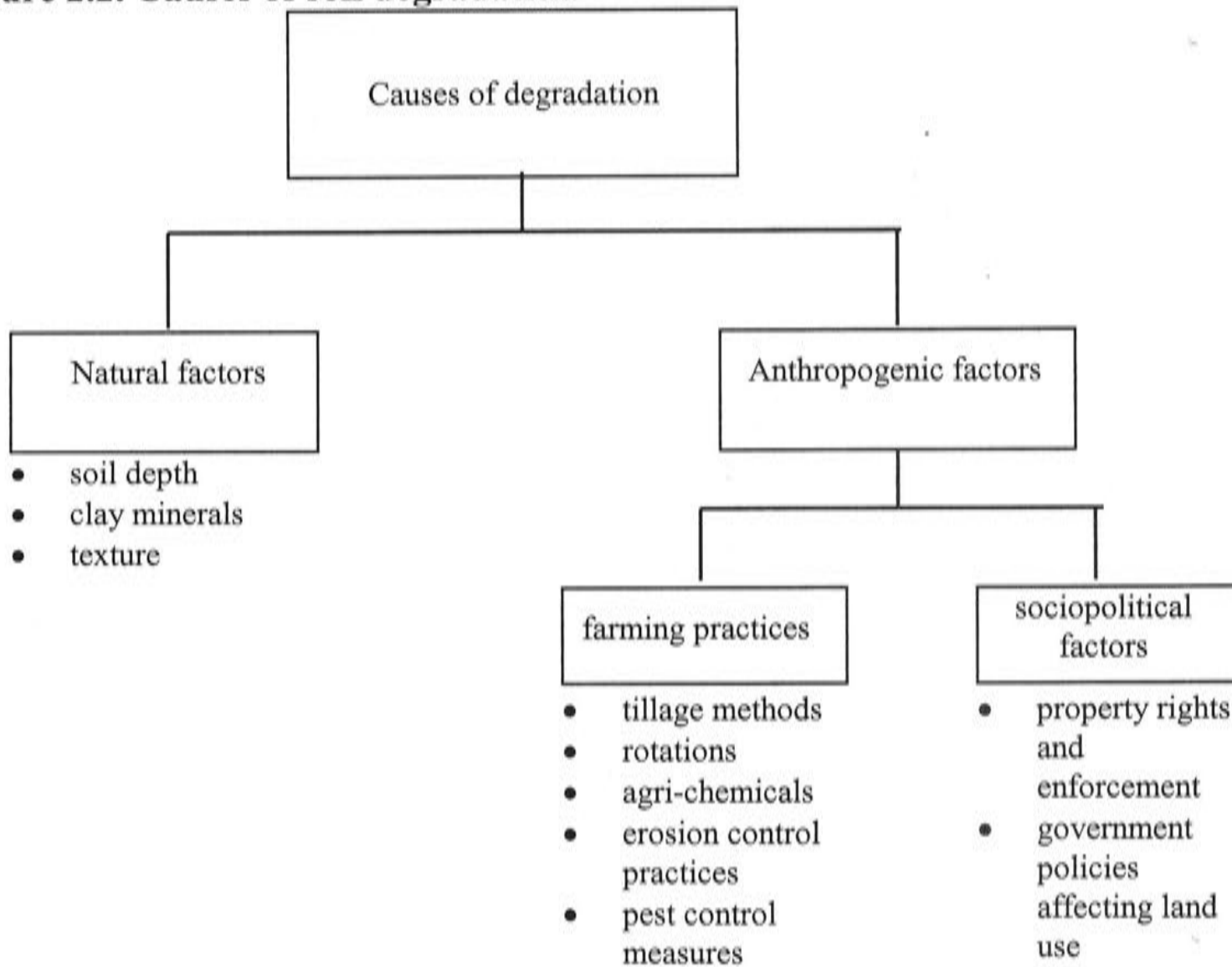
Land, water and forests are flow resources, which can be sustained, depleted or increased depending on management. One of the severe consequences of development is land degradation. This includes soil erosion, loss of organic matter content and natural fertility, plus the destruction of the soil's structure, acidification and soil salinity. Some land degradation is due to natural degrading processes, some is due to the impacts of human activities, and some to a combination of both types of causes (Barrow 1991:2; van Kooten 1993:216; Roberts 1995:2; Gretton and Salma 1996:29; Diesendorf and Hamilton 1997:178). A simple expression suggested by Blaikie and Brookfield (1987: 7) illustrates that land degradation as a result of both natural and human forces may restrict or may restore and improve the productive capacity of land. According to this formula, land degradation occurs when the results of land management accompanied by the natural reproductive processes do not exceed the results of the destructive activities of humans associated with the rate of natural degradation of land.

$$\text{Net degradation} = (\text{natural degradation} + \text{human interference}) - (\text{natural reproduction} + \text{restorative management})$$

(Blaikie and Brookfield 1987: 7)

Figure 2.2 summaries several natural and anthropogenic causes of land degradation. The natural factors responsible for land degradation include soil depth, clay minerals, texture of the soil which can be changed by climate, vegetation, parent material, terrain and hydrology.

Figure 2.2. Causes of soil degradation



Source: Adapted from Lal, R. and B.A. Stewart, 1992.

However, the rate of land degradation has been greatly accelerated by unsuitable methods of soil and crop management and by other anthropogenic causes such as use of agri-chemicals, deforestation, land tenure systems, legislation and other socio-political conditions which can be changed by population density, land use, the development of infrastructures, and the industrial complex (Lal and Stewart 1992: 3).

Land degradation results in two types of costs: on-site costs and external or off-site costs. On-site impacts include reduction of yields due to degraded soil structure, surface sealing and crusting, and desertification. Off-site impacts can include the eroded soil deposited in drainage canals, irrigation ditches or reservoirs, thereby reducing their capacity; erosion can also result in changes in the hydrology of catchment areas, which can increase flood frequency. In addition, a reduction in output, loss of irrigated lands, and increased salt loading on flows and aquifers result from increased water-logging and salinity in soils. Excessive application of chemical fertiliser, pesticides and herbicides has led to eutrophication in nearby surface waters, some accumulation of phosphates and heavy metals in soils, and growing pest resistance and reduction of natural predators of pests (Miller 1996: 525-527).

Another principal motive for restoring degraded lands or conserving lands is the increasing scarcity of prime agricultural land. The unprecedented population growth in developing countries, increasing on average by 2.0% per year between 1986 and 2000, had a substantial impact on arable land, but more from the need for increased yields. In the 15 years to 1986, forests shrank by 125 million hectares, while the farmed areas increased by 58.7 million hectares in developing countries (Rowley and Holmberg 1995: 116). Cropped land did not increase significantly. However, there are few reserves of potentially productive arable agricultural land resource in many areas of Asia, Africa and South America, especially those close to populated areas (Lal and Stewart 1992:6). Moreover, in these places, land resources are unevenly distributed and in many regions much of the land is inaccessible, such as too steep to farm, and the soils too shallow for settled agriculture. Tree clearing to bring land into agricultural production can have severe ecological, environmental and sociopolitical impacts.

Therefore, planning for land improvement or soil conservation is recognised as an important objective of agricultural sustainability. By preventing soil erosion, promoting high biological activity of soil fauna, improving soil organic matter content, and using effective nutrient recycling mechanisms, soil quality and its productive capacity can be restored and improved. However, it is likely that these measures will only be undertaken effectively if policies with respect to land-use rights and related legislation along with policies affecting farming practices accord with the socioeconomic aspirations of farmers.

2.3. Sustainable land use in agriculture

Sustainable and productive land management systems are essential if we are to continue to meet the material needs of the world's population (Cornforth 1999: 173). The ultimate aim of this research is to formulate an effective approach to sustainable land use; in particular, to give farmers appropriate incentives to invest in land improvement. As depicted in Figure 2.1-C, the approach to sustainable land use can be illustrated by the close linkages between three interdependent factors:

- agricultural land policies (the land-use rights regime and policies affecting farming practices)

- the implementation of these policies (institutions and enforcement)
- farmer responses (which depend on their aspirations, for perceptions of and obligations towards land improvement).

In this framework, effective and long-term land improvement is an important factor in sustainable land use. This goal can only be achieved where these three factors integrate with and support each other. The study explores the characteristics of each factor and its influence on the investment in and practices of land improvement. The interaction between each of these factors is also investigated.

2.3.1. Sustainable land use

Sustainable land management, including long-term land improvement, involves using, improving and restoring the productive capacity and life-support processes of land by minimising soil degradation and enhancing soil quality, thus leaving options for future generations. According to Smyth and Dumanski (1994: 374), the definition of sustainable land management used during the development of the framework for establishment sustainable land management is based on five objectives:

Sustainable land management combines technologies, policies and activities aimed at integrating socio-economic principles, with environmental concerns so as simultaneously to:

- maintain and enhance productivity;
- decrease risks to production;
- protect the potential of natural resources and prevent the degradation of soil and water quality;
- be economically viable;
- be socially acceptable.

(1994: 374)

In order to achieve this objective, sustainable land use must consider three interdependent factors: the impact of farmers on land (ecological sustainability of farm activities), the needs and aspirations of land users or farmers (economic sustainability), and the rights and obligations of land users to the land (sustainable social and political conditions). Socioeconomic factors, such as cultural conditions, market conditions, costs of labour, and costs of energy and other raw materials, are determined on a local,

regional or even global basis. Ecological factors are defined on a farm or local scale, regarding specific topographical, climatic, physical, chemical, biological and other conditions of terrestrial ecosystems, especially soils (Blum 1998: 181).

Table 2.1. Farm management practices which affect land and water quality

| Condition | Less sustainable | More sustainable |
|--|---|--|
| Soil | | |
| Soil nutrients and biological activity | Rotation without legumes; low fertiliser use; inadequate drainage | Improved rotations with legumes and weed control; balanced fertiliser use; adequate drainage |
| Soil structure | Frequent cultivation; bare fallow | Minimum tillage; stubble retention |
| Soil acidification | No lime; plants shallow-rooted; excess fertiliser use | Regular liming; use of gypsum and deep-rooted perennials |
| Soil erosion | Overgrazing; excess cultivation; poor property planning; soil exposure | Low stocking rates; minimum tillage; plant cover; stubble retention; contour banks; strip cropping |
| Water | | |
| Waterlogging | Heavy traffic; excessive cultivation; poor drainage | Strategic revegetation; use of gypsum and less cultivation; drainage plan |
| Surface water quality | Excessive irrigation; bare soil surfaces; high pesticide and fertiliser use | Efficient water use; retention of ground cover; low pesticides/toxins |

Source: Smith C.S. and McDonald G.T. (1998), after SCARM 1993.

At the farm level, management practices directly affect the productive capacity of agricultural land, and the use of more sustainable farming practices can supplement the attributes used in the measurement of farm land and water quality. For example, in Australia, the Standing Committee on Agriculture and Resource Management (SCARM) has defined attributes of land and water quality affecting on-site agricultural sustainability, as set out in Table 2.1. The table shows that if agricultural land is inappropriately farmed with respect to its suitability for that particular use, this can be considered as an indicator of unsustainability at the farm scale. For instance, with respect to the control of soil erosion, farming practices such as overgrazing, excess cultivation, poor property planning and soil exposure are unsustainable, while sustainable practices are low stocking rates, minimum tillage, plant cover, stubble retention, contour banks and strip cropping (Smith and McDonald 1998: 21).

An approach to preventing soil erosion is to estimate the potential soil loss using the Universal Soil Loss Equation (USLE). The USLE relates soil loss to rainfall erosivity,

R; the erodibility of soils, K; the slope and length of the land, SL; a crop factor, C; and conservation practices, P. Thus, the USLE is calculated as:

$$\text{Soil loss} = R \times K \times SL \times C \times P$$

(Young 1989: 40)

From this equation, it is clear that the factors relating to vegetation cover (C and P) can be significant in reducing or increasing soil erosion risks. For instance, the multistorey layers of trees can significantly reduce rates of erosion. The density of canopy, stem and surface roots can play an important role in erosion reduction by reducing the velocity of rainfall and improving soil structure and therefore the erosivity and surface runoff.

Many decades of research have consistently shown that the best means of restoring and improving soil quality and productivity is by appropriate and regular additions of organic materials, mainly through use of crop rotations, crop residues, animal manures, composts, nitrogen-fixing legumes, and reduced intensity of tillage.

2.3.2. Property rights

When population growth puts pressure on land and other natural resources, associated with the absence of technological and institutional innovations, the result is poverty and unsustainable use of natural resources (Otsuka and Place 2001: xix). Property rights are fundamental to the sustainable use of environmental resources. Property rights regimes play an important role in the interaction between human and natural systems and hence in making agriculture more sustainable. Thus, Hanna *et al.* (1995: 15) have argued that most environmental problems can be seen as problems of incomplete, inconsistent, or unenforced property rights regimes. Property rights regimes comprise **property rights**, the bundles of entitlements defining the owner's rights, privileges, duties and limitations for use of the resources, and **property rules**, the rules under which those rights and duties are exercised (Bromley 1991: 21; Hanna *et al.* 1995; Tietenberg 1996: 41). The natural and human systems will be linked in complementary or conflicting ways as determined by the way property rights regimes in a particular context are designed and used. According to Hanna (1996: 381), the functioning of property rights depends on three fundamental components:

- the principles of design on which they are based
- the mechanisms by which they link the human system to the natural system and
- the mechanisms by which they coordinate across jurisdictional boundaries.

Therefore, it is essential to understand that a property rights regime or a resource management regime establishes relationships between people because it is a structure of rights and duties characterising the relationships of individuals to one another with respect to that particular environmental resource (Bromley 1991: 22; Alcorn and Toledo 1998: 216). Property rights regimes are a subset of a society's institutions, the organisational constraints which structure incentives and shape human interactions (North 1990). There are, in general, four types of property rights regimes in terms of resources management, namely:

- private-property rights, where an individual or corporation or social group has a right to exclude others from using that resource;
- common-property rights, where a community, either through formal or informal mechanisms, controls the intensity, timing and nature of resource use;
- state-property, where, in order to prevent overuse and/or gain revenue, government restricts the way that people may use a resource; and
- Open-access or non-property resources where rights are undefined or poorly defined.

(Gibbs and Bromley 1989: 24; Young 1992: 94; Otsuka and Place 2001: 5)

Table 2.2. Types of Property Rights Regimes with Owners, Rights and Duties

| Regime Type | Owner | Owner Rights | Owner Duties |
|-------------------------------|------------|---|--|
| Private property | individual | socially acceptable uses control of access | avoidance of socially unacceptable uses |
| Common property | collective | exclusion of non- owners | maintenance, constrain rates of use |
| State property | citizens | determine rules | maintain social objectives |
| Open access (non-property) | none | capture | none |

Source: Hanna, 1996.

Property rights regimes differ by the nature of ownership, the rights and the duties of owners, the rules of use, and the locus of control. Table 2.2 presents characteristics of these four types of property rights regimes, which are ordered loosely along a spectrum of ownership (Berkes 1989; Bromley 1989; Feeny *et al.* 1990; Ostrom 1990; McCay and Acheson 1996; and Hanna 1996).

Private-property rights are considered as bestowing full and absolute control on the owner. The individual or group of owners can make management and investment decisions about the use of land and other related natural resources; and thus the benefits produced by the property; as well, the costs of maintaining and improving the property fall to the owner (Bromley 1991: 24; Bromley 1992: 12; and McCay and Acheson 1996: 312). Private-property-rights regimes give sanctioned ability to exclude people legally and socially. Thus, the State's enforcement of the owner's rights is necessary. According to Demsetz (1967) and Furobotn and Pejovich (1972), privatisation internalises individual responsibility for the environment and rational use of resources. Therefore private-property regimes seem to be attractive because they can provide incentives for individuals to develop resources (see Appendix 2.1).

However, it is argued that under certain circumstances these regimes can also lead to resource degradation, the continued existence of externalities and a decline in social utilities. As Bromley argued, 'The very strength of private-property regimes in land and related natural resources is also, it turns out, its greatest weakness' (1991: 25). For instance, (Runge 1992: 18) points out that in the developing world, under such regimes there has been an overuse of resources, and in many cases may have contributed to even more rapid degradation of resources and to increased inequality in already unequal distribution of wealth. Furthermore, farmers may not be able to protect their own properties if it is costly to exclude other users (Gardner *et al.* 1990; Ostrom 1990; Otsuka and Place 2001).

Nevertheless, one has to raise questions about the circumstances that would lead property owners to allow their asset (land) to deteriorate or be depleted. For example, soil erosion, a negative externalities, may arise under the private system when forestlands are opened up and newly brought into cultivation. Is this outcome a matter of poor definition of the property right or poor enforcement of the property right, or has it

to do with the policies affecting farming practices that are in place (output and input price policies, or taxation), or is it what seems to be irrationality in the part of the land owner?

In common-property regimes, the group of co-owners or the commune own the property with the rights to exclude non-owners from its use and decision making about its use; and with the duty to maintain the property through constraints placed on use (Berkes 1989; Ostrom 1990; Bromley 1991, 1992; Feder and Feeny 1993; Hanna *et al.* 1995; McCay and Acheson 1996; and Otsuka and Place 2001). These ownership groups include tribal groups, villages, and neighbourhoods holding customary ownership of certain natural resources. Common-property regimes present the claims of a community to free and equal access to resources that could otherwise become the property of only a privileged few.

However, two problems may arise in common-property regimes. The first is that a breakdown may occur in compliance by co-owners under the pressure of increased population, leading to overuse of the resource, which is the beginning of Hardin's argument in 1968 about 'the tragedy of the commons'. Secondly, if the interests of the community dependent upon common-property resources are disregarded by the state, then externalities to common property will not receive the same responses from the government as would external threats to private property (Bromley 1991: 28; Durrenberger and Palsson 1996: 370). Therefore, common-property regimes can be vital when the collective benefit is high, especially when there is a need for avoiding resource depletion.

In a state-property regime, ownership and control over resource use belong to the state, which is the political unit of citizens who assign rule-making authority to a government agency. Such an agency has the responsibility to ensure observance of the rules under which citizens may be able to make use of the resources, and thereby promote social objectives (Bromley 1991: 23; Feder, G. and Feeny D. 1991: 137; Hanna *et al.* 1995: 18). State-property regimes are thus potentially able to address the high risk of open-access regimes by internalising all externalities to a single owner. Problems with both efficiency and sustainability can arise in state-property regimes when the incentives of bureaucrats who implement and/or make the rules for resource use diverge from the

collective interests (Tietenberg 1996: 49). Therefore, in order to be effective, the state must be able to monitor the use of resources, establish acceptable rules of use by individuals and communities, and enforce those rules.

Open-access is property open to all and has no assignment of ownership. A property right is a secure claim on a future benefit stream; therefore, in an open-access situation, there is no property right, but only the opportunity to use the resource (Bromley 1992: 11). If private property rights are not viewed as being legitimate or are not enforced adequately, *de jure* private property becomes *de facto* open access (Feder and Feeny 1991: 137). Under a regime of open-access, where owners have no specified duty to maintain the resource, it is likely to be over-exploited (Berkes 1989; Bromley 1989, 1991, 1992; Ostrom 1992; McCay and Acheson 1996; and Hanna *et al.* 1995). Obviously, open-access regimes contain a high risk of resource degradation.

Hardin's 'tragedy' often results from institutional failure to control access to the resources, and to make and enforce internal decisions for collective use. However, there is often confusion in distinguishing between common-property and open-access which Hardin identified as when 'freedom in the commons brings ruin to all' (1968: 1244). According to him, in common property rights regime, no one owns the property, it is an open-access resource which everyone can exploit as much as they want. Many scholars have argued that Hardin's generalisation about the commons was inappropriate (Folke and Berkes 1995: 122).

McCay and Acheson (1996: 7) also pointed out that many of those promoting 'the tragedy of the commons' model have failed to recognise that common-property is always of the open-access variety; the users are selfish, unrestricted by the social norms of the community; and the users are trying to maximise short-term gains; so the resource is being used so intensively that depletion is possible due to over-exploitation. In fact, a community, which owns a resource, restricts use to community members. The community is likely to care about future as well as present benefits from the property, and thus will set limits on resource use to avoid exceeding the rate of regenerating of the resource.

In order to formulate an appropriate policy of rights and rules, it is crucial to distinguish the reasons leading to problems between open-access resources and common-property resources (Young 1992: 95). Many studies have questioned Hardin's assumption that open-access and common-property are identical in terms of ownership and management. As Young (1992: 97) showed in his study of the tragedy of 'the tragedy of the commons':

The simplistic recommendation, which follows from this belief, is that, as far as possible, all common-property and open-access resources should be converted into privately owned and managed resources. The recommendation is wrong because it assumes open-access and common-property resources are identical and fails to recognise that people do not make independent decisions in isolation from the community that they live in.

(Young 1992:95)

Unrestricted entry is the main reason for the problems of open access, whereas tensions in the structure of joint use rights adopted by a particular group determine the problems arising in the case of common property. These tensions may arise from population pressure, changes in political forces, technology and climate (Runge 1992: 19). Otsuka and Place (2001: 12) stated that common property right can be open access, if the community or a group of users do not manage it or if the resources are truly non-excludable. More often, the community structures are destroyed because of government interventions. For example, in many developing countries, when government nationalised communal forests, the community members felt less obliged to comply with state laws as management rights were shifted from the community to the state, and an encroachment problem resulted. However, many societies impose well-conceived rules for regulating common property resources. Such regimes depend on political stability and robust institutions.

In reality, property rights cannot be clearly categorised as two opposing types, and no single type of property rights can be regarded as an effective way to avoid problems of resource overuse and degradation. Both effective and ineffective control can exist under a variety of arrangements. Effective property rights regimes are well specified, context-specific, and enforceable (Hanna *et al.* 1995: 19). According to Young (1992: 105) and Tietenberg (1996: 41), for sustainable resource use, a well-defined property rights should have a number of characteristics such as universality, exclusivity, transferability and enforceability. They argue that entitlements and obligations should be as fully

specified as possible and arranged to promote sustainable investment in resource use. They suggested that these arrangements depend on the following necessary conditions:

- **Universality** - all resources are privately owned, and all entitlements are completely specified
- **Exclusivity** - the resource rights are allocated exclusively, so that stakeholders have a secure right to prevent others from utilising 'their' resource in any way that diminishes its value to them
- **Enforceability** - property rights should be secure from involuntary seizure or encroachment by others; the political system is expected to uphold the rights/obligations
- **Transferability** - all property rights should be transferable from one owner to another in a voluntary exchange
- **Collateral security** - each resource right can be used as security to finance any investment associated with the use of that resource
- **Compensation** - any modification of the rights/obligations package which diminishes the value of the resource and investments upon it is compensated, and
- **Sustainability guarantee** - Investors perceive that providing they continue to use the resource sustainably, their heirs, assigns and successors will be entitled to use that resource in perpetuity

(Young 1992: 105; Tietenberg 1996: 41)

These authors also comment that under these conditions, an owner of a resource has a powerful incentive to use that resource efficiently because a decline in the value of that resource represents a personal loss. However, Tietenberg also argued that private property regimes are not the only possible way of defining entitlements to resource use. The other possibilities including state-property regimes and common-property regimes can create rather different incentives for resource use. In particular, common-property

regimes perform to varying degrees of efficiency and sustainability, depending on the rules which are formed from collective decision making (1996: 43).

In term of resource management, the structure of property rights regimes, which reflect the attributes of both the natural and human systems, is the basis for sustainable use. The natural system includes plants, animals and their biophysical environments. The human system comprises constructions of economics, culture, and technology. Property rights regimes play an important role in the interaction between human and natural systems. As the study of Hanna and Munasinghe (1995) shows, 'people interact with their environment through property rights regimes embedded in social, political cultural, and economic context. The nature of that interaction affects both the quality and quantity of environmental resources'.

The attributes of human and natural systems that reflect in the property right regimes will not always be well balanced. In some cases, the property rights regime has been weighted toward modification of the human system, while in others the property rights regime has been weighted toward modification of the natural system. When the property rights regime is weighted toward modification of one system, there is an absence of feedbacks of interaction between the two systems. The resulting pattern of resource use will lead to the short-term maintenance of the human system, and a long-term contribution to neither. Thus, in order to maintain the human and natural systems on a long-term basis, the property rights regime should coordinate both these systems in a complementary way and contain feedbacks through which they interact (Hanna 1996: 386).

Without well-defined rights to resource benefits, ownership of benefits is realised only upon capture, creating the incentive to exploit the resource as much as possible and as soon as possible, leading to the depletion of the resource. In this situation, the future claims to resource benefits are unsecured, leading to irrational use of the resource. Thus property rights regimes are necessary conditions and regarded as policy instruments in sustainable resource management (Bromley 1991: 35; Hanna 1996: 385). However, property rights regimes are not a sufficient condition to prevent overuse of resources, even where a private property rights regime is established. For example, under pressure

of rapid population growth, or under political uncertainty or inappropriate policies, a forest can be cleared for agricultural purposes to gain short-term benefits.

To be effective, property rights must be enforced through the sets of formal rules, which should be provided by the government and/or other organisations (Acheson 1994: 9). All types of property rights regimes perform differentially in the reducing the costs of open-access. Their performances depend on the attributes of the resources, the local community, and the specific rules used (Ostrom 1993: 2). Entitlements or rights are protected under three different structures of property rules: the property rule, the liability rule, and the inalienability rule (Bromley 1991: 43). Property rules structure individual and collective choices with respect to the resources. In other words, various types of rules can serve to limit user behaviour in the interest of society (Oakerson 1992: 46, McCay and Acheson 1996: 23). Ostrom(1985, 6) has defined these rules as prescriptions commonly known and used by a set of participants to order repetitive, interdependent relationships. Prescriptions refer to actions that are required, prohibited or permitted (Rehfus and Gladwin 1994: 109).

Many studies have shown that in using common resources, more often than not, rules exist regarding access and joint use in rural communities (Berkes 1989; Bromley 1992; McCay and Acheson 1996; Berkes and Folke 1998). Nevertheless the most important in designing principles of property rights regimes is the definition of the various interests of individuals or groups of owners in the resource. Hence, the specification of property rules can be formed to ensure that such rights and responsibilities are as congruent as possible; and to ensure that the incentive structure of rules reflects the long-term sustainability goals for the ecological system (Young 1992; Hanna *et al.* 1995: 20).

To be effective, property rights and rules must be enforced by the state or some other governance institutions.

2.3.3. Security of land-use rights

Land rights are perceived in terms of control: control over access, allocation, and transferability of land. Rights to use land may carry with them particular duties, responsibilities and obligations. These rights may be vested to the household unit or the village. Thus control can be exercised by these groups with the participation of all its

members. But in other communities, control may be in the hands of elected leaders, and often they are eventually controlled by the state. In all countries of the South-East Asian region, governments exercise some control over the ways people use their land. However, in practice, the extent of the control and the way they are implemented vary between countries (Cleary and Eaton 1996: 2).

Security of land rights has been defined and measured in various ways. The following definition of Place *et al.* (1994) comprises several key concepts.

Land tenure security exists when an individual perceives that he or she has rights to a piece of land on a continuous basis, free from imposition or interference from outside sources, as well as the ability to reap the benefits of labour and capital invested in the land, whether in use or upon transfer to another holder.

There are three important criteria used for the measurement of land tenure security: the quality and quantity of the land rights held (breadth) that may include the rights to possess land, to grow and harvest crops, to graze cattle, harvest wildlife, gather firewood, and extract mineral resources, to build structures on land, to pass on to heirs, to sell or lease land to others, and to pledge land rights as security for credit; the length of time for which these rights are valid (duration); and the certainty of the breadth and duration of the rights that are held (assurance). A land 'right' which cannot be exerted or enforced is not a right at all (Prosterman *et al.* 1998: 5).

Secure land rights are an essential component of economic development, and rural development in particular. They provide the conditions necessary for land owners and land users to invest in agricultural and land productivity in the long term without fear of losing the land or the benefits reaped from the investment.

2.3.4. Institutions

Institutional issues relevant to the research question addressed here include property rights and also institutionally-related organisations. Institutions thus comprise rules or procedures (codes of law or custom) that shape how people act, and roles or organisations (specific organisations) that have attained special status or legitimacy. In land-use rights regimes, a rule-oriented institution is a system of land tenure, whereas a role-oriented institution could be the legal authority established to adjudicate disputes arising out of that land tenure system (Brinkerhoff and Goldsmith 1992: 371).

There are several ways of defining institutions. Institutions are organisations or groups with sets of rules that govern expected behaviour, sanctions for breaking the rules and rewards for behaving in the prescribed manner (FAO 1992). Institutions which embed property rights are defined as having a 'set of rules actually used (the working rules or rules in use) by a set of individuals to organise repetitive activities that produce outcomes affecting those individuals and potentially affecting others' (Ostrom 1992 cited in Berkes and Folke 1998: 5).

Good performance of natural resource systems is closely linked to robust resource management institutions, whether governmental or local, or even non-governmental organisations. The common questions facing institutions are: how to control access to the resources (the exclusion problem) and how to institute rules among users to solve the potential divergence of rational use of resources between individuals in a community (the problem of sub-tractability in joint use). Thus the issues that pertain to institutions in dealing with natural resources include rule-making, as well as enforcement, dispute management, and the formulation of social norms (Berkes and Folke 1998: 5).

The resource users are dependent on the enforcement and protection of rights by levels of governmental management ranging from local, to regional to central government. According to Young (1992: 160), the most effective way of enforcing regulations is to make resource rights conditional upon compliance with regulations because the whole systems of management becomes more self-enforcing and less costly to administer. Then, the resource users have an incentive to protect their rights by demonstrating that they have complied with existing regulations. Also, it is essential to recognise that producing a good fit between an organisation's internal capacity and its external situation is the task of institutional strategic management (Brinkerhoff and Goldsmith 1992: 375).

Ostrom pointed out that the design principles used by robust institutions are significant in reducing externalities involved in the use of natural resources. Robust institutions tend to be characterised by most of the design principles listed in Appendix 2.2. The principles are illustrated by long-enduring common property resource institutions including: clearly defined boundaries between individuals; congruence between appropriation and provision rules and local conditions; collective choice arrangements

that facilitate participation of individuals in modifying operational rules; monitoring of common property resource conditions and appropriator behaviours; graduated sanctions that can be applied to appropriators who violate operational rules; conflict resolution mechanisms for resolving conflict among appropriators or between them and officials; minimal recognition of rights to organise for reducing the challenges between appropriators and the governmental authorities in devising institutions; and nested enterprises with multiple layers for organising appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities (Ostrom 1993: 2).

Nevertheless, long-term land improvement will only be undertaken effectively if the land tenure system and institutions are appropriate to farmers' aspirations, their perception and obligations with respect to land conservation

2.3.5. Farmers' responses

The mix of resource characteristics and institutions involved in land-use situations gives rise to a wide range of behavioural responses from farmers. Their responses are based on economic and political conditions, the environmental incentives inherent in the resource and the institutions that govern resource use. Farmers' attitudes toward land improvement should reflect not only private concerns, but as much as possible their public concerns about resource use, and consequently, may affect their perceptions of erosion problems and their conservation activities.

Land-use rights have an impact on how a farmer treats the land. If land-use rights and rules reflect their aspirations as regards, for example, land title, access to credit, and equality of land distribution, farmers have strong incentives to invest in sustainable land use. As Lutz and Young pointed out:

It has been hypothesised that the greater the degree of tenure security, the more a cultivator is motivated to make investments and adopt production techniques that are beneficial to the long-term productivity of the land.

(1992: 249)

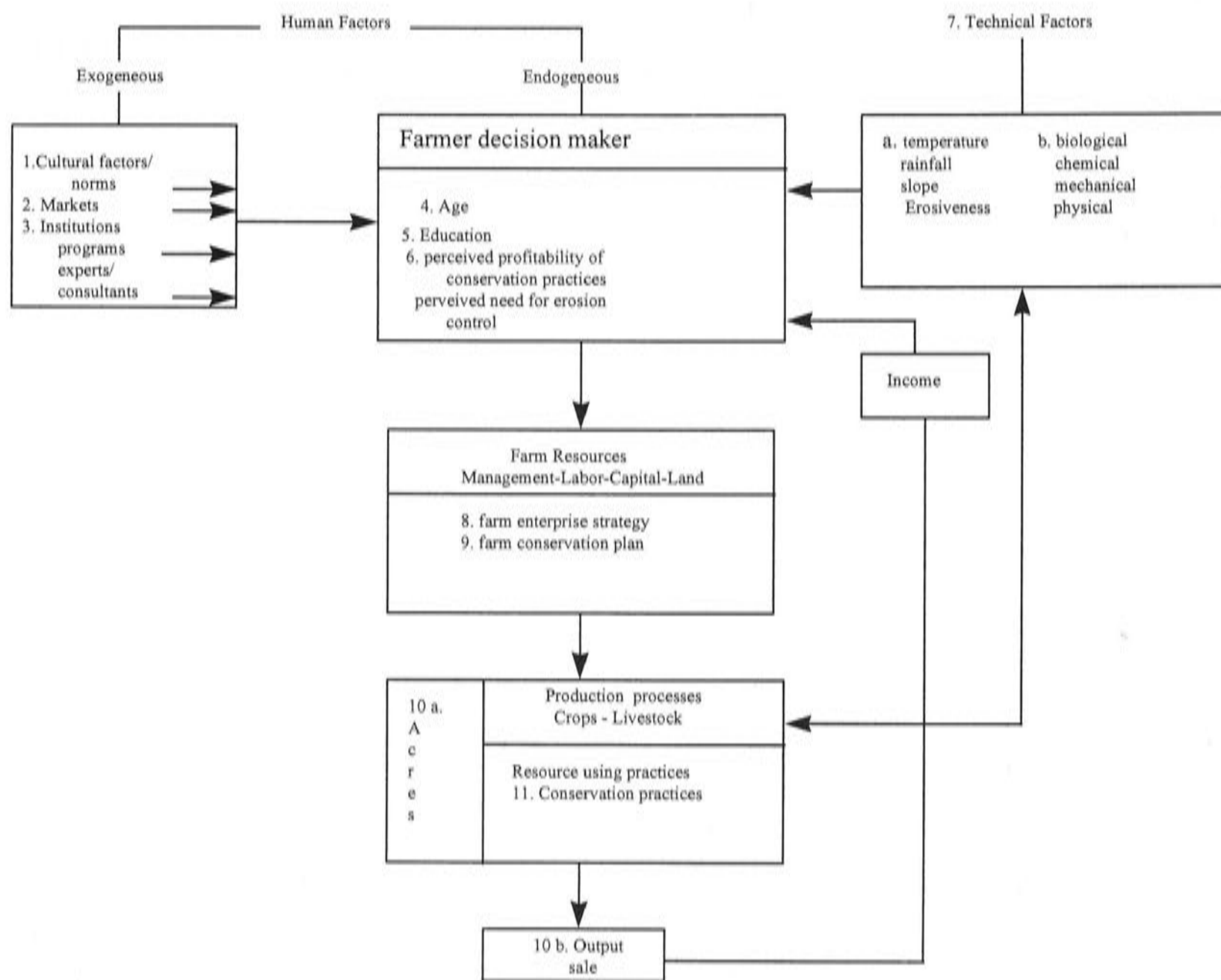
Participation of farmers in the decision-making process with respect to agricultural and property rights policies is necessary to give farmers incentives to become involved in

and to contribute usefully to sustainable land use, because farmers have considerable knowledge about their own farm, they know the local history and local conditions, and they use that information in their decision-making and management (Vanclay 1997: 13). Any resource user will have a certain amount of local environmental knowledge that will allow him/her to carry out a particular activity (Berkes and Folke 1998: 17). Getting local farmers involved in this decision-making process can help them to understand better the potential benefits and risks of changes in norms and rules that they could adopt. Local organisation facilitates the regimes that will provide accurate information about natural resource systems, and mechanisms to back up local monitoring and sanctioning efforts. Therefore, high transaction and deprivation costs can be avoided.

In sum, the attitudes or perceptions of farmers reflected in their land conservation activities are determined by two sets of factors: the technical factors of temperature, rainfall, slope, erosiveness of land and other biophysical conditions on the one hand, and the institutional factors and other influences on the other hand such as cultural and educational factors, and market conditions (see Figure 2.3). Moreover, of these factors, institutional factors including property rights regimes are expected to affect directly the farmer's conservation practice behaviour (Coughenour and Chamala 1989: 39).

The interaction and dependence between three components (Policy-Implementation-Response) in the conceptual framework of sustainable land use in agriculture (Figure 2.1) is presented in the next chapters which analyse the causative relationship between land tenure regimes and land management in Vietnam. An analytical framework is established in order to determine the objectives and directions for those analyses (see chapter 3) as well as the data necessary for testing the hypotheses in the study sites (see chapter 4).

Figure 2.3. Model of conservation practice behaviour



Source: Coughenour and Chamala, 1989.

Chapter 3. Land tenure arrangements and sustainable land management: An analytical framework

The impacts of land tenure arrangements on farmers' behaviour tend to be assumed rather than rigorously examined. In particular, the questions of how significant their influence is, what aspects of land tenure affect farmers behaviour, and how these arrangements affect farmers' attitudes and practices towards land conservation must be carefully investigated. This chapter proposes a framework to examine the relationship between land tenure arrangements and land management, particularly the role of land tenure security in sustainable land management.

The hypothesis of this study is that farmers' insecurity over their property rights to land gives rise to a lack of concern for long-term soil fertility. In other words, the more secure the land tenure is, the more farmers have incentives for investment in soil conservation. The discussion focuses on types of ownership, usage rights, and rules and responsibilities with respect to land. The analytical framework concentrates on the impact of land rights and rules on farmers' attitudes to land management, and to what extent well-defined land-use rights and effective implementation of these rights and obligations can give incentives for adopting land conservation practices and relieve any constraints to land conservation.

The significance of impacts of land tenure systems on land management attitudes and practices likely varies according to socio-economic and political conditions. These determine the attributes of land tenure systems such as access to land, land ownership types, access to capital, institutional organisation and enforcement mechanisms. Thus this chapter begins with an examination of the impacts of land legislation on land management. This is followed by a discussion of the implementation of land rights. Finally, the discussion leads to the determination of the data necessary to test the hypotheses advanced.

3.1. Land legislation and land management

It has been hypothesised that the greater the degree of tenure security, the more a farmer is motivated to make investments and adopt production techniques that are beneficial to

long-term productivity (Lutz and Young 1992: 249). However, analysis of the links between land tenure systems and farming systems should specify the effects of a number of characteristics of land tenure arrangement on farming practices, such as access to land, access to capital, the rights to transfer land and enforcement mechanisms.

3.1.1. Access to land

In an historical context

The linkages between the security of access to land and land management could be examined in an historical context, covering for example, the land tenure system under colonialism, the land tenure system (collectivisation) in the communist countries, and the outcome of land reforms (long-term individual leasehold and freehold) in many countries. The rights of access to land of the different land tenure systems in these different situations could have different effects on farming methods and, in particular, on land improvement investments.

Systems of customary tenure have existed for many centuries, reflecting a great diversity in degree of communal and individual control over use rights. In customary tenure, rights of access to and use of land are rarely documented and there are rarely registered certificates of title. The boundaries of land between communities or between individual households of a community are usually not mapped but are formed by natural features such as rivers, hills, large stones, and trees (Sandin 1980: 14). In this system of land tenure, primary forests and uncultivated woodlands are owned communally and controlled by an authority such as a village chief, whereas exclusive rights of cultivated land are assigned to individual households of the community, and its ownership rights are held traditionally by the extended family (Ward and Kingdon 1995: 28; Otsuka and Place 2001).

This communal ownership regime is different to a common property rights regime which is defined by the joint use of resources, and where the property-owning groups are social units with definite membership and boundaries, with certain common interests, some common cultural norms, and often with their own endogenous authority systems (Bromley 1991: 26). However, this difference between customary tenure and

common property regimes is not recognised in the opinions of some scholars such as Johnson (1972), Feder and Noronha (1987), and Feder and Feeny (1993).

It has been argued that farming practices under customary tenure are often sustainable and land held under such tenure has not been seriously degraded, as long as the rate of land exploitation for production does not exceed the natural regeneration rate of land resources. The customary system is one in which, at least for members of the landowning group, land is available as a source of production, and landlessness was prevented. The existence of communal controls over the transfer of land minimises the risk of its alienation and loss to outsiders. (Cleary and Eaton 1996: 48).

Numerous scholars (Gibbs and Bromley 1989; Bromley 1991; Feeny, Berkes and McCay 1990; Young 1992; Ostrom 1990, 1992, 1993; Hanna, Folke and Maler 1995; Hanna 1996; Tietenberg 1996; Berkes and Folke 1998; Alcorn and Toledo 1998) have argued that when the land-use rights are allocated exclusively, the owner or group of owners will have a secure right to prevent others from using the land in any way that degrades its value to them. All members of a community have rights of access to the land, to reside within it and to exploit the products of the occupied area. The use rights on portions of the land can be allocated to various individuals or families by the group's leaders, or land controllers, or as the result of discussion by the community. In that case, usually no other person has the right to use it or to benefit from its produce.

Shifting cultivation, the farming system which is often associated with customary land tenure, features the rotation of fields by short periods of cropping (one to three years) alternating with generally longer periods of fallow and characterised by clearing by slash and burn practices. This form of use allows the land to recover its natural fertility by being left fallow for a long period. However, this system implies large land-to-people ratios. As long as there is no pressure from any change in social, demographic, political, economic and environmental conditions, the cultivators of the community can keep the fallow period long enough to recover the natural fertility of the land. Under population pressure, for example, agricultural land held by the group will become scarce, and the land will have to be managed on a shorter and shorter fallow, with potential for serious degradation of land productivity.

The greater intensification of agricultural production that frequently follows population increase (Boserup 1965) may lead to disputes over use rights to land resources held under customary title, and hence to risk of open-access to community-owned land and to depletion of the land. Because individuals in the community have no assignment of ownership, the structure of joint use rights within the community is broken, and the decline of traditional authority systems is likely to affect attitudes to ownership and dealings in land. Individual households will tend to exploit the limited land resources intensively in order to maximise their own benefits. Thus, higher population densities often require a more exact definition of boundaries and land use rights in order to avoid the over-exploitation of land resources, leading to individual forms of land tenure.

Most previous analyses have focused mainly on the relationships between land tenure and land productivity through the constraints of customary land tenure on land improvement/protection investment. According to those analyses, because the rights to land in this tenure system are based on birth and subsistence needs, this tenure arrangement gives little incentive to increase land productivity (Cleary and Eaton 1996: 48). When land-use rights are inherited only through membership of a kinship or lineage group, and land is not perceived as a freely marketed good, land users have no incentive to increase the value of the resources because of the "free rider" problem. Free riders are the other members of the group who may take advantage of any land improvement investment without paying for its use (Chand and Duncan 1997: 34). Thus there is no traditional management-ensured rights of access to land. While the traditional forms of management would control access to land held under customary land tenure, the tenure system does not encourage investment to raise land productivity. Demands for increase productivity due to population pressure, to the need for increased incomes, or to opportunities offered by new technology, for example could lead to tension within the community over the tenure system.

In many countries, land management has been affected significantly by colonialism, under which large numbers of peasants had no rights of access to land and there was unequal distribution of land among farmers. In the colonial period, people in a customary tenure situation were vulnerable to losing their land rights. The colonial administrations often intervened in customary tenure arrangements to ensure secure individual land title only for external investors and large landowners, people who form

only a small portion of the country's population. This system pushed many rural smallholders into work as agricultural labourers and many landless peasants into work as tenants or squatters under the rules of landlords (Wiegersma 1976; Callison 1983; Blaikie and Brookfield 1987; Brooks 1990; Cleary and Eaton 1996). For example, in many parts of Asia and Africa all uncultivated "waste land" was granted to European planters. Shifting cultivators, therefore, were restricted in their access to such land. This restriction, and overpopulation, which resulted in part from the new settlers, likely caused a reduction of fallow periods, increased vulnerability to drought, and reduced yields of land.

Under the colonial system of many countries, landless peasants, who had no ownership rights, could reside upon the farm and use land for cultivation and grazing with the consent of the landlords. Payment was made for labour performed, not in terms of the value of the output of their work (Brooks 1990). There thus was no incentive for them to be concerned about land productivity, as their benefits did not come from the crop yields which might depend on the quality of land resources. Tenants who rented small parcels of land, often made no effort towards land improvement as they had no legal ownership and could be summarily evicted by the landlords. Further, they typically lacked access to investment funds since they had no collateral to offer and their after-rent income was at subsistence level because the rent charged to tenants was high; for example, in the Asian landlord-tenant system, it is about 50 percent of the total output (Prosterman and Hanstad 1990: 107).

More evidence of the adverse impacts of non-individual ownership title on land management can also be seen in the collectivisation tenure system. This system of tenure existed after the colonialism was abolished in the socialist countries from the 1950s. Under collectivisation, land was owned by the state. Private ownership of land was abolished. Although the major part of the land was farmed collectively, each household was allowed to farm for its own use a small plot of land, which usually did not exceed five per cent of the average collective landholding. The state managed and controlled the use of land through cooperatives. Farmers worked as agricultural labourers. Income was distributed to farmers solely on the basis of the work points system. Work points were assigned to a farmer according to the length of time required

for a job and the difficulty of the work done (Prosterman and Hanstad 1990:108; Brooks 1990: 240; Mathijs 1997: 40).

Prosterman and Hanstad (1990), and Le T.C. *et al.* (1996) argued that land did not belong to the farmers and their incomes were not related to the productivity of the land. Farmers had no rights in the crop they produced and it was little matter to them whether they produced more or less. Farmers thus had no incentive to be concerned about land productivity and passively followed farming practices planned by the cooperatives. The analyses of Prosterman and Hanstad (1990), Brooks (1990), Hann (1996) and Mathijs (1997) showed that agricultural lands degraded seriously under this system because fields were no longer tended by peasants who knew them and agricultural tasks were done by large groups of people and managed by collective authorities who may have known little about farming.

When farmers have secure rights to land, they control the use of agricultural inputs and the farming practices, and there is an incentive for them to invest in agricultural productivity and have concern for land fertility. Under collectivisation farmers put effort only into their small private plots because they had rights to that land and the output coming from the land belonged to them. A critical point about these private plots is that they helped to keep people in place for the re-emergence of private farming, as happened in Viet Nam during the late 1980s (Abrahams 1996: 13).

With increased tenure uncertainty, investment incentives are reduced and short-term farming practices are preferred. For instance, the study by Barbier (1990) showed that farmers in the uplands of Java without security of land tenure, were interested in maximising their short-term investments in seed, fertiliser and labour for annual crops rather than adopting land conservation practices such as bench terraces and agroforestry. Investment in these latter practices requires labour-intensive, material inputs or the 'waiting' cost of a number of years for growing tree crops. To ensure that they reap the benefits from these investments, farmers need secure titles to their land. However, if a landlord has an interest in conserving the land, he may have a contract with the renter under which the renter carries out this investment as in the share-cropping case. This situation is discussed in the next section.

Secure land title

Secure individual title to land thus appears to be important to agricultural productivity and sustainable land management. Usually, the landowner has responsibilities to his own land, and he may protect and improve land productivity by investing time, effort and money into farm operations. However, individual ownership is not necessary for investment in protection and improvement of land productivity. For instance, in the Asian landlord-tenant system, the landlord leased land in small holdings to cultivators who worked the land with their own livestock, and the landlord collected rent from them in the form of money or produce either as a share of the crop or as a fixed amount per hectare (Warriner 1969: 45). In the case of share cropping, both the landlord and tenant may have an incentive to increase land productivity as they both could reap the benefits from improved farm productivity.

But tenants without secure contracts were unlikely to invest in the land for fear of eviction and the loss of their capital. Also, since the rent, was based on a percentage of the average annual crop, rents could be raised legally if the productivity of the land increased, even where rent controls were enforced. Thus the tenants did not want to invest in land as they could see no benefits from that investment. On the other hand, the absentee landlords, who preferred the urban life and conspicuous consumption, often had little knowledge of farm operations and less interest in providing technical direction of capital investment assistance to their tenants. They also did not want their tenants to invest heavily in the land because eviction was more difficult in this situation (Callison 1983: 11).

It has been argued that, in many cases, the form of the contract under which farmers cultivate is even more important in influencing land improvement investment than the land title itself (Cheung 1969). Sharecropping and fixed-rent tenancy are typical contracts between a landowner and a tenant. A farm owner or long-term lease holder will bear all of the risks as well as the benefits of output variations, while under a fixed-rent contract all risks are born by the tenant. The benefits from land improvement investment will accrue to the landowner or the tenant depending on whether there is a short-term or long-term lease and the kind of improvements made (Griffin 1974: 22-6).

In share cropping, the risks of any investment are shared by the landowner and the tenant, with each bearing a share of the risk in proportion to the share of output. As share tenancy is usually insecure and sharecroppers are usually poor, not much improvement in land can be expected under this system. In this case, the important incentives affecting investment in land improvement will be the costs and benefits of the investment and the term of the lease as well as other social and economic factors that may affect land investment decisions. The sharecropper will be interested in land improvement only if his own share of the increase in returns exceeds the increase in costs. Therefore, two ways in which investment can be encouraged are: either the landowner invests in land and charges a higher rental share or he requires the tenants to invest and charges a lower rental share (Cheung 1969: 26; Amid 1990: 17).

Insecurity of land title and the concentration of land in a few members are still problems that preclude tenants from investing in land. Hardly any farmer would wish to invest in land when he is not certain of reaping the fruits of that investment. The analysis now turns to the question of whether secure legal ownership or long-term lease is a more important determinant of land investment decisions.

Secure land rights enable farmers to exclude others from the land in the current year and into the future. Therefore improvements in production capacity which result from sustainable farming practices can be retained by individual farmers. When land tenure is unclear, the benefits from their investments in land conservation may be lost to others as their farmland may be invaded or they may be evicted. This is relevant to Feder's point (1987: 17):

The most obvious effect of lack of secure land ownership is increased uncertainty by the farmer as to whether he will be able to benefit from the investments that he makes to retain or improve the farm's productive capacity.

Studies and surveys in China have indicated that farmers with exclusive rights of land use made much greater long-term investments in land because they had secure tenure and were not subjected to village reallocation. This security of tenure encouraged investment in increasing soil quality (the inputs used were phosphates and organic fertilisers (Prosterman *et al.* 1998: 8).

The decision to adopt or reject sustainable farming practices depends critically on farmers' planning horizons, and these in turn are determined by the length of the land tenure. In many developing countries, the long-term benefits of conservation farming may be irrelevant to farmers whose planning horizons are limited by uncertainty of land ownership or short-term lease contracts. For instance, the decision of farmers in the Philippines to adopt hedgerow intercropping was influenced considerably by the security of land title. The benefits from higher, sustained crop yields from hedgerow intercropping are likely to be heavily discounted by farmers whose planning horizons are limited by a fear of eviction (Nelson and Cramb 1998: 85, 97).

However, the short-term land leases that limit the farmers' planning horizons do not usually affect the adoption of short-term conservation farming. Investments in land conservation can provide short-term or long-term returns depending on the different sorts of farm inputs. For instance, the planting of perennials is a long-term investment as their conservation benefits can only be received years after the investment. In contrast, investments in fertilisers, pesticides and seeds have pay offs within a year in terms of increased yields (Bunch 2001). In a study of how spatial and temporal characteristics of technologies have implications for the relevance of tenure insecurity, McCulloch *et al.* (1998) argued that tenure insecurity is likely to be less important if costs and benefits accrue in the short run rather than over a longer term period.

Supporting this argument, Holden and Yohannes (2002) pointed out that the planting of perennials, and other long-term production decisions, plays a role in only some farming systems, while annual crops and short-term production decisions totally dominate other farming systems. Therefore, tenure security may only matter in farming systems where long-term production decisions are important. Thus they hypothesised that tenure insecurity has more impact on decisions such as tree planting, building of conservation structures or irrigation, than on the purchase of fertilizer, seeds and other inputs that provide short-term returns. The discussion of this thesis will focus on the long-term investments in soil conservation.

3.1.2. Rights to transfer land

Holding the rights to possess and use agricultural land may still not be sufficient conditions for farmers to carry out long-term land investments as they may still be unable to inherit, sell, lease out and mortgage these rights. Analysis of the impact of codifying land-use rights on land management should not consider only the issue of the use rights, it should also analyse the linkage between the rights to transfer land-use rights and the incentives for land conservation investment.

Under customary land tenure, the cultivators of the community hold use rights (usufruct) only, and there are no rights to alienate or permanently transfer land out of the community (Cleary and Eaton 1996: 45; Ward and Kingdon 1995: 36; Ward 1997: 21). This situation became more extreme in the collectivisation system, in which there were no individual rights of using and transferring land. The absence of any registered title to land and transfer rights over that land provides no guarantees for customary landowners to retain the benefits from improvements, and the rights to improvements may be disputed (Cleary and Eaton 1996: 48).

When land has value as collateral, or as an asset that can be leased or sold, it enhances farmers' attitudes towards improvement of the land's productive capacity. Besley (1995) pointed out that the link between rights and investment comes via enhanced possibilities for gains from trade. If land title can be sold, land prices will reflect the value of conservation improvements and an individual farmer will be able to obtain the value of any undepreciated investment in terms of a higher price when the property is sold. For example, the pricing model of Miranowski and Hammes (1984) estimated that a one-unit reduction in potential erosion on Iowa farmland increased the value of farmland by \$5.70 per acre. Thus the rights to sell title to the improved land can lead farmers to make long-term investments in conservation practices.

Possession of a land title can guarantee farmers access to land but does not necessarily mean they can inherit, sell, lease or mortgage their land or land-use rights. Restrictions on these rights, therefore potentially constrain land conservation practices. If land-use rights cannot be sold or leased out or mortgaged, farmers are limited in their ability to access external sources of funds which may lower investment in the land. Moreover, if

land can be inherited by their descendants who may be less committed to farming than their parents, selling or leasing enables such persons to make way for farmers willing and able to put more resources and effort into the land.

According to Alchian and Demsetz (1973), the freedom from expropriation is very important for investment decisions. Individuals do not invest if the fruits of improved land productivity from their investments are seized by others, as they would be if they are not permitted to sell or rent out their land after making investments. This hypothesis is supported by the fact that more individualised rights - in particular, the rights of sale and the use rights it implies - are associated with a higher propensity to make investments in land, because when individuals have full rights over a piece of land, they will be able to protect their claim to the land (Feder *et al.* 1988; Migot-Adholla *et al.* 1991; Hayes *et al.* 1997).

The adverse relationship between restrictions on land transfer and improvement in land productivity has been found worldwide in the different land tenure systems. In the system of customary land tenure, which exist in many countries of Africa and South America, the rights to transfer land within a community or to outsiders have commonly been limited (Fabiya 1974; Migot-Adholla *et al.* 1991; Heath 1992; and Besley 1995). There were no rights to transfer land in the collectivisation system, which existed in the Eastern European countries, the Soviet Union and some Asian countries (Brooks 1990; Wenfang and Makeham 1992; Kung and Liu 1997; and Prosterman *et al.* 1998, 2000). This inalienability of land constrains individuals or groups from investment in land improvement. In contrast, in Thailand, which granted land titles with the full rights of land transferability, investments in long-term land productivity have increased (Feder *et al.* 1988).

However, the impact of restrictions on land transfer rights on land investment is not always significant. In some cases, other factors such as household characteristics, the nature of credit and land markets, or enforcement mechanism may have more important effects on land productivity investment than land transferability factor.

3.1.3. Access to credit

Investment in land improvement will generally require access to capital for materials, labour and other inputs. Therefore access to credit is very important to the individual farmer. It is hypothesised that land rights and access to credit are interlinked: the higher the degree of security of tenure, the greater the creditworthiness of the farmer and therefore the better the access to credit. In land tenure systems such as customary, colonial and collectivisation tenures, farmers faced many difficulties in terms of access to credit as they did not have legal land title, the rights to transfer land-use rights, and the protection of their rights. These are crucial conditions for gaining access to credit.

The transformation of environmental, social, political and economic and technological conditions in the customary-owned areas may induce landowner groups to wish to invest in productivity improvements. However, such investment is difficult, as customary landowners face problems in obtaining credit. In the system of customary tenure, land-use rights are usually not accepted as collateral by lending institutions as the land cannot be permanently alienated outside group ownership, and therefore the lending institutions cannot claim the land in the event of default of the loan.

In the colonial system, smallholders, who had the majority of rights in the land, had difficulty in making long-term capital investments in the land because the rules of the colonial governments usually only protected landlords' rights. The smallholders mortgaged their land to moneylenders or landlords, usually for working capital rather than for long-term investments. But still they faced the risk of losing their land to moneylenders or landlords due to inability to repay the loan as a result, say, of the lack of capacity to hedge against fluctuating market prices. Eventually, they became tenants or landless labourers (Wiegersma 1976: 14).

Many land tenurial analyses point out that secure title is expected to facilitate farmers' access to cheaper, longer-term and more extensive credit (Wai 1957, Sacay 1972; Dorner and Saliba 1981; and Feder 1987). For commercial or formal bank loans, possession of a land title is often a mandatory precondition because land has several attributes that make it a desirable asset for use as collateral. For example, a secure land

title may provide easier access to credit, when credit is sought from lenders who do not have personal knowledge of the potential borrowers.

Compared to its role in the formal credit market, security of ownership over collateral play less significant roles in the informal credit market in which the lending decision is usually based on personal familiarity and the lender has alternative means of enforcing repayment, such as social pressure (Feder 1987: 18). However, secure title is still an essential condition for credit access by poor farmers who cannot afford the high interest rates of loans from the informal credit market. It has been shown that informal credit typically is much more expensive than formal credit and it is confined mostly to short term loans of relatively small amounts.

Therefore, it is hypothesised that land title insecurity causes lower farm and land productivity because investment incentives are absent and access to credit is limited (Dorner and Saliba 1981). Evidence from many rural areas has shown that when land can be used as collateral for borrowing money on a long term basis from the banks or private lenders, farmers invest more in improvement of agricultural land (Feder and Onchan 1987; and Heath 1992). For example, in Mexico the *ejido* (community) land parcels are less productive than private farms because the owners of private farms can access credit more easily as they can use their land title as collateral for loans from commercial banks (Heath 1992: 701).

Nevertheless, others (Feder and Onchan 1987; and Cleary and Eaton 1996) have argued that the limitations on mortgaging customary land may avoid the worst consequences of rural indebtedness and landless situations as cultivated lands can be confiscated if farmers cannot repay the mortgages. Further, the informal credit market may be well developed in some villages, and abundant credit may be available from traders who base their lending decisions on their personal familiarity with farmers rather than requiring collateral. Therefore, the question that needs to be resolved in this study is whether the mortgage of land-use rights or other financial assistance available to the households or the combination of both may be better solutions for access to credit.

3.2. Enforcement mechanisms and land management

It is hypothesised that to promote sustainable land management, land legislation must be implemented effectively through the full enforcement of the rights and obligations set out in the law. The analytical framework presented here thus focuses on the question of how rights and obligations can be fully enforced and whether, when regulations are fully complied with or enforced, they can help to protect the land-use rights that encourage farmers to practise sustainable land management.

Land rights are fully enforced when the related institutions are robust. After land use rights are codified, they can be exercised under a set of rules. Young (1992) has recommended that the most effective way of enforcing regulations is to make resource rights conditional upon compliance with regulations. The whole system of management then becomes more self-enforcing and less costly to administer. The resource users have an incentive to protect their rights by demonstrating that they have complied with the existing regulations.

This recommendation is regarded as an appropriate guide for land management institutions because, when land-use rights and obligations are matters of the land users' interests, and the land users themselves are enforcers, they will fully comply with the rules they make for the use of their land. Therefore, land-use rights will be protected. For instance, legislation of pastoral land leases in South Australia guarantees that any lessee who has complied with the covenants and conditions, which require the land to be used on a sustainable basis, can be offered land-use lease in perpetuity. The pastoralists thus comply with the rules enforcing environmental security, in order to obtain land rights security (Young 1992).

For self-enforcement there must be incentives to encourage cost-effective administration, as the land rights can then be administered on a competitive user-pays basis that covers annual fees for lease renewal or general administrative expenses. Transaction costs and monitoring costs are also reduced. Ostrom supported this analysis by her argument that self-monitoring mechanisms lead to dual enforcement because no appropriator organisations can hire enough guards to oversee all the boundaries of common land resources and all of the activities of land users. Land users as the effective

“public eyes” can monitor more of the area than official guards could ever see (Ostrom 1992: 306).

The long-serving village institutions in Japan described by McKeen (1992) illustrate this clearly. To govern their common lands, an administrative innovation of the Tokugawa regime helped to enforce the village rules. In this collective responsibility system, ‘all individual were members of a five-man group and were equally responsible and liable for payment taxes, obedience to the law, and rule violations by fellow members’ (McKeen 1992: 70). Thus this system of collective responsibility created an enormous internal incentive for land users to solve their problems. This self-enforcing process is an efficient way to produce the compliance of people with the rules governing the common lands. The evidence of failure of enforcement system without self-enforcement has been demonstrated in the collectivist systems in which the land-use rights and obligations were not a matter of the interest to land users. Instead, those rights and obligations were in the form of commands from the central governments. This type of enforcement system gave no or little incentive for land users to comply.

The enforcement mechanisms in each tenure system have significant impacts on land management. An advantage of customary tenure is that communal controls over land may serve to protect resources and people from over-exploitation, as an identifiable group of users holds the rights and responsibilities for the use of the land resources under the invisible bodies of rules and regulations (McCay and Acheson 1987; Ostrom 1990; Oakerson 1992; Bromley 1992; and Berkes *et al.*1998). Rights to particular resources within the land held by the community are defined and allocated to insiders, while they are restricted for outsiders. These traditional corporate systems of enforcement can reinforce a unified approach to land management decisions and offer individual households the freedom to benefit from differential, individual access to land held within the community (Alcorn and Toledo 1998: 220).

The community members are the allocators and enforcers of rights to land within the boundaries of the community. They are also obliged to comply with the rules and obligations of the community. They can use locally-adapted resource management systems, which are based on the knowledge and experience of the resource users themselves (Berkes and Folke 1998: 13). Oakerson (1992: 47) also pointed out that the

institutional arrangements in communities promote sustainable land management as the operational rules of co-owners can protect individual shares in the yield of the land resources and also protect the total yield of the land resources. Gupta's argument, which supports the analysis, portrays the efficiency of the self-governing system of the customary institution arrangement as follows: 'As long as rights in land were governed by rules and customs which prevented the emergence of great disparities in wealth and income and conflicting rights over land within the village, the system of self-government remained efficient' (1964: 105).

However, as with any land tenure system, the protection of the communal tenure system by the state is necessary to avoid land disputes between the commune and outsiders. Unsustainable land use often develops when traditional tenure systems are weakened by lack of state support. For example, deforestation is a frequent outcome of the illegal extraction of a community's resources by outsiders when communities' rights have been uninformed or are not enforced by the state and therefore the communities fail to seek state assistance or is not provided assistance to fend off this over-exploitation. Thus it is necessary to examine whether a better recipe for sustainable management of communal land is the combination of customary tenure and the support of the state.

Effective enforcement depends also on the administrative systems that govern the regulations. If the administrative structure is organised to implement land legislation effectively, setting the operational rules based on the interests of land users and local conditions with participation or coordination of land users, the regulations will be fully complied with and in turn the land use rights can be protected. The key discussion point for this analysis is what characteristics of the administrative system could be changed to avoid disruption of local institutions by government intervention and to complement the local institutions.

In many developing countries, the lack of administrative capacity to implement government policy and the lack of a comprehensive system of registration or documentation of rights is often a source of frustration to the landowners because of the resulting conflicts of interest between them or between landowners and governmental officials. For example, in Thailand, where the land law enacted in 1954 provided a certain level of security of land rights such as provisions for transferable title that could

be used as collateral, there were documents and procedures for the registration of such transactions. However, major deficiencies in the legislation and its administration remained. The lack of central land-title offices, precise descriptions of the boundaries of the land, and the lack of the administrative capacity needed to record land titles and cadastral surveys led to disputes over ownership that could not be easily resolved (Thomson *et al* 1992: 147).

The lack of appropriate institutions can also lead to difficulties in resolving the problem of land fragmentation. The fragmented distribution of land is now widespread in many developing countries as the result of inheritance over many generations. The fragmentation of land gives rise to problems such as high labour costs, land loss, high transportation costs, limitations on access, unsuitability for modern equipment, and forgone improvements to irrigation, drainage and soil conservation. Consolidation of farmland may encourage farmers to apply more efficient farming practices. However, consolidation programs are likely to take a long time to complete, and they require considerable human capital and well developed cadastral and land titles (Binswanger *et al.* 1993: 75).

Thus in this section of the analytical framework, issues of rule making, administrative systems and the resolution of disputes over land management are examined. The analysis examines how well the rules are obeyed, how well the threatened penalties discourage violations, how effectively the rules are enforced, and who has the responsibility for those tasks.

3.3. Summary of the analytical framework

Arising from the above discussion of the analytical framework, a number of key issues will be explored in this study. These issues are summarised below:

A. Impacts of land ownership types on land management

The rights of access to land are essential to farmers. Land may be owned by farmers, or rented from landlords under long-term or short-term leases. Each type of land title has impacts on land management. The relationship between land tenure and farming practices is complex and influenced by the economic, environmental, and social

organisation, people-land ratios, and technological factors. Although less important in some cases, the absence of land title or land registration and insecurity of title are problems that inhibit tenants from investing in land. Granting private freehold or long-term lease titles to individual farmers may increase incentives for land conservation investments. Secure, long-term land title is a prerequisite for farmers to ensure their rights to possess and use land in the long term, and hence invest in maintaining and improving soil quality without fear of risk of future income loss, especially the loss of investment benefits.

B. Impacts of the rights to transfer land on land management

Registered land title can only ensure the long-term use of land but may not lead to increases in the value of the land through farmers investing in increasing land productivity, if they cannot inherit, sell, or lease out the rights to use the land. Restrictions on the rights to transfer land potentially constrain land conservation practices because farmers are limited in their ability to access outsider income sources which may lower investment in the land. It is important to take into account that the transfer terms, rules, transfer taxes and other standardised forms governing the land transfer process may facilitate or constrain the allocation of land into the hands of the most efficient users.

C. Impacts of access to credit on land management

When farmers can mortgage their land-use rights to borrowing money for investment from formal financial sources, they can avoid the higher interest rates charged by informal sources. They can usually also borrow on a longer-term basis. This study examines the argument that when land can be used as collateral for borrowing money on a long-term basis from the banks or private lenders, farmers invest more in improvement of agricultural land.

D. Impacts of enforcement and administrative system

Rights to use land can only be implemented effectively through appropriate enforcement. The protection of land-use rights encourages sustainable land management. Self-enforcement may be the most effective mechanism because it

encourages cost-effective administration and when land-use rights and obligations are matters of the land users' interests, and the land users themselves are enforcers, they will fully comply with the rules they make about the use of their land. If the administrative system is robust and the administrative structure is organised to implement land legislation effectively, setting the operational rules based on the interests of land users and local conditions with the participation of land users, the regulations will be fully complied with, and thus the obligations of protecting land will be carried out.

These key issues have been examined in four provinces of the northern Vietnam. The social, economic and agricultural characteristics of these areas are described in the next chapter. The methodology of data collection and of farm-household survey is also presented in this part of the research.

Chapter 4. Research Sites and Methodology

4.1. Introduction

The study area is the northern part of Vietnam, which covers half of the country's area and reflects a range of social, economic, cultural and environmental characteristics. The transformations of agrarian policy and land tenure regimes in this region have occurred simultaneously with the changes in the politics of the country. Over the years there has been a transition from a small-scale, mono-cultural, and self-sufficient agriculture to a large-scale, multi-cultural, intensive and commercial agriculture.

Land allocation has changed in parallel with the changes in agricultural management. Privatisation of land ownership in the colonial period was initially replaced in 1956 by a collectivist system, and then it was reformed again to the current system of land lease held by individual households. Agricultural land management and farming practices have changed along with the different historical periods. For decades prior to the recent land reform, land was seriously degraded. From 10 years ago, farmers have started to practise more soil conservation and other sustainable farming actions.

As discussed in the previous chapter, this dissertation addresses the causative relationship between the changes in land tenure arrangements and farmers' attitudes to land management in the northern part of Vietnam. The first part of this chapter presents a picture of agricultural development and the transformation of land tenure arrangements as well as the changes in land management in North Vietnam. The survey conducted to collect data for the analysis is described in the next part.

Several forms of data collection such as questionnaires, interviews, documentary surveys, and participant observation were undertaken during the fieldwork which was carried out in the study area from July to December 2000. The information collected for the research included primary data, and secondary data at local, regional and national levels. Questionnaires were used for interviews with farm-households, the local and central government officials and scientists. Four north Vietnamese villages were selected for the survey. These villages are located in four provinces which present typical features of agricultural development and land tenure systems, and differ from each other in several social, cultural and economic characteristics. Thuy Dien village in

Vinh Phuc province and Bai Yen village in Hoa Binh province present characteristics of the midland and highland regions. Whereas My Giang village in Ha Tay province and Co Cham village in Hai Duong province present characteristics of the Red River Delta which is typical of lowland areas.

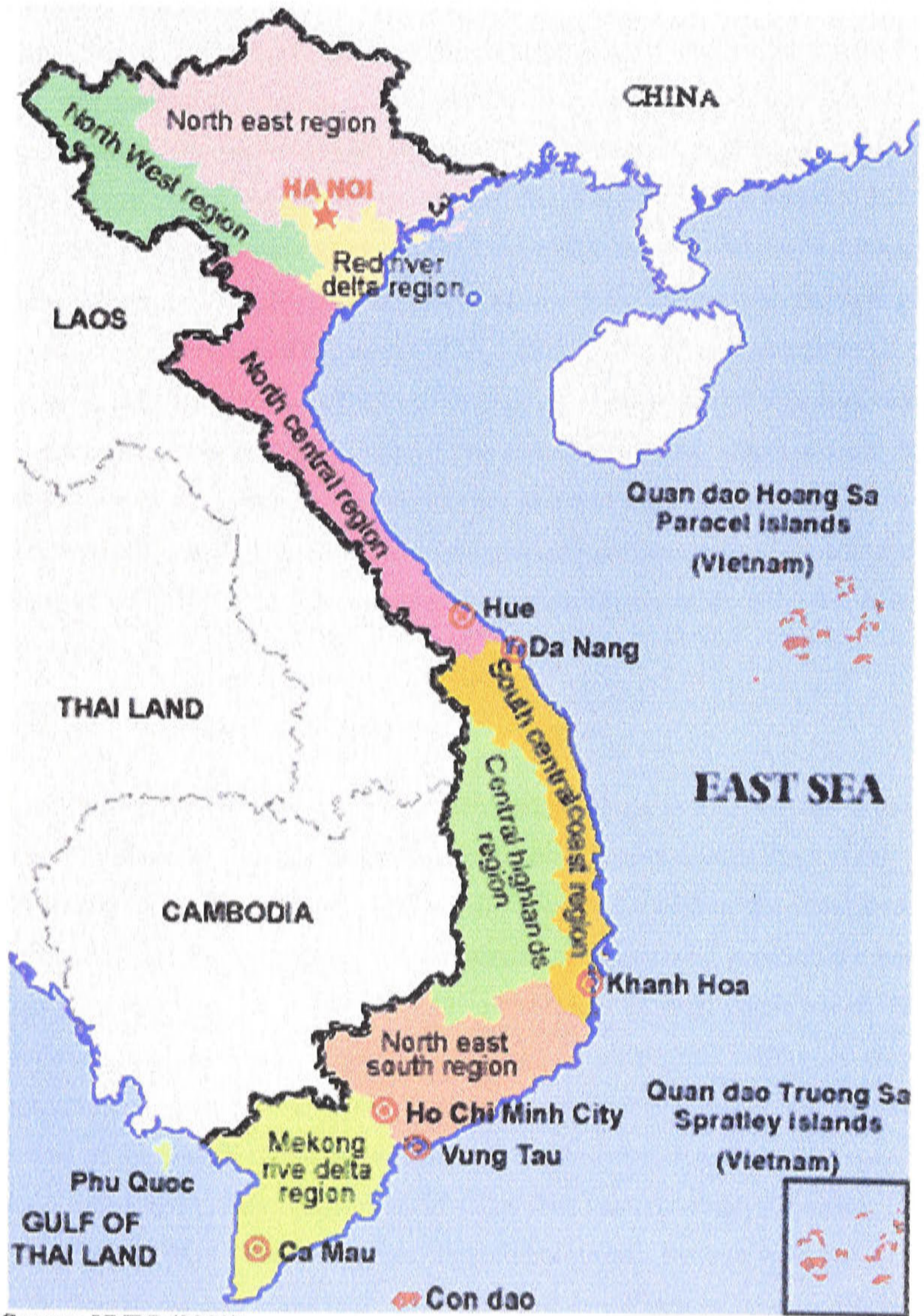
4.2. Research Sites

4.2.1. Overview of northern Vietnam

The total area of Vietnam is 33.3 million hectares, three-quarters of which is mountains and hills. Vietnam is conventionally divided into seven agro-ecological regions: North Mountain and Midland, Red River Delta, North Central Coast, South Central Coast, Central Highlands, Northeast South, and Mekong River Delta. The Northern part of the country covers 25 provinces from the North Mountain and Midland (NMM), the Red River Delta (RRD) to the North Central Coast (NCC) regions (see Map-Figure 4.1). With a total area of 16.7 million hectares, North Vietnam comprises 50 per cent of the total national territory, and has a population of over 36 million. Population density differs between the three northern regions. The RRD is Vietnam's most populous and intensively cultivated region, with a population density of about 1124 person/km² while the population density of the NMM region is about 120 person/km² and that of the NCC is 190 person/km² (General Statistics Office - GSO 1997: 73).

The North is characterised by enormous cultural diversity and has many ethnic groups. The Red River Delta is occupied mostly by the ethnic Vietnamese or *Nguoi Kinh*, while the Northern Highlands area is home to 31 of Vietnam's 54 officially recognised ethnic groups, known as ethnic minorities or *Nguoi Dan Toc*. Until the late 1950s, the midlands were mostly sparsely populated by minority groups. However, following the defeat of the French colonial forces in 1954, the Vietnamese government began a program to resettle *Kinh* people from the Red River Delta into the less-crowded midlands and highlands (Le T.C. *et al.* 1996: 6).

Figure 4.1: Vietnam's Agro-Ecological Regions Map



The North Mountain and Midland occupies 10.3 million hectares of land, with a population of 12.4 million, and comprises a large area of poor, infertile, light-coloured soil, with mountains, plateaus and hilly lands. Tea, coffee, peanuts, cassava, mulberries, maize, and buffalo are farmed in this region. Tea is the main cash crop and accounts for some 60 per cent of the region's production. The Red River Delta occupies 1.2 million hectares, with a population of 14.1 million and comprises the most fertile northern soils. Some 90 per cent of this area is cultivated; the main agricultural products are rice, maize, sweet potatoes and cassava. The North Central Coast occupies 5.2 million hectares, with a population of 9.7 million and consists mostly of hills and mountains. There are narrow coastal deltas, sand dunes and estuaries flats which account for about 20 per cent of the total area. The region lies in a typhoon belt and is subject to storms and torrential rain. The main agricultural products are rice, maize, coconuts, peanuts, kenaf flowers, citrus fruits, pineapples and peppers (Lam M.Y. 1993: 17; and Goletti and Minot 1997: 143).

4.2.2. Agricultural development in the region

Agriculture plays an important role in Vietnam's economy as it defines the lives of more than 10 million households and accounts for more than a third of the country's gross domestic product and total export earnings. Over 80 per cent of the population live in rural areas. Of these 70 per cent rely exclusively on agricultural pursuits, another 20 per cent combine agricultural pursuits with other forms of rural employment. The total workforce in rural areas is about 27 million, of which 22.2 million is engaged in agriculture. The Red River Delta of the northern region is one of the essential 'rice bowls' of the country. Food crops, industrial crops, livestock and aquatic products have also contributed a large proportion of GDP (National Assembly Complex 1995: 2). According to World Bank estimates, agricultural growth led to a reduction of poverty from over 70 per cent in the mid-1980s to around 50 per cent in the early 1990s (Chung 1997: 63).

From a historical point of view, the development of agriculture in the region can be divided into the following major stages:

- Prior to 1945: Agriculture in the French colonial period

- 1945 to 1957: Agriculture in transition to Collectivisation
- 1957 to 1988: Collectivisation period
- 1988 to present: Renovation (1981 to 1988 is Agriculture under Contract 100; 1988 to present is Agriculture under Resolution No 10 and then under the 1993 Land Law).

(Nguyen S.C 1995; Le T.C. *et al.* 1996)

The French colonised Vietnam from the nineteenth century to 1945. Shortly after their conquest, the French colonists made great efforts in agriculture sector. These efforts included hydraulic projects aimed at the conservation and development of rice fields, clearing woodlands for cultivation, and the creation of organisations and agricultural service agencies to study the capacities of local agriculture, to provide farmers with better techniques and financial assistance. All of these efforts to exploit and develop Vietnamese agriculture led to there being no arable land available for expansion of cultivation. However, in addition to rice, corn, one of the most important foods in the North, was planted extensively. The amount of land devoted to the French plantations also increased considerably, resulting in the starvation of a vast number of peasants who did not have an assured food supply even though they tried to cultivate all available lands (Pham C.D. 1985: 8-22).

After the defeat of the French in 1945, the economy of the country was based on agriculture with a small share of industry. Agriculture attracted over 90 per cent of the labour force and generated over 60 per cent of national income. With agricultural production not yet restored and starvation presenting, in 1946 the French invaded Vietnam once more. During the nine years (1945-1954) of resistance against the French, agriculture and other economic sectors did not receive appropriate levels of investment. From 1954, after the war ended and peace was restored in the North, agriculture grew relatively quickly, food output recorded an increase of 57 per cent and there was a surplus for export in 1956 and 1957. This development led to improved income and living standards for farmers (Nguyen S.C. 1995: 66-70).

After 1956, agriculture in the North entered a stage of collectivisation which is represented by the cooperative system. The initial step was to establish assistance teams and production teams and set up small-scale experimental and low-grade agricultural production cooperatives. In 1959, the North began a high level of agricultural cooperatization. The rural labour force was organised by specialised production teams such as soil preparation teams, seed preparation teams, irrigation teams, transportation teams and pig raising teams. A form of piece work was practised in the specialised production teams, whereby farmers were only responsible for their contract work and received work points for what they had done, without concern for productivity, crop yield and animal output.

Collective production led to some progress in agriculture through the improvement of the irrigation system, the introduction of new varieties, and rehabilitation of the rural transport network. However, many important parts of agricultural production did not show an increase and some even declined. For example, food output declined by over one million tons from 5.7 million tons in 1954 to 4.7 million tons in 1960 and agriculture's share in national income fell by 2.8 per cent (Nguyen S.C. 1995: 71; and Pham X.N. *et al.* 1999: 78).

In 1981, the whole country faced economic recession in general and agricultural decline in particular. As a result, a form of contract was applied to some crops by some agricultural production cooperatives in Vinh Phuc and Hai Phong. This change was supported by farmers. This "contract 100" had not yet become the new model of agricultural organisation and management. At this stage it was only an improved form of transformation from production teams into product contracts for farming households. This was the first time since agricultural collectivisation was introduced in 1957 that the region recorded a higher food output growth rate than the population growth rate, leading to a small increase in food output per capita.

Nevertheless, the results gained under this contract were not sustainable. Agricultural production started declining. There was a fall in per capita food output in the North in 1986 and 1987 from 245.6 kg to 238.8 kg, the lowest level since 1981. This decline was partly attributed to unfavourable weather but mainly to the cumbersome management apparatus of cooperatives. Prolonging the working day to claim more work points was

very popular, thus making farmers return contract land to the cooperatives because their economic interests were hurt.

The internal management of cooperatives had many irrational facets such as increasing contributions to funds, unstable contractual levels, cheating in labour records and increases in contribution levels to the government. In many cooperatives, the output belonging to farmers only accounted for 20 per cent of contracted output. This poor performance held back the agricultural growth rate, especially the food production growth rate (Nguyen S.C. 1995: 87; and Nguyen N.H. 1998: 3).

Having drawn practical experience from various localities, once again the government issued Resolution No.10 on the renovation of agricultural management on 5 April 1988. This important resolution marked the beginning of a new renovation stage in the country's agriculture and rural areas. The result was agricultural growth at a higher and more stable rate than in previous years. Food output was not only adequate for domestic consumption, but also available for export. Production developed and farming households' income and living standards improved. In this period, ownership, management and distribution relations were adjusted.

Through the contract format, farming households could know their share of output at the beginning of the production cycle. This encouraged households to invest more capital and labour in order to improve their income. Farmers were allowed to enjoy 40 per cent of contracted output but were obliged to pay an agricultural tax. The obligation of selling crops at a low price was abolished and any surplus was allowed to be traded freely.

However, these were only initial achievements, and new contradictions and difficulties arose. After the introduction of Resolution No. 10, land, forests, sea, and labour resources were not efficiently used. The rural economic structure had been heavily biased towards pure agriculture, paddy monoculture, and self-sufficiency, and animal husbandry developed only slowly. This contractual mode led to the division of land into small areas. Land, capital, experience and labour of both poor and richer farming households was wasted and the average crop yield was reduced because of the "egalitarian land plot" (Nguyen S.C. 1995).

The 5th Conference of the Central Executive Committee of the Communist Party of Vietnam was convened in early June 1993 with an agenda of further renovating and developing rural society and the economy. Resolution No. 5, an outcome of this conference, was advanced compared to the Resolution No. 10 because it extended land users' rights to five rights and focused on the issues of rural economic structural improvement on the basis of the development of rural industries and services and crop diversification. Moreover, the resolution also affirmed the long-term existence of all economic sectors in rural areas with the renovation of cooperatives and state owned enterprises. Individual activities and the private economy were to be encouraged.

Agricultural productivity improved greatly in the Renovation period. Per capita food production and exported rice in the 1993-95 period increased by 17.5 per cent, compared to a 9 per cent increase in the period 1989 to 1992. The quality of food for domestic consumption also improved, along with the requirements for the market. Progress was also recorded in the production of industrial crops, fruit trees and vegetables. Large scale and concentrated zones for growing sugar cane, ground nut, tea and vegetables, combined with processing and selling facilities, were developed. Although the share of agriculture and forestry in GDP decreased from 39.9 per cent in 1992 to 28.7 per cent in 1994, its absolute value increased from VN dong 37,500 billion to VN dong 48,800 billion (Nguyen S.C. 1995: 102-113).

In the years of Renovation, agriculture has attained very important achievements, basically ensuring food security, and economic, political and social stability, as well as contributing to pulling the northern region out of the chronic economic crisis that it had been in since the 1960s. However, there have appeared new challenges and conflicts in the agricultural sector. The key challenges are increasing agricultural productivity and farm income, moving from food self-sufficiency to food security, stimulating non-farm rural employment, and managing natural resources sustainably. The constraints of land allocation and agricultural credit are crucial obstacles in the development of agriculture. The next section describes the changes in land use and the land tenure system of the region.

4.2.3. Land tenure systems in North Vietnam

The important changes in agricultural and rural development in North Vietnam have been the changes in land allocation policy, land use patterns and farming practices. In each period of agricultural development of northern Vietnam, the land tenure system matched the economic and political conditions of the time. Thus the land tenure systems of the region can be categorised into the following historical periods: prior to 1945, 1945 to 1957, 1957 to 1981, 1981 to 1988, and 1988 to the present.

Traditional land rights:

In traditional Vietnamese society, land ownership was based on one essential principle: the emperor had eminent right to the lands which he leased to the people, who paid taxes in return. When the emperor needed a plot of land, he requisitioned it without paying any compensation to the peasant who lived on it. The emperor conceded rights to village communities in the form of communal rice fields (*cong dien*) or communal lands (*cong tho*). When a group of families requested permission to establish a village, the emperor granted them an area of territory that became communal lands. The communal rice fields were distributed among the village inhabitants and were redistributed every three years to the registered members.

The communal rice fields and communal lands constituted a kind of public domain that could not be sold or mortgaged. Theoretically, the communal rice fields and communal lands were inalienable except in the case of food scarcity or serious catastrophe when the village could ask for special permission to mortgage land for a period of three years. But in reality, when farmers had paid taxes over a long period, they could consider their cultivated land as their individual property and thus alienable. However, this right of proprietorship was not absolute if the lands were left uncultivated or if the owners did not pay taxes. In such cases, lands were confiscated and once again became public property (Callison 1983: 35-37; and Pham C.D. 1985: 23-25). Some emperors paid their officials for their services and rewarded their servants for their loyalty with large domains of rice land. This growth of landholdings led to transforming a great number of peasants into landless serfs.

French colonial period (prior to 1945)

The French occupation of Vietnam resulted in the full sovereignty of France over the whole territory. In 1862, the French colonialists confiscated for the benefit of the colonial administration all lands that were in the possession of the indigenous people in both urban and rural areas. In 1863 any land owned by fugitive inhabitants was termed ownerless. Land belonging to those who had not returned to justify their rights of possession (lived in and cultivate their land) was confiscated for the benefit of the colonial administration. To maintain an equilibrium between the pretensions of the European colonists who came to develop the Cochinchinese lands, the colonial administration in 1874 extended the benefits of the regulations related to land concessions to indigenous people. The policy was that people could apply for parcels of more than 10 hectares. Unfortunately, the Vietnamese who benefited from these concessions were not the peasants (Pham C.D. 1985: 28).

In northern Vietnam, the colonial administration granted concessions of a maximum of five hectares to the Vietnamese or Asian foreigners who made the requests. However, because this region was already heavily populated, all cultivable lands had been used for centuries, and in practical terms no more uncultivated lands remained, except in the middle areas where the French colonialists had requested very large concessions. In this region (middle lands), after the First World War, there were 299 of all (476) French plantations in Vietnam (62,8 per cent) and this represented 72,5 per cent of the total area of French plantation (Table 4.1).

Table 4.1. The distribution of plantations belonging to French colonists in the northern Vietnam in 1918

| Region | Number of plantations | Percentage (%) | Area of plantations (ha) | Percentage (%) |
|--------------|-----------------------|----------------|--------------------------|----------------|
| Low lands | 121 | 25,42 | 57,688 | 13,80 |
| Midlands | 299 | 62,81 | 302,717 | 72,50 |
| Highland | 56 | 11,70 | 57,246 | 13,70 |
| Total | 476 | 100 | 417,650 | 100 |

Source: Pham C.D. (1985).

Thus, although the French colonists transformed the communal lands and rice fields to private ownership, this situation resulted in a vast number of landless peasants and small landowners were left in poverty. At the August Revolution, when the French were

defeated, the landlord class accounted for only 2 per cent of the population, but occupied 51.2 per cent of the land; by comparison, farmers comprised 97 per cent of the population and occupied 36 per cent of the land (Nguyen S.C. 1995: 66). During this period, as a result of the decrease in the area of communal land and rice fields, portions of which had been taken over by the powerful notables of the villages, the plots of land farmers received from their villages were not large enough to meet the needs of their families. In these cases, they had to borrow from their rich neighbours at very high interest rates (Nguyen V.K. 1999: 4).

In order to protect land ownership and avoid land disputes, the colonial administration measured the land area of each village and made cadastral maps. Based on these maps, peasants had to pay taxes according to the quantity and quality of the land areas. Landowners registered their ownership in the cadastral book in the local administration. The peasants used the land titles as collateral to borrow money for agricultural development. The cadastral work was completed in 1939. However, in some areas, particularly in forest areas, it was difficult to measure and map the land borders. The registration of land ownership also faced difficulties from the existence of two management systems, stemming from the Nguyen emperor period and the French colonial periods, and from the resulting land fragmentation.

1945 - 1957 period

Following the defeat of the French, the new government rapidly attempted to eliminate feudalism and promote democracy. However, in 1946, the French invaded Vietnam again, prompting nation-wide resistance. The new government had been working on policies to reduce land rent. The policies involved the land owned by the French and the largest Vietnamese landlords. Landholdings of more than 50 hectares were confiscated for redistribution, while contributions in the form of finance were taken from lesser landowners. This policy remained in effect until 1953.

The redistribution was intended to give land to each rice farmer to provide a little more than subsistence for him and his family. Reallocated plots were usually less than one hectare, but in some areas families received 2 or 3 hectares (Donovan *et al.* 1997: 15). In 1954, the war ended and peace was restored in the North. In the process of land reform

in rural areas, the government appropriated 810,000 hectares from landlords for redistribution. The per capita land area of the landlords and rich farmers was reduced sharply while the per capita land area of poor farmers and landless farmers increased greatly (Table 4.2).

Table 4.2. Average per capita land area of farmer classes during pre- and post-land reform in rural areas in the North (Unit: m²/person)

| Classes | Pre-August Revolution | Pre-land reform (before 1954) | Post-land reform (after 1954) |
|-----------------|-----------------------|-------------------------------|-------------------------------|
| Land lord | 10,093 | 6,393 | 738 |
| Rich farmer | 3,975 | 3,345 | 1,547 |
| Middle farmer | 1,372 | 1,257 | 1,610 |
| Poor farmer | 431 | 490 | 1,437 |
| Landless farmer | 124 | 262 | 1,413 |
| Other | 336 | 237 | 403 |

Source: Nguyen S.C. (1995).

1957 - 1981 period

Agricultural cooperatives were established in the North from late 1955. A gradual collectivisation process involved three phases: formation of work-exchange teams, establishment of low-rank cooperatives, and consolidation and advancement of low-rank cooperatives into high-rank cooperatives. Under the regime of low-rank cooperatives, farmers continued to own land and equipment, but each family's share of output was tied to the amount of land, animals and machinery they had contributed. As an economic unit, the cooperatives periodically distributed paddy land for cultivation, granted land to households for houses and homegardens (only 5 per cent of the individual household land), organised the work tasks of the production brigades, determined the remuneration of labour, controlled agricultural inputs and products, provided information and technical advice, granted loans for special needs, and collected taxes. Land and tools formerly belonging to members were pooled and all work was done collectively under unified management. The output was distributed based on a work point system which was calculated in terms of the amount of time spent working on the farm (Le T.C. 1996: 38; Prosterman and Handstad 1994: 4).

1981 - 1988 period

In the face of economic recession in general and agricultural decline in particular, decree No.100 of the government in 1981 introduced a new agricultural production

management system: the “product contract” system (Nguyen N.H.1998). The state allotted use of land plots directly to members of cooperatives for a period of two to three years. Management and investment responsibilities still resided with the cooperatives, however. Land was contracted to households based on the amount of labour in a family rather than the total number of family members. This contract restored the farmers’ autonomy in land and labour use (Le T.C.*et al.* 1996)

1988 - present

In January 1988 the State Council promulgated the country’s first land law (Resolution No 10) which had been adopted by the National Assembly the previous month. This law reaffirmed the existing systems of land ownership under the unified management of the state, so that the state could assign land to farmers under inheritable leases for 15 to 20 years. The land law also legitimised the farmers’ rights to transfer, cede and sell the fruits of their labours and the results of investment in the assigned land when this land was assigned to other users. However, it strictly prohibited the purchase, sale, or lease of the land.

The 1993 Land Law and its related implementation decrees were meant to complete the land reform process by establishing longer-term and more secure land-use rights. Land still belonged to the state but land-use rights could be privately held for 15-20 years leases for annual crops and 50 years for perennial crops and the term is renewable if the land user has been complying with land legislation. The state reserves the right to take the land back, apparently without compensation, in certain cases, but the state must provide compensation to land users if it recovers land for purposes of national defence, security, or other national or public interests.

Under this law, which specified the rights and obligations of land users, land-use rights may be transferred, mortgaged, rented, exchanged, or inherited. Leaseholders are given land-use certificates, through which they are assured of their rights to land. Vietnam’s National Assembly also adopted a new regime for taxing agricultural land in July 1993. The law cut agricultural tax rates in half, from about 10 per cent of the annual gross production volume to about 5 per cent. The law stipulates that the land use tax is no longer based on crop yield, but on area and soil conditions, and is levied directly on

farm households rather than channelled through the cooperative structure (Prosterman and Hanstad 1994: 14).

Understanding the development of agriculture and land tenure systems in the research site can help the researcher to set out clearly the methods of collecting data. Thus, the next part of this chapter describes the relevant methods of collecting information in the research sites and of analysis.

4.3. Research Methodology

4.3.1. Information collected and methods of collection and analysis

To gain insights into farmers' perceptions of land tenure arrangements and their perspectives on farming and soil conservation practices, farmer surveys were conducted. Farm practices were also observed during visits to their villages. Secondary data collected included census statistics reports, government publications, institutional documents, and publications in journals. Details of the selected sites for survey and the survey are described in the following sections.

The scope of the survey and other information collected was determined by the time available, accessibility to the villages, and resources available. The analytical methods include historical analysis, perception analysis and content analysis. The cross tabulation method is mainly used for analysing the quantitative data. Table 4.3 summarises the information collected, the data sources, the scope of data collected, and the analytical methods used.

Perception analysis is a method of analysing the research data, in which the researcher is able to communicate the subjective experience of observation and analyse the perceived knowledge of individuals or groups. The approach is based on the idea that human life is a product of an interaction between sequences of actions and talk about those actions. Since the same skills and social knowledge are involved in the creation of both action and accounts of that actions, the researcher has two mutually supporting and confirmatory ways of revealing the underlying system of social knowledge and belief. The analysis explores the social and environmental situation or context in which action takes place and is fundamental to the analysis of the behaviour (Uzzell 2002: 328).

Content analysis is also a common method of analysing research data. It has been defined as “a systematic, replicable technique for compressing many words of text into a few content categories based on explicit rules of coding”(Miller and Brewer 2003: 43). In the other words, content analysis involve the description and analysis of text in order to represent its context. Content analysis enables researchers to sift through large volumes of data with relative ease in a systematic fashion. It can be a useful technique for allowing us to discover and describe the focus of individual, group, institutional, or social attention. Content analysis can be undertaken quantitatively and qualitatively or both. Content analysis can be a routine part of coding in qualitative data analysis, in which the data analysed in the same terms as if they were texts (Stemler 2001; Miller and Brewer 2003).

Note that in the analysis of the survey results of this study, the term “indifferent” is used to present a lack of interest, feeling or reaction of a respondent towards the issues raised by the researcher.

4.3.2. The selected sites for the survey

The study area is the northern part of Vietnam, which covers 25 provinces from Quang Binh province of the north-central-coast region to Cao Bang province of the northern highland region. The changes in land tenure systems from the French period to the

Table 4.3. Summary of data collected, data sources and analytical method for analysis of the impacts of changes in land tenure on farmers' perceptions and attitudes towards sustainable land management in the research sites in northern Vietnam

| Analysis purpose | Needed information | Data source | Scope | Analysis method |
|--|--|--|---|------------------------|
| 1. Analyse impact of land ownership on land management | - Socio-economic status of farmer households | -quantitative household survey (questionnaires) | 25 households selected from each village with consideration to gender, wealth and types of land ownership (about 20% - 25% of village households were surveyed because of limited time and resources) | - Historical analysis |
| | - Types of land ownership (own or lease; written land title) | | | - Content analysis |
| | - Land management (labour and material inputs; farming methods; perceptions of land title and links to investment decisions;) | -qualitative; quantitative data of household survey | - In-depth interviews of subset of 6-10 households identified from previous survey (based on criteria of location, income, education, age and land ownership types) | - Perception analysis |
| 2. Analyse impact of the length of the land lease on | Length of the lease | Qualitative; quantitative household survey | In-depth interviews of subset of 6- | Content analysis |

| | | | | |
|---|---|--|--|-----------------------|
| length of the land lease on land management | <ul style="list-style-type: none"> - Renewability of the lease and its conditions - Use rights and obligations - Land management | household survey | 10 households identified from previous survey (based on criteria of location, income, education, age and land ownership types) | - Perception analysis |
| 3. Analyse impacts of land distribution, land size ceiling on land management | <ul style="list-style-type: none"> - Number of plots of each household's farmland - Distances between plots - Size of farmland - Farm size ceiling and ceiling evasion by large landholders - Number of landless households - Land management | <ul style="list-style-type: none"> -Quantitative; household survey (questionnaires) - Secondary data at district level | 25 households selected from each village with consideration of gender, wealth and types of land ownership | Content analysis |
| | (cropping patterns; quantity and quality of water use; fertiliser uses what reflect the influences of land fragmentation, land size ceiling on land investment) | -Quantitative; qualitative household and scientist survey | <ul style="list-style-type: none"> - In-depth interview of 6-10 households subset identified from previous survey - Interviews of 6 scientists | |

4. Analyse impact of the rights to transfer land on land management

- Land transferability
- Conditions for obtaining the transfer rights
- Level of land transfer tax
- Number of households who have sold land
- Land values (prices) before and after they invest in land conservation
- Farmers' perceptions about long-term investment in conservation if they have rights to inherit, sell or rent out their land. Current and future land investment plans

Qualitative; quantitative household survey and scientist survey

- In-depth interviews of subset of 6-10 households identified from previous survey
- Interviews of scientists

- Content analysis
- Perception analysis

5. Analyse impacts of credit access on land management

- Number of households who have borrowed money from banks/private money lenders
- The reasons for borrowing from these sources
- Number of households using land as collateral
- Terms of loan

-Quantitative household survey
(questionnaires)

25 households selected from each village with consideration of gender, wealth and types of land ownership

- Content analysis
- Perception analysis

- Interest rates on loans
 - Difficulties of borrowing money from the state banks
 - Land management
- (perceptions of collateral, past and current farming practices, future plans for land conservation)

- In-depth interviews of subset of 6-10 households identified from previous survey

- Interviews of 6 officials of the banks

- Qualitative and quantitative household and the bank official survey

6. Analyse impacts of enforcement and administrative system

- Rule making
- The compliance of farmers with regulations
- How conflicts over the land are resolved

-Qualitative household and official survey

- In-depth interviews of subset of 6-10 households identified from previous survey

- Interviews of 6 officials of local and central governments

Content analysis

Perception analysis

- Self-monitoring mechanisms
- Administrative capacity for implementing the law
- Credit application procedures
- Procedural rules regarding takings of land for public purposes, and compensation
- Land management law

present were similar in all of these provinces but the implementation of the land law was different. Also there are differences in biophysical, economic and cultural conditions between provinces. Thus, within the region, four study sites were chosen: Lap Thach district of Vinh Phuc province, Hoa Binh town of Hoa Binh province, Phuc Tho district of Ha Tay province, and Thanh Ha district of Hai Duong province. These sites were selected because their features met the necessary criteria of the research such as differences in topography, farming practices, soil conservation measures, cultures, economic conditions and the implementation of land policies. However, before final decisions were made on the case studies, these research sites needed to meet other criteria such as information availability, local willingness to participate, and availability of people such as scientists who know the area well.

Thuy Dien village in Lap Thach district, Vinh Phuc province

Lap Thach is located in the uplands of the Midland area and comprises mountains and rolling hillsides interspersed with flat valley lands. This district has poor soil fertility, although some forest remains at higher elevations. However, many hilltops are barren rocky wastelands displaying deep gully erosion (Map - Figure 4.2). The population of the district is 223,000, which is distributed among 47,154 households (10 per cent of the provincial population). Before 1954, Lap Thach was occupied by ethnic minorities who have a long settlement history with customary rights over the land. After 1954, the *Kinh* people were settled in this district; they brought their lowland production technology with their own knowledge and beliefs to the uplands.

Thuy Dien village is located in the middle area of the district; it comprises round hills and plain fields. There are 132 households and all of them farm for their subsistence. Paddy rice is the main crop in the flatland valleys; other crops such as cassava, sweet potato, maize, tea and peanuts are cultivated on the hillslopes, while shifting cultivation is the farming system in the upland areas.

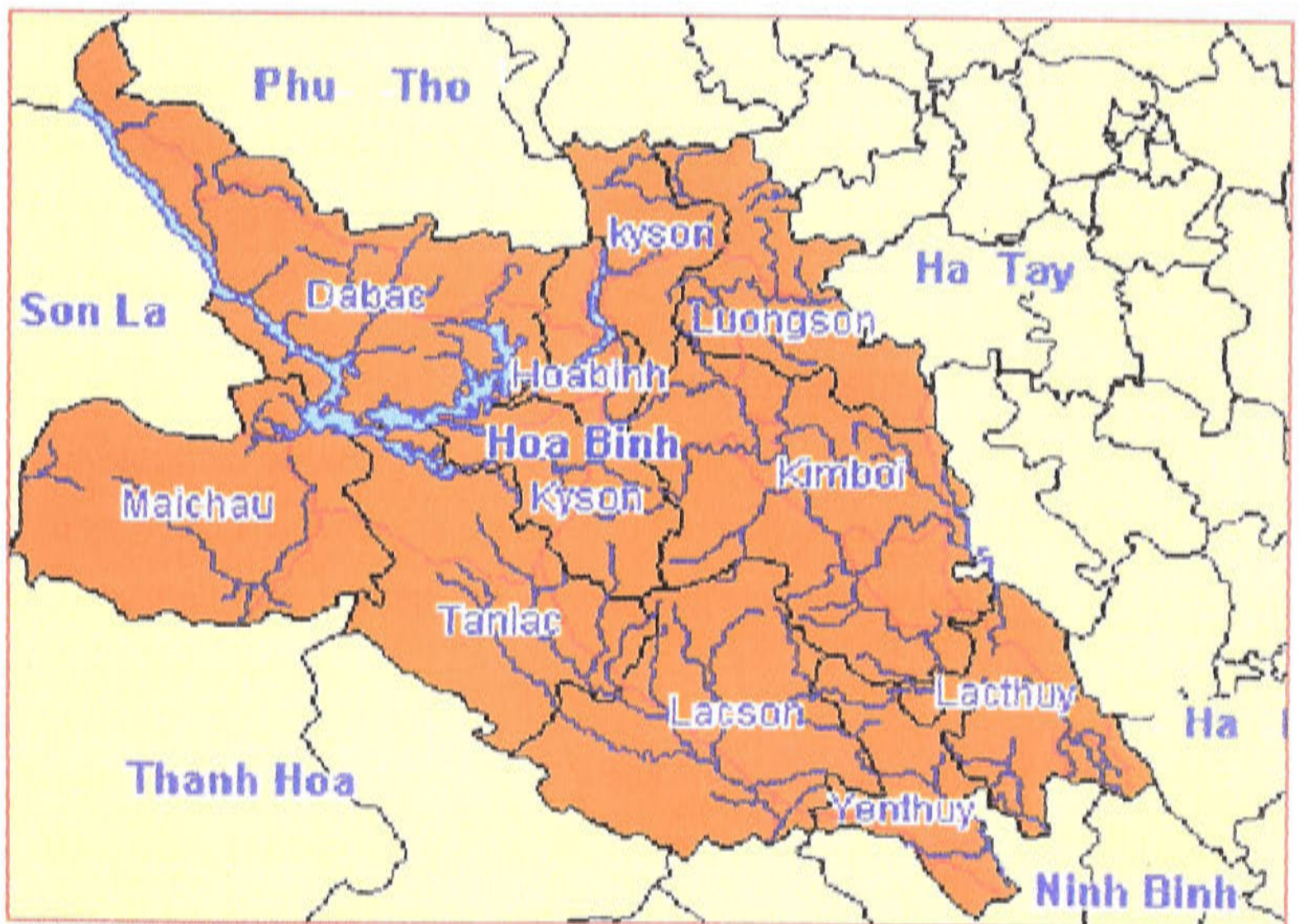
Many families apply conservation methods to their land. The conservation methods used are intercropping, green and manure fertiliser with limited chemical fertilisers, and taking mud from the ponds and canals to add to the soil.

Figure 4.2: Map of Vinh Phuc



Source: UNDP (2003)

Figure 4.3: Map of Hoa Binh



Source: UNDP (2003)

Almost all households in the district have land certificates. Five households in Thuy Dien village have not been provided with land certificates. Each family has five to eight plots which are often far from each other and far from home (1100 meters on average).

Bai Yen village in Hoa Binh district, Hoa Binh province

Hoa Binh is a mountain province, located 70 km from Hanoi. Hoa Binh town is the province's capital which is located 2 km from the Hoa Binh dam. There are many river valleys of secondary and tertiary streams where the majority of the population is located. The limestone mountains are sometimes isolated and surrounded by irrigated rice fields. The mountains are unsuitable for agriculture and have different degrees of forest cover. The agricultural land occupies 72,473 hectares which is about 15.2 per cent the total land area of the province (Map - Figure 4.3).

Bai Yen village is located about 5 km from Hoa Binh town. It comprises mountains and valley fields. The village has 94 households, most of them farmers. Each family has received the rights to use forestland and agricultural land. On the forestland they have to plant eucalypt and Acacia trees (*Acacia mangium: keo tai tuong*) following the command of the local government. Rice, maize and tea trees are the main forms of agricultural production of this area.

Some land conservation methods have been applied in this area such as use of green (*Acrocephalus capitatus benth: nhan tran*) and animal manure fertilisers. The model of Forest-Garden-Pond-Husbandry is common in this village. Some households want to plant perennial fruit trees but they are facing problems such as lack of investment capital and government restrictions.

All households in the village have land certificates for their agricultural land. However, they have not yet received land certificates for the forest land. Agricultural lands are very fragmented, with each household having 10 to 20 small plots, the smallest is less than 100 m² and the largest about 700m² and far from each other (600-1000 meters).

My Giang village of Phuc Tho district, Ha Tay province

The province is located in a lowland area and is comprised mostly of plains, with old and young alluvial soils of moderate to good fertility; a small proportion of the land area is saline or acid sulphate. Phuc Tho district with an area of 11,325 hectares, lies on the Red River in the north-east of the province, adjacent to Vinh Phuc province (Map - Figure 4.4). The population of the district is 147,600 divided into 22 communes.

My Giang village of Phuc Tho district is one of the crowded villages in the Red River Delta (RRD). It is located about 30km from Hanoi. As in other areas of the district, which is a typical lowland area in the RRD, it is occupied only by the *Kinh* people who are by age-long tradition skilled paddy farmers.

Paddy rice and other crops such as soybeans, maize and vegetables are cultivated in almost all areas of the district. The village has 163 households. They have all received agricultural land but in each household at least half of the family members have off-farm income. Many have now changed the cropping pattern from three crops (two rice crops and one cash crop) to only two crops a year (one rice and one cash crop), leaving the winter period for off-farm work.

Maize, potato, soybean and vegetables are the main cash crops in the village. The conservation methods are intercropping, using green and manure fertiliser with limited chemical fertilisers.

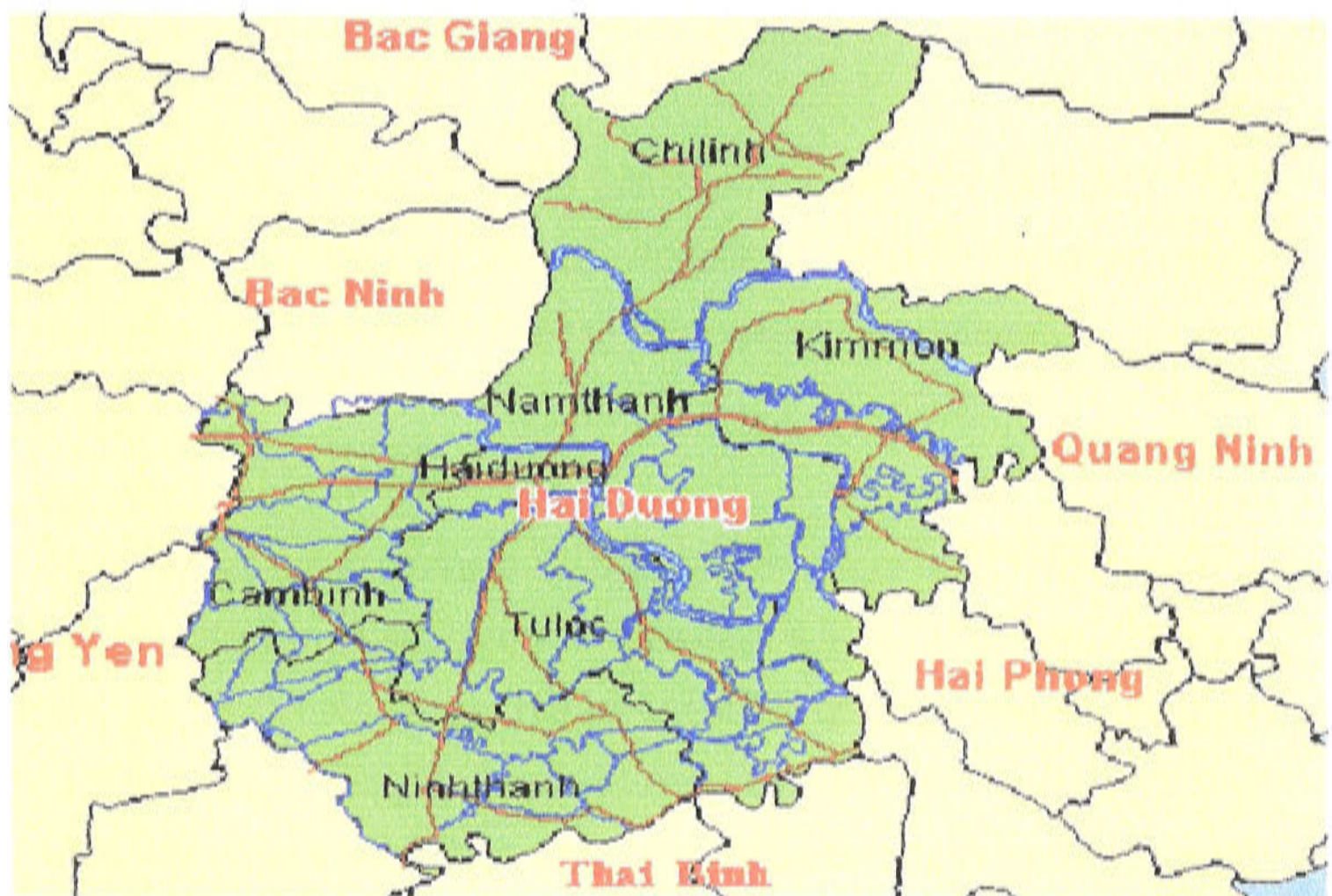
None of the households in the village have received land certificates. Land fragmentation is also problem in this area. Each household has 5 to 8 small plots, mostly lying about 500-1000 meters from their house.

Figure 4.4: Map of Ha Tay Province



Source: UNDP (2003)

Figure 4.5: Map of Hai Duong Province



Source: UNDP (2003)

Co Cham village of Thanh Ha district, Hai Duong province

Hai Duong province is one of the most densely populated provinces (1019 persons/km²) and is located near the mid-point of National Road #5 that links Hanoi to Hai Phong province. Although it is primarily agricultural in character, the province does have a number of small industries such as pump manufacturing, cement factories and a variety of agro-processing industries including meat works and mineral water plants. Thanh Ha district has a population of 301,970. The total agricultural land area is 11,309 hectares (Map - Figure 4.5).

The dominant crop is rice. Vegetables, jute, and fruit tree crops such as lychees and longans are also important. The province contains many areas of natural beauty in addition to the tranquil expanse of its rice fields and the colour of its lychee orchards.

Co Cham village is another congested village in the Red River Delta. It is located about 78 km from Hanoi. Most of the village lands are fertile. This village has 198 households. All received agricultural land but in each household at least half of the family members have off-farm income.

Most farmers are applying the conservation model of Garden-Pond-Husbandry and intercropping. They all have land certificates. Agricultural land in this area is very fragmented. Farm plots are at distance of 800 to 3000 meters from homes.

4.3.3. Farm-household survey

The fieldwork was carried out in northern Vietnam between July and December 2000, taking the forms of collection of secondary archive data, a household survey with in-depth interviews, and field observations. The survey of households in the four villages was based on a stratified area sample. These villages were selected from four districts (four provinces) which reflect the typical topography, environmental, social, political and economic characteristics of North Vietnam.

Figure 4.6. Fieldwork flowchart

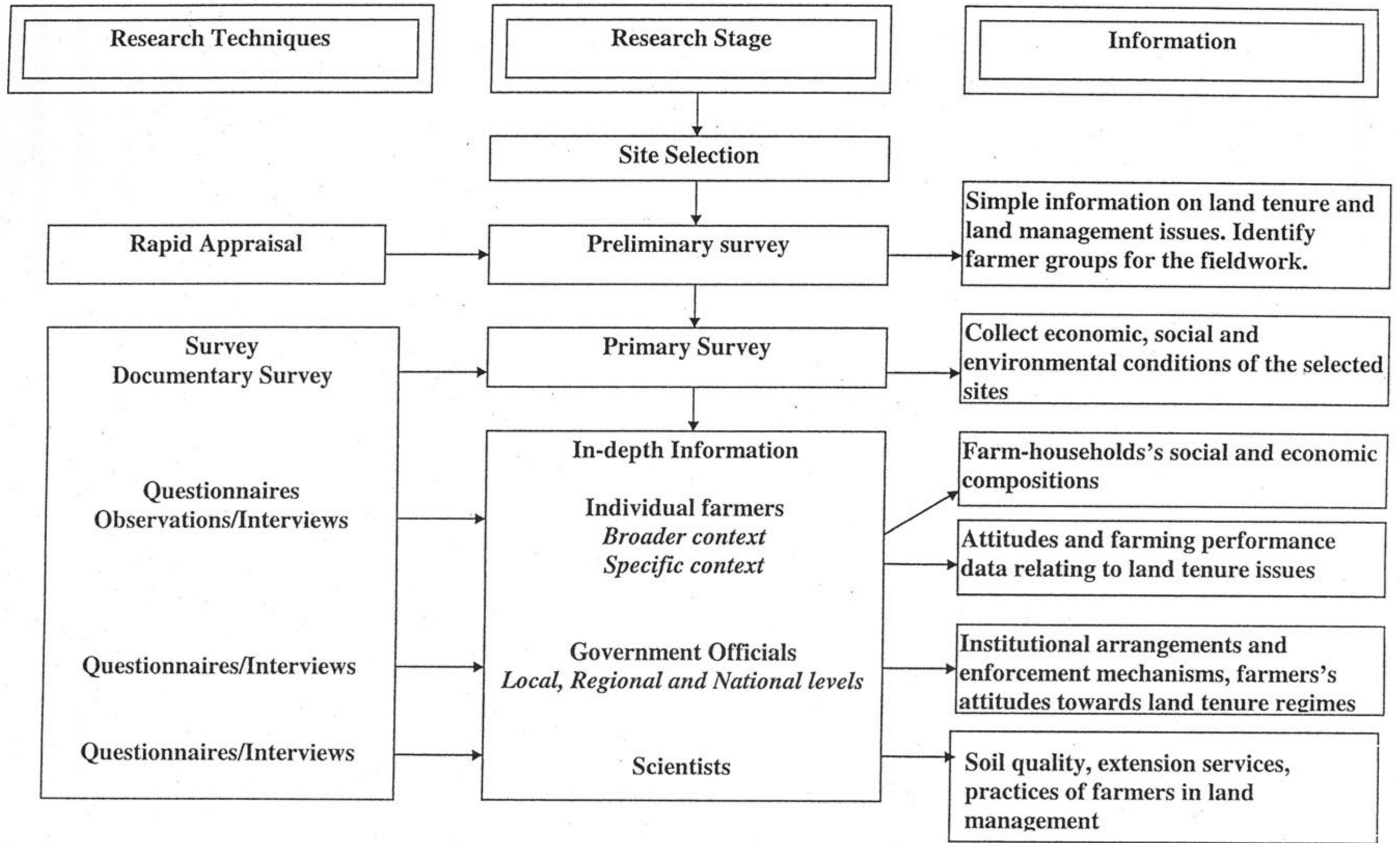


Figure 4.6 shows the steps taken in the fieldwork. Firstly, a preliminary survey was organised in order to choose four villages across four provinces. As mentioned earlier, these villages were selected on the basis of criteria essential to the research such as topography, farming practices, culture, historical land tenure regimes and implementation of land policies.

In each village, the primary survey was conducted using questionnaires, interviews and observation of farming practices. Information on household composition and farming systems was collected from 100 households, 25 in each of the villages. In-depth interviews were carried out with 67 households to obtain information on farmers' perceptions and farming performance relating to land tenure. Government officials and scientists were also interviewed to cross-check and collect information on institutional arrangements, enforcement mechanisms, and assessment of land situations and extension services. Secondary data on agricultural production, income, population and other variables was collected from the local Council of each district and the General Statistic Office.

The household survey was designed primarily to elicit information concerning the relationship between land conservation and land rights issues such as access to land, access to credit, rights to transfer land and the institutions and organisations that govern the allocation of land for households. The survey questions mostly related to the current period although several questions related to the historical periods (pre-1954; and Collectivisation).

The table 4.4 below presents the steps taken in selecting places and households for the survey.

The questionnaire (see Appendix 4.1) was administered first in one village in the study area to assess the relevance and acceptability of the questions. The pre-test revealed that people were willing to provide information on sensitive issues and it also did not appear as if they were trying to impress me by exaggerating estimates of rice yields, land productivity or some of their farming problems. However, their answers sometimes appeared incomplete and inaccurate when they evaluated the situation of

farm households. That is, sometimes respondents over- or under-estimated certain aspects of their situation.

Table 4.4. Number of households selected for the survey

| Village name | Thuy Dien | Bai Yen | My Giang | Co Cham |
|---|-----------|----------|----------|-----------|
| District | Lap Thach | Hoa Binh | Phuc Tho | Thanh Ha |
| Province | Vinh Phuc | Hoa Binh | Ha Tay | Hai Duong |
| Total households (No) | 132 | 94 | 163 | 198 |
| Households selected for interview (No) | 25 | 25 | 25 | 25 |
| Households selected for in-depth interview (No) | 15 | 12 | 15 | 25 |
| Percentage of total households (%) | 11.4 | 12.8 | 9.2 | 12.6 |

In general, there were no serious obstacles during interviews in the pre-test survey. However, it was decided that questions over land conflicts had to be more detailed to ensure that all farmers would answer the questions relating to whether they were involved in conflict situations or not. The questionnaire was subsequently revised and the order of some questions was changed because some respondents had volunteered information on subjects which were to be discussed in a later part of the interview.

In each village, the questionnaires were sent to 25 households using the following criteria which was determined by researcher based on the objectives of the research analysis:

- Rich/Poor (including the richest and poorest)
- Including both men and women as head of the family
- The occupancy of the land
- Use of family and hired labour
- Types of land title
- Distribution of land
- Investment in land conservation

These criteria were discussed with the head of each village. They hold the books recording information on household composition. Household samples then were selected based on the criteria and the list of village members in the record book.

The questionnaires provided information on the social and economic characteristics of individual households and their farming systems, including farming performance data concerning inputs and outputs: number of members in the family; status in the family; gender; age; education level; number of persons working on farms; number of persons working off-farm; years of settlement in this location; years of farming experience; annual income; number of plots; distances of the plots from the house; plot size; land type; types of farming practices; sources of water supply; type and quantity of fertilisers used; and forms of land tenure (see questions for household composition and farming system, Appendix 4.1)

The head of the village helped each family to fill in the questionnaires and collected them for the researcher. From this survey, respondents were selected for in-depth interviewing by the researcher. Qualitative interviews on details of the above issues were conducted in the farmers' houses and in the fields (Figure 5.6 in Chapter 5). The researcher spent approximately two days with each respondent in carrying out the in-depth interviews. The in-depth information is about attitudes and the opinions of farmers with respect to sustainable land management and land allocation issues (see question for in-depth interviews, Appendix 4.1).

The data collected in the in-depth surveys was based on a set of questions concerning the following: cropping patterns; types of farming practices; the reasons for continuing with these farming practices; the understanding of farmers about the degradation of their farmland; the understanding of farmers about the causes of land degradation; types of conservation practices farmers have used; sources of knowledge of land conservation practices; farmer understanding of the costs of conservation methods; significant constraints to adopting land conservation practices and labour capital invested in land conservation; the results of applying conservation methods; suggestions for improvement in agricultural policies and particularly in land legislation that could encourage land conservation investment; opinions of farmers about the rights and rules laid down in the certificate; the influence of the current land

law on farmers' decisions to adopt land conservation practices; the investment in land conservation that has been carried out in relation to the land law; the attitudes of farmers to the obligations in respect of land protection; aspirations of farmers with regard to land leases, right to transfer land; rights of access to credit and the governance of government; and suggestions of farmers about the land tenure arrangements that would give them the best incentives for long-term land improvement investment.

Questioning of officers of the local and central governments was undertaken to obtain information on all of the above issues and to cross check the attitudes and practices of farmers and of the officials and scientists to the relationship between land management and land tenure arrangements. In each village three to four officials and one agricultural technician were selected for interview. Interviews were also held with 10 scientists from the province level and central governments.

Then the collected information was gathered and grouped in the different categories which are set out based on the requirements of the analysis of each issue. The analyses in the next five chapters used these quantitative and qualitative data as empirical evidence of this study.

Chapter 5. Security of land tenure arrangements and sustainable land management in North Vietnam

5.1. Introduction

In North Vietnam, land tenure arrangements have been changed and changes have taken place in farmers' attitudes and practices with respect to land management. During the Collectivisation period, land was seriously degraded and it is presumed that one of fundamental causes of the inefficient utilisation of agricultural land is insecurity of land-use rights. Before the 1988 Land Law, farmers ignored problems of long-term soil fertility; they focused only on short-term benefits from agriculture.

Farmers began to invest in long-term land improvement in the period of "*Doi moi*" (Renovation). Soil loss and soil erosion have been reduced due to more sustainable farming practices. Thus several main questions are examined here: What degree of security of land tenure was provided in each land tenure regimes? How have the changes in these regimes affected the perceptions and practices of farmers with respect to land management? Has the 1988 - Resolution No 10 and 1993 Land Law positively influenced farmers' attitudes towards long-term soil conservation?

To test these questions, this chapter first assesses the extent of security of land tenure in the two tenure systems: *Collectivisation* and *Renovation*. Then, based on this assessment, the impact of land tenure on land management attitudes and practices of farmers is analysed in the second part of the chapter. The analysis highlights the influence of the different land tenure arrangements on farmers' perceptions, on their farming practices, and on their intentions towards land conservation investment in the future.

The goal of this chapter is to compare the security provided by the two different land tenure regimes, and thus each regime will be discussed only the effects of the changes in land policy or legislation on the preferences of farmer. The implementation of these policies/legislation with each right of using land will be analysed in the following chapters.

5.2. Security levels of land tenure arrangements in the Collectivisation and Renovation periods

5.2.1. Definition of land tenure security

The term 'land tenure' in this study refers to the institutional arrangements pertaining to land-use rights and duties of the land-owners and other users. These institutional arrangements may be legally established, or customary, or enforced by a combination of both. Although security of land tenure has been defined and measured in various ways, it is generally a term which embraces three important elements. The first element relates to the rights of access to land and the formal duration of these rights. An important issue with respect to this element is whether the rights granted are for a long enough period to provide an incentive to invest in the land. The second element relates to the protection of rights; and the third element relates to the robustness of rights, which means the freedom to use and dispose of land (Bruce and Migot-Adholla 1998: 83). These three elements are also portrayed in the definitions of Place *et al.* (1994) and Prosterman *et al.* (1998) (see Chapter 2).

Land tenure security exists when an individual perceives that he/she has rights to exclude others and to use the land for purposes such as growing and harvesting crops, grazing cattle, harvesting wildlife, gathering firewood, extracting mineral resources, or building structures on land. He/she can pass these rights to his/her heirs or mortgage the rights for credit purposes. He/she has the rights to sell or lease the land to others, thus he/she has ability to reap the benefits of labour and capital invested in the land. All these rights must be enforced and protected by appropriate regulation and administrative systems.

The three elements highlighted above are relevant to the approach taken by this study. The degree of security of each land tenure system in northern Vietnam can be assessed as to how these elements are presented and practised. The first feature of land tenure change, which reflects the change in the security level, emphasises individual land titling or registration as the mechanism for changing land tenure arrangements. Then, a bundle of use rights which do not exist in one tenure system (Collectivisation), were given to individual farmers under another tenure system (Renovation). Finally, these

rights have been exercised under the state's regulation. The security level of each land tenure system can ultimately be addressed through its enforcement mechanism which is determined by the strength of institutions in implementing the rights and rules of using land. The following sections demonstrate the extent of security of land tenure arrangements in the Collectivisation and Renovation periods in northern Vietnam.

5.2.2. Insecurity of land tenure arrangements in the Collectivisation period

Land ownership

Farmers did not receive private title to their land during the Collectivisation period which extended from late 1955 and to 1988. Indeed, after the defeat of the French colonists, the Vietnamese government confiscated land from the French colonists and other larger landowners and redistributed it somewhat equally among all farm families (Prosterman and Hanstad 1994: 3; and Nguyen S.C. 1995: 66). This period of privatisation of land tenure was very short due to the subsequent establishment of cooperatives. The process of change in land ownership from individual farmers to the State gradually occurred in the three steps of the collectivisation process.

In the first step, farmers continued to own land and equipment, but the government encouraged farmers' participation in work teams which carried out collective work on certain activities such as planting and harvesting rice, fertilising or ploughing. Under this system of work-exchange teams, each family continued to farm its own land and payment was generally not offered for such mutual work. By 1958, 86 per cent of farm-households in the North belonged to work-exchange teams (Pingali and Vo 1992: 702). In this year, the second stage was started with the transformation of work-exchange teams into cooperatives. When the cooperatives began to be established, the individual ownership of land, animals, and farm equipment was still preserved. While the cooperatives planned and organised all farm work, farm-households shared the output based on the amount of land, animals, and machinery they had contributed. Over 86 per cent of the farm-households were registered under such cooperatives (Pingali and Vo 1992: 702).

Over the next ten years, the cooperatives became a key element of rural organisation in North Vietnam, resembling the former Soviet collective farms and former People's

Communes in China. By the early 1970s nearly all farm-households in the North had been organised into cooperatives. Land and tools formerly belonging to households were pooled in the cooperatives. The cooperative was an administrative unit located mostly at the village level. It periodically distributed paddy land for cultivation and granted land to households for houses and homegardens; but only up to 5 per cent of the household land (Le *et al.* 1996: 38; and Pham *et al.* 1999: 79). Thus, in this collectivisation period, land was owned by the State and the farmers worked on the collective farm as agricultural labourers.

With the egalitarian principle as a core objective, this state-property rights regime promoted only the social equity of the cultivation rights for peasants in rural North Vietnam. Bromley (1991: 23) and Hanna *et al.* (1995: 18) have argued that the state, which is a political unit of citizens, has the responsibility to ensure the observance of the rules under which citizens may be able to make use of natural resources, and thereby promote social objectives. However, under this type of land tenure, farmers did not have the right of possession of farmland. Income was distributed to farmers solely on the basis of the work points system. Work points were assigned to a farmer according to the length of time required for a job and the difficulty of the work done for the cooperatives. Many studies showed that, in this case, where land did not belong to the farmers and their income did not come from the productivity of the land, farmers had no rights in the crop they produced and thus it was little matter to them whether they produced more or less (Prosterman and Hanststad 1990: 108; Brooks 1990: 240; Hann 1996; and Mathijs 1997: 40).

As farmers did not have an individual land title, they faced the possibility of eviction and loss of their capital if they invested in the farm. Farmers had to farm on fields which might be fertile or infertile, depending on the cooperative's decisions. When the government needed an area of land for any public purpose, it was taken over without any compensation. The study by Nguyen S.C. (1995: 73) showed that the farming labour force was indifferent to the use of the land because all land had been collectivised, production conditions and the production process were not firmly linked to the efforts of labourers, and therefore labourers, capital and land were not attracted to agricultural production.

Without land title, the farmers were also limited in their ability to access credit. Under collectivised agriculture, credit played only a marginal role, as the allocation of most land, capital, agricultural inputs, and labour was regulated by the cooperative. However, farmers still needed credit for the improvement of their own plots and other agricultural purposes. Informal credit from family members and neighbours was the only way for farmers to increase their capital, as there was no legal right to borrow from government banks. Farmers thus faced the high interest rates in informal credit sources. A household survey in Lap Thach district showed that during the period when the very poor households did not have rice to eat, they borrowed rice from neighbours and paid them back one and a half times what they had borrowed (Lipper 1996: 5). A number of households the author interviewed in four villages of northern Vietnam had borrowed money at 10 to 20 per cent interest from their relatives or neighbours for the improvement of their own 5 per cent plots and home gardens.

State-property regimes are potentially able to address the high risk of open-access regimes by internalising all externalities to a single owner (Tietenberg 1996: 49). But in the mountainous areas under the collectivisation regime, forestland was encroached upon and critically exploited due to the weaknesses of enforcement by the state. Deforestation occurred throughout the mountainous region of Vietnam as the result of logging and cutting firewood, clearance of land for agricultural development projects, and shifting cultivation by the minority peoples. In many parts of the northwest only 8 to 10 percent of the surface remains under forest cover (Be 1993: 117; and Donovan *et al.* 1997: 21)

Land-use rights

In the Collectivisation period, the rights of use, control and management of land belonged to the government. The state owned the land and through the cooperatives organised the work tasks of the production brigades, determined remuneration of labour, managed agricultural inputs and outputs, provided information and technical advice, granted loans for special needs, and collected taxes. Each village cooperative organised the production brigades into teams composed of the working members of between 20 and 40 households. There were two types of production brigades: (i) the *rice brigade* was drawn from a group of neighbourhoods. Their work was mainly

concerned with irrigating, plowing, sowing and supervising other tasks performed on individual plots; and (ii) *specialised brigades* worked on specific activities such as livestock production, forest plantations, brick-making, lime-processing, and growing of tea or other cash crops. Following the general policies of the central government, each cooperative made its own five-year plan that was included in the Grand National Plan. This plan regulated how much of production should be delivered as tax and the amount of necessities such as equipment, fertilisers and cloth each cooperative should receive at the state price (Le T.C. *et al.* 1996: 38).

Under this land tenure system, farmers only had the right to cultivate on the state's land and their usufruct rights were only based on the length of the time they worked on the fields. Farmers had no rights to inherit, transfer and mortgage the farmland. The state had responsibilities for all management and investment in agriculture. Specialised agencies at the district, provincial, and national levels provided guidance, technical advice, and funding for large-scale undertakings but did not directly interfere with the internal organisation and work of the cooperatives. However, collective production relations did lead to some progress in agriculture such as irrigation, rehabilitation of the rural transport network, improvement of land, and introduction of new varieties into production (Nguyen S.C. 1995: 71).

However, the management of cooperatives failed to promote other targets of agricultural production in the North. Collectivisation did not have the desired effect on rice production. Per capita production of cereal grains declined. In 1961, cereal production was 318 kg/capita. By 1980, it had fallen to 215 kg, even though during the 1970s the double-cropping of rice had become common in the Red River Delta and improved rice varieties had been introduced (Prosterman and Hanstad 1994: 5). Rice-equivalent food output was down 0.3 per cent, paddy yield was down 109 kg/ha and both annual and perennial industrial crops showed a decline compared to levels in 1958 (Nguyen S.C. 1995: 72). Kerkvliet (1997: 16) also showed that:

Many rural people had concluded that collectivised farming was a major cause of impoverishment. Because surrendering land, work animals, and other means of production to a cooperative, many worried, would make them totally dependent on that organisation, which was a new entity fraught with problems. If the cooperative's harvests proved to be bad, everyone would be in the same sinking boat, with little or no resources of their own to fall back on. For these and other reasons, many said, they preferred to farm their own, separate fields.

The decline in agricultural productivity resulted from the fact that farmers did not want to spend their labour and capital on the cooperative land. In contrast, farmers had the rights of possession, control and management only on their own "5% land plot". Thus they devoted their time, their effort and their capital to these plots as they were ensured their land title, their freedom to use the land without interference from other users, and their entitlement to the benefits from the labour and capital invested in that land. Evidence of the failures of collectivisation shows up in the fact that in the 1970s only 30 to 40 per cent of farmers' income came from work performed on collectively-farmed land, which constituted 95 per cent of commune land. The remaining 60 to 70 per cent of farmers' income came from the 5 per cent of the land reserved for household plots (Kerkvliet 1993: 11). Therefore many farmers applied for withdrawal from the cooperatives. Twenty cooperatives dissolved and 5,500 farmers withdrew from cooperatives for the winter-spring crop of 1958-59 (Pham *et al.* 1999: 81).

Management mechanism

The insecurity of the cooperative system was also illustrated in its administrative organisation and operation. The cooperative executives were usually underqualified, and deficient in management ability. In fact, the poor and landless farmers, who had little capital, production experience and poor educational and technical qualifications, played a core role in agricultural management. The experienced farmers, usually the middle-income and rich farmers, were eliminated from the cooperative executive boards because of the communist policy to promote the role of the poor in society. The cooperative chair was elected by cooperative members and acted as its executive director.

All management was responsibility of the Communist Party and People's Committee. The main duty of the political secretary was to see that national policy was implemented at the local level. He had power over all village and cooperative decisions, and reported to the district secretary of the Communist Party (Le T.C. *et al.* 1996: 39; and Pham *et al.* 1999: 85). Working in specialised production teams such as the soil preparation team, the seed preparation team, the irrigation team, the pig raising team, etc., farmers were only responsible for what they had done, and had no

concern about productivity, crop yield and animal output. Thus the main characteristics of the cooperatives' production and business were low efficiency, regular losses, and declines in crop and animal yield.

Without the rights of access to land and the rights to manage and transfer land, farmers were unable to manage the uncertainty of agricultural production. After 20 years, it was obvious that the model of agricultural cooperatives in North Vietnam was in deep crisis. The bigger the cooperative, the more concentrated its management functions, the greater the specialisation covering distinct links in the production process, the lower the average yield, output and product value per hectare (Nguyen S.C. 1995). The appearance of the "product contract" - first illegally in some rural areas and later becoming a decree of the government for the whole nation - was inevitable. In other words, land tenure arrangements during the collectivisation period offered very limited security.

5.2.3. Security level of land tenure arrangements in the Renovation period

Leasehold rights

The recession of the economy in general and the decline of agricultural production in particular, led to the illegal transformation of cooperative management in some provinces such as Vinh Phu and Hai Phong. In 1967 and 1968, a form of "household contract" was self-generated at the grass-roots level and was applied to some crops in these areas. This contract involved a transformation from the piecework of production teams into product contracts to farming households. At first, the contract became the target of criticism and an end was put to the experiment. In January 1981, however, the national government attempted to increase agricultural productivity by instituting Directive 100 which allowed cooperatives to contract rice and eventually cash crop production to households (Pingali and Vo 1992; Kerkvliet and Porter 1995; Le T.C. *et al.* 1996; Nguyen N.H. 1998; and Tachibana *et al.* 2001).

This directive was the transitional step from the centrally planned and subsidised mechanism of agricultural cooperatives to self-supporting individual households, and the handing over of the rights of land and labour to farmers. However, this transformation did not result in more security of land tenure due to the short-term

nature of the land contract and the fact that management and investment responsibilities remained with the cooperatives. Many other problems arose in the implementation of Decree 100. Contracting land based on the amount of labour caused an inequitable distribution of land and hardship for families with a high number of dependents. Farmers exploited soil productivity as quickly as they could because they had a land contract for only two to three years. Consequently, serious soil deterioration was widespread and resulted in declining agricultural productivity (Nguyen S.C. 1995:86; Le T.C. *et al.* 1996: 39; and Nguyen N.H. 1998: 3).

As for as management was concerned, farmers were in charge of three stages, planting, maintenance and harvesting, and the remaining stages such as ploughing and harrowing, supplying seeds, irrigation, combating pests, and protecting the fields were still entrusted to the cooperatives. Moreover, farmers were allowed limited scope in decision-making. In general, the farmers were not free to grow crops of their choice but had to take care of the crop fixed in the contract and the cooperative still held a monopoly over the provision of inputs and the marketing of outputs (Wolz 2000: 13). The limited supply of inputs such as fertilisers, pesticides and seeds, and lack of capitals discouraged the farmers to invest in soil productivity, even in the short-term. The internal management mechanism of cooperatives increased the contribution of farmers to funds. Farmers were required to market through the cooperatives and to meet the production quotas set by the cooperative according to land quality. The production quotas set for the various land classes were quite high, since the cooperative had to provide for a large staff and provide funds for its social service obligations.

Farmers reacted to these constraints by returning the contracted land and not investing in production. Their refusal to contribute resulted in accumulation of debts, and tens of thousands of hectares of ripe paddy were not harvested. Farmers were not interested in farmland or framework. Although during the 1981-1985 five years plan, average annual food output reached 16.9 million tons as against 13.35 million tons during the 1976-1980 period (General Department of Statistics 1986: 62), agricultural production faced a new risk of depression, with food production in 1987 reduced by 870,000 tons (Nguyen N.H. 1998: 3). Starvation occurred in 21 provinces and cities of the North in

early 1988, affecting 9.3 million people, and 39.7 per cent of farming households (Nguyen S.C. 1995: 87).

To rectify this situation, in April 1988 the government issued Resolution 10 which stipulated that the State allocated farmland for a long period for the use of households. Around 70 per cent of the cooperatives' land was allocated to households for farming and the remainder was allocated to persons whose had labour, capital and experiences of potential benefit to the country. The resolution directed the villages to allocate land to households based on the total number of household members and to extend the length of contract periods for agricultural lands to 15 to 20 years.

In 1993 a Land Law was promulgated that clarified the terms of tenure for land allocated to households and the cooperatives' role in agricultural production. Its provisions called for an additional allocation of communal lands to households, reducing the amount of communally held lands to 5 per cent. The Land Law also provided for 20 years of land-use rights for land devoted to annual crops and aquaculture, and 50 years leases for land under perennial crops. The land registration process started after the release of the Land Law. Stability of land tenure was to be strengthened by improved definition of land boundaries: the exact size and location of each plot of land allocated was to be measured, recorded and included within the household's land usage certificates. Providing land rights certificate to individual households has thus reduced the threat to a household's land tenure caused by unresolved disputes over land claims (Smith and Tran 1994: 14; and Smith 1995: 20).

Land registration is widely believed to have increased land use efficiency and agricultural production by making land transfers possible, providing collateral for agricultural loans, and increasing incentives to adopt new technology, on-farm investment, and soil conservation practices. Studies of land reform in Vietnam have indicated that 'when farmers are given land use certificates, they will be assured of their rights to the land and undertake production and business activities on the land, creating opportunities for an improved life' (UNDP 1996: 40).

The policy of leasing state-owned agricultural land to individual households for a long period provides the incentive for farmers to invest in productivity. The benefits of

increased security of land tenure have been illustrated in many of the rice-based economies of monsoon Asia, such as China, Cambodia, Laos and Myanmar. Similar to Vietnam, in the transition from a centrally planned economy to market-oriented rural development, these countries have founded a nominal state - but *de facto* private - land ownership. In this system, the state-owned farmland can be used as private land and land can be sold and bought like private property (Hayami 1994: 9; and Zhou 1998: 2). Studies by Barrows and Roth (1990: 268) of land reform in African countries have also shown that individualisation of land tenure (leasehold and freehold) increases the tenure security of the landholder. Prosterman *et al.* has also stated:

Throughout the world, experience demonstrates that the farmer who owns the land he tills will make the long-term investment essential to increasing production, prospering and becoming a real participant in the local, and ultimately in the global, economy. The owner-operated family farm remains the most productive of all agricultural systems. Furthermore, land reform is probably the most important, and sometimes the only, means of altering inequitable power structures for effective development of participatory institutions, local and national, and thus for strengthening democracy.
(1990: 2)

Nevertheless, a land use certificate alone is not a sufficient condition for land tenure security. Land tenure security needs to go together with the appropriate State management and enforcement mechanisms.

Management mechanisms

The 1993 Land Law legitimised the rights of land holders to transfer, cede and sell the fruits of their labour and the results of investment in the land when the land is assigned to other users. Households have the right to sell the land if they move to another place, if they change jobs, or if they are not able to work. Households may also transfer land-use rights by inheritance and may exchange and mortgage land-use rights. The law also grants households the rights to sub-lease their land for up to three years in certain circumstances. However, it prohibits households from using more than three hectares of agricultural land for annual crops. The law points out that the State will recover the land back from farmers if the land is not used according to the purpose for which it was allocated such as in the case of building a house on land that was designated to cultivate crops. These rights are specified in articles of the 1993 Land Law as show in Box 5.1.

Box 5.1. Article 3, 26, 78 in the 1993 Land Law of Vietnam.

Article 3: Land and certificates for land use rights can be handed to households on a long-term and permanent basis. The rights to the land are increased to five rights: the rights to exchange, transfer, inherit, mortgage and lease land.

Article 26: The State entirely or partly recovers the land already allocated in the following cases:

- (1) The organisation users of the land being dissolved, going bankrupt, moving to another place, reducing its requirement of land use but does not fall under Article 30 of this Law. The individual users of the land being dead and having no one to inherit his or her land use right.
- (2) The land user returns the allocated land at his own will.
- (3) The land is not used for 12 continuous months without a permit given by the State body which has the authority to allocate that land;
- (4) The land user intentionally tries not to fulfil the responsibility assigned by the State;
- (5) The land is not used according to the purpose for which it was allocated;
- (6) The land is not allocated by the rights authority defined under Article 23 and 24 of this Law.

Article 78:

The households and individuals who are using agricultural land for annual crop or aquatic culture due to the family being shorthanded, hard living, due to the change of job but the new job is not yet stable, or being short of labour have the right to lease the land to other persons with the period being not more than 3 years. In special cases, the period of the lease can be longer as decided by the Government. The land lessee must use the land according to the given purpose.

Source: Land Law of Vietnam, 1993.

The principle obligation of the farmer households is to pay tax. As cooperative members, it is also their duty to contribute to the cooperative's fund. In many places, taxes and the contributions to the cooperative's funds are exempt for privileged families such those who have rendered services to the country. Services of cooperatives including irrigation and pest prevention are accounted for as production costs. The farm households have an obligation to use land according to the assigned usage. Some cooperatives even regulate the structure of crops and kinds of plants cultivated to a set plan for a particular land area. This practice is applied especially in areas that requires uniform irrigation services by the cooperatives.

The new land tenure arrangements in conjunction with the improvement of rural industries and services, has resulted in significant progress in agricultural production and improvement of livelihoods in rural areas. Farmers have been eagerly returning from their 5 per cent plots to take up their assigned land because they have become an autonomous economic entity, labour has been liberalised, and a bond between the farmers and their land has been created. As a result, more investment in terms of labour, time and money has been put into land to increase its efficiency. Some barren

and neglected land has been reclaimed. During the 1981-85 period, there was a reduction of 25,000 hectares in rice-growing land but the pace of decline in rice land slowed significantly after the 1993 Land Law was implemented (Nguyen N.H. 1998: 8).

With individual rights to the use of land, farmers have greater incentives to diversify crops and rotate paddy and non-staple crops, thus increasing national food production. However, the policy of government is that in certain areas of farmland of each region, rice is the solely production, and in this case the farmers cannot use the land for other purposes (Box 5.1). In each region food production has been improved in terms of both quantity and quality. The faster growth rate in food output than in population led to an increase of 8.7 per cent in per capita food output in 1993-94 compared to 1989-92, reaching 359.1 kg/year. It is estimated that in 1995, food output, food output per capita and rice exports were 17 million tons, 362 kg and 2.2 million tons, respectively, with a food growth rate of 3.84 per cent and population growth rate of 2 per cent (Nguyen S.C. 1995: 105).

Management of cooperatives has been enhanced. From being subsidised, they are now autonomous and self-accounting entities. The management is more democratic and transparent. The management staff has been streamlined, with their responsibilities closely linked to the households, and new relationships have emerged. Cooperative managerial carders who are not directly involved in farming have been reduced by as much as a half. The expenses incurred by local party branches and authorities are no longer to be covered by the cooperative budget. As households have become more independent and gained control over their produce, investment by cooperatives has shrunk. As the market economy has developed and private trading of agricultural inputs and outputs expanded, farm households have greater freedom in diversifying and specialising their economic activities. Thus the cooperatives are only able to maintain their position because they can provide services on a competitive basis. They have begun to concentrate on carrying out major services such as irrigation and supplying of raw materials that is best done on a large scale (Wolz 2000: 22). Cooperatives have given up their leading role in production and handed this role to individual farm households (Nguyen N.H. 1998: 8; and Tran T.Q. 1998: 48).

The Ministry of Agriculture and Rural Development (MARD) and the General Department of Land Administration have shared the responsibility for the implementation of the Land Law in rural areas. They are responsible for land surveys, the organisation of cadastral mapping and registration, as well as for the completion of land use plans. These tasks are implemented at the local level by the Cadastral Survey Departments, which send out officials to villages in order to carry out surveys, and help the households fill out application forms. However, the implementing regulations will be very important in determining the effects of the law and how it will be administered at the grass-roots level.

In the implementation of the Land Law, problems in exercising and enforcing land use rights have emerged. The process of giving land certificates to farm households has faced some difficulties such as the high costs of land measurement, disputes over the allocation of land and incorrect information about land type, land size, or user name because of the lack of support from local households to the cadastral workers. Neither the training nor the incentive structure encourages the use of participatory approaches to the allocation process (UNDP 1996: 44). Moreover, some policies such as those relating to credit, transfers, and agricultural pricing have not been adjusted appropriately to give incentives for increased agricultural production and land improvement.

Problems of landlessness are occurring in rural areas. In areas where yields of rice and other grain are low, and rural infrastructure, non-crop agriculture, and off-farm employment not yet developed, peasants can find few employment opportunities in non-grain production. Their income thus is very low and their ability to cope with problems in production and living is very weak. They can obtain permission to sell their land to deal with natural disasters, disease, debts and other difficulties, or be induced to sell land to industrial and urban developers in order to earn high, short-term profits. Also, when the agricultural cooperatives were abolished, many individual households faced difficulties in accessing agricultural services that heightened the necessity for them to sell land. These peasants-farmers became the new landless (Demaine 1997: 1063; and Zhou 1998: 3).

In contrast, in areas which are in the high-wage economy, a peasant's income can be greatly increased as there is no need for them to rely on rice production because they can find sufficient off-farm employment. In this case, if land titles could not be transferred, there would be a tendency for the leaseholders to become part-time farmers and absentee (Zhou 1998: 7). Although there have arisen some problems in its implementation, the new tenure system in North Vietnam has created security for farmers investing in agriculture and improving agricultural productivity.

5.2.4. Comparison of the security levels of Collectivisation and Renovation tenure arrangements

Analysis of the level of security of land tenure arrangements in the different historical periods of North Vietnam has shown that the tenure regime under Collectivisation is insecure for purposes of agricultural development compared with the higher level of security of land tenure regime in the Renovation period. The comparison of security levels between these two tenure regimes is summarised in Table 5.2.

According to the definition of Prosterman *et al.* (1998), land tenure is secure if it embraces three essential criteria which are *breadth, duration and assurance*. Land tenure under Collectivisation did not meet these criteria. There were no rights to possess the land, no ability to gain benefits from labour and capital invested in the land, no rights to alienate and inherit land, and of course other features of tenure security such as duration and assurance were not applicable. In contrast, the land tenure regime in the Renovation period provides individualised tenure with clear definition of land-use rights that increases security for farmers to invest in agricultural productivity.

The data collected from the household survey in four provinces of North Vietnam reflects the farmers' preferences regarding ownership rights in land. Question 24 (Appendix 4.1) asked whether farmers, when given a hypothetical choice, would like the current nominal state - but *de facto* private - land ownership or prefer the former system of production teams working on cooperatives. As can be seen in Table 5.2, an overwhelming majority, 85 per cent, of the farmers in the four villages opted for the

contemporary land tenure regime while only 4 per cent prefer the management regime of cooperatives.

Table 5.1. Levels of land tenure security in two land tenure arrangements: Collectivisation and Renovation.

| Criteria of land tenure security | Characteristics of land tenure in Collectivisation (1957 - 1988) | Characteristics of land tenure in Renovation (1988 - present) |
|--|---|---|
| <p>Breadth</p> <p>Rights to possess and use land free from interference of outsiders.</p> <p>Ability to reap the benefits of labour and capital invested in the land.</p> <p>Rights of inheritance, selling and leasing land to others.</p> <p>Rights to pledge land-use rights as security for credit.</p> | <p>None. The State owned the land and farmers worked for cooperatives as agricultural labourers.</p> <p>Cooperatives organised the work points system: payment was based on the length of time a farmer worked in the fields.</p> <p>None.</p> <p>None.</p> | <p>Yes. Individual farmers have been given land certificates and can farm the land on an individual basis.</p> <p>Individual farmers have rights to grow and harvest what they invested in land.</p> <p>Yes. Individual farmers have rights to pass on to heirs, to sell or lease land-use rights to others.</p> <p>Individual farmers have rights to use land as collateral.</p> |
| <p>Duration</p> <p>The length of time for which these rights are valid</p> | Not applicable | Farm-households are provided with stable and long-term rights to use land: 20 years for annual crops and 50 years for perennial tree crops and forestry land. |
| <p>Assurance</p> <p>Enforcement of land-use rights</p> | Not applicable | These rights are being enforced. |
| Level of tenure security | Insecurity | Higher security |

The standard errors of proportions and the confidence intervals on proportions were calculated and presented in tables. The standard error of a statistic is the standard deviation of the sampling distribution of that statistic. Standard errors are important because they reflect how much sampling fluctuation a statistic will show. SE gives a general sense of the similarity of the measurements in a distribution to their mean and so to one another. Where the standard error is small, the observations are generally similar (homogeneous). Where it is large, the distribution is heterogeneous (Cochran 1963; Tal 2001). In general, the larger the sample size the smaller the standard error.

The inferential statistics involved in the construction of confidence intervals and significance testing are based on standard errors.

A confidence interval (CI) is a range of values that has a high probability of containing the parameter being estimated. The 95% confidence interval is constructed in such a way that 95% of such intervals will contain the parameter. Similarly, 99% of 99% confidence intervals contain the parameter. If a parameter is normally distributed and the standard error of the statistic is known, then a confidence interval for that statistic can be computed as follows:

$$\text{parameter} \pm (z) (SE_{\text{parameter}})$$

where SE is the standard error of the parameter (such as mean, proportion...), and z is a tabular value of confidence level (e.g. if $z=1.96$, the confidence level is 95%).

There is an extremely close relationship between confidence intervals and hypothesis testing. When a 95% confidence interval is constructed, all values in the interval are considered plausible values for the parameter being estimated. Values outside the interval are rejected as implausible. If the value of the parameter specified by the null hypothesis is contained in the 95% interval then the null hypothesis cannot be rejected at the 0.05 level. If the value specified by the null hypothesis is not in the interval then the null hypothesis can be rejected at the 0.05 level (Harrison and Tamaschke 1984, Hyperstat 2004).

To test the difference between the sample proportions or means, one can compute the difference between the sample proportions/means, the standard error of the difference, and then conduct the confidence interval on the difference between the sample proportions/means. In the hypothesis test for the difference between the sample proportions or means, the null hypothesis is there is no difference between the sample proportions/means (i.e. the value of the null hypothesis is zero) and an alternative hypothesis the value of which is different from zero. If zero, the value specified by the null hypothesis, is not in the interval, the null hypothesis of no difference between the sample proportions/means can be rejected at a certain level.

Alternatively, one can compare two confidence intervals on the sample proportions/means. If two confidence intervals do not overlap or intersect in some

parts, we can conclude that the difference between two sample proportions/means does exist. If two confidence intervals do overlap or intersect in some parts, the above test should be conducted to determine how different the two sample proportions/means are. In this study, the comparison of the CIs is used to test the difference between the sample proportions/means. If there is an intersection between two CIs, a further test will be established (Harrison and Tamaschke 1984, Hyperstat 2004).

Table 5.2. Farmers' preference in land ownership and land tenure

| Farmers' preference in land ownership and tenure regime | State-owned with land-use rights devolved to the farm-households | State-owned with land-use rights controlled by cooperatives | No response | Total |
|---|--|---|-------------------------|------------|
| Thuy Dien village | 22 (88%) | 1 (4%) | 2 (8%) | 25 |
| Bai Yen village | 24 (96%) | 0 (0%) | 1 (4%) | 25 |
| My Giang village | 20 (80%) | 1 (4%) | 4 (16%) | 25 |
| Co Cham village | 19 (76%) | 2 (8%) | 4 (16%) | 25 |
| Mean | 85% | 4% | 11% | 100 |
| Standard Error of proportion (SE) | 0.035 | 0.0196 | 0.0313 | |
| 95% Confidence Interval (CI) | (0.78 to 0.92) | (0.002 to 0.078) | (0.049 to 0.171) | |

Note: Standard error of the proportion (SE) is the square root of $p(1-p)/n$ where n is the sample size (e.g. $SE=0.035=\{0.85*(1-0.85)/100\}^{1/2}$).

Source: Tran (2000). Field data

A comparison of two confidence intervals on the mean of number of farmers with preference on "State-owned with land-use rights devolved to the farm-households" and the mean of number of farmers with preference on "State-owned with land-use rights controlled by cooperatives" shows that two CIs do not intersect each other (0.78 to 0.92 against 0.002 to 0.078). This indicates a statistically significant difference between two groups of farmers.

Among the few farmer interviewees who preferred to return to the cooperative regime, three of them are from households that derive the bulk of their income from non-farm sources and one household is the poorest in the village. These facts indicate that the peasants who are not working full-time on the farm or who are not able to carry out farming activities, thought it appropriate for the cooperatives to take over responsibility for agriculture.

Question 33 of the survey questionnaire proposed the idea of essentially granting farmers freehold tenure to their land: 'Should land use rights be made permanent?' The results of in-depth interviews of 67 farmers in four villages of Vinh Phuc, Hoa Binh, Hai Duong and Ha Tay provinces reveal that a majority of farmers, 88.5 per cent of the respondents, endorse the idea of perpetuating land use rights, with about 6 per cent still attracted to the idea of state-owned land but long-term use rights devolved to the farm households. All farmer interviewees of Thuy Dien village stated that they would prefer perpetual land use rights (Table 5.3).

Table 5.3. Farmers' attitudes toward the provision of permanent land use rights

| Should land-use rights be granted to farmers in perpetuity? | Permanent land-use rights for farmers | Current term of land lease (20 and 50 year leases) | Unsure | Total |
|---|---------------------------------------|--|-----------------------|-----------|
| Thuy Dien village | 15 (100%) | 0 (0%) | 0 (0%) | 15 |
| Bai Yen village | 11 (91.6%) | 1 (8.4%) | 0 (0%) | 12 |
| My Giang village | 13 (86.6%) | 1 (6.4%) | 1 (6.7%) | 15 |
| Co Cham village | 19 (76%) | 2 (8.0%) | 4 (16 %) | 25 |
| Mean | 86.6% | 6.0% | 7.4% | 67 |
| Standard Error (SE) | 0.042 | 0.029 | 0.032 | |
| 95% Confidence Interval (CI) | 0.784 to 0.947 | 0.003 to 0.116 | 0.012 to 0.138 | |

Note: Standard error of the proportion (SE) is the square root of $p(1-p)/n$ where n is the sample size.

Source: Tran (2000). Field data

With minor exceptions, the survey results show that households who prefer that land rights be granted in perpetuity are primarily those that still rely heavily for an income on agriculture and particularly on grain production, and have the ability to invest in farm activities. Permanent land use rights are not favoured by the few poor households who lack capital and labour for carrying out farm production. Households whose income comes from sources other than agricultural production are indifferent to the length of land lease term. For instance, all household interviewees who live in Thuy Dien village of Vinh Phuc province are fully engaged in farm production and they all prefer perpetual land use rights. One very poor family in Bai Yen village of Hoa Binh province and one in My Giang village of Ha Tay province said that they would like the cooperative to have responsibility for farm production because they are unable to carry it. Whereas, a few households in My Giang village and Co Cham village, where the major part of the income of farmers is from off-farm work, are unsure about the changes in land tenure arrangements. The CIs in Table 5.3 indicates a statistically significant difference in opinions between two groups of farmers

5.3. Impacts of changes in land tenure arrangements on long-term land improvement

The change in the security level of land tenure arrangements from Collectivisation to Renovation has affected agricultural development in general and land conservation investment in particular. The first part of this chapter assessed the security level of each tenure system and the impacts of each arrangement on agricultural production. In this second part of the chapter, the influences of these tenure regimes on farmers' attitudes and practices toward long-term land improvement are compared.

5.3.1. Land conservation practices in the research site

Overview of conservation measures

Uplands and Midlands

The midlands and highlands of northern Vietnam are regions of limited agricultural land but with increased population since the program of resettlement was implemented in 1954. Land productivity has been declining and the main direct causes of the decline of land productivity are shifting cultivation, deforestation and unsustainable farming practices. Sustainable land management of sloping land areas is a recent urgent need. A number of conservation measures have been applied to protect, improve and utilise sloping land. The slash-and-burn cultivation regime is being changed into terrace farming. The development of perennial crops and agro-forestry practices has been promoted with the application of intercropping systems.

Agro-forestry systems, in which the growing of trees is integrated with production of annual crops, offer a promising approach to sustainable land use. This system is being used on a wide range of land from the valleys to the very hilly areas, including paddy fields, home gardens, fish ponds and livestock, tree gardens, swidden fields and plantation forest. Wet rice fields are dominant in the narrow terraced valleys. House sites and associated home-gardens usually lie along the higher ground between the paddies and the hill slopes, where cassava and tea are often planted (Le T.C. *et al.* 1996: 9; and Rambo 1998: 50) (Figure 5.1 and Figure 5.2).

Gardens are planted with a great diversity of perennial species, primarily fruit trees such as custard apples, logan, mandarin, persimmons, plums, lychees, jujube and apricots as well as tea, coffee, bananas, herbs, and some timber trees. Home gardens are worked almost exclusively with household labour. Manure and some chemical fertilisers are the principle inputs. Night soil is preferentially applied to the home gardens by most households. Use of green manure cover crops is an effective measure for conserving land (Donovan *et al.* 1997; and Le V.K. 1997).

Hedgerow farming using shrubby green manure crops is another conservation measure which can minimise run-off and soil loss because, with the biomass of hedgerows and crop residues returned to the soil, the soil fertility improves gradually. Contours made of green manure plants also have a high conservation effect by reducing run-off and soil loss. Tea plantations are a very good option for managing steep acid lands. For example, in Hoa Binh and Vinh Phuc provinces farmers are interested in conservation methods such as intercropping peanut with cassava, *Tephrosia* or lemon grass hedgerows, contour farming, stone-lines and fertilisation (Nguyen H. *et al.* 1998: 139; and Tran D.T. *et al.* 1998: 88) (see Figure 5.3 and Figure 5.4).

These conservation measures require high establishment costs in terms of labour, time and costs of other inputs. The establishment costs strongly influence the short-term economic viability of the hedgerow intercropping and terracing relative to traditional open-field farming in uplands of many developing countries (Nelson and Cramb 2000: 142).

Lowlands (the Red River Delta)

Villages of the Red River Delta are characterised by household compounds which are centralised and surrounded by paddy fields. Small-size home gardens are located in the household compounds, and are planted with a variety of fruit trees and vegetables (Figure 5.5, Figure 5.7 and Figure 5.8). A large number of ponds are scattered throughout the villages, with most of them connected to the house sites. Most low land areas are arable. However, the depletion of nutrients from the cultivated lands is inevitable, and thus some soil conservation measures have been used. Farmers have applied manure to their fields and also added chemical fertilisers. Pig, buffalo and

cattle manure compost and night soil are the main types of manure households apply to their fields (Patanothai 1998: 171).

Pig manure compost is accumulated daily by putting rice straw, grasses, rice husks and tree leaves into the pig pen as bedding, then collecting the bedding and manure for use in the fields twice a year for spring and winter crops. Night soil is used as compost by putting ash of rice straw or plant materials in the latrine to mix with human excrement. Farmers prefer to use night soil for winter subsidiary crops and rice nurseries. The manure of cattle or buffalo is collected from their stables and put into the pit near the stables together with straw left over from animal feeding. Green manure is also used. Green manure is made by taking weedy grasses, wild azolla and leguminous trees such as sweet potato vines, peanut plants and taro, placing them in piles in the fields and covering them with soil.



Figure 5.1. Farming on steep land with paddy rice and maize in the valley of Bai Yen village



Figure 5.2. Forest-Garden-Pond-Husbandry Model



Figure 5.3. Thuy Dien farmers growing rice, cassava and fruit trees on round hills and plain field



Figure 5.4. Home garden and paddy rice in Thuy Dien village



Figure 5.5. Plain fields of paddy rice and home-garden in My Giang village



Figure 5.6. Interviewing key informants in My Giang village



Figure 5.7. Paddy rice fields in Co Cham village



Figure 5.8. Vegetables and fruit tree garden in Co Cham village

To supplement the animal and green manure and night soil, an appropriate amount of chemical fertilisers and lime is often applied to the fields. The fertilisers used are urea for nitrogen, superphosphate for phosphorus, and potassium chloride for potassium. Some compound fertilisers are used but in small amounts. Lime is applied to the fields which have high soil acidity.

Changes of farming practices have been an effective way to improve land productivity in North Vietnam. Instead of the traditional mono-culture, the paddy land has two crops of rice, and many areas have an additional third crop in the dry winter season. Crops grown as the third crop include sweet potato, potato, peanuts, maize, and soybean (Tran H.K. 1995: 48).

Factors affecting farmers' adoption of long-term land conservation

As mentioned in Chapter 2, farmers' adoption of soil conservation activities is determined by personal, physical, economic and institutional factors. Studies that have considered farmers' attitudes towards conservation have suggested that farmers' decisions about whether to take advice about conservation were affected by three dimensions: the policy environment facing farmers, the advisory structures in place and the personality of the farmers (Potter 1986; Clark 1989; and Lemon and Park 1993).

In this study, the relationship between farmers' personal characteristics and institutional arrangements is the focus in examining the impacts of land tenure regimes on the attitudes of farmers toward land conservation practices. The study also analyses how land tenure regimes have influenced the decisions of farmers about conservation practices through their effects on other factors such as physical, economic and soil conservation factors.

Physical factors define the potential erosion or depletion of soil organic matter and determine potential productivity benefits over the entire farm unit. Physical factors are slope length, slope degree, soil erodibility and other features of soil quality such as soil acidity, soil alkalinity, and soil organic depletion. Farm size and farm location are also included among the physical factors.

Economic factors may either enhance or constrain farmers' attitudes toward land degradation control. Higher levels of economic returns are thought to be positively associated with a number of conservation practices because financial constraints to adoption are less for farmers with larger incomes. Thus, ideally, net farm income would be the appropriate measure. However, income data was difficult to collect from the sample farmers, so total acres of cropland were substituted. Off-farm income also plays an important role in supplementing income for financing conservation expenditures; thus the total income of a farm household is also used as a factor affecting measurement. Debt level is popularly perceived as an economic factor affecting decisions about conservation practices. It is argued that farmers under high debt service loads such as land mortgages are forced to plant mostly high return, erosive row-crops and cannot afford to invest in conservation practices, especially structures (Nelson and Cramb 2000).

The planning horizon of conservation investment is an important economic factor that may constrain or encourage farmers in short-term or long-term investment as the future benefits will accrue to the farmers in a certain time horizon of investment (Ervin and Ervin 1982). Pay-off to investment in soil conservation practices also reflects the benefits of investment including crop yields and soil quality. Economic factor affect investment decisions because the return from investment is the total profit the farmers receive during the period of investment (Francis 1993).

Soil conservation effort is a function of the effectiveness and extensiveness of the individual's practices over the farmland. Soil conservation effort can be measured by the labour, time and material inputs committed by the farm household. Conservation effort therefore is hypothesized to depend heavily on economic and institutional factors because the farmers' ability and willingness to afford those inputs are determined by these factors.

Personal factors include personal attributes such as age, education, gender, farming experience, and perceptions about land degradation and conservation. The age of the household head has been found to be a significant factor in applying conservation measures because age affects expectations about the ability to reap the benefits of activities that require long periods of labourious work. For example, bench terracing

and the construction of rock walls would be less appealing to older farmers (Cramb *et al.* 2000: 74). Higher education levels should be associated with better information about conservation measures and the productivity consequences of land degradation (Ervin and Ervin 1982: 283).

Farmers' perceptions about farm problems and options for resolving them are partly a function of personal attributes and partly a function of farm attributes. The study of the adoption soil conservation practices should consider farmers' awareness of the process of land degradation occurring on their farms, the rates of soil loss and the impact of land degradation on crop production, the causes of farmland degradation, and the appropriate means to deal with it (Seitz and Swanson 1980: 1084). It is argued that awareness of a land degradation problem is likely to increase an individual's perception of the symptoms of degradation and, in turn, lead to adoption of the relevant technology (Anim 1999: 337). Awareness of soil deterioration problems, perceptions of long-term profitability and the length of conservation scheme are crucial factors for conservation investments and expected to be highly correlated with the adoption of conservation measures. Thus these factors are also considered in measuring the adoption of land conservation practices by farmers.

5.3.2. The influence of change in land tenure security levels on the adoption of soil conservation in North Vietnam

The assessment of impacts of changes in the land tenure regime from the Collectivisation period to the Renovation period is based on the data obtained from the household survey conducted in four villages in four provinces of northern Viet Nam (Chapter 4). The socio-economic characteristics of the surveyed households in those four villages are described in Table 5.4. The 100 farmers interviewed reported an average household size of 4.93 members and an average family labour of 3.08 including non-agricultural labour. On average about half of the farm household is engaged in agricultural work. However, the percentages of households with non-agricultural labour are different in the four villages. The large magnitude of standard error (0.21) in Table 5.4 shows the different number of farmers engaged in non-farm work between the four villages. In Thuy Dien village only 12 per cent of households is currently engaged in non-agricultural employment, while 20 per cent of households of

Bai Yen village provide non-agricultural labour. In My Giang and Co Cham villages, which are located close to urban areas, 54 per cent and 51 per cent respectively work off-farm permanently (Appendix 5.1a).

According to the survey, the average landholding size is 0.23 hectares (Table 5.4). Generally, leases were allocated on the bases of household size, with an area of approximately of one *sao* (360 m²) per person (Appendix 5.1b).

Land fragmentation is a common problem in rural areas. The government allocated land to farmers in an egalitarian spirit, which meant that each person was supposed to receive an equal amount of land of given quality. Therefore, each commune's land was cut into many small pieces to distribute to farm households. The average of number of plots per farm household in the survey is 7.69 (Table 5.4). The least number of plots a family received was three and many families were allocated 10 to 20 plots (Appendix 5.1c).

The farm plots are far from each other and from the farm home. The mean distance of plots from homesteads is 998 meters. In particular, farmland in Co Cham village, which is located close to Hanoi city, is very fragmented with an average distance of plots from homes of 1432 meters (Appendix 5.1d).

The estimated average annual per capita household income in the sample is 114.15 USD. The per capita net income of peasants in Co Cham, where the household's income partly comes from the non-agricultural works, was highest, at about 134.80 USD (Table 5.4). The income levels in the region have been categorised on the basis of the UNDP poverty line 1993 for rural households in Vietnam.

Table 5.4. Socio-economic characteristics of 100 farm households in four villages

| Province | Village | Average Household size | Mean family labour | Percentage of households with non-agricultural labour (%) | Average per capita net income (USD) | Average farm size (hectares) | Average number of plots per farm household | Mean distance of plots from homestead (meters) |
|-----------------|----------------|-------------------------------|---------------------------|--|--|-------------------------------------|---|---|
| Vinh Phuc | Thuy dien | 5.05 | 2.78 | 12 | 101.46 | 0.25 | 5.06 | 740 |
| Hoa Binh | Bai yen | 5.3 | 2.53 | 20 | 118.66 | 0.24 | 13.3 | 960 |
| Ha Tay | My giang | 4.95 | 3.45 | 54 | 101.66 | 0.19 | 6.06 | 860 |
| Hai Duong | Co cham | 4.4 | 3.56 | 51 | 134.80 | 0.23 | 6.36 | 1432 |
| Average | | 4.93 | 3.08 | | 114.15 | 0.23 | 7.69 | 998 |

Source: Tran (2000). Field survey.

A monthly per capita income of VND 50,000 (or 4.54 USD) identifies a rural household in poverty, VND 30,000 (or 2.72 USD) a starving rural household and VND 91,670 (or 8.3 USD) a basic needs household (UNDP 1998: 6). Hence, the average net income of farm households in the survey is a little above the basic needs level. About half of the respondents (52 per cent) have reached the basic needs income level, 26 per cent of respondents have per capita net incomes lower than this level, and only 22 per cent have higher net incomes (Appendix 5.1e).

Perceptions of farmers about the adoption of land conservation practices

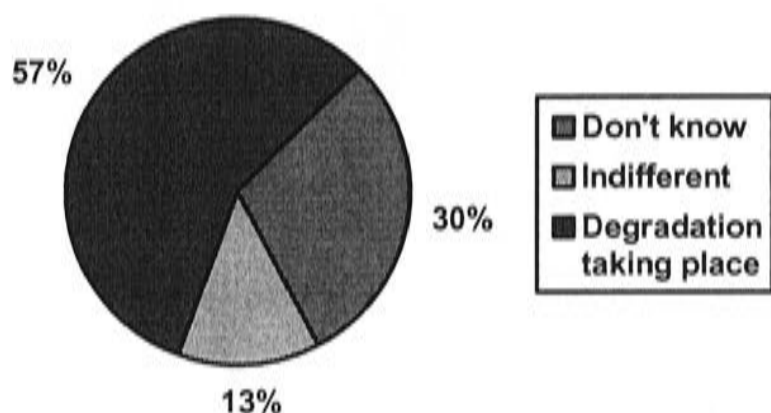
Farmers in the sample perceive that agricultural land has been degraded seriously under both land tenure arrangements. There were 42 respondents in the sample who were 43 to 75 years old and were therefore able to reply to the question about the Collectivisation period. About 56.7 per cent of farmers reported that they had recognised a land degradation problem, 13.4 per cent were indifferent to the problem, while 29.8 per cent did not reply to the question because they were children at that time (Figure 5.9a).

A high proportion of farmers interviewed (85.3 per cent) also reported that they consider their farm land is presently being degraded, 8.2 per cent were indifferent to land degradation and 6.5 per cent are unclear about the problem as they are engaged in off-farm work (Figure 5.9b).

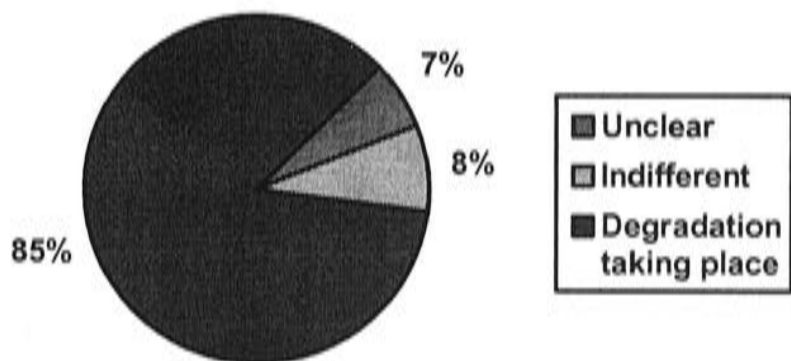
Although most of the farmers interviewed say their farmland has been degraded, they have different perceptions about the main causes of degradation. A large proportion of respondents attributed the degradation mainly to the physical characteristics of land such as the length of slope land and steepness of farmland (85.2 per cent) and inappropriate farming practices (70.1 per cent).

Figure 5.9. Farmers' perceptions of land degradation

a. In the Collectivisation period



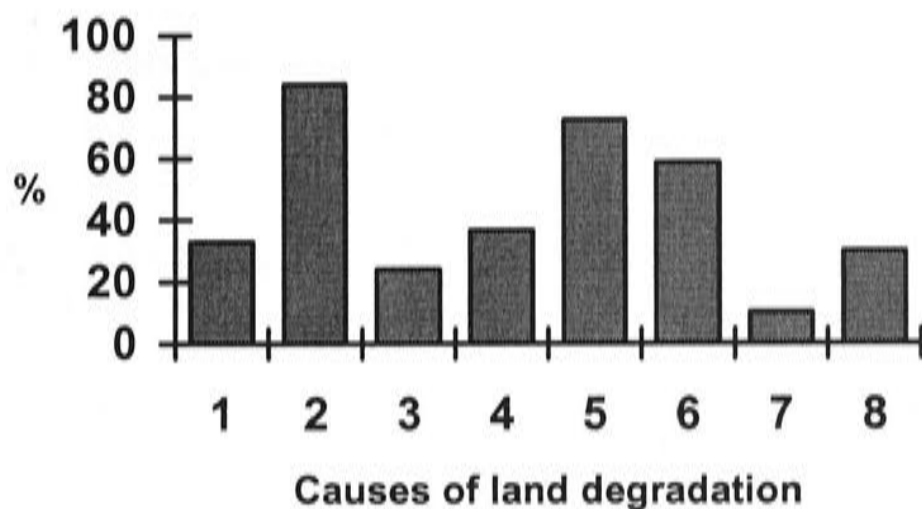
b. In the Renovation period



Source: Tran (2000). Field data.

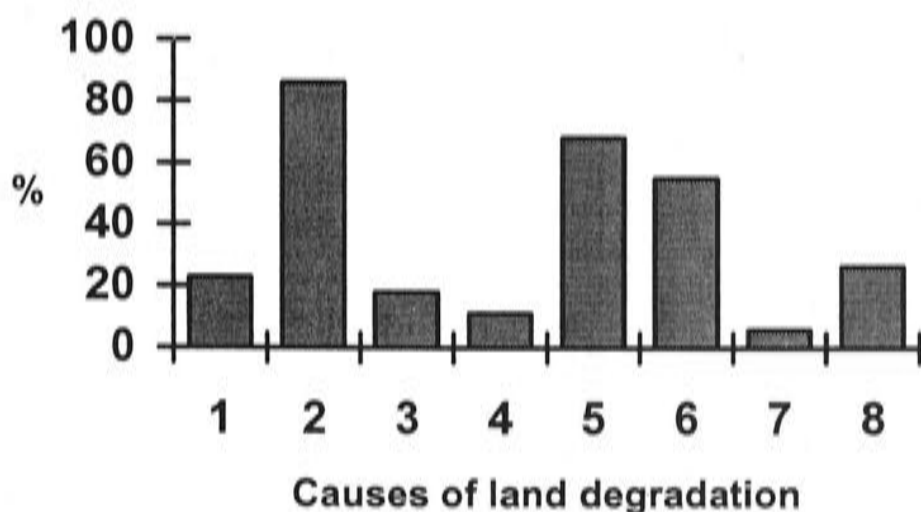
The perceptions of farmers of the causes of land degradation are illustrated in Figure 5.10 (A and B). In both lowland and upland areas, most farmers interviewed saw that the reasons for farmland degradation are inappropriate farming practices (72.2 per cent and 68 per cent respectively), land topography (81 per cent and 86 per cent respectively), and the poor specification of the land rights under the land tenure regimes (58.4 per cent and 55 per cent respectively). Only six per cent to 33 per cent of the interviewed farmers of both areas prioritised other reasons for farmland degradation such as climate change, weakness of enforcement, deforestation and inappropriate irrigation and drainage patterns. However, about 36.5% of farmers in the lowland areas consider rapid population growth as a cause of land degradation, while very few farmers (11.2%) in upland areas thought about that reason.

Figure 5.10. Farmers' perceptions about the main causes of land degradation



A. Lowland area (My Giang and Co Cham)

1. Inappropriate irrigation and drainage patterns
2. Soil acidity/waterlogging areas
3. Tree density
4. Rapid population growth
5. Inappropriate farming practices
6. Ill-specified land-use rights
7. Weakness of enforcement
8. Others (technical methods, climate changes)



B. Upland areas (Thuy Dien and Bai Yen)

1. Inappropriate irrigation and drainage patterns
2. Slope length and steepness
3. Tree density
4. Rapid population growth
5. Inappropriate farming practices
6. Ill-specified land-use rights
7. Weakness of enforcement
8. Others (technical methods, climate changes)

Source: Tran 2000. Field data.

The perceptions of farmers about land degradation and its causes are very much related to their perceptions about how to protect soil quality. However, there is a clear difference in farmers' perceptions about how to conserve farmland under land tenure

arrangements in the Collectivisation and Renovation periods (Table 5.5 and Figure 5.11a).

Table 5.5. Farmers' intentions about protecting soil quality under the two land tenure regimes

| Have you wanted to invest in improving soil fertility of the fields | Collectivisation regime | | | Renovation regime | | |
|---|---------------------------|---------------------------|--------------------------|---------------------------|---------------------------|----------------------|
| | Yes | No | No response | Yes | No | Total |
| Thuy Dien | 1 (6.7%) | 8 (53.3%) | 6 (40%) | 15 | 0 | 15 |
| Bai Yen | 1 (8.3) | 5 (41.7) | 6 (50) | 11 | 1 | 12 |
| My Giang | 1 (6.7) | 9 (60) | 5 (33.3) | 12 | 3 | 15 |
| Co Cham | 2 (8) | 15 (60) | 8 (32) | 22 | 3 | 25 |
| Average | 5/42 (11.9%) | 37/42 (88.1%) | 25/67 (37.3%) | 60 (89.5%) | 7 (10.5%) | 67 (100%) |
| Standard Error of Proportion (SE) | 0.05 | 0.05 | 0.059 | 0.037 | 0.037 | |
| 95% Confidence Interval (CI) | 0.021 to 0.217 | 0.783 to 0.979 | 0.257 to 0.489 | 0.822 to 0.969 | 0.031 to 0.178 | |

Note: Standard error of the proportion (SE) is the square root of $p(1-p)/n$ where n is the sample size.

Source: Tran (2000). Field data

Non-intersection between the confidence interval on the mean of number of farmers preferred "Collective Regime" for soil quality protections and the mean of number of farmers preferred "Renovation Regime" (0.021 to 0.217 against 0.822 to 0.969) in Table 5.5 indicates that there is a statistically significant difference. The cross-tabulations indicate that 88 per cent of farmers who responded to the survey questions about their intentions with regard to protecting soil quality did not wish to invest in improving soil fertility of the cooperative fields. They all said that as the farmlands belonged to cooperatives, and all farm equipment and other inputs and even the output were also owned by the State, they did not see that any benefits would come to them from protecting the soil quality of cooperative fields as they were paid by the amount of rice, which relied in turn on the length of time they worked in the fields. Another reason given was that the rights and responsibilities of managing farmland had not been in farmers' hands, thus most of them neglected to protect the soil under the Collectivisation regime.

However, 11.9 per cent of respondents said that they wanted to improve the soil fertility of cooperative fields. Some of these farmers were members of the technical teams who

were sent to the training courses on farm techniques. The few farmers who preferred the cooperative management also said they had wanted to protect the soil fertility of the cooperative fields.

In contrast, 89.5 per cent of farmers in the four villages said that they wished to invest in long-term land improvement (Table 5.6). These farm-households pointed out that under the new Land Law, giving them the rights to use land over a long period, they have confidence to invest in agricultural production and improve soil quality because they believed that they could get profits from what they invested in farmland. Also, the land transfer rights, together with the rights to inherit and borrow money from the banks, have encouraged them to invest in improving their farmland.

The reasons for these (10.5 per cent) of farmers not wishing to invest in soil conservation varied according to household characteristics and some constraints in implementing the Land Law. For example, two farmers in My Giang and Co Cham villages did not wish to invest in long-term land improvement due to the limitation of their household labour and finance. The other four farmers were indifferent to soil conservation investment because the main sources of their income are off-farm work. One farmer in Bai Yen village said that he lacked capital for investment in farming. He had attempted to borrow money from the banks, but his application was not accepted because he does not have any valuables to mortgage together with mortgaging his land.

Farmers' land conservation practices

Under the cooperative system agricultural tasks were carried out by large groups of people, so that fields were no longer tended by peasants who knew the land characteristics well. Land management was undertaken by the specific technical teams. However, the work of these teams was focused on rice production and they took little care of land productivity. The cooperatives took sole ownership of all property, except the households' five percent of field plots. The only other means of earnings for farmers was participation in production activities governed by the cooperative on the cooperative's land and with the cooperative's equipment and other inputs.

The results of the survey shown in Table 5.6 show that in the Collectivisation period a large majority of farmers (83.3 per cent) practised long-term land improvement only on

their own 5 per cent plots, while 92.8 per cent said they did not spend time, labour and other inputs on improving the cooperatives' fields. All respondents said that they had rights to cultivate, control, manage and pass their 5 per cent field plots to their children, thus they had applied some soil conservation methods to their fields because they could reap profits from the improving productivity of the land.

Table 5.6. Farmers' land improvement practices under Collectivisation

| Did you practise land improvement? | Collectivisation regime | | | | | |
|------------------------------------|---------------------------|---------------------------|------------|----------------------------|---------------------------|------------|
| | Your 5% field | | | Cooperative fields | | |
| | Yes | No | No respond | Yes | No | No respond |
| Thuy Dien | 7 (46.7%) | 2 (13.3%) | 6 (40%) | 1 (6.7%) | 8 (53.3%) | 6 (40%) |
| Bai Yen | 5 (41.7) | 1 (8.3) | 6 (50.0) | 1 (8.3) | 5 (41.7) | 6 (50.0) |
| My Giang | 8 (53.3) | 2 (13.3) | 5 (33.3) | 0 (0) | 10 (66.7) | 5 (33.3) |
| Co Cham | 15 (60) | 2 (13.3) | 8 (32.0) | 1 (4) | 16 (64.0) | 8 (32.0) |
| Average | 35/42 (83.3%) | 7/42 (16.6%) | 25 | 3/42 (7.2%) | 39/42 (92.8%) | 25 |
| Standard error of proportions (SE) | 0.057 | 0.057 | | 0.0397 | 0.037 | |
| 95% Confidence Interval (CI) | 0.721 to 0.946 | 0.054 to 0.279 | | -0.006 to 0.149 | 0.851 to 1.006 | |

Note: Standard error of the proportion (SE) is the square root of $p(1-p)/n$ where n is the sample size.

Source: Tran (2000). Field data.

There is a statistically significant difference between groups of farmers who wanted to applied land improvement practices to their 5% and cooperative fields. The confidence intervals in Table 5.6 reveals that 72 percent to 95 percent of farmers applied land improvement practices to their 5% field, while only zero percent to 15 percent of farmers did it for the cooperative fields. A number of farmers (16.6 per cent) were indifferent to improving their own land because they worked as traders in the markets. About 7 per cent of farmers who did practise soil conservation on the cooperatives' fields were members of the technical teams and some other young people who wanted to contribute their efforts to the cooperatives. The methods, which were used for protecting soil in the Collectivisation period, were traditional ones such as cattle and green manure, crop residues and chemical fertilisers. Farming practices were unchanging because of the economic system and the limited technical knowledge.

The effects of changes in land tenure security from the Collectivisation period to the Renovation period on farmers' long-term land improvement practices are indicated in the survey results. Table 5.7 shows that 79 per cent of farmers who were interviewed in the four villages currently apply some soil conservation methods. Among these villages,

the number of farmers in Bai Yen and My Giang who practised soil conservation is obviously less than in the two other villages (standard error = 0.2). Most of these farmers said that since the 1993 Land Law has been implemented, they are assured of the rights of using and managing their land as well as the rights to reap benefits from what they have invested in the land, and thus they are encouraged to invest in long-term land improvement. However, 21 per cent of the interviewed households had still not invested in long-term land improvement due to the number of constraints within the law itself and its implementation, as well as financial and labour constraints. A few of the households who rely on off-farm income are reluctant to invest in land.

Table 5.7. Farmers' long-term land improvement practices under Renovation

| Have you practised long-term land improvement on your farmland? | Yes | No | Total |
|--|-----------------|-----------------|------------------|
| Thuy Dien | 15 (100.0%) | 0 (0.0%) | 15 |
| Bai Yen | 8 (66.7%) | 4 (33.3%) | 12 |
| My Giang | 8 (53.3%) | 7 (46.7%) | 15 |
| Co Cham | 22 (88.0%) | 3 (12.0%) | 25 |
| Mean | 53 (79%) | 14 (21%) | 67 (100%) |
| Standard error (σ) of percentages | 0.05 | 0.05 | |
| 95% Confidence Interval (CI) | 0.694 to 0.888 | 0.112 to 0.306 | |

Note: Standard error of the proportion (SE) is the square root of $p(1-p)/n$ where n is the sample size.

Source: Tran (2000). Field data

Investment in soil conservation in the Collectivisation Period was different between the upland and lowland regions as well as between provinces. These different types of conservation are illustrated in Table 6.3. The common soil conservation in all areas is intercropping with application of fertilisers. Farmers in the upland with hills and mountains (Bai Yen and Thuy Dien) applied the model of agro-forestry while farmers in the lowlands (My Giang and Co Cham) applied the model of garden-pond-husbandry. Each village also had different conditions and incentives to adopt different soil conservation measures. For example, My Giang villagers dropped the winter crop in every year as one soil conservation measure because they wanted to have time to work in the city to get higher incomes. But in Co Cham, another lowland village, also located close to urban areas, farmers grew fruit trees and leguminous vegetables.

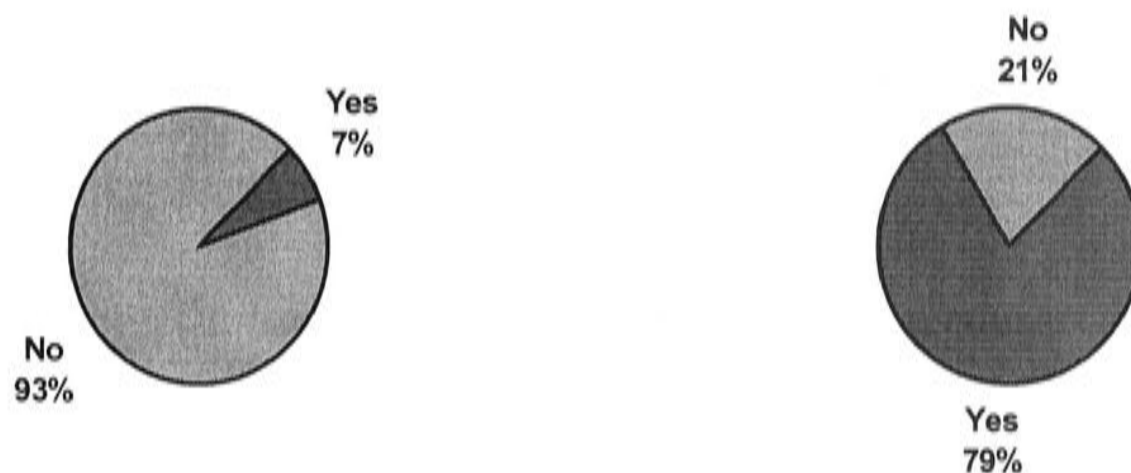
Nevertheless, compared with the 92.8 per cent of farmers who did not protect soil quality in their Collectivisation Period, the current tenure regime has shown in a

dramatic fashion its advantages in terms of giving incentives for farmers to adopt land conservation practices (Figure 5.11).

Figure 5.11. Different impacts of land tenure regimes on conservation adoption

a. under the Collectivisation Period

b. under the Renovation Period



Source: Tran (2000). Field data.

Most of the farmers indicated that simultaneously with the appearance of new conservation techniques, the greater security of the current land tenure regime led them to invest in land improvements and to apply appropriate conservation methods including farming methods which can restore and improve soil quality. Each village uses some specific conservation methods. For example, in Thuy Dien village, the usual measures are intercropping, using fertilisers, gradual terracing and added mud to the soil. As in many other highland areas, Bai Yen village has applied the model of Forest-Garden-Pond-Husbandry, cattle and green manures, terracing, and planting Acacia tree. Whereas, in My Giang and Co Cham villages, which are typical lowland areas, the common conservation measures are intercropping with the application of fertilisers, planting fruit trees and leguminous trees, and using livestock and green manures.

Supporting for the above argument, data of the Agricultural Bureau of Lap Thach on the cropped area in Lap Thach district of Vinh Phuc province provided evidence of the changes in farming practices from monoculture to multi-cropping with leguminous plants which improves the nutrients in soil. Table 5.9 demonstrates that over the period between 1988 and 1993, the area under cassava declined 25 per cent while the area under sweet potato, beans, and soybeans and vegetables increased substantially. However, the changes in farming practices in this period have been influenced by many

social, economic and environmental factors including the institutional changes (Lipper 1996).

Table 5.8. Lap Thach district cropped area, 1988 and 1993 (hectares)

| Crop | 1988 | 1993 | % change |
|--------------|-------|-------|----------|
| Rice | 13139 | 13181 | 0 |
| Corn | 2649 | 2633 | -1 |
| Cassava | 2121 | 1600 | -25 |
| Sweet potato | 1612 | 3042 | 89 |
| Beans | 141 | 360 | 155 |
| Vegetables | 979 | 1019 | 4 |
| Peanuts | 1049 | 1198 | 14 |
| Soybeans | 42 | 239 | 469 |

Source: Lipper (1996).

5.4. Conclusion

As in many developing countries, especially in the formerly socialist countries, the change in land tenure arrangements in northern Vietnam has marked an important change in agricultural development, particular in agricultural land management. The tenure regime with State sole ownership but without individual tenure, which dominated for over 30 years, adversely affected the region's agricultural production. Farmers who worked on the farms had no rights to the use and management of farmland, while the payment they received from their farm labour was based on the length of the time they spent on the cooperative fields. Therefore, they had no incentive to take care of farmland or invest in the land because their income did not come from agricultural production.

In contrast, the 1993 Land Law gave full rights to the use of land to farmers, granting 20-year land-use rights to farmers for agricultural land and 50 years for forest land, with the rights of transfer and rights of using land as collateral. The security of land tenure for individual farmers has not only led to changes in farmers' perceptions towards soil conservation practices, it has also led to change in the farming activities of farmers. Recently, farmers have been applying many soil conservation measures on their farm. This fact demonstrates that the current land tenure regime provides security for farmers in North Vietnam to invest in long-term land improvement.

However, there are a number of problems with the implementation of the 1993 Land Law such as problems in registering land certificates, the conditions for transferring

land rights, and the conditions for mortgaging land-use rights. These constraints have adversely affected the investment of farmers in long-term land improvements. These issues are analysed in more detail in the following chapters.

Chapter 6. The impact of land tenure duration on the adoption of long-term land improvements

6.1. Introduction

The 1993 land reform has created favourable circumstances for the development of agricultural production in Viet Nam. The new land tenure regime, in particular, has contributed positively to the adoption of long-term land improvements.

However, besides the many advantages for farm and farmland productivity, there are a number of limitations in the law itself as well as in its implementation. These limitations exist in all aspects of the tenure regime such as the land registration process, land right certificates, land distribution, land transfer rights and the taxing of transfers, conditions for mortgaging land rights, the enforcement mechanism and the administrative system. This chapter and the next focus on these aspects of the current land tenure regime in order to understand the advantages and shortcomings, and their influences on agricultural production and land productivity.

It is hypothesised that the duration of land tenure is an aspect of land tenure that strongly influences the adoption of land conservation practices. In examining this hypothesis, this chapter addresses the relationship between farmers' attitudes and land conservation practices and the issues of land registration, land lease term, and farm size as well as farm fragmentation problems. Using quantitative and qualitative data collected in the field work, this study shows that giving farmers land-use certificates with long-term rights to land can lead farmers to undertake production and land protection activities that create opportunities for an improved life. The evidence provided also demonstrates several limitations in the processes of distributing land certificates and land re-distribution to farmers.

This chapter develops arguments with respect to the three main issues affecting the duration of the land tenure regime. First, it criticises the process of distributing land-use certificates, and the rights and obligations specified in the certificates in relation to farmers' investment in land. Second, the chapter discusses the relationship between the lease term and the long-term return from adopting land conservation practices. Third, it

examines the effects of the fragmentation of farm plots as well as their small size and the impacts on soil conservation practices. In conclusion, it discusses the implications for land registration and re-distribution theories and future policy formulation.

6.2. Land-use rights certificates

6.2.1. Definitions of land registration

Since people first started growing their own food, land tenure and the title expressing it has played an important part in economies and in agriculture, as people needed tenure security for the land they farmed. Going back to about 3000 B.C. there were records of land ownership for ancient Egypt where the rulers kept a Royal Registry to record land ownership for taxation purposes (Larsson 1971). Much later, after Napoleon I decided to establish a French cadastral survey, land records were gathered for the purpose of taxation in Europe. At this time, there were also private needs for land records to support secure and efficient land transfers and protect ownership in land. This need for land records eventually provided the stimulation for land registration systems (Hanstad 1996: 2).

A land registration system is defined as a public system of records concerning the legal rights to land. Land registration systems have existed in two categories: *registration of deeds* and *registration of title*. Registration of deeds developed hundreds of years ago in several European countries. This system involved the registering or recording of documents relating to interests in land. Many early legal systems and systems of customary law in less developed countries have regarded publicity alone as sufficient guarantee when land is transferred and neglected the private rights in land records that affect the land transactions between individuals. However, as societies become less close-knit and more complex, the process of private conveyancing of land becomes less satisfactory. Purchasers and other interested parties need to be able to inquire into the so-called owner's rights to the land (Ruoff 1957, Larsson 1991).

The essential idea of land title registration was that a land register should show the state of ownership, rather than just provide evidence of ownership. Thus, under this system, the government guaranteed all rights shown in the land register. Under land title registration, a certificate of title provides conclusive evidence of the land rights

pertaining to a particular land parcel. A legal interest in land is not created or transferred until government itself - officials in the land registry office - makes a conclusive assessment of the current state of the title. In a Minnesota Supreme Court decision in the United States, Chief Justice Start described the difference between systems of land title registration and land recording in this way:

The basic principle of this system (land title registration) is the registration of the title of land, instead of registering, as the old system requires, the evidence of such title. In the one case only the ultimate fact or conclusion that a certain named party has title to a particular tract of land is registered, and certificate thereof delivered to him. In the other, the entire evidence, from which proposed purchasers must, in their peril, draw such conclusion, is registered.

(McCormark 1992 cited in Hanstad 1996: 20)

In the United States, the land title registration system is generally referred to as the Torrens system, named after Sir Robert Torrens who also introduced land title registration in Australia. Although much of the rest of the world distinguishes between the Torrens system, the English system, the German system or the Ottoman system of title registration, experts point out that there are few differences between the systems and that using different names suggests a distinction in kind that does not really exist.

Land registration is often closely linked to a cadastral. A cadastral is a methodically arranged public inventory of data on land parcels within a certain country or district based on a comprehensive survey of their boundaries. It is called a cadastral survey and a cadastral map indicates the boundaries of land parcels. Although cadastral were originally established for land taxation purposes, in many countries they later came to be used for land registration purposes (Larsson 1991).

6.2.2. The necessity of a land registration system

Land is a fundamental resource, which can be most effectively used and exchanged when the rights to land are registered. Land titling or registration is needed, among of other reasons, to encourage land transfers to more productive farmers, improve farmers' access to credit, create incentives for investment in long-term land improvements and new technology, reduce litigation over land disputes, and improve the land administration system.

To promote land transfers

A land market is central to the desirable policy goals for agriculture: improving the efficiency of the agricultural sector, raising the return to agricultural labour, and facilitating the exit from the agricultural sector of those who will be more productive elsewhere in the economy to be replaced in the agricultural sector by more productive farmers (Faruqee and Carey 1997: 1). In any society which recognises privately-owned property rights in land, a market in those rights will develop and interests in land will also pass by inheritance. Thus, it is important to provide adequate and efficient mechanisms by which to safely transfer interests in land (Hanstad 1996: 5).

Many customary land tenure arrangements permit land transfers. Bruce and Dornier (1982), Feldman (1974), and Collier (1983) have argued that in some situations land transfer may be discouraged by perceived insecurity on the part of owners who want to rent their land out, or potential purchasers who are dissuaded from buying land due to the uncertainty caused by local custom or government land policy. For example, the success of the land titling program in Cameroon was due to the fact that the boundary markers on farmers' land are placed by state agents, and are backed by state authority; community members respect the markers as powerful symbols of an individual's land claims. The markers therefore enhance the farmers' tenure security and promote economic growth (Sellers and Sellers 1999: 1120).

Land titling or registration might be expected to reduce the costs of risks and transactions of land transfers. However, the formal legal and administrative mechanism of land registration - boundary delineation and recording of land claims - may increase risks and transaction costs for certain groups, especially local people who rely on informal means to establish and safeguard their claims. In particular, small farmers seeking credit are likely to face high transaction costs in dealing with formal bureaucratic institutions such as banks (Atwood 1990: 663). In Kenya, for example, transaction costs are sufficiently high to discourage official registration of some sales. Many people rely on customary or informal land transfer practices rather than formal land registries (Coldham 1979, and Haugerud 1983). Other studies of the land registration issue have also found that land titling increases, rather than decreases,

insecurity of tenure (Goheen 1988; Bruce and Fortmann 1989; and Watts 1993). Thus, the transaction costs involved in registering need to be carefully examined.

Land registration or the written land contract is an important part of change in land tenure arrangements in many former communist countries. These countries are changing their land rights systems to allow for private land ownership and development of a land market. Therefore, it is essential that the opportunity to introduce a land title registration system be taken up (Hanstad 1996: 5).

To improve farmers' access to credit

The registration of rights to land provides the documentary evidence necessary to prove land rights at any time. The holder of the land rights can lodge his land rights as security for a loan. Secure legal rights are expected to facilitate farmers' access to cheaper, longer-term and more extensive credit. Possession of a land title is often a precondition for formal bank loans (Wai 1957; Sacay 1973; and Dorner and Saliba 1981). In most countries the permanent improvement of land and the commercialisation of agriculture depends on the extension of agricultural credit. Investments in agricultural production and in land improvement require cash or credit because they require additional labour, capital, and some mechanised or draft power. However, lending institutions are typically unwilling to extend credit to farmers if they do not have well-defined and documented land rights to offer as collateral (Hanstad 1996). Registered or titled land can reduce the lenders' cost of information and the risk of default as it becomes a mortgageable commodity, thereby provides lenders with collateral (Atwood 1990: 664).

Nevertheless, while the land title may lower a lender's risks and information costs regarding the validity of the borrower's land claim, it may not reduce the remaining transaction costs. Formal credit institutions may have procedures for loans that make the opportunity cost of formal credit higher than for informal credit (Tran T.D 1999). Thus, small farmers will not necessarily increase a bank's pool of potential borrowers when the pool of titled land is increased. For example, in some villages of Thailand where informal lending prevails, the granting of land title did not serve to secure loans in the formal credit market (Feder *et al.* 1985: 50). Informal lending is seldom if ever secured by land, but rather by other property (Tapsoba 1982 cited in Atwood 1990). Informal

lenders may even accept informal, unregistered land claims as collateral if the lenders are close enough to the community to have low-cost information on the legitimacy of informal land claims (Feder 1987: 18; and Atwood 1990: 665).

However, farm credit from informal sources is often limited because it is typically much more expensive than formal credit and it is confined mostly to short-term loans of relatively small amounts. Thus, if farm productivity is to increase through investment, formal credit must become an important source of capital for farmers and land registration or a secure title is a significant prerequisite.

To promote on-farm investment, conservation, and adoption of new technology

Long-term farm improvements can include purchase of plant and machinery, improved soil quality, clearing of stumps, irrigation and conservation of water, bundling, terracing, and/or planting trees. If a farmer is to invest time, effort and capital in these improvements, he must be assured that the future income he expects from such investments will accrue to him or his family. Secure land title is an important requirement for this expectation (Atwood 1990: 665). The probability of losing one's land is affected by the security of the land tenure. Given the security and duration of the tenure, the farmer will choose between investments in capital equipment, which is not lost in the event of eviction, land improvements, which are completely lost in an eviction, and non-farm activities and assets, which are unaffected by eviction (Hayes *et al.* 1997: 370). Thus, the eviction risk is an obvious disincentive for improving untitled tracts (Feder and Onchan 1987: 317).

Studies in many countries have proven that the availability of secure land title has significant influence on farm and farmland investments. In Africa, customary tenure is widespread, and this may discourage the adoption of productive investments, soil conservation measures, or new technology. This situation also occurs where population pressure, ambiguously administered land laws or changing rural authority structures and institutions give rise to land disputes. Farmers feel less secure in their holdings when neighbours or village authorities disagree with the adoption of new techniques by refusing to respect their land claims (Atwood 1990: 666).

For example, in Cameroon, as land has become more valuable, farmers find themselves threatened by family members seeking to claim private title to jointly-held land, by neighbours encroaching on customarily-defined boundaries, and by businessmen and politicians seeking to claim undeveloped land. Thus, the titling program of the state was popular because of the modification of Cameroon's 1974 Land Ordinance by farmers and local administrators. Farmers used the law to obtain concrete boundary markers, rather than title, and increased their investment in the land. Administrators have used the ordinance to register underdeveloped land. Most importantly, it was suggested that policy makers should aim to register and record property rights based upon existing community norms and institutions, and should ensure that any program was simple and inexpensive to make the titling program successful (Sellers and Sellers 1999: 1125). A study in Costa Rica found a positive correlation (in the range of 0.40 to 0.67) between the degree of ownership security and farm investment per unit of land (Salas *et al.*, 1970).

Like many African countries, Ghana is in a transition between a traditional system of land rights which emphasises on the claims of the community and a modern one which emphasises the claims of the individual. Development of formal land rights in Africa has become more important with increases in population pressure, and these increases have been a key factor in the adoption of large-scale land titling programs. Such a program was instituted in Ghana in the 1980s. Besley's study in Ghana supported the idea that individualistic property rights in legal land title facilitated investments in farms and farmland (Besley 1995: 936). Empirical research in Gambia has also shown that more individualised land rights were associated with a higher propensity to make investments, which in turn had positive effect on yields (Hayes *et al.* 1997: 381).

There is other evidence of the incentive from secure land title for farm investment from Asian countries. Empirical analysis in some provinces in Thailand indicated that the possession of a legal land title contributes significantly to capital formation and land improvements. The results of a survey carried out by Feder and Onchan in 1984 in three provinces demonstrated that the probability a plot being improved by bunding and clearing is significantly higher on titled plots in the two north-eastern provinces as summarised in Table 6.1.

Table 6.1. Incidence of land improvements for titled and untitled plots

| Farmer group \ Province | Lop-Buri | | Nakhon Ratchasima | | Khon-kaen | | Pooled | |
|-------------------------|--------------|------------------|-------------------|------------------|--------------|------------------|--------------|------------------|
| | Titled plots | Untitled plots % | Titled plots | Untitled plots % | Titled plots | Untitled plots % | Titled plots | Untitled plots % |
| Bunding | 39 | 32 | 66 | 44 | 71 | 49 | 60 | 42 |
| Clearance of stumps | 77 | 76 | 63 | 29 | 50 | 38 | 62 | 46 |
| Sample size | 211 | 216 | 251 | 284 | 258 | 189 | 720 | 689 |

Source: Feder and Onchan (1987).

As can be seen in Table 6.1, the probability of bunding on a titled plot in Nakhon Ratchasima and Khon-Kaen is 30 and 20 percentage points higher, respectively, than for an untitled plot. Land titles have a statistically significant effect on clearing of stumps in the three provinces. The probability of clearing stumps on titled versus untitled plots is nine percentage points higher in Lop-Buri, 14 percentage points higher in Khon-Kaen, and 11 percentage points higher in Nakhon Ratchasima. However, the authors noted that important differences between plots may simultaneously affect the land improvement decision (Feder and Onchan 1987: 318).

Box 6.1. Factors affecting the adoption of soil conservation by upland farmers in Cebu city and Claveria

Two separate field surveys were undertaken in two sites, namely, Claveria, Misamis Oriental in Mindanao and Six Mountain in Cebu province. Sixty respondents were interviewed in Claveria, consisting of 39 adopters of contour hedgerows and 21 non-adopters of contour hedgerows. In Cebu, there were 70 respondents interviewed, consisting of 35 adopters and 35 non-adopters of contour hedgerows, respectively.

The probability of adoption was hypothesised to depend on a range of variables such as age of household head, household size, education, farm size, slope, erosion, non-farm income, livestock income, extension, strip cropping, fallow, tenure, and credit. The results of this estimation described were as follows:

Adoption in Claveria is significantly influenced by tenure status, slope, and access to markets, and the amount of loans received which is an indicator of access to credit. The results suggest that a farmer who owns the farm, has better access to markets, and operates a farm with steeper slope, is more likely to adopt contour hedgerow technology. All the other variables except for farm size have the expected signs, although they turned out to be statistically not significant. The extent of adoption in Cebu, on the other hand, is significantly influenced by the education of the farmers and the slope of the land. Hence, farmers with more schooling and who are cultivating farms with steeper slopes are more likely to construct contour hedgerows on a larger area of their farm.

Source: Lapar and Pandey, 2000.

Similarly, in the Philippines, the tenure security of farmers was found to be positively related to the adoption of soil conservation. In some provinces, while legal land rights were not a significant determinants or not a sufficient condition for farmers' decisions to undertake land-improving investments, they were still an enabling factor for

conservation (Lapar and Pandey 2000: 186). For instance, the results of surveys conducted by the International Rice Research Institute (IRRI) in two field sites in the uplands of the Philippines in 1996 illustrated the incentive that legal land title provides for the adoption of soil conservation (Box 6.1).

Nelson and Cramb (1998) have also studied the economic incentives for farmers in the Philippines uplands to adopt hedgerow intercropping relative to traditional open-field maize farming. The analysis found that adoption of hedgerow intercropping has been constrained by a range of factors including limited access to credit and insecure land tenure (Nelson and Cramb 1998: 84).

While the potential benefits of a land registration system are many, the establishment of land registration does involve high costs in terms of compiling and maintaining a register. If land parcels are extremely fragmented, it may be prudent to carry out some form of land consolidation before land registration. In some cases, instead of relieving landlessness, provision of registered land rights to small farmers and the promotion of a land market has the potential for contributing to further dispossession. Therefore, any government considering the establishment of a land registration system must consider these issues.

6.2.3. Impact of land registration on land improvement in North Viet Nam

As mentioned in chapter 5, when focusing on the economic reforms, in June 1991, the 7th Communist Party Congress of Vietnam adopted the strategy on ‘Stabilising and developing the socio-economy towards the year 2000’. In June 1993, the 5th Meeting of the Central Committee passed a resolution on major guidelines to develop agriculture and rural livelihoods to the year 2000. Following these events, the new Land Law, ordinances and decrees were promulgated. The main point of this law is that the rights to land have been increased from three to five, i.e. the rights to exchange, transfer, inherit, mortgage and lease. Land and certificates of land use rights have been handed to households on a long-term. Land had been allocated to households on a stable basis which gives individual farmers the full rights to use and manage their farmland. By issuing the land-use rights certificates, rights and obligations over the land are now recognised and protected.

The allocation of land to farmers was carried out successfully for agricultural land. However, the issuance of the land certificates has only been carried out recently and farmers' interests have not been satisfied in a timely and satisfactory manner. The contents (name, plot map, rights and obligations) of the land certificate are poorly described and lack transparency. These deficiencies in the land certificate have impacted on agricultural productivity, particular on the adoption of land improvements. The influence of this system of land registration on farmland improvements has been examined through the survey which was carried out in four provinces in northern Vietnam.

Impact of the process of issuing land rights certificates

Since the Land Law was enacted in 1993, the process of its implementation has proceeded differently in different provinces in North Vietnam. The process of issuing land-use rights certificates - "*So Do*" (*Red Card*) - was carried out successfully in most provinces in the midland areas while it has been slow in some provinces close to urban areas and in the provinces embracing forest land. The slow process of issuing land rights certificates was caused by heavy workloads, inadequate staff numbers, insufficient physical facilities and limited budgets. At the end of 1997, the certificates had been issued in 5,955 communes, accounting for 57.5 per cent of all communes, to 7,416,000 households or 74.2 per cent of total farm households, covering an area of 4,639 million hectares or 58 per cent of total agricultural area of Vietnam (Nguyen N.H. 1998: 22).

The question that arises here is whether farmers who hold the land-use rights certificates will be encouraged to invest in long-term land improvement more than farmers without land certificates? This study investigates the effects of the certificates distribution process on farmers' attitudes and soil conservation practices.

Data from the surveys of this study (Table 6.2) shows that 78 per cent of respondents have practised soil conservation methods under the Renovation regime and 73 per cent of them held the land certificates. In Thuy Dien village, where all farm households had received their own land certificates, 93.3 per cent of farmers are carrying out soil conservation practices. The main conservation methods are intercropping, terracing and collecting mud from the rivers to add to the field soil. In Bai Yen village, about 66 per

cent of farmers have practised soil conservation while 25 per cent of these farmers have not received land certificate. Intercropping, terracing, using animal manure, collecting green manure from forests, and planting Acacia are the main measures for conserving land in this area. In Co Cham village, only 4 per cent of farmers have not received land certificates and 88 per cent of farmers have planted fruit trees, practised intercropping, and applied chemical fertilisers together with green and animal manures.

Nevertheless, the field interview notes showed that the issuance of Red Cards for farmers in this village can indirectly affect the adoption of soil conservation practices as they did not hold legal records of their farmland.

“We heard about the land use certificate for ages since the new land law was disseminated but until now we have not received it. Thus we feel insecure to use land for any purpose as we cannot borrow money from the bank through the mortgage and not many years of lease term are left for using land when the certificate is issued (Group of farmers, My Giang village)”

Table 6.2 Correspondence between the issuance of land certificates and soil conservation practices of farmers in North Vietnam

| Village | Have you practised long-term land improvement on your field plots? | | Have you received a land certificate? | |
|---|--|-----------------------|---------------------------------------|-----------------------|
| | Yes | No | Yes | No |
| Thuy Dien | 14 (93.3%) | 1 (6.7%) | 15 (100%) | 0 (0%) |
| Bai Yen | 8 (75%) | 4 (25%) | 10 (83%) | 2 (17%) |
| My Giang | 8 (53%) | 7 (47%) | 0 (0%) | 15 (100%) |
| Co Cham | 22 (88%) | 3 (12%) | 24 (96%) | 1 (4%) |
| Mean | 52 (77.6%) | 14 (21%) | 49 (73%) | 18 (27%) |
| Standard error of proportions (SE) | 0.051 | 0.049 | 0.048 | 0.048 |
| 95% Confidence interval (CI) | 0.676 to 0.876 | 0.112 to 0.309 | 0.625 to 0.827 | 0.163 to 0.375 |

Note: Standard error of the proportion (SE) is the square root of $p(1-p)/n$ where n is the sample size.

Source: Tran (2000). Field data

The standard error (0.47 and 0.48) in Table 6.2 and 6.3 illustrate the significant different opinions from the interviews between four villages about the issue of receiving land certificate. The 95% confidence interval on the difference between the number of farmers received a land certificate in My Giang and average number of farmers received a land certificate in four villages is 0.63 to 0.84. It illustrates that the difference is significant since zero, the value specified by the null hypothesis, is not in the interval (thus the null hypothesis of no difference can be rejected at the 0.05).

Although in the total, 73% farmers have got land certificates, but the percentages of farmers who receiving land certificates are very different among four villages. It is different in My Giang village (0%). Similarly to the other villages in Ha Tay province, the issuing of land certificates has proceeded very slowly, because of the slowness of the local administrative system and the cadastral works. Although no farmers in the village have received land certificates, about 53 per cent of them have practised soil conservation methods. In this province, therefore, the land certificates are apparently not so important for the adoption of soil conservation (Table 6.2). Decisions about adopting soil conservation methods may depend on other factors such as the nature of farming, land quality, off-farm income and access to credit.

The interviews with My Giang farmers demonstrate that in this case, the nature of farming in the region and the means to invest play a significant role in practising soil conservation. As in many areas in the northern region, My Giang farmers traditionally practise intercropping with fertilizers (chemical, green, and manual fertilizers) and apply the model of Garden-Pond-Husbandry without considering the land lease terms (Table 6.3). The opportunities for off-farm income (54%) are an important factor that influences the adoption of soil conservation. Almost all families in My Giang village have income sources from the off-farm work such as making bricks and clothes, selling vegetables and other work in the city. As in many other families in the country, family members in My Giang shared their incomes, thus the off-farm incomes have often been contributed to farm production and soil conservation practices. Therefore farmers in this village have credit for investing in farming work and they have dropped the winter crop as a measure of soil conservation and to save time for off-farm income work.

The 95% confidence intervals in Table 6.3 reflect some differences between off-farm employments in four villages. The Table 6.3 reveals that there is no significant difference between Thuy Dien and Bai Yen villages, and between My Giang and Co Cham villages (since zero, the value specified by the null hypothesis, is in the confidence interval, thus the null hypothesis of no difference cannot be rejected at the 0.05).

There is a large number of families (54% and 51%) in My Giang and Co Cham villages have off-farm employment while only small percentages (12% and 20%) of Thuy Dien

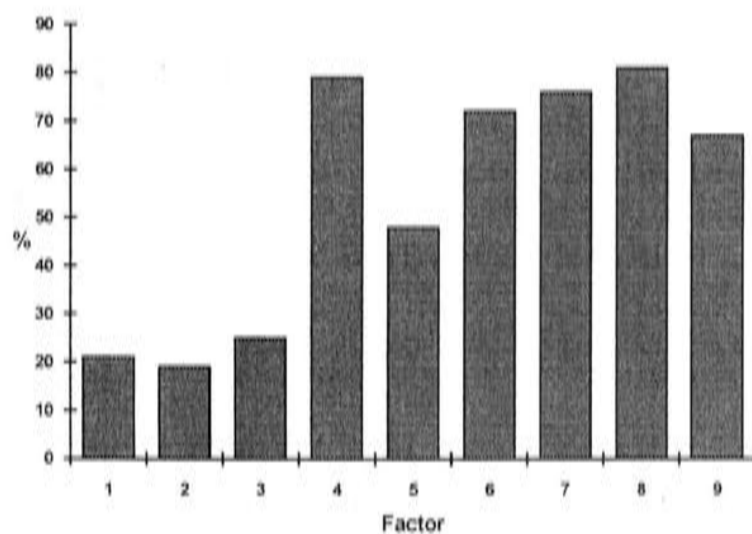
and Bai Yen villages have off-farm incomes. The similarity of farming experience of farmers between four villages indicates the non-significant effect of farming experience on the adoption of soil conservation. However, farming experience, topography and land uses have affected the types of soil conservation applying on the specific land areas.

Table 6.3. Factors influencing the adoption of land conservation

| Village | Topography | Land uses | Received land certificate (%) | Off-farm employment (% households on village) | Income (US\$) | Farming experience (Average years) | Type of conservation |
|---|----------------------|-------------------------------------|-------------------------------|---|---------------|------------------------------------|---|
| Thuy Dien | Hilly and slope land | Paddy rice, other crops | 100 | 12 | 101.46 | 37.9 | Intercropping with fertilizer application Contour made of green manure plants Hedgerows of leguminous |
| Bai Yen | Hilly and mountain | Rice, maize, teas | 83 | 20 | 118.66 | 38.6 | Intercropping with fertilizer application Contour made of green manure plants Agroforestry |
| My Giang | Low land | Paddy rice, vegetables, fruit trees | 0 | 54 | 101.66 | 37.8 | Intercropping with fertilizer application No Winter crop to fallow farm land Garden-Pond-Husbandry |
| Co Cham | Low land | Paddy rice, vegetables, fruit trees | 96 | 51 | 134.80 | 29.8 | Intercropping with fertilizer application Fruit trees Garden-Pond-Husbandry |
| Mean | | | 88% | 34.25% | | | |
| Standard error | | | 0.0542 | 0.0472 | | | |
| 95% Confidence interval (CI) | | | 0.625 to 0.837 | 0.247 to 0.433 | | | |
| 95% confidence intervals of the difference between off-farm employments in four villages | | | | | | | |
| | Thuy Dien | Bai Yen | My Giang | Co Cham | | | |
| Thuy Dien | - | -0.24 to 0.31 | 0.09 to 0.71 | 0.13 to 0.65 | | | |
| Bai Yen | | - | 0.04-0.7 | 0.07 to 0.64 | | | |
| My Giang | | | - | -0.31 to 0.33 | | | |
| Co Cham | | | | - | | | |

However, the results in Table 6.2 are likely to reflect the combined impacts of several other factors on the adoption of soil conservation practices. Thus, to separate the impact of the land registration from the other factors, farmers were interviewed in detail about their perceptions regarding each factor. The evidence in Figure 6.1 indicates that farmers' decisions about adopting long-term land improvements are significantly influenced by the land certificate. About 72 per cent of respondents in the four villages expressed concern about the security of land-use rights in their decision-making. Farmers' decisions about soil conservation practices have also been influenced by a number of factors. The survey results show that a large proportion of respondents (81 per cent and 76 per cent respectively) saw their income and soil quality of their field land as important. The land type of the field plot, the planning period and the cost of inputs are the other important factors affecting their decisions. The planning period refers to the time horizon over which an investment is expected to pay off. Other factors such as age, education and experience are relatively unimportant in these decisions.

Figure 6.1. Factors influencing farmers' adoption of soil conservation practices



1. Age
2. Education
3. Experience
4. Plot type
5. Costs of inputs
6. Having land certificate
7. Soil quality
8. Income
9. Planing period

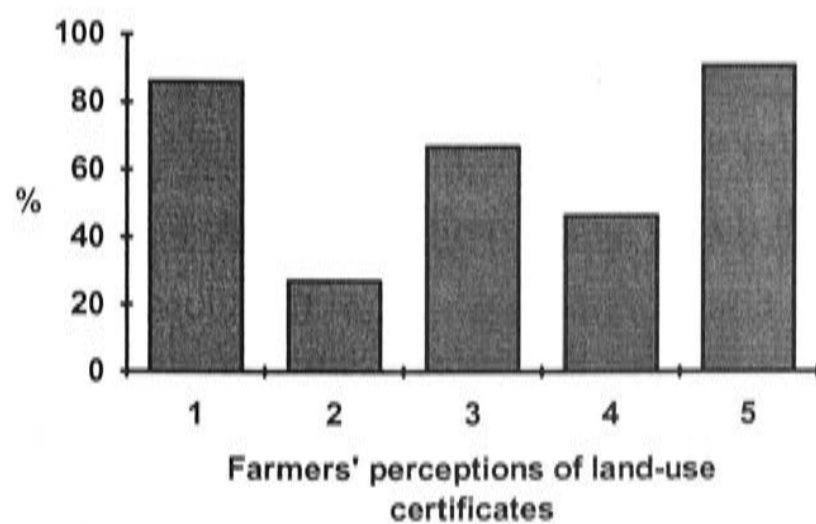
Source: Tran (2000). Field data.

Although farmers hold different perceptions about the necessity of land-use rights certificates, they are in common agreement about several essential advantages of the land certificates with respect to farm and farm land investments. In the interviews, they said that having land-use rights certificates can ensure their ownership and use of a

specified land area over a long period; can ensure that they reap the benefits after investing in land improvements; and can ensure the legal sale of their land, provide easier access to credit, and reduce land disputes.

The survey results in Figure 6.2 show that the majority (86 per cent) of farmers of the four villages perceived that land use certificates with lease terms of 20 years and with the sizes of the field plots detailed have given farmers confidence in their possession of land use rights. The overwhelming majority of farmers (90.8 per cent) also responded that they believed that the specification of field size and the borders of field plots will reduce the conflicts over land tenure. A relatively high proportion of farmers (66.7 per cent) believed that they can obtain the benefits from their investment in land improvements because the land certificates have given them the rights to the land over a long period. Nearly half of respondents (46.4 per cent) understood that they can use their land certificates as a secure pledge for borrowing money from formal or informal sources. However, a much smaller proportion of respondents (27.1 per cent) indicated their understanding of their rights to sell their land with some constraints on transferring rights which will be discussed in the next chapter (Chapter 7).

Figure 6.2. Farmers' perceptions of the advantages of land-use certificates



1. Own and use land for a long period with specified sizes of plots
2. Ensure the sale of their farm land
3. Can reap benefits after investment in land improvements
4. Easier to borrow money from the banks
5. Avoid land conflicts between farmers

Source: Tran (2000). Field data.

While the process of land registration in northern Vietnam has begun, there are limitations not only in the process of giving out land certificates, but the contents of the

land-use certificate are also problematical. As can be seen in Appendix 6.1, the first page of the land certificate contains the full name of the household head and the name of the village, commune, district and province where his/her family are living. The basic information, eg. the size of the total land area, the details of plot sizes, the locations and lease term, are also included on this page. The second page has a map of the field plots but it has been left blank in many districts because of problems with the cadastral system. For instance, in Phuc Tho district, the boundaries of field plots have not been mapped, therefore the second page of the land-use certificate has been left blank and the certificate has not been given to farmers. The third page has been left for specification of some general conditions and notes on the changes in land use after a farmer receives the certificate.

The land-use certificate proves the right of a household to use a certain area of farmland. However, a brief outline of rights and obligations should also be included in the contract rather than the mention made of the numbered articles of the 1993 Land Law as written in the certificate: 'Individual who was granted the land-use rights certificate have rights to use land and have obligations to follow the rules indicated in the 73, 74, 75, 76, 77, 78, 79 of the 1993 Land Law' (The *Red Card* - Appendix 6.1).

Although information about the Land Law has been disseminated publicly to every village of the country, farmers need to have the land-use rights (Box 6.2) written down briefly on the certificate to help them in understanding their rights, particularly in cases of conflict over the land, transferring land, or borrowing money for investments.

Box 6.2. The 1993 Land Law: Rights and Obligations of Land Users

Article 73. Land users shall be subject to the following rights:

1. To be granted with certificate for the right to use land;
2. To benefit from the results of their labour and their investment on the land allocated;
3. To transfer the right to use land in accordance with the regulation stipulated by the Law;
4. To enjoy the benefit derived from public projects of land protection and reclamation;
5. To receive State guidance and assistance in the process of land reclamation and fertilisation;
6. To enjoy State protection against infringement of their legal land use rights; to be indemnified for actual losses incurred in the event that the land currently used by them is recovered;
7. To contribute their land for production co-operation and for business in accordance with the regulations stipulated by the Law and with purposes when the land was allocated;
8. To make complaint or to denounce on violation actions of their legal right to use land and other breaches of Law on land.

Article 74. Any households which or individuals who use agricultural land or forestry land for afforestation or for habitation shall, due to requirements of the life and production, be entitled to transfer or assign the right to use land, be subject to a right purpose of use and comply with the term for which land is allocated.

Article 75.

1. Any household which or individuals who use agricultural land or forestry land for afforestation shall be entitled to transfer or assign their right to use land in the following case:

- a. To move to another place;
- b. To deal with another profession;
- c. To fail their capacity to work as direct labour;

2. Any households which or individuals who use the land for habitation, if moving to another place or are no longer in need of land for habitation shall be entitled to transfer or assign the right to use land. The transfer or assignment shall be permitted by the competent State body. The transfer or assignee must use the land with right purpose.

Article 76.

1. Those individuals, who receive agricultural land allocated by the State for planting annual crops or for aquaculture. Their right to use land may be left to their successors, after their death, as the regulation stipulated by the Law on Inheritance.

2. If any member of those households which were allocated with agricultural land for planting annual crops or for aquaculture, died, other members of these households shall be entitled to enjoy other further use of area of land previously allocated to them. In the case where no members of the family exists, the State shall regain the land.

3. Any individuals or members of the household which were allocated with land for planting long-day crops for afforestation or for habitation, their right to use land may be left to their successors after their death, according to the regulations of the Law on Inheritance.

Article 77.

1. Any households which or individuals who use agricultural land or forestry land for afforestation shall be entitled to put their right to use land to pledge at the Banks of State of Vietnam or at credit organisations of Vietnam which were permitted by the State for the establishment to loan capital for production.

2. Any households which or individuals who use land for habitation shall, due to the requirements of the life and production be entitled to put their right to use land to pledge with Vietnam economic organisations and individuals at home.

Article 78.

Any households which or individuals who use agricultural land for planting long-day crops, for aquaculture shall, due to lack of manpower, meeting difficulties or the change of profession but still not stable, be entitled to put their land, previously allocated to them, for rent within the duration which shall not exceed three years. In special cases, the duration may be prolonged and it shall be stipulated by the Government. The land renters must use it with right purpose.

Article 79.

Land users shall be subject to the following obligations:

1. To ensure that land is used strictly right in accordance with its indented purpose, that its use is confined to within its allocated boundaries and complies with all other conditions stipulated at the time of allocation;

2. To ensure land protecting and take necessary measure to increase the capacity of land use;

3. To comply with the regulations concerning environment protection and ensure that deserved interest of surrounding land users shall not be lost;

4. To pay taxes for the right to use land, taxes for transfer of right to use land; and pay cadastral fees according to the stipulations of the Law;

5. To pay money for land use when land is allocated according to the stipulations of the Law;

6. To indemnify previous users from land is regained for reallocation, for any loss actually incurred and to pay compensation to them.

7. To return the land when it is regained by the State.

Source: Vietnam Trade Information Center, 1993. *Law on land, 1993.*

The survey results show that 62.7 per cent of farmers believe in the necessity of having their rights and obligations written on the land certificate. The standard error (0.37) in Table 6.4 demonstrates the different survey result of My Giang compared with three

other villages. Most farmers (86.6 per cent) in My Giang village did not respond this question because they had not received land certificates (Table 6.3).

Table 6.4. Farmers' perceptions of the contents of land certificate

| Village | Is it necessary to indicate the rights and obligations of using land in the land certificate? | | | |
|--------------------------------------|---|------------------|--------------------|------------------|
| | Yes | No | Don't know | Total |
| Thuy Dien | 12 (80%) | 1 (6.66 %) | 2 (13.4%) | 15 |
| Bai Yen | 10 (83.4%) | 1 (8.3%) | 1 (8.3%) | 12 |
| My Giang | 2 (13.4%) | 0 (0%) | 13 (86.7%) | 15 |
| Co Cham | 18 (72%) | 3 (12%) | 4 (16%) | 25 |
| Mean | 42 (62.7%) | 5 (7.46%) | 20 (29.84%) | 67 (100%) |
| Standard error of proportions | 0.059 | 0.032 | 0.056 | |
| 95% Confidence Interval (CI) | 0.511 to 0.743 | 0.012 to 0.138 | 0.189 to 0.458 | |

Source: Tran (2000). Field data.

The majority of farmers recognise that the land use rights certificates or 'Red Cards' are beneficial and stressed the added security that the Land Law would provide. It was recognised that the certificate results in an increased sense of responsibility for their land, an end to the pattern of shifting cultivation, a decline in forest destruction, and a decline in land disputes.

However, they complain that the incentives for investing in long-term land improvements are limited because of the slowness of the process of issuing the certificates and some problems with the content of the certificates such as unclear rights and obligations for land users, restrictions on the use of the allocated land (some plots are restricted to growing rice), and no mention the quality of the plots and the rights to renew the land lease.

"Since we have been handed the Red Cards, we believe that we can use our farmlands individually at least until year 2013 without the fear of encroachment from other people. We recognised the benefits of the issuance of land certificates. The issue of land certificate may provide us with a form of collateral for the banks or other informal sources of credit. We have been investing more of our capital, labour and time in farm productivity and/or soil conservation because we have more confidence of the rights to use land in a long term since we held the certificates. However, we would like the certificates would be written more clearly the rights and obligations as well as without restriction of land use purposes in some areas, thus we can invest more in perennial fruit trees in those areas (Group of farmers, Thuy Dien villages)"

The family of Mr S. Nguyen is one of the households in Bai Yen village which has invested in land fertility improvements. Mr Nguyen and his wife are young (25 years old). They live with his mother and their two children. They have been allocated 2,800 m² of farmland, which is divided into 17 plots. Since they were granted the land-use certificate, they have pledged their Red Card to the bank as collateral for credit. They have invested capital, time and labour in increasing farm and farmland productivity. After three years of applying the model of "Forest-Garden-Pond-Husbandry" with other soil conservation measures, the yields of their farms have increased from 2.3 tons/ha in 1995 to 4.0 tons/ha in 1998.

"The Red Card assures me that my family will legally use this piece of land for years and I wanted to increase the productivity of yields and soil quality of my farmland. We did use this Red Card for borrowing money from the local branch of the Bank of Agriculture and Rural Development. This money has been used in agricultural purposes including in soil conservation investments. However, when we try to invest in perennial fruit trees in forestland areas, which have been allocated for my family, the limited amount of the borrowed money was not enough for the investments and the local government did not support us. Moreover, they forced us to grow only Eucalyptus and Acacia in forest land areas" (Mr S. Nguyen, Bai Yen village)"

6.3. Land lease term

Analysis of farmers' decisions about the adoption of soil conservation practices has shown that the land tenure regime plays a significant role. If the farm is leased, the farmer is less likely to make conservation expenditures than where the farmer is the owner. Moreover, the shorter the lease term the less confident is the farmer of capturing the benefits of investments (Garcia 2000: 165).

The length of the use rights is a critical variable determining incentives to conserve land quality because it lengthens the planning horizon of conservation. Farmers will then have incentives to conserve soil as future benefits will accrue to the farmers who make the investments. Short-term use rights provide farmers with little incentive to make investments which will increase the productivity of the land on a long-term basis, since any benefits beyond the contract term will accrue to the state or subsequent land users (Ervin and Ervin 1982: 284; and Prosterman *et al.* 1998: 11).

Thus, with short-term leases a "mining" strategy based on rapid exhaustion of soil fertility might be adopted. For example, farmers who followed loggers into the uplands

of the Philippines grew food crops in logged areas for a few years and then abandoned the fields. As these fields did not belong to the farmers, they had no incentive to conserve their productive capacity (Lapar and Pandey 1999: 245). The decision to adopt or reject conservation farming critically depends on farmers' planning horizons. The long-term benefits of conservation farming may be irrelevant to farmers whose planning horizons are limited by the short term of the land use rights (Nelson and Cramb 1998: 85).

Evidence on the significant impacts of long-term leasehold or freehold land use rights on farmland investment has been illustrated in many areas of the world. For instance, in Managok and Pananag of the Philippine uplands, most adopters and non-adopters who responded to the survey questions on adoption of farm improvement practices agreed that tenancy was an obstacle to adoption. They commented that the owners of the land would be the long-term beneficiaries. In Guba in the Philippines, there was widespread adoption of contour hedgerows, much of it on tenanted land. However, the important thing to note is that the tenancy arrangements here were generally long-term and stable (Cramb *et al.* 2000: 83). Thus, the length of the land-use contract plays an important role in decisions on adopting soil conservation practices.

Since the beginning of rural reforms in China in 1979, the land tenure system has gone through in several stages. The break up of collectivised agriculture led to the Household Responsibility System. Under this system, land use rights and agricultural output requirements were contracted directly to households for periods of three years or less. In 1984, the Communist Party Central Committee issued Rural Work Document No 1 urging local officials to prolong the use rights term to at least 15 years. Then in September 1994, the Central Committee decided that the land use rights to arable land would be extended another 30 years after the original 15 year-right expires (Prosterman *et al.* 1998).

A survey of eight counties was conducted to test the appropriateness of such a policy. The majority, 62 per cent said they preferred the situation where land was periodically reassigned among farm families in response to changes in the composition of their families and thus stabilises tenure relations and thereby encourages farm and farmland investment (Kung and Liu 1997: 34). The Rural Development Institute in China also

carried out a Rapid Rural Appraisal study in 14 provinces and provincial-level municipalities from 1987 to 1996 and found that only 39 per cent of the farmers interviewed had made long-term land improvements which could increase the productivity of their land. When asked whether they would make long-term improvements if the use term were extended perpetually, 84 per cent of the farmers responded affirmatively (Prosterman *et al.* 1998: 11).

The 1993 Land Law provided for long-term usufruct rights for annual crops and aquaculture (20 years) and perennial crops (50 years). The Law states that farmers who invest in perennials will be given the rights to a 50 years lease. For example, each family in Bai Yen village has been given 20 years lease for the crop fields and 50 years for the forestlands. When the 1993 Land Law was enacted, the lease terms automatically granted to the farmers depended on the existing farming practices (types of crops) of each family. The change in the length of land-use rights was in conjunction with the granting of the rights to inherit, exchange, transfer, lease and mortgage land use rights to individual households. This allocation of lands to households made the household rather than the cooperative the basic unit of agricultural production. Households were given decision-making power over all management and investment decisions on their land, including cropping patterns and input use. The length of the lease term has impacted on farmers' attitudes and practices towards farm production and land improvement.

The interviews in four villages in northern Vietnam showed that farmers' perceptions of the long-term land lease are positively related to the adoption of soil conservation measures. As can be seen in Table 6.4, over half of the respondents (67.2 per cent) were influenced by this longer term of land use rights when they decided to adopt conservation methods. The majority of farmers (83.4 per cent and 73.3 per cent) in Bai Yen and Thuy Dien villages respectively, are applying soil conservation measures such as terracing and contour hedgerows and planting perennial fruit trees due to the change in the length of land use rights contract. About 68 per cent of farmers in Co Cham village decided to adopt soil conservation practices because of the long-term leases. Only in My Giang village, where many households incomes rely heavily on their off-farm work, over half of farmers (53.3 per cent) did not take into account the change in the land lease term in their decisions about land improvements.

Table 6.5. Farmers' preferences on the lease term of land use rights

| Village | Does the land lease term (20 years and 50 years) influences your conservation decisions? | | | |
|--------------------------------|--|-------------------|-------------------|------------------|
| | Yes | No | Don't know | Total |
| Thuy Dien | 11 (73.3%) | 1 (6.66 %) | 3 (13.4%) | 15 |
| Bai Yen | 9 (83.4%) | 2 (16.6%) | 1 (8.3%) | 12 |
| My Giang | 7 (46.6%) | 5 (33.3%) | 3 (20%) | 15 |
| Co Cham | 17 (68%) | 3 (12%) | 5 (20%) | 25 |
| Average | 44 (65.7%) | 11 (16.4%) | 12 (17.9%) | 67 (100%) |
| Standard error (SE) | 0.058 | 0.043 | 0.047 | |
| 95% Confidence Interval | 0.543 to 0.77 | 0.075 to 0.253 | 0.087 to 0.271 | |

Source: Tran (2000). Field data.

However, the 20 years lease term for agricultural land is not the desired length for farmers who want to devote capital to farm and farm land investments. Most respondents in the four villages (91 per cent) endorsed the idea of perpetuating land rights.

A few farm households, who are very poor, with limited labour, prefer cooperative land ownership or do not care about the length of lease term because they may not be able to afford the agricultural tax. A few others who enjoy substantial shares of non-farm income do not favour the idea of making land use rights permanent. Permanent land use rights are most favoured by farmers who rely heavily for their income on agricultural production and wanted to invest in long term land improvements.

"We are pleased with the current land use rights contract because we can use land individually for 20 years, we have more confidence for investing our capital, labour and time in farm productivity. However, we thought it may not be long enough for some long-term investments, thus we wish that land rights should be granted in perpetuity that can ensure us in applying some soil conservation measures which require the long term planning horizons without the fear of benefit lost" (Group of interviewed farmers in the four villages, 12 August 2000)"

These results are supported by the scientists who were interviewed in the research sites. Most scientists (11 out of 12) agreed that before the 1993 Land Law was enacted, the most important obstacle to adoption of soil conservation methods was the limited capital and the insecure land tenure, especially the short-term land rights contract. The pace of applying soil conservation measures has been increased in many parts of the region since the land use rights were granted to individual households for longer terms (Tran 2000 - Field data). For example, in Viet Hong commune, Hai Duong province, the number of households who established lychee plantations has increased considerably

from 193 households (28 hectares) in 1987 to 862 households (114 hectares) in 1999 (The People's Committee of Viet Hong, 2000: 4).

Another problem with the land lease term that inhibits decisions about soil conservation practices is the unclear conditions for the renewal of the lease. Article 20 of the 1993 Land Law states: 'At the expire if the land users have further requirement on land use and during the process of using land, the land users comply with the law on the land, then the state shall allocate that land to the land users for a further use' (National Assembly of Vietnam 1993: 21). Nearly all farmer interviewees were unclear about the detailed conditions for the renewal of land lease terms and the length of the renewed leases.

The survey results showed that 80.6 per cent of the interviewed farmers were unsure of the renewable land lease term. Only people who worked as commune administrators (13.5 per cent) of the four villages said that they believed this statement of the law. In response to the question about the influence of the renewal of lease terms on soil conservation decisions, most farmers said that they did not want to make plans for long-term investments after year 2013 which is the expire date of land lease terms because they did not know the time period of the renewed land lease.

Although virtually all farmers appear to regard the 20-year use rights and the automatic renewal of the leases if the land user has been complying with the land legislation as an improvement over previous policy, most would prefer to receive permanent use rights to the state-owned land. Permanent use rights would imply that the land would not be taken back at some future date, creating a high degree of land tenure security which would encourage farmers invest in long-term land improvements.

The above discussion reflects the positive relationship between the lease term and long-term soil conservation. Nevertheless, for adopting short-term soil conservation, the short-term of land leases may not play a significant role. For many years before the 1993 Land Law, farmers in the North applied chemical, green and manure fertilisers on their fields. This investment can accrue costs and benefits to farmers in a short run. For example, Thuy Dien farmers usually invested their time and labours to improve the fertility of their fields by adding mud to their farm in conjunction with applying other

fertilisers. These measures of soil conservation are carried out in the short terms (three months to a year) and their costs and benefits can be determined in a short run. The costs of labour is calculated as *cong/sao/crop* (one *cong* = 12,000 VNDong – 15,000 VNDong = 80 cents to 1 USD) (People's Committee of LapThach 1999). The farmers estimated the benefits from these investments by using the yields of annual crops or vegetables. However, they were unable to distinguish between the benefits from soil conservation investment and other farm investments. Thus in this study, it has not been possible to calculate the actual benefits from soil conservation measures separately. Yet farmers can make the decision to adopt soil conservation measures without considering the short-term land leases. In this case, the highest concern is the capital for soil conservation investments rather than the term of the land lease.

6.4. Land distribution

6.4.1. Impact of farm size on land productivity

Smallholders in developing countries must use their land intensively to secure their livelihood. Their farm output is often limited by poor access to improved technologies, lack of support institutions, uncertain property and lease conditions, poor access to credit, and unequal distribution of water. Farm size also influences what will be produced and how much will be sold at the market. Small farms keep more livestock, farm more for subsistence and are more likely to plant annual crops. The strength of large farms is in arable farming, planting cash crops and growing perennial crops (Bodenrecht and Bodenrdnung, 2001)

It is often argued that there is an inverse relationship between farm size and productivity. Though it is an issue that is often debated (Binswanger *et al.* 1993: 45; and Faruqee and Carey 1997: 8), many factors intervene. If a smallholder is forced to farm the land intensively due to not having any alternative income sources, then the small farms may increase yields. But the situation may be different when interest in farming declines due to having alternative employment opportunities. Even in regions with strong technological improvements in agriculture, small farms do not necessarily have the highest productivity. They may not be able to afford the required investments and may not be in a position to realise economies of scale.

In developed countries, for example in the United States, Carlin and Saupe (1993) found that many small farms contribute more to local economic activity in rural areas than a few large farms. There are specific benefits of small farms within a sustainability context: small farms can act as buffers against urban encroachment; the aesthetic appeal of small family farms to tourists; the small farms tend to use their land less intensively than large ones, which potentially is less environmentally damaging; and the less intensive land use by small farmers may mean that they are contributing less to soil erosion than larger operations (Thompson 1986; and D'Souza *et al.* 1998).

Studies from developed countries show that larger farms are more likely to use conservation technologies than smaller farms (Ervin and Ervin 1982). For example, at Pananag in the Philippines, in adopting hedgerow methods, averaged 3.5 hectares, more than twice the average for non-adopters (1.7 hectares). One explanation offered was that a larger farm size enabled adopters to increase the maize area to offset the area lost to hedgerows, thereby maintaining total food production and minimising consumption risk. Larger farms also often had larger individual fields, which meant larger net areas for cropping. Thus, larger farms reflected both greater incentive and capacity for adoption (Cramb *et al.* 2000: 72). However, in many other areas farm size was not a significant factor influencing the adoption of soil conservation technologies.

In the implementation of the 1993 Land Law, the allocation of land for households was a complicated and difficult task for the local governments in Vietnam. The small farm sizes and fragmentation of farm plots have often affected the development of agricultural production and the application of new technologies and soil conservation measures. In allocating land under the Land Law and Decree 46/CP, most communes concurrently dealt with overdue debts. The households had to fully pay off their debts in order to receive the land. However, not all the debts had been paid. Communes usually dealt with the remaining debts by retaining a part of the land allocated to the household and selling it. Therefore, the debt problem could be resolved but on the other side it adversely affected farm size, especially for poor households (Nguyen N.H. 1998: 12).

Farms in the research site are very small with an average of 0.23 hectares. Among the four villages surveyed, the farms in Thuy Dien village, Vinh Phuc province are largest, 0.25 hectares; in Bai Yen village, Hoa Binh province, the average farm size is 0.24

hectares; in Co Cham village, Hai Duong province, the average farm size is about 0.23 hectares; and the smallest size on average is 0.19 hectares in My Giang village, Ha Tay province (Table 6.5).

Table 6.6. Average farm size and number of farm plots of households in the four villages

| Village | Province | Farm size (hectares) | Number of plots per farm household (No.) | Mean distance of plots from homestead (meters) |
|----------------|-----------|----------------------|--|--|
| Thuy Dien | Vinh Phuc | 0.25 | 5.06 | 740 |
| Bai Yen | Hoa Binh | 0.24 | 13.3 | 960 |
| My Giang | Ha Tay | 0.19 | 6.06 | 860 |
| Co Cham | Hai Duong | 0.23 | 6.36 | 1432 |
| Average | | 0.23 | 7.69 | 998 |

Farmers' perceptions about the impact of farm size on soil conservation practices appear to depend in part on the soil conservation measures used in the different areas and in part on their other activities. As can be seen in Table 6.6, the conservation practices of farmers applying hedgerow cropping, and planting cash crops and perennial crops or wishing to use machinery, have been affected by the small size of their farmland. Many of them (66.6 per cent of respondents in Thuy Dien and Bai Yen village; and 76 per cent of respondents in Co Cham village) want to have larger farms, in which they can invest more for long-term land improvement. In contrast, only 20 per cent of farmers in My Giang village consider their small farm size to be a constraint on soil conservation. Most of them are engaged in non-farm activities and/or are practising simple conservation methods such as intercropping vegetables using fertilisers. Thus they are largely indifferent to protecting the land and hence to the impact of farm size.

These results support the hypothesis of a positive relationship between farm size and the adoption of soil conservation methods. Evidence of this positive relationship is further illustrated in several cases of conservation adopters who have extended their farmland by renting or buying more land.

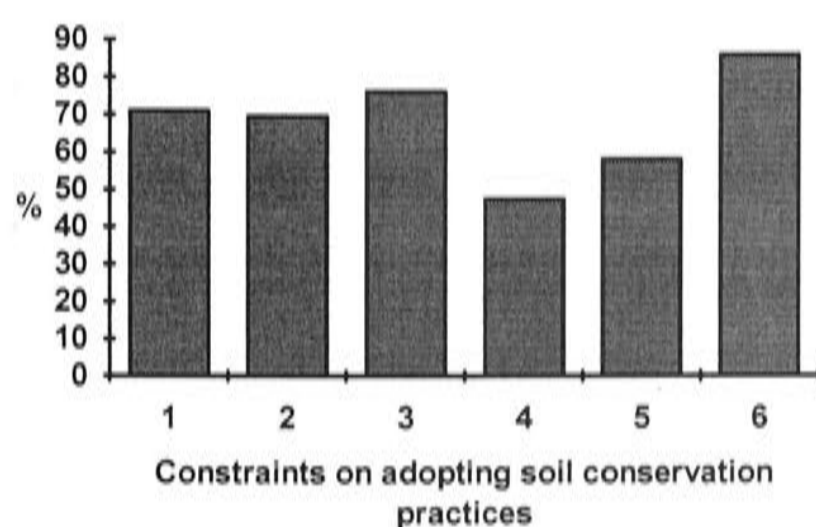
Table 6.7. Effects of farm size on soil conservation practices

| Village | Does your farm size affect your soil conservation practices? | | | |
|----------------------------|--|-------------------|-------------------|------------------|
| | Yes | No | Indifferent | Total |
| Thuy Dien | 10 (66.6%) | 3 (20%) | 2 (13.4%) | 15 |
| Bai Yen | 8 (66.6%) | 2 (16.7%) | 2 (16.7%) | 12 |
| My Giang | 3 (20%) | 5 (33.3%) | 7 (46.7%) | 15 |
| Co Cham | 19 (76%) | 3 (12%) | 3(12%) | 25 |
| Average | 40 (59.7%) | 13 (19.4%) | 14 (20.9%) | 67 (100%) |
| Standard error (SE) | 0.06 | 0.048 | 0.05 | |
| 95% CI | 0.48 to 0.718 | 0.099 to 0.289 | 0.112 to 0.306 | |

Source: Tran (2000). Field data

There was further support from the answers to other survey questions. Concerning the constraints to adopting soil conservation methods, the majority of adopters (86 per cent) mentioned the lack of capital for investment; 69.5 per cent mentioned the small size of landholdings; 71 per cent considered the short term of land use rights to be a constraint; and 76.1 per cent said that land fragmentation was a constraint. Fewer adopters were concerned about water supply limitations and lack of technological information (47.4 per cent and 58 per cent respectively) (Figure 6.3).

Figure 6.3. Farmers' perceptions of the constraints on adopting soil conservation practices



1. Short term of land use rights
2. Small size of landholding
3. Farmland fragmentation
4. Limitation of water supply
5. Lack of technology information
6. Lack of investment capital

Source: Tran (2000). Field data.

The data by inter-village also reveals the significant of the length of land use rights and farm sizes among other factors on making soil conservation decisions. Table 6.7 shows that for the majority of farmers in four village (73% in Thuy Dien, 58% in Bai Yen,

62% in My Giang and 85% in Co Cham), small size of farm land is the an important reason for not undertaking soil conservation methods. This Table also illustrates that most of farmers in Thuy Dien, Bai Yen and Co Cham (88%, 74% and 76% respectively) villages consider the short term of land use rights as a main constraint of adopting soil conservation practices. As mentioned above, there is an insignificant number of My Giang' farmers (46%) concerning about the length of land use rights. However, for farmers in My Giang, the lack of investment capital, fragmentation and small size of land holding are major limitations in practising soil conservation.

Table 6.8 Farmers' perceptions of the constraints on adopting soil conservation practices by villages (percentage %)

| | Thuy Dien | Bai Yen | My Giang | Co Cham |
|-----------------------------------|-----------|---------|----------|---------|
| Short term of Land use rights | 88 | 74 | 46 | 76 |
| Small size of land holding | 73 | 58 | 62 | 85 |
| Farm land fragmentation | 85 | 71 | 70.4 | 78 |
| Limitation of water supply | 42.5 | 56 | 41 | 49.9 |
| Lack of technological information | 57.5 | 63 | 56.3 | 55.2 |
| Lack of investment capital | 81 | 89.6 | 87.4 | 86 |

Source: Tran (2000). Field data.

One of the constraints of the farmland distribution policy is the *freeze* on the land allocation to households. As mentioned above, land has been allocated to households based on their household size in 1993 and it has been fixed for 20 years. Almost interviewed farmers complained about the farm size being fixed over such a period. According to them, the farm size should be adjusted every three or five years to accommodate the changes in household size as children are born or people die. However, this adjustment is an administered solution that will increase land insecurity, compared to the alternative market reallocation of land that can also be used to facilitate the inevitable need for rural adjustment.

6.4.2. Fragmentation of landholdings

The fragmentation of landholdings is an important characteristic of farming in the less developed countries. The fragmentation has often resulted from inheritance customs. It may be difficult to consolidate a farm within the family after subdivision because one sibling lacks the means to buy out the others. Consolidation by sale to someone outside of the family is complicated by the right of refusal that family members enjoy on

inherited land. Another reason for the existence of land fragmentation is that transaction costs may inhibit the transfer of small plots (Faruqee and Carey 1997: 14).

The disadvantages of land fragmentation include the travelling time between the fields which leads to lower labour productivity and higher transportation costs for inputs and outputs, reduced scope for irrigation and soil conserving investments as well as the loss of land for boundaries and access routes, the unsuitability of certain equipment, the greater difficulty with pest control and management, and the greater potential for disputes between neighbours (Blarel *et al.* 1992: 233; and Binswanger *et al.* 1993: 74). However, in many cases, the influence of fragmentation on productivity may be overstated. It has been argued that land fragmentation may be an insurance mechanism similar to the practice of growing different crops (McCloskey 1976; and Townsend 1994).

A test of whether fragmentation has a detrimental effect on land productivity in Ghana and Rwanda showed that farm fragmentation does not seem to have any adverse impact. Although fragmentation resulted in the costs of travel time between plots and between farmers' residences and their parcels, at the same time fragmentation increased the diversity of agro-climatic conditions available to the farmer, and this led to more diversified cropping patterns. Such diversification can be beneficial for risk reduction, reducing peaks and troughs in labour demand and enhancing household food security (Blarel *et al.* 1992). In contrast, a study in Salogon, the Philippines, showed that conservation adopters' fields were on average only seven minutes from their residence, whereas non-adopters averaged a 39 minute journey. Thus the greater distances may have discouraged them from adopting the recommended conservation practices (Cramb *et al.* 2000: 80).

Similar to other developing countries, fragmentation is a typical feature of farmland in northern Vietnam. Before the collectivisation period, this fragmentation resulted from the inheritance customs. In the collectivisation period, land was consolidated in the hands of the cooperatives. Since the cooperative system was abolished, the agricultural land of a commune had been redistributed to individual households on an egalitarian basis: each member of a family received one *sao* (360 m²) and each household was allocated a number of plots in different areas based on the different qualities of the field

plots as well as access to water sources or other infrastructure. Therefore, farmland has been deliberately fragmented (average of 7.69 plots per household) with very small-sized parcels and often far from each other and from the household's residence (average of 1 km) (Table 6.7 and Appendix 5.1c and 5.1d).

Table 6.9. Perception of the impact of land fragmentation on conservation practices

| Village | Has the fragmented farmland impacted on your conservation practices? | | | |
|-------------------------------|--|-----------------------|-----------------------|------------------|
| | Positively | Negatively | Indifferent | Total |
| Thuy Dien | 5 (33.3%) | 7 (46.7%) | 3 (20%) | 15 |
| Bai Yen | 0 (0%) | 11 (91.7%) | 1 (8.3%) | 12 |
| My Giang | 2 (13.3%) | 10 (66.7%) | 3 (20%) | 15 |
| Co Cham | 0 (0%) | 23 (92%) | 2 (8%) | 25 |
| Mean | 7 (10.4%) | 51 (76.1%) | 9 (13.5%) | 67 (100%) |
| Standard error of mean | 0.037 | 0.052 | 0.042 | |
| 95 % CI | 0.031 to 0.178 | 0.658 to 0.863 | 0.053 to 0.216 | |

Source: Tran (2000). Field data

The analysis of the survey data from North Vietnam demonstrated that land fragmentation has significantly affected conservation practices. The majority of farmers (76.1 per cent) considered that land fragmentation has had an adverse impact on their conservation practices (Table 6.9). These farmers did not wish to make conservation investments for some of their remote plots because of the higher costs of transport and labour. Another reason given was that it was difficult to make plantations of commercial crops such as perennial fruit trees. The 95% confidence interval of the difference between opinions of the negative impacts of farmland fragmentation on land conservation (0.15 to 0.55) in Bai Yen and Co Cham compared with Thuy Dien and My Giang indicates that the difference is statistically significant. It is because the farmlands in the latter villages are less fragmented than the two former villages. Number of plots per farm-household is 5.06 in Thuy Dien and 6.06 in My Giang while number of plots per farm-household is 13.3 and 6.36 in Bai Yen and Co Cham villages.

However, a few farmers in Thuy Dien and My Giang villages found that in some respects the fragmentation of land has positively impacted on the adoption of soil conservation methods. Table 6.10 shows that these farmers (33.3% in Thuy Dien and 13.3% in My Giang), who have land parcels located close to their residence (740 meters and 860 meters respectively), and not have many fragmented plots (5.06 and 6.06 plots respectively) compared to two other villages, were keen to invest in long-term land

improvement because it was not costly of transport and labour supply. On the other side, however, having several plots may reduce the risk of farming or conservation investment. The rest of the respondents (13.5 per cent) were not concerned with the improvement of land productivity because their income did not rely heavily on agricultural production.

Table 6.10. Impact of fragmentation and the distance of plots on practising soil conservation

| Village | Farm size (hectares) | Number of plots per farm household (No.) | Mean distance of plots from homestead (meters) | Impact of fragmented farmland on conservation practices | |
|----------------------------|----------------------|--|--|---|-----------------------|
| | | | | Positive | Negative |
| Thuy Dien | 0.25 | 5.06 | 740 | 5 (33.3%) | 7 (46.7%) |
| Bai Yen | 0.24 | 13.3 | 960 | 0 (0%) | 11 (91.7%) |
| My Giang | 0.19 | 6.06 | 860 | 2 (13.3%) | 10 (66.7%) |
| Co Cham | 0.23 | 6.36 | 1432 | 0 (0%) | 23 (92%) |
| Average | 0.23 | 7.69 | 998 | | |
| Mean | | | | 7 (10.4%) | 51 (76.1%) |
| Standard error (SE) | | | | 0.037 | 0.052 |
| 95% CI | | | | 0.031 to 0.178 | 0.658 to 0.863 |

Source: Tran (2000). Field data

6.5. Conclusions

The hypothesis that the incentives for adopting soil conservation measures are increased by increasing the duration of land tenure has been tested using survey data from the different provinces in northern Vietnam. The 1993 Land Law has brought about a radical change in land tenure in rural Vietnam. Land and land certificates for land-use rights have been handed to households on a long-term basis. Although the process of issuing the land-use rights certificate has progressed slowly in many areas, especially in the upland regions and the regions with high population density, giving this written land-use rights contract to individual households has impacted significantly on farmers' attitudes towards long-term land improvements. But even though the law states that the rights to land have been increased to five rights - i.e., the rights to exchange, transfer, inherit, mortgage and lease - on a long-term use basis, these rights need to be written

clearly in the land rights contract. Doing so will ensure farmers have a better understanding of their rights and obligations under the contract.

Excepting some short-term conservation, the adoption of soil conservation measures, has been influenced strongly by the change in the length of the land-use rights contract. The terms of 20 years for annual crops and 50 years for perennial crops and forest land have encouraged farmers to adopt soil conservation measures as this means that they will be able to reap the benefits from their investments. However, the right to use land in perpetuity is favoured by most farmers. The renewability conditions of the land lease are not clear to farmers. Making it clear to farmers that their leases will be renewed automatically unless they do not observe their responsibilities to the land would be an improvement over the present situation.

Soil conservation practices in the region are determined by a number of factors such as farm attributes, age, education, and experience of the farmers, institutions, access to credit and other socio-economic factors. As a part of the change in the land tenure system, the distribution of farmland to individual households has significantly affected soil conservation practices. Because of the scarcity of arable land and because of Vietnam's egalitarian philosophy, land was allocated to farmers according to household size and each member of the family received a very small piece of land. Thus, land farmed by farm household is small in total and fragmented. These characteristics of the farms adversely affect the improvement of land productivity the costs of transport and labour, and makes use of mechanical equipment uneconomic.

The shortcomings in implementing the land law must be resolved to encourage farmers to invest more in conservation practices and land productivity. However, these shortcomings cannot be resolved in isolation of the other aspects of the land tenure regime such as the rights to transfer land and the rights to use land as collateral, which are explored in the next chapter.

Chapter 7. Impact of transferability of land use rights on investment in land improvements

7.1. Introduction

The most important differences in the 1993 Land Law compared with the previous land tenure regime were the granting of the right of land transferability and the right to mortgage land-use rights for credit.

Before 1993, farmers could not rent or sell their land. Land had been cultivated following the plan of the cooperatives in the Collectivisation period; farmers had no rights to sell or lease the cooperative land, nor could they do so with their own "5 per cent" plots. Even when Directive 100 about the production-land contract was published in 1981, selling or renting land was strictly prohibited. It is hypothesised that this restriction limited the opportunity to obtain credit, buy more land for farm investment, and reap benefits from farmers' investment if they are unable to farm. Farmer may also have little interests in long-term land improvement, and the allocation efficiency of land use because of the restriction on land transfers. After the 1993 Land Law was implemented with the rights to transfer land granted to individual households, farmers started to have land transactions in most areas of Vietnam.

This chapter, therefore, deals with several relevant questions: How has the right of land transferability contributed to perceptions of land tenure security? Has the right to transfer land rights promoted credit supply and demand as well as the development of a land market? Has this right affected the perceptions and practices of farmers with regard to long-term land improvements?

Thus the first part of this chapter addresses the impact of land transferability on credit use and agricultural productivity over the different land tenure systems. The second part analyses the impact of the transferability of land use rights on agricultural production through its impact on farmers' access to credit; on land values through the development of a land market; and particularly, on the impact of this right on investment in soil conservation.

7.2. Effects of land transferability on credit use and agricultural productivity

Many previous studies have investigated the effects of land transfer restrictions on agricultural productivity through the impact on credit use, land cultivation and investment decisions. Most studies examine the hypothesis that tenure security, particularly the rights of sale, lease and mortgage, has a positive impact upon the propensity to invest in land improvements. The critical analyses of Feder *et al.* (1988), Wenfang and Makeham (1992), Place and Hazell (1993), Besley (1995), Carter and Olinto (1996), Gavian and Fafchamps (1996), Lopez (1996), and Hayes *et al.* (1997) have shown that the right of land transfer has an impact on credit supply and demand, and/or land allocation efficiency, and/or demand for land improvements. The evidence that has supported these arguments has been found in different land tenure regimes such as customary ownership and collectivised systems.

7.2.1. Customary land tenure

In most developing countries where customary land tenure has dominated, the rights to transfer land between the community members or between them and outsiders have commonly been limited. It has been argued that:

the distinguishing feature of different tenure regimes may be said to revolve around restrictions on the individual holder's ability to transfer land (only among family members, within the lineage or community, or to outsiders; and with or without approval from other lineage or community members), which also tends to coincide with the mode of transmittal (inheritance, gifts or bequest, and sale)

(Migot-Adholla *et al.* 1991: 159).

In other words, members of the community are not free to make independent decisions about transferring land held communally.

For example, the traditional land tenure system in Africa is often referred to as *communal*. In such system, a customary authority regulates transfers of land. The cultivators of a community may have no discretionary land transfer rights; such usufructuary rights (rights to reap production benefits) are granted only as long as the current operator remains on the land. It is even stated in some regions that land is not a negotiable property and as such is not heritable, disposable and alienable by individuals

(Oluwasanmi 1966: 26). The inalienability of land constrains individuals or groups from investment in land improvement and makes it impossible to use land to the best of its potential (Fabiya 1974: 79). Land reform in Africa has become more important with increased population. Pressure for land reform has emphasised individualistic rights.

The study by Besley (1995) in Ghana provides evidence of the impact of transferability of rights on investment incentives. Besley tested this idea using data from two regions (Wassa and Angola). Based on the testing of three theoretical models - *the security argument, the collateral-based view, and the gains from trade argument* - the empirical analysis yielded insights into the determinants of transfer rights in both regions. Besley found limited support for the credit supply effect and the gains from trade hypothesis. The findings were supportive of the idea that more secure rights facilitate investment and that formal transfer rights have a positive effect on investment.

In Wassa, for instance, the regression results suggested that land transfer rights, together with other rights to land, matter for investment in trees. The right to transfer land with approval from the customary authority raises the probability of investing by 2.5 percent and this result is significant at the 5 percent level (Besley 1995: 919-931). In Angola, among the interviewed farmers who held parcels of land in perpetuity, 61.8 per cent of "complete transfer" parcels were improved by investments in drainage, mulching or excavation as opposed to only 5.4 per cent of "limited transfer" parcels. Moreover, the land which could be transferred freely was more likely to have been improved than that requiring prior approval (Migot-Adholla *et al.* 1991: 166; and Besley 1995: 927). A study in Rwanda also found evidence of the positive effect of land transfer rights on long-term land improvement. About 78.7 per cent of land which may be bequeathed was improved as opposed to 26.7 per cent of those lands which could not be bequeathed (Migot-Adholla *et al.* 1991: 166).

Heath (1992) examined this issue in Mexico when he analysed the hypothesis that farmers in the land reform (*ejido*) sector would be less productive than private farmers. Since the land reform in Mexico in 1917, possession of land guarantees the *ejidatario* (*ejidatario* is a household that is allocated its own tract of the community's land to work, the income from which accrues to the household rather than the community) access to land but does not permit him/her to sell, lease or mortgage the land. The law

decrees that if an *ejidatario* attempts to rent, lease out or sell his holding, or if it is left idle for two years or more, the land will be seized and may be allocated to other members of the *ejido* (Diaz 1983).

Restrictions on land transferability were thought to constrain *ejido* productivity in two ways. First, they may make it difficult for farmers to engage in off-farm activities, because if farmers were unable to farm they may need to sell or rent their land to obtain credit for off-farm work. Second, leasing restrictions may increase land allocation inefficiency as those inheriting *ejido* land may be less committed to farming than their parents; but they are unable to lease out their farmland to farmers with the resources and the vocation to extract greater productivity from the land. More important, leasing the land for a market-determinant rent provides an opportunity to compensate the *ejidatario* for improvements made to the land. Without access to this type of compensation the *ejidatario* may be less inclined to carry out improvements (Heath 1992: 699).

These arguments based on the data of the 1981 Agricultural Census. There was some indication that, in terms of revenue per hectare, *ejido* land were less productive than same-size private holdings. A larger share of cultivated land in *ejido* land (76.7 per cent) of up to five hectares was occupied by subsistence annual crops compared to private farms of equal area (70.8 per cent). More over, a smaller part of the cultivated area was devoted to perennials on the *ejido* land (19.2 per cent compared to 29.5 per cent on private holdings up to five hectares). In addition, the 1988 survey showed that the *ejidos* contain three quarters of the nation's forest land but contributed only 17 per cent of the output of forest products; private enterprise owns 20 per cent of forest but accounted for 65 per cent of forest production (Heath 1992: 704).

In Gambia researchers have investigated the determinants of investment, input use and productivity under customary tenure in peri-urban areas. Hayes *et al.* (1997: 381) has shown that within a customary tenure system there exist differing incentives for investing in land. More individualised rights or secure tenure, represented by complete transfer rights - the right of sale and the use rights it implies - are associated with a higher propensity to make investments, which in turn has a positive effect on yields. The results of the analysis indicated that tenure security affects investment mainly through credit demand, not credit supply, because credit access in rural Gambia rarely depends

on the use of land as collateral; less than three percent of loans are used for agricultural purposes (Hayes *et al.* 1997: 381).

7.2.2. Collectivised regimes

One-third of the world's population lived in the centrally planned countries of Eastern Europe, the Soviet Union, and Asia in which agrarian institutions were abruptly and forcibly recast during collectivisation in the middle decades of the twentieth century. Under this system the food economy often declined. The political and economic implications of these declines led in 1988 to public recognition that the problem lay with collectivised agriculture, and the system of land tenure and the incentives for management and effort within that system. The change of land tenure systems in those countries towards providing contract land to individual farmers was not sufficient for improving agricultural productivity when the land laws allowed restricted tenure, under which the farmers could not sell, rent or mortgage the land. These restrictions on land market activity were seen as costly (Brooks 1990: 236-237).

Insecurity of land tenure, especially the restriction on land transfer, in these former communist countries affected on agricultural productivity adversely. This was because of inefficient land allocation, lack of access to credit and lack of incentives for land improvement investments. For example, China's agricultural sector was collectivised for about 30 years. Collective ownership of rural land was established in China in 1956. Market transactions in land were prohibited until the early 1980s. No organization or individual could appropriate, buy, sell or lease land. The rural reform in the late 1970s resulted in important changes in the land use system. The collectively owned land was contracted to individual households in proportion to their family size. But until 1983 no one was allowed to transfer, lease, or sell land in any way. This restriction caused farmers to have little interest in long-term land improvements (Wenfang and Makeham 1992: 139-40).

The restriction also affected land allocation efficiency. Many farmers were driven to devote their efforts to non-farming activities. Land could not be used efficiently as the land use rights could not be transferred from less productive to more productive farmers. As Wenfang and Makeham (1992: 153) stated:

There is no better substitute for the market mechanism in allocating land resources. When he pays for his use of land, a farmer will use it more efficiently and be ready to give it up when he cannot manage to use it properly. When his concession for the use of land is compensated, a farmer will be more willing to give it up.

In January 1984, China decided to amend its tenure system. The government extended the length of the land contract to 15 years or longer (in 1998 land use rights were extended for another 30 years) and began to encourage farmers to transfer land use rights between each other, especially to divert land use to those who were more adept at farming. Farmers were allowed to obtain compensation for investments they had made in land which they transferred (Bing 1993: 11). Facilitating voluntary transfers of land use rights has been important to China's agricultural and economic development for four reasons. First, land transferability facilitates allocation of land into the hands of the most efficient users. Second, a land user with the rights to transfer will adopt a longer planning horizon and be likely to make improvements to the land, since he will be able to reap the benefits from improvements made even if he wishes to retire and his children do not wish to farm. Third, the introduction of a land market will give land a value and create the conditions for an equitable and efficient land tax. Fourth, the right to transfer is a prerequisite for the ability to mortgage; though the Guaranty Law prohibits mortgage of land use rights to collectively-owned arable land while allowing the mortgage of land use rights to wasteland which the mortgagor has contracted in accordance with the law (Prosterman *et al.* 1998: 36).

A survey was conducted in 17 provinces of China in 1998 to assess progress on implementation of the 30-year land use rights and its security level. The survey results show that the overwhelming majority of farmers (90.8 per cent of 1621 interviewed) believed they should have the right to transfer or lease their land use rights to other villagers while 80.1 per cent felt they should possess the rights to transfer or lease their land use rights to non-members of the village collective. These attitudes were believed to result from the influence of transfer rights on investments in land (Kung and Liu 1997: 48; and Prosterman *et al.* 2000: 21). However, the markets for rural land use rights remain largely undeveloped in China. Although some transfers of rural land use rights occur, most such transfers are not long-term, but are made on a seasonal or annual basis while the transferor is away from the village engaging in non-agricultural work.

The reasons are that while Chinese law has generally allowed the transfer of rural land use rights, no detailed regulations or standardised forms have been issued to guide the process (Bing 1993: 14-16).

7.2.3. Other regimes

Most studies on the relationship between the right to transfer land use rights and agricultural and/or land productivity have utilised the conceptual framework which Feder, Onchan, Chalamwong and Hongladaron (1988) developed to explain how tenure security and transferable land titles can enhance farmers' investments and productivity in Thailand. Private ownership is now the typical form of land tenure in Thailand.

All land in Thailand, historically and theoretically, belongs to the king. However, any Thai citizen could claim land in order to provide food for his family. For many years, widespread clearing of forests, settlement, and cultivation were permitted with few restrictions and little government control. Rights to use land were informal and customary. In 1954, the comprehensive Land Code defined procedures for registration of privately-owned land and issuance of title. The land documents contain the demarcation of land boundaries and allow the owner to sell, transfer, and mortgage the land (Feder and Onchan 1987: 312; and Feder and Feeny 1991: 139). In their seminal study, Feder *et al.* (1988) found that land titles with the full rights of land transferability increased investment, input use and the productivity of land use in Thailand, mainly by increasing farmers' access to formal credit.

Empirical data on credit transactions of farmers in the four provinces of Thailand revealed that more medium-term and long-term loans are provided by institutional lenders than by non-institutional lenders and that titled farmers obtain such loans much more often than untitled farmers who lack acceptable land collateral. Since untitled farmers cannot offer land as collateral, they are obliged to provide a collateral substitute - a group guarantee - to obtain institutional loans while titled farmers could and did offer their land as collateral in the case 53 per cent of the institutional loans in three provinces and in more than three-quarters of the institutional loans in the other province. The data also demonstrated that commercial, non-government banks in the sample were more

inclined to require land as collateral, as 85 per cent of the loans transactions with such banks involved land as collateral (Feder *et al.* 1988: 51-55).

About half of Thailand's area is classified as forest reserve land, belonging to the state. However, an estimated one-fifth of the land officially designated as state-owned forest reserve was permanently occupied and cultivated by squatters who had had possession of the land for 15 to 20 years without land titles or certificates of use. Since 1981 the Royal Forestry Department has issued usufruct certificates to large numbers of squatters in the forest reserves. These certificates, known by their Thai acronym *STK*, provide "temporary cultivation rights". This covered only holdings up to 15 *rai* (2.4 hectares) and restricted the transfer of holdings except by inheritance.

Squatters were at a disadvantage in gaining access to institutional credit since they could not legally provide land as collateral. Moreover, the conditions stipulated in the certificates may reduce the efficiency of squatters. For example, land could be transferred by inheritance only to direct descendants; it could not be sold, rented out, or given to others. The responses of the squatters interviewed demonstrated several constraints of the *STK* program. Nearly one-thirds of squatters did not perceive any benefits from the program. Another 15 per cent could not identify the benefits that were entailed in possession of an *STK* certificate. About 24 per cent of them expected the certificates to reduce land disputes. Only 13 per cent felt that possession of an *STK* certificate with the restrictions on land transfer reduced their risk of eviction (Feder *et al.* 1988: 126).

The question of whether restrictions on the transferability of land have adversely affected investment in farm productivity, the efficient allocation of land and use of inputs, and credit supply and demand in developing countries has been widely debated. The effects may be small or significant, depending on the socio-economic conditions of different countries or regions. For example, in many countries, the relationship between land rights and productivity is significant as seen in the study of Feder *et al.* (1988), whereas studies in other regions have found minor or no impact from restrictions on legal transferability on agricultural productivity. Here the results of empirical studies in two countries - Kenya and India - are described as illustrations of the two sides to this argument.

Kenya. As in many African countries, customary tenure in Kenya was already undergoing individualisation at least several decades prior to the land reform in the 1950s. Population pressures were resulting in severe fragmentation of holdings and increases in land disputes among farmers and corporate groups as land scarcity was gaining in importance in most areas. Individual freehold tenure, following the Swynnerton plan of land consolidation and land registration, was introduced first in the Central Province (Odingo 1985). Land markets had existed in many areas as early as the 1930s. Ironically, sellers were often those needing money for land litigation. Buyers were usually wealthy men such as chiefs, teachers, agricultural staff and other government officials (Brokensha and Glazier 1973).

A well-functioning land market had not been created in Kenya as a result of individualised tenure and land registration although many people decided to make purchases immediately prior to registration in order to have holdings in their names. Based on the observations of a few land transactions, Okoth-Ogendo (1976) attributed the lack of land transfer activity to the perception held by farmers that individualised tenure did not include the option of selling land. Purchases mostly were by educated elite who understood the implications of registration. They had capital to invest from non-farm employment and wished to use the opportunity to acquire land as a speculative asset (Barrows and Roth 1990). The Kenyan regions of Madzu and Kianjogu were used to test the effectiveness of the land registration program and the individualisation of land rights. The empirical results showed that the commercialisation of land rights was not very attractive to Kenyan farmers, as of the 97 parcels with land titles in the two regions, only 23 could be sold by current farmers (Migot-Adholla *et al.* 1991: 164).

Studies of land tenure in Kenya did not find a significant relationship between land rights and the use of formal credit. Farmers were reluctant to use land as collateral because of the fear of losing it. About one-third of those sampled in Machakos had applied for credit, but very few had approached commercial banks or used land as collateral. Indeed, in most districts, less than two percent of title-deed holders in any one year receive loans from the Agricultural Finance Corporation. The reason for this situation was that although farmers had the rights to transfer their land, lenders have difficulty in recouping the administrative costs of small loans; the minimum loan size fixed by most banks exceeded the capital needs of smallholders. In some areas, credit

volume was not increased but simply redistributed to large farms owned by more wealthy individuals (Okoth-Ogendo 1976; Odingo 1985; Barrows and Roth 1990; and Migot-Adholla *et al.* 1991).

Most of the studies also did not find any correlation between land rights and long term investment or yields in Kenya. Farmers in Kisii region were just as willing to plant permanent crops before registration as after; smallholders wanted to develop their land regardless of title to meet subsistence and cash needs; and large title holders were not inclined to cultivate more of their uncleared land (Wilson 1972; Haugerud 1983; Odingo 1985; and Migot-Adholla 1991). The lack of relationship between land transfer rights and access to formal credit, long-term land investment and agricultural yields, therefore, suggests that in some areas, land transfer rights alone are not a significant factor. Other social or economic factors may have stronger effects on credit supply and demand as well as on investment in land and agricultural productivity.

India. The main systems of land tenure in India, which were established by the British regime were in place until the 1950s. There were two systems - *zamindari* tenure and *raiawari* tenure - with several variations in each case. The zamindari system admitted three interests in land: the government, owners and the tenant-cultivator. The landowners leasing land and receiving rent and the tenant-cultivators paying rent while cultivating the soil; and the landowners paying land taxes to the government. The raiawari system came later in the heyday of British domination. In this system, ownership rights were vested in the cultivators themselves, and thus only one payment - taxes from owners to the government - was admitted. Areas constituting Maharashtra and parts of Andhra Pradesh typified this system (Khusro 1973: 3-5).

Nowadays, most agricultural land in Andhra Pradesh is held privately under formal title. Two broad categories cover the remaining land: assigned land and government land. Assigned land is land that has been granted mainly to poor, low caste people under various land distribution schemes. Recipients of such land received usufruct rights intended to be secure but are not marketable, even though leases are officially permitted. Distribution of assigned land began in the mid-1950s. Land assignment mainly covers encroached common land. Increasingly poorer quality land is assigned because most of

the better land has been distributed already. Most sales of assigned land have been unofficial where sales restrictions are not always enforced (Pender and Kerr 1999: 9).

Pender and Kerr (1999: 289) used data from two Indian villages - Aurepalle and Dokur - in this area of India to examine the effects of land sales restrictions on credit use, investment and cultivation decisions. In these villages, both forms of private land rights, including full rights to lease or bequeath and assigned land, which is subject to official limitations on sales, exist. Differences between the two villages in enforcement of sales restrictions helped the researchers to separate the different impacts of assigned status in the two villages. In Aurepalle, 16 per cent of assigned plots were purchased despite official restrictions on sales of these plots. Very few assigned plots have been purchased in Dokur.

The econometric analysis showed that ownership of assigned land has a negative but statistically insignificant effect on both supply and demand for formal sector and money-lender credit. They also found that neither the share of the household's land subject to sales restrictions nor sales restrictions on the particular plot have a significant effect on investment. Some household characteristics were found to affect investment demand on plots subject to sales restrictions in one village, suggesting that the transactions effect of such restrictions may be inhibiting allocative efficiency (Pender and Kerr 1999: 291-293). Because this effect was present for titled plots as well as plots subjected to sales restrictions, the inefficiency of land allocation may be occurring with respect to titled land.

An explanation for the limited effect of land rights status may be the imperfect enforcement of sales restrictions. Other factors, particularly the nature of credit and land markets, possibly affect the impact that sales restrictions have, even if effectively enforced. If lenders do not use land collateral to enforce credit contracts or to screen borrowers, sales restrictions may have little impact on credit supply. The nature and extent of informal credit markets is a critical determinant of the economic impacts of marketable property rights as the impact of transferable title was relatively unimportant in the one region where informal lending was predominant.

7.3. The risks of land transferability

Theoretically, a market in land will allow those with higher marginal value product to bid land away from others. Land will pass to those who can put it to its highest-valued use, eliminating the loss created by restrictions on land sales (Barrows and Roth 1990: 268). However, this outcome is not always ensured as in developing countries land was transferred to richer people, who may not engage in farm activities, from poor farmers who rely on farm production. In many rural areas, because of the lack of infrastructure, diversified cropping, non-crop agriculture, and off-farm employment, peasants' income is very low and their ability to cope with problems in production and living is also very weak. Moreover, a new landlessness has emerged as a result of the permission to sell land. The concern felt about this development is reflected in the following statement relating to monsoon Asia.

The permission to selling state-owned but individually possessed land opened up the possibility that peasants might be forced to sell land to deal with natural disasters, debts (including gambling losses) and other difficulties, or be induced to sell land to industrial and urban developers/dwellers in order to earn easy and high short-term profits, thus becoming newly landless.

(Zhou 1998: 3)

For example, in Kisii (Kenya) 95 per cent of the land sellers were farmers with no off-farm work. Land was often sold because of financial hardship, widows being a typical case. In contrast, 45 per cent of the buyers of land were full-time farmers, 41 per cent were self-employed traders, and 14 per cent were government employees (Wilson 1972). This increasing concentration of land in the hands of larger farmers suggests a tendency of increasing landlessness in this area.

The newly landless situation has emerged commonly in the countries which have a nominal state - but *de facto* private - land ownership. Under this new system, state-owned but individually-possessed farmland can be sold. Due to difficulties from weak individual land operations, poverty, illness, and even gambling losses, families have had to sell their farmland. In Cambodia, the poor landless were families headed by widows, gamblers, and peasants who sold residential and farmland along the road-way (Kusakabe *et al.* 1995: 89). Similarly, one village in Laos has 15 landless families and

no land left to allocate; no less than 75 hectares have been sold in only two years. Around Vientiane, landlessness accounted for 10-15 per cent of all rural families. In one village, 71.6 per cent of the households were landless (Groppo *et al.* 1996: 11, 17, 42).

However, although the rights to sell and mortgage land inevitably open up the possibility of landlessness and poverty, the root causes of landlessness should not be attributed to the right to transfer land; the main reasons stem from other social and economic conditions; for example, the lack of job opportunities for those people moving out of farming. In monsoonal Asia, once the rural infrastructure, non-crop agriculture, off-farm employment and industrial companies in the cities developed, rural peasants can find sufficient employment in non-agriculture and off-farm lines. If land were fixed to the possessors, then, in a high wage economy, inefficient small land-holdings is a considerable problem. (Zhou 1998: 7).

The study of Zhou (1998) showed that in the high wage economy, landlessness is not an important problem, but it is inefficient land-holding that results from the tendency of the land possessors to become part-time farmers and absentees when they go to cities to earn more income. These farmers still keep the land just as an asset without tilling it efficiently, nor selling and leasing it to full-time farmers who wish to concentrate on farm production. The "pull" from the rural to urban areas led to the situation of much land held by part-time farmers and absentees with inefficient use, while the remaining full-time farmers could not get larger land and is thus difficult to survive.

7.4. Development of land markets in North Vietnam

Vietnam had a developed land market for centuries. Private ownership with the rights to sell and lease land was a significant feature of the land tenure system in the feudal period. At the beginning of the XIXth century, the total agricultural land of the country was 3.396.584 hectares, of which 83 percent was private lands. In the northern region, 65 percent of total agricultural land was private (Vu M.G. and Vu V.Q. 1997: 35). In this period, the exploitation of public land within each village created many loopholes to turn public land into private land. First, in the process of land distribution and redistribution, the village authorities (members of the Council of Notables and Chiefs of villages) took advantage of their positions to seize plots of land that were fertile and had

good access to water sources, thus a part of the public land became private land. Secondly, a number of peasant families who grew rich, bought public land which thus became their private property (Pham X.N. *et al.* 1999: 62).

From the end of the XIXth century to the middle of the XXth century, due to the impact of French colonial policies, a substantial amount of land fell into the hands of French plantation owners and the indigenous landowning class. As a consequence of the French colonial rulers appropriating land, Vietnam's labouring peasants - who accounted for 90 percent of the population - were separated from their basic means of production. Moreover, a number of decrees on land allocation issued by the Governor General of Indochina in 1913, 1918, 1926 and 1929 and the lending policy of the Land-Bank gave priority to the rich people in the countryside. The impoverishment and bankruptcy of many peasant families induced them into selling their farmland at very low prices and they became landless peasants. The landowners rented land to tenants or hired agricultural labour. Mainly poor and lower middle-income peasants had to work as tenants for landlords, while landless peasants worked as hired agricultural labour (Pham X.N. *et al.* 1999: 63-70; and GDLA 1997: 19).

The cooperative system of rural landholding was established in the 1950s. Major socio-economic changes came to rural North Vietnam with the implementation of land reforms. From 1954 to 1957, 810,000 hectares belonging to French plantation owners, the Church and local landlords, as well as public lands, were distributed to 2.1 million peasants households. The land and tools of the peasant households were pooled and all agricultural work was done collectively under the unified management of the cooperatives. Until 1993, any land market transaction was prohibited (Prosterman and Hanstad 1994: 4). No organisation or individual could appropriate, buy, sell or lease land, or transfer it in other ways. It was ruled that the collective land should only be used in common by members of the cooperative; leasing land would involve a rent which implied the exploitation of man by man (Ninh V.L. 1994: 99).

The 1993 Land Law brought about great change in the land tenure system as, while it ensured, that land still belonged to the state, land use rights could be privately held for long periods as well as transferred (Article 73, 74, 75-see Box 6.2). Since the Land Law

has been implemented, land markets have gradually developed, though land transactions had in fact taken place before the 1993 law.

Renting of farmland has been the most developed activity of land markets in rural areas in northern Vietnam. The number of households renting land for agricultural purposes makes up 11.9 percent of total farm households. Most of them (83.3 percent) have been the middle-income families, while only 16.7 per cent have been high-income families. In contrast, among the households (7.5 percent of total farm households) who have rented land out, poor families have accounted for 53.3 per cent, middle-income families comprised 20 percent, and rich families made up 26.7 per cent (Do K.C. 2000: 24).

A study by the Ministry of Rural Development and Agriculture on land markets was conducted in 1998 in seven agro-economic regions of the country. The study results showed that the level of development of land markets and its activities were different between these regions. Renting land and borrowing land have been popular in the northern region, but land sales have developed most in the southern region and the north mountain areas. About 40 percent of land rental was between relatives; 70 percent of borrowing activities took place between relatives; while land sales have almost all (85 percent) been between households who have no lineage relationship. The price of farmland has averaged one to two million VN *dong/sao* (67 to 133 USD/360m²). The periods of renting or borrowing land have been from one to five years. Bidding for the commune land, which is often infertile land, forestland or wetland areas, has been common in the northern region.

In 1999, another survey of the types of transactions in land was conducted in three communes in the Red River Delta area. 26.7 percent of farm households in Ham Son commune, 20 percent in Van Mon commune and 34 percent in Dong Du commune rented land. In Dong Du commune, which is a suburban area and where households' income primarily comes from off-farm work, 39 per cent of households leased out their field plots. Households who borrow land are often engaged in full time farm work. Few households are involved in selling and buying land, with only 6.6 percent of total households in Ham Son commune, 4.5 percent in Van Mon commune, and 3.0 percent in Dong Du commune selling land (Do K.C. 2000: 24).

The development of the agricultural land market, however, has faced some constraints. According to the Land Law, households and individuals have the right to transfer land-use rights only in the following cases: when they move to another place; when they change jobs; or when they are unable to work. The restrictions on the transfer of land use rights may limit the development of a formal land market and give rise to illegal transactions between farmers. The high tax on land transfers has discouraged land sales, thereby restricting an efficient market in land rights. Other issues affecting land transfers should also be considered, such as the extent of government control of the land market, the private sector's contribution to the market, and the dissemination of knowledge and information concerning land market issues (Prosterman and Handstad 1994; and Kjellson *et al.* 2000).

7.5. Impacts of land transferability on the adoption of soil conservation practices

This study asks whether the right to transfer land-use rights has led to the development of the land market and how this right has affected credit supply and demand, land allocation efficiency, and hence investments in land productivity. The survey conducted in the four villages of the northern region of Viet Nam focused on the number of households renting land in and out, their perceptions of the rights to transfer land, the reasons that induced them to become involved in land transactions, and the involvement of land transferability in making decisions about land investments.

7.5.1. Perceptions of farmers about the right to transfer land-use rights

Of the 67 farmers interviewed in the survey, 80 percent were in favour of the transfer rights. For them the transfer right has placed a value on their farmland, giving them the opportunity to obtain credit when necessary, to buy more land for farming, and reap the benefits from what they invest in their land. Only 5 percent indicated a negative attitude to these rights. These were poor households who believe that this right can facilitate the richer farmers buying more commune land, which might otherwise be provided to them on a subsidised basis if the rights to sell and buy land did not exist. The remaining households (15 percent) indicated their indifference to this right as most of them insisted that they do not want to sell the land because land is the inviolable asset of a

rural person. Some households who are engaged in off-farm work on a full-time or part-time basis believed that their income may be unstable in the future, thus they wish to keep a piece of land despite the fact that their families may not need it for cultivation (Table 7.1).

Table 7.1. Preference of farm-households for land transfer rights

| Village | Yes | No | Indifferent | Total |
|----------------------------|-------------------|------------------|-------------------|------------------|
| Thuy Dien | 13 (86.6%) | 0 (0%) | 2 (13.4%) | 15 (100%) |
| Bai Yen | 9 (75%) | 2 (16.6%) | 1 (8.4%) | 12 (100%) |
| My Giang | 11 (73.3%) | 0 (0%) | 4 (26.7%) | 15 (100%) |
| Co Cham | 21 (84%) | 1 (4%) | 3 (12%) | 25 (100%) |
| Mean | 54 (79.7%) | 3 (5.15%) | 10 (15.1%) | 67 (100%) |
| Standard error (SE) | 0.0483 | 0.0253 | 0.0435 | |
| 95% CI | 0.0711 to 0.901 | -0.005 to 0.094 | 0.064 to 0.235 | |

Source: Tran (2000). Field data.

Farmers' preferences for types of land transaction were also different between the villages (Table 7.2). Of the 54 households who were interested in the right to transfer land rights, in Thuy Dien and Bai Yen villages, households preferred the rights of exchanging (77 and 93.8 percent), bidding (80.4 and 75.2 percent) and borrowing (71.7 and 80.6 percent) more than the rights of selling (56.2 and 61.7 percent) and leasing (58.3 and 66.4 percent). These households are primarily engaged in agricultural production, thus they need to exchange farm plots to overcome the fragmentation problem. Households who want to increase agricultural productivity may need more farmland in order to carry out efficient cultivation practices; thus bidding for land from the commune and borrowing land from relatives is popular.

In contrast, in My Giang and Co Cham villages, 90.6 and 95.3 percent of respondents, respectively preferred the rights of leasing and selling more than exchanging (61.3 and 49.3 percent), bidding (52.7 and 87.4 percent) and borrowing (52.7 and 67.6 percent). Most of the households in these villages do not work full time in agriculture; their income mainly comes from other work such as carpentry, tailoring or construction. Thus they do not need more land for cultivating, but they may want to rent out or sell the land-use rights to others. However, households in Co Cham village also want to bid more land from the commune or exchange plots with other farmers to establish fruit plantations. This is an activity that is not highly labour-intensive, and therefore complements off-farm activity.

Table 7.2. Preference of farmers for transaction types

| Transaction type | Thuy Dien (% of households) | Bai Yen (% of households) | My Giang (% of households) | Co Cham (% of households) | Standard error |
|------------------|-----------------------------|---------------------------|----------------------------|---------------------------|----------------|
| Leasing | 58.3 | 66.4 | 90.6 | 95.3 | 0.181 |
| Selling | 56.2 | 61.7 | 72.5 | 70.9 | 0.077 |
| Exchanging | 77 | 93.8 | 61.3 | 49.3 | 0.193 |
| Bidding | 80.4 | 75.2 | 52.7 | 87.4 | 0.150 |
| Borrowing | 71.7 | 80.6 | 57.2 | 67.6 | 0.097 |

Source: Tran (2000). Field data.

7.5.2. The involvement of households in transferring land-use rights

Not much land has been rented in or out in these villages. Out of 100 households in the four villages, only seven families rented more land for agricultural purposes and ten families leased their farmland to others (Table 7.3). Most farmers said that they do not have enough land to cultivate, especially in My Giang and Co Cham where land scarcity is more critical. For example, one farmer in My Giang village rents out land because he is an alcoholic, he lost his ability to farm, and his mother is old and very weak. One farmer in Co Cham village rents out land because in his family, only he works on the farm, and the rest of the family work off-farm. Another family rents out all their land because all of their incomes is from off-farm work. In Thuy Dien and Bai Yen where most households rely on farm production, they rented land in because they are interested in intensive investment to increase farm productivity.

Table 7.3. Renting land

| Village | Rent in (No. of households) | Rent out (No. of households) | Total of respondents |
|-----------------------|-----------------------------|------------------------------|----------------------|
| Thuy Dien | 1 (4%) | 1 (4%) | 25 |
| Bai Yen | 3 (12%) | 1 (4%) | 25 |
| My Giang | 2 (8%) | 3 (12%) | 25 |
| Co Cham | 1 (4%) | 5 (20%) | 25 |
| Average | 7 (7%) | 10 (10%) | 100 |
| Standard error | 0.0255 | 0.03 | |
| 95% CI | 0.020 to 0.120 | 0.041 to 0.159 | |

Source: Tran (2000). Field data.

Except in Co Cham, a very small percentage of households (5 percent of sellers and 14 percent of buyers) were involved in selling and buying farmland (Table 7.4). In Co Cham village, 16 percent (4 out of 25) of households had sold land and 24 percent (6 out of 25) bought more land; not because they wanted land for cultivation but because they may use land for other purposes than agriculture. In the other three villages, farmers were not interested in selling farmland, as they still need it for cultivation. The

scarcity of land and difficulties of accessing credit have inhibited farmers from buying more land. The high rate of land transfer tax is also a limitation on selling and buying land. There are similar survey results of selling and buying land between the four villages as the most 95% confidence intervals of the difference between villages in exchanging land have a negative or zero lower limit (except Thuy Dien and Co Cham (0.02)) (Table 7.4).

Table 7.4. Selling and buying land

| Village | Sellers (No. of households) | Buyers (No. of households) | Total of respondents |
|---|--------------------------------|-------------------------------|----------------------|
| Thuy Dien | 0 (0%) | 2 (8%) | 25 |
| Bai Yen | 1 (4%) | 3 (12%) | 25 |
| My Giang | 0 (0%) | 3 (12%) | 25 |
| Co Cham | 4 (16%) | 6 (24%) | 25 |
| Mean | 5 (5%) | 14 (14%) | 100 (100%) |
| Standard error (SE) | 0.032 | 0.033 | |
| 95% CI | 0.07 to 0.093 | 0.072 to 0.208 | |
| 95% confidence intervals of the difference between villages in exchanging land | | | |
| | Thuy Dien | Bai Yen | My Giang |
| Thuy Dien | - | -0.03 to 0.07 | -0.03 to 0.05 |
| Bai Yen | | - | -0.04 to 0.06 |
| My Giang | | | - |
| Co Cham | | | - |

Source: Tran (2000). Field data.

Farms in these villages are fragmented, especially in Bai Yen village, and farmers wish to consolidate their farm plots by exchanging plots with other farmers. However, the land exchange market in these areas has developed only slowly, even though the government has encouraged farmers in this direction. Only 13 per cent of households have exchanged land because the rules and regulations governing this transaction are not clear (see Table 7.5). There are similar survey results of exchanging land between the four villages as the most 95% confidence intervals of the difference between villages in exchanging land have a negative lower limit (except My Giang and Bai Yen (0.02)) (Table 7.5).

Although farm households are strongly interested in the right to transfer land-use rights, it appears that agricultural land markets have not developed very far as only a small number of households have been involved in land transactions activities (Table 7.6).

Table 7.5. Exchanging land

| Village | Between farmers and their relatives (No. of households) | Between farmers and the outsiders (No. of households) | Total households | |
|---|--|--|-------------------|----------------|
| Thuy Dien | 2 (8%) | 1 (4%) | 25 | |
| Bai Yen | 2 (8%) | 4 (16%) | 25 | |
| My Giang | 1 (4%) | 0 (0%) | 25 | |
| Co Cham | 2 (8%) | 1 (4%) | 25 | |
| Mean | 7 (7%) | 6 (6%) | 100 (100%) | |
| Standard error of the mean | 0.026 | 0.024 | | |
| 95% CI | 0.02 to 0.12 | 0.013 to 0.107 | | |
| 95% confidence intervals of the difference between villages in exchanging land | | | | |
| | Thuy Dien | Bai Yen | My Giang | Co Cham |
| Thuy Dien | - | -0.09 to 0.33 | -0.07 to 0.33 | -0.18 to 0.18 |
| Bai Yen | | - | 0.02 to 0.38 | -0.09 to 0.33 |
| My Giang | | | - | -0.07 to 0.33 |
| Co Cham | | | | - |

Source: Tran (2000). Field data.

Many reasons may account for this situation: scarcity of arable land; high taxation of transfers; restrictions on rights to transfer land; the traditional belief of peasants to hold land even though they may not cultivate it; and farmers may not yet have confidence in the availability of alternative income-earning opportunities.

Table 7.6. Bidding for land

| Village | Low income | Middle income | High income | Total of respondents |
|-----------------------|----------------------|------------------------|----------------------|----------------------|
| Thuy Dien | 0 | 0 | 2 (8%) | 25 |
| Bai Yen | 0 | 1 (4%) | 2 (8%) | 25 |
| My Giang | 0 | 1 (4%) | 3 (12%) | 25 |
| Co Cham | 1 (4%) | 0 | 0 | 25 |
| Mean | 1 (1%) | 2 (2%) | 7 (7%) | 100 (100%) |
| Standard error | 0.01 | 0.014 | 0.026 | |
| 95% CI | -0.01 to 0.03 | -0.007 to 0.047 | 0.020 to 0.12 | |

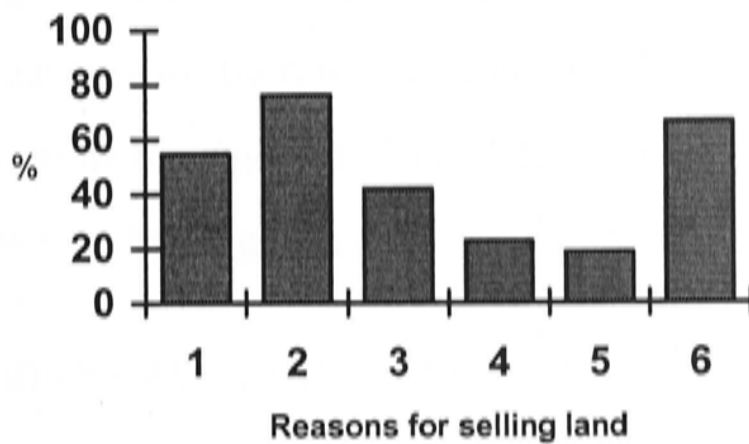
Source: Tran (2000). Field data.

7.5.3. Causes of transferring land

The results of the interviews of farmers who have been involved in land transfer show that the main reasons for selling land are economic hardship, changes to non-farm work, and the lack of necessary inputs for farming (Figure 7.1). Among the sellers, 76.2 percent gave as one of the reasons for selling their land the maintenance of their families; 66.3 percent have sold their land because of changing occupations; and 54.7 percent sold land in order to buy farming inputs and equipment. The other important reason given for selling land was repayment of debts. It was found that 41.6 percent

households have sold land in order to repay loans. Thus the right to transfer land-use rights had some impact on credit demand by farmers and on land allocation efficiency.

Figure 7.1. Reasons for selling land

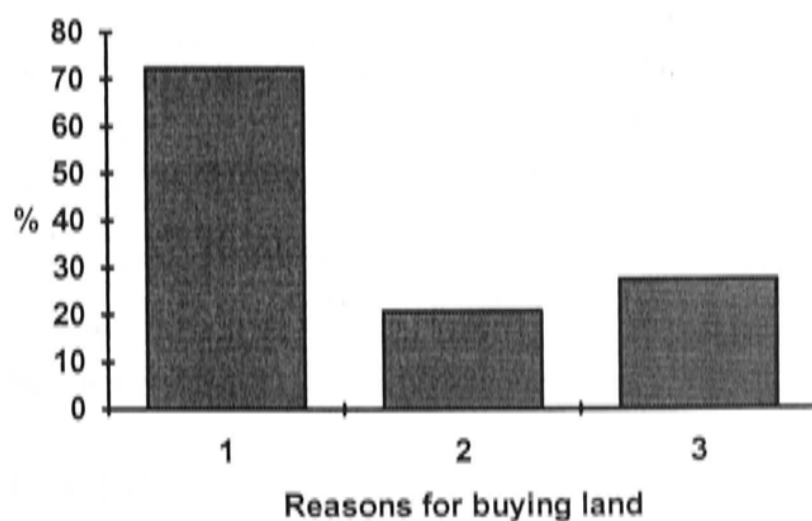


1. To buy equipment and inputs
2. Maintenance of family
3. Repay loan
4. Construct house
5. Inheritance
6. Change profession

Source: Tran (2000). Field data.

As can be seen in Figure 7.2, the most important reason for buying land was investment in farm production. About 72 percent of households bought land for agricultural purposes. Reasons given such as constructing houses, gifts for their children, or consolidation were not nearly as important.

Figure 7.2. Reasons for buying land



1. Agricultural investment
2. Constructing house
3. Gifts and consolidation purposes

Source: Tran (2000). Field data.

7.5.4. Effects of land transfer rights on investment in land improvement

The survey results in Table 7.7 show that there is not a strong relationship between the right to transfer land-use rights and farmers' decisions on investments in long-term land improvements. Among the 53 households who have practised soil conservation measures in the four villages, only 7 families (13.2 percent) have been concerned about the transfer rights of land. Most farmers (81.2 percent) said that they did not take into account this right in making their land investment decisions.

Farmers who perceived a relationship between the transfer rights and their investment decisions said:

We really need the rights to sell, lease, exchange and inherit the land-use rights because when we invest in soil conservation measures, we use a lot time, money and labour on their fields, thus we don't want to lose all these capitals in cases of changing our professions or moving out of this village if we do not have rights to sell or lease out our land. Moreover, we need to have a larger plot to apply some conservation techniques and saving time and labour we invest in that work, the rights to exchange farm plots is very convenient for us to avoid land fragmentation. The rights to transfer land have also helped us to borrow money easier from the banks or lenders. However, it would be better if the government can remove some restriction on transfer rights, reduce or remove taxes of transfer land, and facilitate more on right of exchange (Farmers in Thuy Dien and Bai Yen villages - Field notes Tran 2000).

Table 7.7. Impact of the right to transfer land on soil conservation decisions

| Village | Do transfer rights affect your conservation decisions? | | | |
|-----------------------|--|------------------------|-----------------------|-----------|
| | Yes | No | Indifferent | Total |
| Thuy Dien | 3 (20%) | 1 (6.7%) | 11 (73.3%) | 15 |
| Bai Yen | 2 (25%) | 0 | 6 (75%) | 8 |
| My Giang | 1 (12.5%) | 2 (25%) | 5 (62.5%) | 8 |
| Co Cham | 1 (4.5%) | 0 | 21 (95.5%) | 22 |
| Average | 7 (13.2%) | 3 (5.7%) | 43 (81.1%) | 53 |
| Standard error | 0.0465 | 0.0317 | 0.0537 | |
| 95% CI | 0.041 to 0.233 | -0.006 to 0.119 | 0.706 to 0.917 | |

Source: Tran (2000). Field data.

Due to the small number of households acknowledging the importance of transfer rights, these findings do not support the hypothesis that the right to transfer land-use rights has significantly affected farmers' decisions about investment in long-term land improvement. However, this result is inconsistent with the answers given to the question about whether they prefer to have land transfer rights. In Table 7.1, 80 per cent

of farmers were in favour of this right, apparently because it gave them the opportunity to obtain credit for investment and to reap the benefits of their investment in the land.

This inconsistency may result from the farmers being in favour of transfers because the transfer rights provide the possibility of realising their investment in land if they wish. Transfer rights could also enable them to move off the land if they choose to. However, in practice, not many farmers transfer their land. The reason for this could be that current villagers may not consist solely of full-time farmers, but may be part-time or absentee farmers. The farmers who work full time on farm may have strong conservation objectives as specified in the basic hypothesis. A number of farmers currently work off-farm but they may not be intending to work off the land in the long term. These absentee farmers may intend eventually to return to their farms to work and this may explain their reluctance to sell their land. This reluctance may be strengthened by the desire to preserve their social, cultural and religious links to the farmland and the village.

7.6. Conclusion

The 1993 Land Law in Vietnam was a remarkable change in individual land tenure security as compared with the previous land tenure arrangements. The important change in the current land tenure regime is not only granting land certificates with long-term use rights, the law has also granted the rights to transfer land-use rights to individual households including the rights to sell, lease and inherit. These rights have contributed to the security level of the land tenure system, and hence influenced agricultural productivity through the development of the land market.

From the survey it appears that most farmers believe that the right to transfer land-use rights has placed a value on their farmland, giving them the opportunity to obtain credit when necessary, buying more land for farming, and reaping benefits from their investments in their fields if they change to non-farm work or they move out of the village. The development of the land market has also contributed to the efficiency of land allocation as the land can pass to the more productive farmers. However, because of some constraints on transfers, as well as the scarcity of arable land, the land market in this region has developed only slowly. Many households who did not work full time on

the farm or even completely work off-farm still keep farmland but not for agricultural purposes. This situation places obstacles in the path of efficient land allocation. The continuing development of renting land and exchanging farm plots between households and bidding land from the communes is important for resolving the land fragmentation problem which has limited agricultural productivity and agricultural investment.

This study did not find much direct evidence to support the hypothesis that land transfer rights have positively affected the adoption of soil conservation measures by farmers. Only a few of the survey farmers said that the right to transfer land-use rights positively affected their demand for land improvement. However, this response is inconsistent with the very significant responses indicating that they perceived their right to transfer land-use rights allowed them to reap future benefits from investments and to consolidate their farm and have access to credit.

Government action to reduce land transfer taxation and reduce restrictions on transferring land rights may facilitate the development of the land market in North Vietnam and hence stimulate agricultural productivity.

Chapter 8. Mortgaging land-use rights and investment in land improvements

8.1. Introduction

One of the necessities for the development of agricultural production is access to credit. Problem associated with the availability of credit and in developing countries have been the subject of considerable debate among policy makers and academics. For most of them, the inadequacy of credit is perceived as a major constraint to increasing agricultural productivity, especially through investments in land improvement. Traditionally, informal credit markets have played an important role in rural areas of developing countries. However, farmer indebtedness and the high interest rates charged by these informal sources have been serious concerns for a majority of the rural populations.

Before the 1993 Land Law, farmers in North Vietnam had no collateral to offer banks as security for loans; they usually obtained credit from informal sources which imposed high interest rates. Because of the lack of capital, farmers could not invest in land improvements. To resolve the problem of credit access, the government granted the right to mortgage land-use rights associated with the right of land transfer.

This chapter examines whether the right to use land rights as collateral has improved farmers' access to capital, particularly from formal sources, and whether the differences in interest rates between the formal and informal sources affects their access to credit. The constraints on mortgaging land-use rights to the banks are also investigated. Finally, the chapter studies the effects of being able to use land-use rights as collateral on farmers' perceptions of, and their actual investments in, increasing land productivity.

The critical review starts with a discussion of the securitisation of loans when land rights have been used for collateral. Discussion then extends to the advantages and the shortcomings of institutional credit and other loan sources. The information collected from the survey in four villages in the northern region is used to test the hypothesis that lack of access to formal credit may constrain decisions about land conservation by farm households.

8.2. Security of land tenure with the right to mortgage land-use rights

8.2.1. The role of credit in rural development

Credit has an important role in the development of the agriculture sector. Increasing the flow of credit is essential for accelerating agricultural development by raising its productivity. The demand for credit by rural households derives from the demand for agricultural investment, for consumption smoothing, and for non-farm investment. Agricultural credit has the crucial role of facilitating access to inputs, particularly those embodied in new, high-yielding technologies. When credit is easily available, farmers switch quickly to new technologies and achieve faster productivity growth. Due to the uncertainties of agriculture, a large proportion of cultivators find it impossible to manage from one harvest to another without recourse to borrowing (Gill 2000:1).

Rural households borrow funds to finance consumption and/or to expand their agricultural activities. Some farmer use borrowed funds for long-term investments on the farm; others use them for financing working capital or repayment of old debts (Floro 1987: 17; and Qureshi 1984: 21). Kamakar (1999: 37) pointed out that credit cannot be created merely by increasing the money supply; nor is capital available for development purposes if farmers divert savings for consumption purposes. Rural credit agencies can thus encourage the efficient allocation of tangible wealth as new investment through intermediation between savers and investors; and also increase the rate of accumulation of capital by providing increased incentives to save, invest and work.

8.2.2. Informal credit markets

The informal credit market in developing countries is usually composed of the informal moneylenders such as traders, millers, larger farmers, friends and relatives, landlords, the credit unions and credit cooperatives. These lenders serve the financing requirements of small scale and subsistence agriculture (Llanto 1993: 3). The lending behaviour of individual moneylenders is determined by a number of complex reasons: self-interest and interlinking of transactions involving credit, land use, marketing or labour arrangements. The informal credit market is characterised by the multiplicity of agents, intimate contact between creditor and borrower, the multiplicity of interest rates, the lack of formal procedures and the unregulated nature of business (Singh 2001: 4).

The informal credit sector does not always act in isolation from the formal sector as moneylenders access bank credit which they in turn re-lend to small rural borrowers. The rural poor - landless, artisans, agricultural labourers, small farmers and small fishermen - have almost always been excluded from the formal financial services because they do not have any resources, and do not save for their future requirements (Karmakar 1999: 36).

In many developing countries, there is a large gap between the interest rates charged in the informal and formal credit markets. Interest rates charged by moneylenders may exceed 75 percent per year. The high interest rate is attributed by many to the monopoly power of the village moneylender (see, for example, Hoff and Stiglitz 1990: 235; and Karmakar 1999: 347). The key factors believed to determine interest rates in the informal sector are the size, duration and required collateral of the loan. For instance, by pledging land as collateral the borrower obtains a lower interest rate than by pledging jewellery. In Thailand, except for the commercialised Central Plains, the informal interest rate is usually around five to seven percent per month for a loan of 8,000 baht (US\$ 320) for a period of six months, with no collateral but with the land title deposited with the creditor. Some of the more remote provinces report a rate of 10 percent per month (Siamwalla *et al.* 1990: 285).

However, informal credit markets play a significant role in channelling credit to the poorer sections of society and assist in generating employment, income and output. It is estimated that informal markets provide more than half of the rural credit in most Asian countries. Informal lenders are able to avoid legal fees and reduce transaction costs relating to loan appraisal and documentation to levels below those for institutional credit sources due to the informal credit markets having no restrictions on capital subscription, liquidity, and lending and deposit rates. Moreover, credit from informal sources is perceived as more reliable due to its timely availability and also its availability for consumption purposes. As well, informal credit is more readily available to borrowers whose credit needs are usually neglected by the formal sector because of high risk factors, lack of collateral and the high costs of transacting and administering small loans (Karmakar 1999: 346; and Singh 2001: 9). The World Development Report 1989 observes:

Informal financial arrangements reduce transaction costs and risks in ways denied to formal institutions. Moneylenders, for example, can operate out of their own homes or on the street, maintain only the simplest accounts, and mix finance with other business. The services they provide are outside the review and control of the monetary authorities. The remaining costs can be fully reflected in implicit or explicit interest rates.

(1989:113)

Therefore formal lenders have not been in a position to replace informal lenders with regard to small borrowers, even with fairly widespread networks of credit institutions (Sarap 1991). Similar observations about the persistence of informal credit activities in other developing countries have been made by Siamwalla *et al.* (1990), Floro (1987), Floro and Yotopoulos (1991) and Teranishi (1994). These studies have supported the argument of Ghate (1992) that 'there continues to exist in most Asian countries a heterogeneous and dynamic informal financial sector which is largely hidden from view but is almost as important in aggregate terms'.

For example, it was observed that in the Nawadhi village in Bihar in eastern India, the poor borrowed money from private lenders with interest rates varying between five percent and 10 percent per month, although formal credit was available at interest rates as low as 10 percent or even six percent per annum (Basu 1994). The reason was that the poor were unable to provide suitable collateral or guarantees to the formal lenders. Moreover, the poor do not want to obtain loans from formal sources because of the bureaucratic administration and corruption involved in gaining access to official credit (Gill 2000: 12). Nevertheless, while informal finance tends to be particularly suited to the requirements of small and poor borrowers in agriculture, and small traders and businesses, formal finance is better suited to the needs of the large and medium sized firms, organised trade and commercial households (Ghate 1992: 861).

8.2.3. Formal rural credit markets

The formal rural credit sector is composed of commercial banks, thrift and development banks, rural banks and credit-guarantee institutions. The main functions of the formal institutions are to grant loans in accordance with existing rules and regulations, accept savings and time deposits, and lend money against personal security and against mortgages on real estate, (Llanto 1993: 6). Adams and Nehman (1979: 7) define formal

credit as funds coming from banks, cooperatives and other officially recognised financial institutions.

The formal agricultural credit market tends to provide credit for various types of clients such as farmers, including the poor, small traders, and small-scale industries. However, in spite of the sizeable expansion of institutional credit agencies in rural areas under government-directed credit programs, and even in spite of the higher interest rates of the informal credit sources, the major proportion of borrowers rather receive credit from the informal markets. Von Pischke (1991: 172) concluded that 'formal agricultural credit is generally used by far fewer than half of farm households, and in the majority of developing countries probably does not reach more than 20 percent'. This conclusion was supported by the empirical evidence from the study of Ghate (1992: 859) who concluded that: 'the share of rural informal credit accounts for one-third to two-thirds of total rural credit in Bangladesh and China, about two-fifths in India, Sri Lanka and Thailand and two-thirds to three-quarters in Malaysia, Nepal, Pakistan and the Philippines'.

High transaction costs is one of the limitations of the formal rural credit markets. The procedure of lending money is a complex process with the collateral requirements, the collection of necessary information about the borrowers, and the regulations on deposit and lending rates. Thus, it is claimed that formal lending institutions intentionally tend to raise transaction costs for small borrowers to discourage them (Adam and Vogel 1986: 482; and Adam and Nehman 1979: 174). The financial transaction involves complex processes: in the process of intermediation, lenders have to collect and analyse information to assess the capacity and willingness of borrowers to pay back the loans; in the process of searching for appropriate lenders, borrowers have to demonstrate their creditworthiness; and participants in financial transactions have to negotiate the terms and conditions of contracts, and monitor the execution of the contract. In developing countries information on the creditworthiness of potential borrowers is often restricted and costly to collect (Tran T.D. 1998: 4).

The failure of the supply-led approach in the Philippines is evidence of the limitations of the formal credit markets. The reasons given for the declining supply of formal agricultural credit have included the severely imperfect information in rural credit

markets, the huge transaction costs of small loans, the collateral requirements, and the carelessness of the banks in screening borrowers and approving loans (see Box 8.1). The study of Braverman and Guasch (1989) also showed that despite the expansion of targeted credit programs in developing countries, only a small fraction of the farmers seemed to have benefited. It was estimated that only about five percent of farms in Africa and 15 percent in Asia and Latin America received formal credit. Moreover, there was an inequitable distribution in access to formal credit as only five percent of borrowers received 80 percent of the credit.

It is widely believed that the operation of the formal credit sector in many developing countries has significantly affected the rural economy, altering both the levels of income and income inequality through the differential access to credit enjoyed by large farms (Kochar 1997: 762). However, the formal credit sector has benefited from greater economies of scale and scope. Von Pischke (1991) mentioned the following advantages of formal finance:

Advantages of formal finance include the confidentiality of institutional finance, ability to deal in relatively large amounts, confidence provided by documentation and legal practice within the formal sector, specialisation and related economies of scale and growth of markets, and the convenience of transcending or complementing face-to-face relationships through postal and electronic communication systems that transfer financial claims quickly and cheaply

(1991: 211)

The formal and informal credit markets sometimes play complementary roles. When available, formal credit reduces but does not eliminate informal borrowing because informal and formal loan products differ in terms of loan size, collateral requirements, conditions tied to use of the loan, transaction costs, and repayment schedule (Diagne and Zeller 2001: 14). For example, in many villages in India, short-term credit comes from the informal sector while investment credit comes from the formal sector (Chandra 1993: 94). Moreover, in operating the informal credit market, the traders and moneylenders need funds from the banks. It is now being increasingly recognised that the formal and informal financial markets have comparative advantage in their respective areas of operation (Singh 2001: 13).

Box 8.1. The failure of supply-led finance in the Philippines

For about 20 years, the Philippines government funded a number of rural sector credit programs which attempted to provide access to formal credit at subsidised rates. The programs were to encourage small farmers to adopt new technology to increase farm yields and offset the policy biases against agriculture. Various incentives and regulatory schemes such as credit quotas, deposit retention schemes, and highly subsidised loans from the rediscounting window of the Central Bank were part of this approach. Interest rates and loans were regulated.

The expected access to bank credit by small borrowers did not materialise except in cases where the government was willing to provide credit subsidies to banks. Even then, the supply of formal agricultural rural credit declined from a level of 18 percent of total bank loans in 1966 to only 5 percent in 1975 and less than 10 percent in 1985. Various surveys conducted by the Technical Board for Agricultural Credit also showed that the proportion of farmers who borrowed from banks decreased from 37 percent in 1967-74 to 23 percent in 1981-86. Worse, credit subsidies were largely captured by formal lenders and not by the farmer-borrowers while savings mobilisation was neglected as rural banks depended on the Central Bank for over half of their loanable funds. Out of 1167 rural banks in 1981, only 856 were operational by 1986.

Critics have commented that the supply-led approach failed to consider the particular nuances of rural financial markets:

- the severe information asymmetries in rural credit markets;
- the huge transaction costs of small loans;
- the banks' preference for observable and hard collateral like land, and the weak incentive design which leads borrowers to shirk their loan-repayment obligations and induces banks to become less careful in screening borrowers or approving loans.

Worsening the situation was the direct involvement of government line departments in the lending process which opened avenues for political interference and corruption in credit decisions.

Source: Llanto (1993).

8.2.4. Access to credit with collateral

Lenders usually require collateral as proof of the borrower's intention to repay and as surety in the event that the borrower does not repay the loan. Collateral is demanded as surety by formal and informal lenders alike, because very often it is difficult to screen and monitor the borrowers directly (Gill 2000: 86). Udry (1990: 252) argued that: 'Collateral pledged in exchange for the receipt of a loan directly reduces the cost to the lender of a default on a loan; it can reduce the moral hazard associated with lending by providing an added incentive for the borrower to repay; and it can alleviate the problem of adverse selection by screening out those borrowers most likely to default'.

Business people and farmers receive loans with three types of guarantees/collateral: real estate, movable property (property-like inventory, accounts receivable, livestock or

industrial equipments), and their reputation. Typically, real estate is the best collateral, movable property is the second best, and reputation is the least preferred. As security moves from real estate to reputation, lenders will extend smaller loans and charge higher interest rates (Bogetic and Fleisig 1997: 162). The type of collateral demanded and offered depends on its segmentation between the formal and informal credit market. Formal credit markets rely heavily on land as collateral, as land wealth is correlated with income in rural areas. Therefore, the borrowers who have above-average incomes often have greater access to formal credit (Hoff and Stiglitz 1990: 243). In contrast, lenders in the informal sector are more flexible and accept a wider range of assets, ranging from household goods to land, and even crops. Borrowers who cannot offer land as collateral, or those whose need exceeds the amount, often turn to the informal sector by offering other, less marketable assets as security for their loans (Gill 2000: 86).

However, it often happens that a borrower puts a higher valuation on land than the lender. This is particularly true of formal credit institutions where land under-valued as a form of protection for the lender in the event of a collapse in the market for the output servicing the loan. This reduces the borrowing capacity of a household offering land as collateral. Pledging of crops as security is beneficial for the lender as it yields income, and for the borrower who not only finds a ready market for his crop, but is also able to save his land from being mortgaged. Personal surety is useful only where the lender is well aware of the borrower's status and has a favourable personal valuation of him. This surety is also used when small amounts are to be borrowed in the informal market by a poor borrower.

8.3. Access to credit in North Vietnam

As in many other developing countries, farmers in Vietnam face problems in accessing credit. Prior to the land reform in 1988 and particularly during the Collectivisation period, farmers in North Vietnam could not access credit from formal institutions. The state-owned banks and credit cooperatives provided credit only to state enterprises and production cooperatives. Farmers could only obtain credit from informal sources which charged very high interest rates.

The *Doi Moi* policy that began in 1988 has changed the face of rural credit services significantly. The clarification of land-use rights, especially the right to mortgage has been very significant for the development of credit markets. According to Article 77 of the 1993 Land Law, any household or individual with the right to farmland or forestry land can use their land-use rights as collateral in order to obtain credit from a state commercial bank or a credit organisation, except foreign banks (World Bank 1998: 37). Since 1997, the government has had a national poverty alleviation strategy. The focal point of this strategy is to give the poor opportunities to better their livelihoods. Improving micro-finance services in the rural areas has been identified by the government as one of the most tangible ways to assist low-income households (Dao V.H. *et al.* 1999: ix).

Despite the fact that a great deal of effort has been made by formal financial institutions to meet the demand for credit, 51 percent of households remain unable to access these services. Many are still forced to obtain funds from the informal sector. It is estimated that there are 6.7 million low-income households in Vietnam, only 26.8 percent of which have access to the Vietnam Bank for Agriculture and Rural Development (VBARD). A further 16 percent borrows from Vietnam Bank for the Poor (VBP), People's Credit Fund (PCF), and Rural Shareholding Banks (RSHBs). The rest seek funds from informal sources (Government's Consulting Group 1998: 15).

8.3.1. Formal sources of credit

The formal finance sector is dominated by five groups of financial institutions: five state-owned commercial banks, foreign banks, joint stock banks, the People's Credit Fund (PCF), and Credit Cooperatives. However, only four - VBARD, VBP, PCFs and Credit Cooperatives - are providing loans to rural households.

- VBARD was the first formal credit institution to be separated from the State Bank of Vietnam with the mission of providing credit to the farming and other rural households. VBARD is the largest financial institution, providing over 75 percent of the total credit extended by formal financial institutions to rural households and approximately 30 percent of the credit provided to low-income households. On average, 75 percent of VBARD loans are under 12 months and VBARD mainly

applies a lump sum repayment method. The capital being repaid as the final payment.

- VBP has the mission of providing credit to rural poor households and to promote the poverty alleviation program. This bank was established to make use of VBARD's existing network and carry out its functions. Representative offices are located at provincial and district levels. As of February 1998, the bank had made loans totaling VNDong 1200 billion, reaching 1.2 million poor rural households. VBP cannot meet either its social welfare objectives or its financial self-sufficiency ones. The supply of funds is inadequate and is entirely reliant on government funding because of the subsidised lending approach.
- PCFs have been operating as rural credit cooperatives since 1993. They provide financial services to rural households on site. The operating principle of the PCFs is to mobilise people's capital and then to lend it to other members. The average loan size is VNDong 4.2 million and a member is not required to make deposits in order to be eligible for a loan. For larger loans, borrowers often mortgage their land-use certificate or other valuable assets for collateral. Loans are generally short term, of six to nine months.
- RSHB is a formal financial institution that delivers credit to specific areas at the commune level. Most of the RSHBs were the outcome of the reorganisation or merger of rural credit cooperatives. The government has a 10 percent share in them. With limited funds, the priority target markets the RSHB has set excludes the poorer segment of society. Lending procedures are simple with staff relying on their knowledge of and close relationship with borrowers who are often family or friends. Borrowers have preferred the SRHB to the commercial banks because of their accessibility and the institution's fast, simple processing.

Under recent regulations, loans of less than 5 million VNDong, do not require collateral. However, in practice, fixed assets are usually demanded as the basis for loans. The fixed assets include land-use right certificates, houses, and other fixed assets located on the land. Movable assets such as animals, televisions, and bicycles do not qualify as collateral. Moreover, the list of assets and their total value must be certified by the local

people's committee (Dao V.H. *et al.* 1999: 12). The strengths and weaknesses of these formal credit institutions are described in Box 8.2.

Box 8.2. Strengths and weaknesses of formal financial institutions

| Organisation | Strengths | Weaknesses |
|--------------|---|---|
| VBARD | <ul style="list-style-type: none"> • Largest network to provide credit service in rural area. • Willingness to improve outreach by following collateral free group lending up to a ceiling of VNDong million, intercommune transactions offices and mobile banking operations | <ul style="list-style-type: none"> • Unofficial fees raise the cost of borrowing for clients. • Willingness to improve outreach comes from government rather than from VBARD's strategy. • Many rural areas still not covered. • Mixed commercial credit with government subsidised programs. |
| VBP | <ul style="list-style-type: none"> • Focus lending to the rural poor. • Impressive outreach achieved in a short time. • Good relationship with local government. | <ul style="list-style-type: none"> • Subsidised credit • No financial sustainability • Deeply depend on VBARD (staff, offices). |
| PCFs | <ul style="list-style-type: none"> • Market approach credit service. • Owned by its members. • Focus on local savings mobilisation. • Commune-based credit service. | <ul style="list-style-type: none"> • Most loans are short-term. • Initial growth is focused on richer areas and richer clients. |

Source: Dao V.H. *et al.*(1999).

8.3.2. Informal sources of credit

Informal credit sources include families, friends, relatives, traders, unregistered private moneylenders and traditional rural credit associations (Dao T.T. 1995).

- Private moneylenders provide credit on a range of terms such as seasonal and daily. It is estimated that in each village there are 2 or 3 permanent and 5 to 10 seasonal private moneylenders. The services are flexible but bear a high opportunity cost. Credit is provided to anyone at anytime, regardless of whether the borrower is poor or not. The negotiated monthly interest rate is from 3-10 percent per month.
- The credit from friends or relatives is normally free of interest and loan terms are flexible. The loan terms depend on the relationship between the lenders and

borrowers and on the availability of extra income sources. The poor are not likely to borrow from relatives or friends because of the social implications.

- *Ho* is a traditional rural credit association in North Vietnam. It is a small credit group organised by local people. Each group comprises from 5 to 20 members. The members often have the same occupation e.g., a group of farmers, a group of traders, or a group of war veterans. Each group operates as an individual organisation having no relationship with other groups or to formal institutions. Members deposit savings to form funds, which are lent to members in rotation.
- *Phuong* is another traditional credit association, which is favoured by the minority ethnic groups. The groups of *Phuong* are smaller than in the *Ho*, varying from 5 to 8 members. *Phuong* do not charge interest on loans.

Box 8.3 demonstrates the strengths and weaknesses of these informal and several semi-formal financial schemes such as the national programs, social organisations and international NGOs.

8.4. Impact of the ability to mortgage land rights on the adoption of soil conservation investment in North Vietnam

The establishment of formal credit services, particularly the right to use land-use rights as collateral, should have given greater credit access to rural households in the North Vietnam. However, there are a number of limitations in the credit law and credit services such as in lending procedures, loan applications, lending interest rate, loan amount, loan duration and scheduling, and mortgage mechanism. These constraints may limit farmers' access to credit, and hence affect farmers' access to inputs and improved technology and agricultural productivity. This section uses the data collected from the survey conducted in the four sample villages in northern Vietnam to test this assumption. In particular, it focuses on the effects of access to credit on the adoption of soil conservation measures by farmers in the region.

Box 8.3. Strengths and weaknesses of semi-formal and informal financial schemes

| Organisations | Strengths | Weaknesses |
|-----------------------------|--|--|
| National programs | National network. Strong government backing and support from local government. Combine credit provision with technical assistance | Subsidised credit. No financial sustainability. No saving mobilisation. Inadequate skills, staffing for credit service. Political and social target over economic efficiency |
| Social organisations | Larger national networks reaching to the commune and village levels. Have tried different micro finance schemes. Loan repayment are higher than other formal credit. Useful for poor members | No credit provision function No institutional sustainability in terms of financial services. Lack of skills and staff for large-scale intervention in savings and credit. Insufficient understanding of financial sustainability of credit schemes; depending on outside support. |
| International NGOs | Effective in reaching the poor Target customers are clearly identified. Market approach. Have a good experience and knowledge of micro finance programs. Appropriate assistance Focus on sustainability and self-management of grassroots poor. | High operating cost Isolated and small coverage. Low financial fund. Dependent on concessional funds. |
| Informal financial services | Convenient, simple and local. Market interest approach. Lender and borrowers know each other well. Good local savings mobilisation. Independent operating. | High cost to the poor . Very poor are excluded. Loan in kind at high interest rate. Isolated operation. Are not encouraged to become formal credit organisation. |

Source: Dao V.H. *et al.* (1999)

8.4.1. Farmers' preferences about the right to mortgage land-use rights

The majority of farmers (91.5 per cent) in the four villages are in favour of the right to use land rights as collateral to access credit. Only a few farm households (2.9 per cent) did not favour this grant of right because they believed that if they could not repay loans in time, their land-use rights will be seized. A few farmers (5.6 per cent) were not interested in the mortgage right. These people are the poorest in their village; they do not have other valuable assets to use with land-use rights as collateral (field note).

My family now consists of only two people, my son and me. I am 65 years old and my son is not very healthy. We are very poor. We try to farm our field plots for subsistence. We don't dare think about borrowing money to invest in farm because we don't have enough labour. And if we want to borrow money from the bank we don't have any

valuable assets to pledge it together with the land (Mrs Nguyen Thi Hien, Thuy Dien village - field notes).

One middle-income household in My Giang village was indifferent to the right to mortgage land due to the family's income from a non-farm source (they are tailors); they are not interested in mortgaging their land to obtain working capital (Table 8.1).

Table 8.1. Preferences of farmers about the right to mortgage farmland

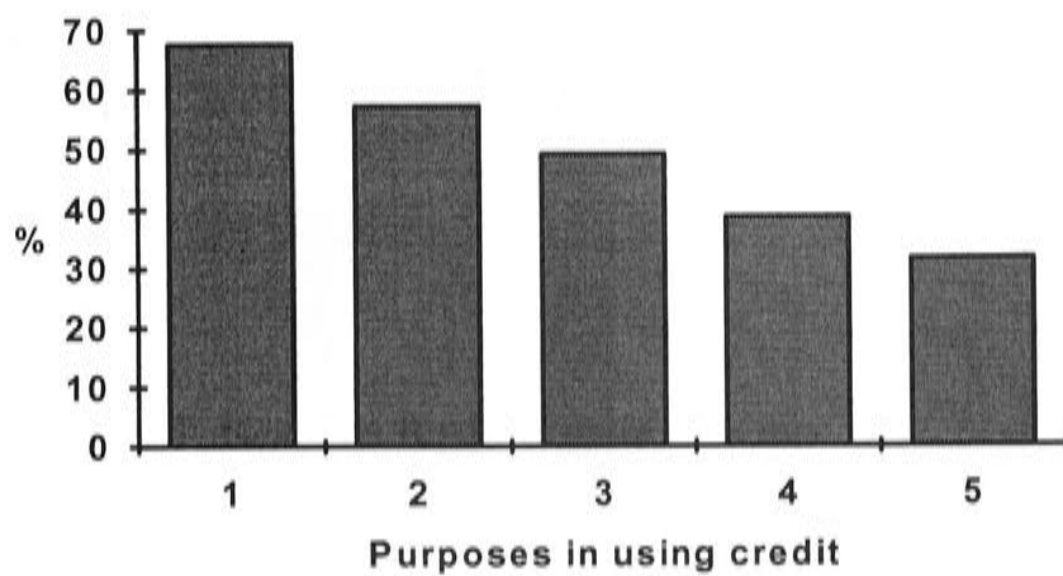
| Village | Yes | No | Indifferent | Total |
|-----------------------|-------------------|-----------------|-----------------|------------------|
| Thuy Dien | 14 (93.3%) | 0 | 1 (6.7%) | 15 |
| Bai Yen | 12 (100%) | 0 | 0 | 12 |
| My Giang | 13 (86.6%) | 1 (6.7%) | 1 (6.7%) | 15 |
| Co Cham | 22 (88%) | 1 (4%) | 2 (8%) | 25 |
| Mean | 61 (91.5%) | 2 (2.9%) | 4 (5.6%) | 67 (100%) |
| Standard error | 0.0349 | 0.0208 | 0.0289 | |
| 95% CI | 0.842 to 0.979 | -0.011 to 0.071 | 0.003 to 0.116 | |

Source: Tran (2000). Field data.

8.4.2. Farmers' purposes in using credit

The survey results in Figure 8.1 show that the rural households in the northern region access credit for many purposes. The largest percentage (67.6 per cent) of respondents are farmers who want to borrow money for the purchase of equipment and other inputs for agricultural purposes. Over half (57.3 per cent) of the interviewed farmers borrowed money for constructing their houses. Nearly half (49.2 per cent) of respondents try to obtain credit for maintaining their livelihoods, presumably as working capital. There are not many farmers (38.7 per cent) borrowing money for land investment purposes. The evidence about access to credit in rural areas shown in Appendix 8.1 supports this conclusion. Over 30 per cent of households need credit for other purposes such as for trading, doing business, or even for gambling.

Figure 8.1. Reasons for borrowing money



1. Buy equipment and other inputs for farm production
2. Build house
3. Maintenance of family
4. Investment in soil conservation
5. Other consumption

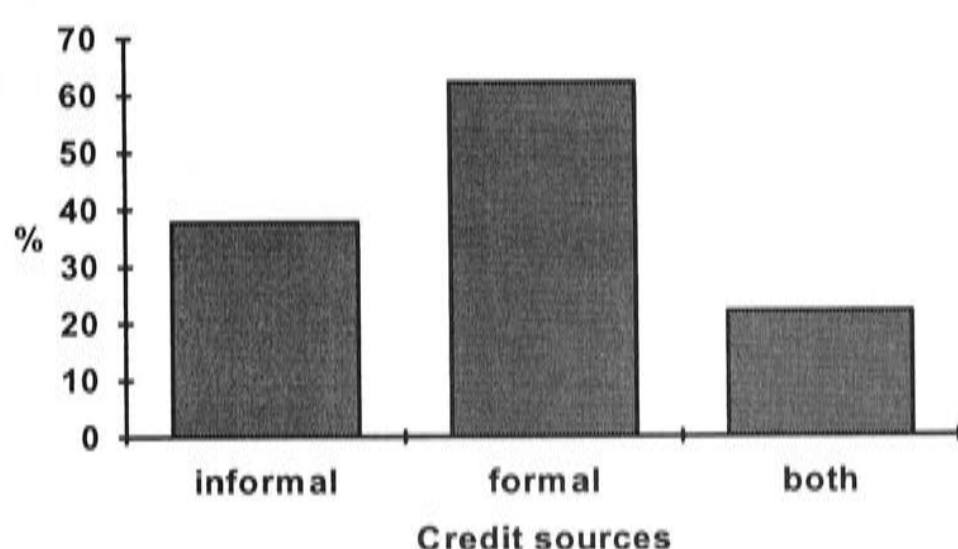
Source: Tran (2000). Field data.

8.4.3. Access to credit from different sources

As reviewed in the previous section, although the establishment of the formal financial services has facilitated farmers access to credit, farmers still obtain credit from informal sources. Among the 67 interviewed farmers, 22 did not borrow money from any financial source while the remainder has borrowed money from formal or informal sources or both. As can be seen in Figure 8.2, among the 45 farmers who have accessed credit, only 22 percent have obtained both formal and informal credit. About two-thirds (72 percent) have borrowed money only from the banks. About 46.5 percent have obtained credit only from informal sources.

Findings from the survey show that farmers who can only borrow money from informal sources are unable to meet the criteria of collateral requirement of the banks, or/and do not want to pledge their land-use rights, or consider the short-term nature of their loans and other bureaucratic administrative processes. Farmers who have credit access from both sources want to borrow a larger amount of money than the maximum amount of loan (10 million VNDong/USD 710) that banks can lend. A number of those farmers in Thuy Dien, Bai Yen and Co Cham villages need more money for their investments in plantations and non-agricultural investment purposes; thus they borrow money from both credit markets.

Figure 8.2. Sources of loans



Source: Tran (2000). Field data.

It is difficult to establish the fruit plantations because we do not have enough capital for its operation. The banks lend us only a maximum amount of 10 million VNDong but we need more than that for our investments. So we must go to borrow more money from other sources of credit such as friends, relatives or traders. Sometimes we could not afford their interest rates which are several times higher than the interest rates of the banks (Groups of farmers in Bai Yen and Co Cham villages - field note Tran 2000).

Although 91 percent of all respondents like the idea of having the right to mortgage their land to access credit, the proportion of farmers who actually mortgage their land-use rights to the banks is relatively small. Of the 29 farmers who borrowed money from the banks, only 13 of them (45 percent) had mortgaged their land-use rights because their loan amounts were over the five million VNDong (USD 355) limit which required collateral. The remainder only borrowed small amounts (Table 8.2). The reasons for the small proportion of farmers mortgaging their land rights are discussed below.

Table 8.2. Number of farm households using farmland as collateral

| Village | Yes (household number) | No (household number) | Total of respondent who apply for credit from banks. |
|-----------------------|---------------------------|--------------------------|--|
| Thuy Dien | 4 (44.4%) | 5 (55.6%) | 9 |
| Bai Yen | 3 (42.9%) | 4 (57.1%) | 7 |
| My Giang | 0 | 3 (100%) | 3 |
| Co Cham | 6 (60%) | 4 (40%) | 10 |
| Average | 13 (45%) | 16 (55%) | 29 (100%) |
| Standard error | 0.0923 | 0.0923 | |
| 95% CI | 0.267 to 0.629 | 0.371 to 0.733 | |

Sources: Tran (2000). Field data.

The survey results in Table 8.3 give an idea of the relationship between the rights to use land as collateral and farmers' decisions on investments in long-term land improvement. Among the 53 households, which have practised soil conservation measures and/or

invested in plantations of fruit trees in the four villages, many of them (71.6 percent) saw the right to mortgage their land-use rights as being important in their decisions. The remainder who did not take this right into account in their investment decision may have capital from off-farm work, or from the informal credit market, and/or their conservation measures are simple and do not need large amounts of money. Others did not want to bother with the bureaucratic procedures involved.

Table 8.3. Ability to mortgage land-use rights has an impact on long-term land investment decisions?

| Village | Yes | No | Total |
|-----------------------|-----------------------|-----------------------|------------------|
| Thuy Dien | 8 (53.3%) | 7 (46.7%) | 15 |
| Bai Yen | 7 (77.8%) | 2 (22.2%) | 9 |
| My Giang | 5 (71.4%) | 2 (28.6%) | 7 |
| Co Cham | 18 (81.8%) | 4 (18.2%) | 22 |
| Mean | 38 (71.6%) | 15 (28.4%) | 53 (100%) |
| Standard error | 0.062 | 0.062 | |
| 95% CI | 0.598 to 0.838 | 0.162 to 0.404 | |

Source: Tran (2000). Field data.

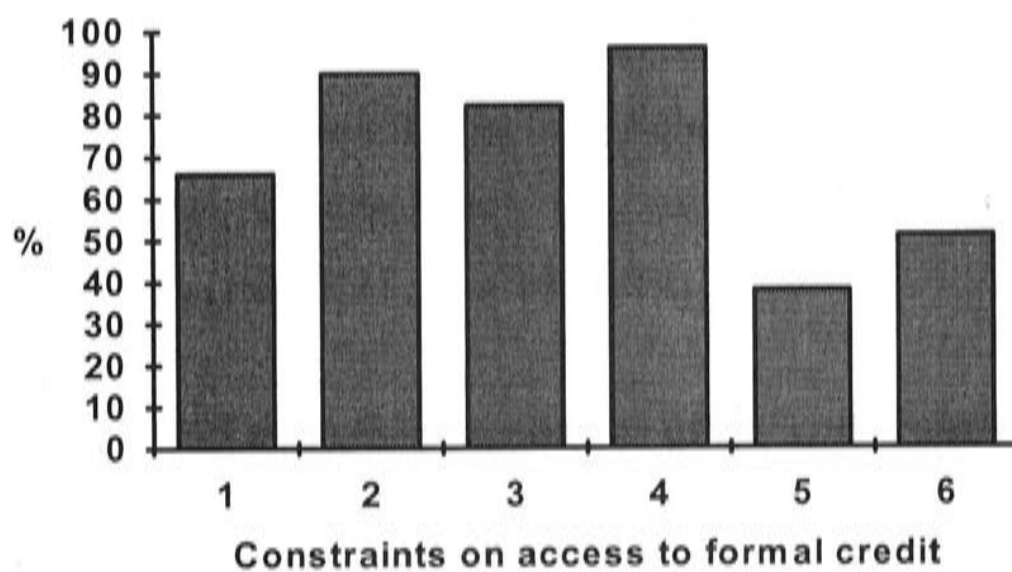
The reasons that not many farmers have mortgaged their land right to access formal credit range from the borrowing conditions such as collateral requirements, the amount of the loan, the duration of the loan, bureaucratic procedures, the level of interest rates, and fear of losing their land (see Figure 8.4). Of the 67 respondents, 66 percent complained about the difficulties of collateral requirements as the banks ask them to pledge the land right certificate together with other valuable assets. Around 90 percent complained about the high cost of the loans with interest rates of 1 to 1.2 percent per month.

The limits on the loan size is another problem as 82.3 percent of the interviewed farmers said *“it was only easy to borrow under 1 million VN dong (USD 70), although the rule set the maximum amount of loan can be 10 million VN dong, but it is difficult to borrow that much because of the complexity of the mortgage mechanism and the lending scheduling. And in case we want to borrow the larger amount of money for agricultural and land investments, we are not allowed”* (Tran 2000, field note). This complaint is consistent with other studies where farmers complain about regulation 499A, which says that the loan amount should be determined on the merits of the project and borrowers' capital. In practice, for loans below 5 million VN dong, the primary basis for determining the loan amount is the total value of listed assets. Customers applying for

the first time usually are able to borrow up to only 50-60 percent of the total value of listed assets. In some cases, they can only borrow the equivalent of 20 percent of the asset value (Dao V.H. *et al.*1999: 78).

The loan duration is also short, especially for farmers who are making investments in long-term land improvements which will take several years to generate returns. Most of the respondents (96 percent) believed that the one-year loan term is not long enough for investment purposes. Of the other concerns, 38 percent feared losing their land through mortgaging it to banks while 51 per cent pointed to the complexity of lending schedules (Figure 8.3).

Figure 8.3. Farmers' perceptions of the constraints on their access to formal credit

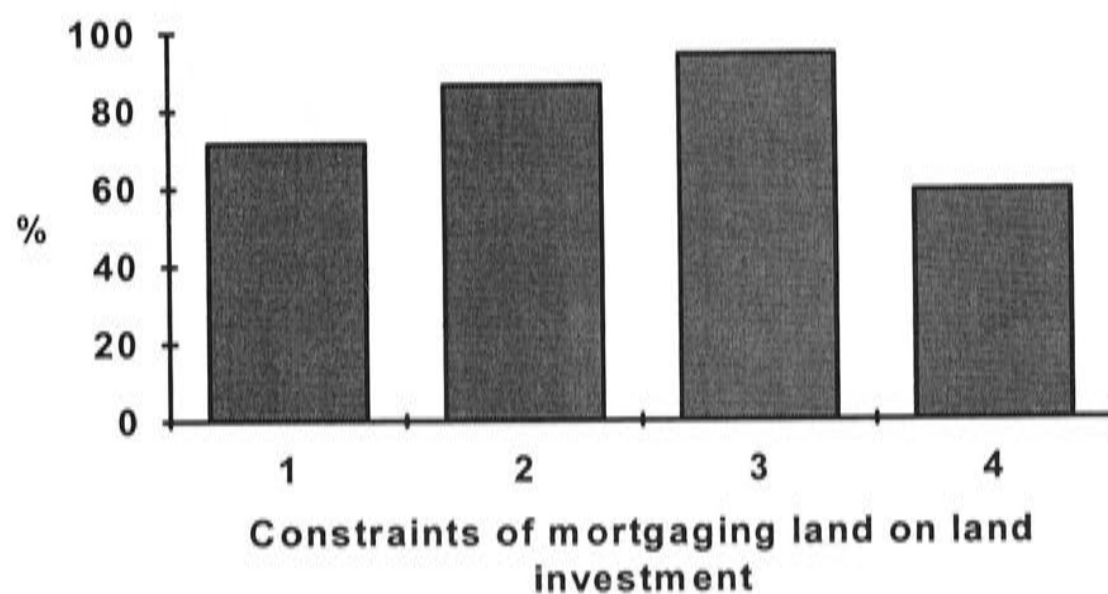


1. Collateral requirements
2. Lending interest rate
3. Amount of loan
4. Terms of loan
5. Fear of losing land through mortgaging
6. Lending procedures

Source: Tran (2000). Field data.

In support of the above results, the responses of the 53 farmers who have practised long-term land improvements illustrate the significant effects of the constraints of access to credit on land investment. Of those farmers, 71.6 percent said that the reason for not mortgaging their land rights was the high lending interest rate; 86.5 percent of them do not pledge their land rights because of the small amount of the loans; 94.3 percent said it was because of the short term of the loan; and 58.9 percent said that it was because of the mortgage mechanism (Figure 8.4).

Figure 8.4. Constraints on mortgaging land for long-term land investment



1. Lending interest rate
2. Amount of loans
3. Loan duration
4. Mortgage mechanism

Source: Tran (2000). Field data.

The results of interviews with a number of local officials in the four villages also pointed to the limitations on access to credit by households in rural areas.

Since they have been granted the rights to transfer and mortgage land-use rights, farmers can access to credit from the formal credit sources which offer lower interest rates than the informal sources. The number of farmers borrowing money from informal sources has reduced significantly, instead more farmers try to obtain credit from the banks. However, farm families are faced with several constraints such as the availability of credit, saving facilities, lack of market information, insufficient collateral, high interest rate and other inconvenient lending procedures. Particularly, the poor farmers usually lack access to financial resources and where these are available from the formal sources they are unable to borrow enough because of supply and collateral constraints (Local government officers of the four villages, field note).

8.4.4. Access to credit and short-term conservation investments

The limits on loan size and the difficulties of mortgaging land use rights do not significantly affect the short-term investments in soil conservation. As mentioned in Chapter 6, some short-term conservation investments such as applying fertilisers to the fields in conjunction with intercropping and planting leguminous vegetables can provide benefits in a short run and the costs of such investments are not over the loan size limit, e.g. under 5 million VNDong. In particular, some investments that cost under 1 million VNDong are not affected by the loan size limit, loan term and collateral policy and are easy to repay (Dao V.H. *et al* 1999: 78).

For example, the average costs of using fertilisers in Thuy Dien village are

N: 2,400 VNDong/kg

P₂O: 1,100 VNDong/kg

K₂O: 2,400 VNDong/kg

In average, the amount of the fertilisers used for one annual crop, on a 1800 m² field are 800 kgN, 400 kgP, and 200 kgK

The survey results show that for one annual crop, the cost of applying fertilisers on a field (5 *sao* = 1800 m²) is

800 kgN x 2,400 + 400 kgP x 1,100 + 200 kgK x 2,400 + 100 cong x 10,000 = 2112000 VNDong

(Tran 2000. Field data).

Compared with the long-term conservation investments (planting perennial trees), it is not very difficult to borrow this amount of money from the banks and the farmers do not need to pledge their land-use rights for this loan size. Moreover, the increased crop yields in a year has led the farmers can easily pay off the short-term loan.

8.5. Conclusion

Since Vietnam has been moving towards a free market economy, the government has undertaken significant reforms of the financial system, especially in rural finance. In conjunction with the changes in the land law, the right to mortgage land-use rights has facilitated farmers' access to credit. The availability of credit is obviously important for agricultural productivity as input expenditures per hectare are significantly higher for farmers with credit. Previously, the informal credit sector was the only credit provider for farmers. In the Collectivisation period, only the cooperatives could access credit from the state bank; individual farmers had no right to borrow money from formal sources.

However, the formal credit sector still faces several serious problems. This study has found that farmers prefer to have the right to mortgage land-use rights to obtain credit, whether from formal or informal credit markets. Although, some short-term investments are not affected significantly by the limited loan size, loan term and collateral policy and are easy to repay, farmers usually combined short-term and long-term investments in conserving soil fertilities. Thus they want to access credit for investment in agricultural

productivity and long-term land improvement. But the present rural finance system does not cover adequately the smallholders who remain important for agricultural growth.

The complexity of the lending schedule, the high interest rates of loans, the short terms of loans, the limited amount of loans, the unclear requirements for collateral as well as the mortgage mechanism are significant constraints on farmers' access to credit. These constraints result in a small proportion of farmers borrowing money from the banks, and although the informal sector share is declining, it remains an important source of finance for rural households in northern Vietnam. Therefore, the government must continue to improve the formal credit sector in terms of lending mechanisms, increasing loan size and loan terms, reducing interest rates, and simplifying the administrative processes in lending.

Chapter 9. Institutions and enforcement for protecting land-use rights and land conservation investment

9.1. Introduction

In many developing countries land reform has not only involved efforts to redefine property rights, it has also focused on mechanisms to protect those rights and to enforce obligations or responsibilities that come with those rights. It has been assumed that a robust administrative system with the relevant regulations and enforcement mechanisms can protect property rights and enforce responsibilities. In northern Vietnam, as well as in many other areas in the world, where land tenure regimes have been defined clearly, there have still been conflicts over land use because of the weaknesses of enforcement mechanisms and inefficient institutions.

Previous chapters have analysed how well land-use rights were defined in the various periods and how these rights affected farmers' attitudes toward soil conservation investments in North Vietnam. This chapter investigates the mechanisms for protection of land-use rights and enforcement of responsibilities through assessment of the operation of the administrative system and its regulations in respect of land tenure regimes. The effectiveness of implementation of the 1993 Land Law depends largely on the regulations of the government and its administrative structure. The incentives for farmers to invest in long-term land improvements have been significantly affected by the granting and exercise of land-use rights. In particular, in forest areas where there is still conflict over land rights, effective regulations and strong institutional arrangements are the most important factors contributing to farmers' attitudes about land management.

This chapter is organised into three main sections. The first section is a cross-country review of regulations and enforcement procedures, especially in those countries undertaking transition. The effectiveness of self-enforcing mechanisms and the governance of state enforcement are also assessed in this section. The second section provides an overview of the operation of the administrative system and regulations in land management in North Vietnam. Data collected during the survey in the four villages in this region are used to analyse the effects of enforcement institutions on the

protection of land rights. In addition, the compliance of farmers with any obligations that accompany their land rights is analysed in this section. Based on these analyses, recommendations about the more effective protection of land-use rights and enforcement of farmers' responsibilities are made in the final section.

9.2. Regulations and enforcement

In the developing world, institutional change is an important issue. In the area of resource management, an important institution is to define clearly property rights and property rules. These rights and rules should be protected by enforcement procedures. Different enforcement mechanisms have been used in different areas in the world. It is a controversial issue as to which enforcement mechanisms are most effective. North (2000: 8) stated

We all know that norms of behaviour, conventions and codes of conduct are critical to the way in which societies work. But we are far from understanding how they work and how they evolve through time, or what makes them work well or poorly. This is enforcement. There is no such thing as perfect enforcement of any set of rules and informal constraints. We have to study how that imperfection works, how well we do with various kinds of ways of enforcing both formal rules and informal norms.

9.2.1. Types of enforcement

Property rights should be secure from involuntary seizure or encroachment by others (Tietenberg 1996: 41). According to new institutional economics theory, the power and economic scale of a single agent or the state are determining factors in the enforcement of property rights. There are three types of enforcement that reflect the relationship between property rights and political structures in a society: private enforcement of private rules, private enforcement of public rules, and state enforcement.

Private enforcement of private rules

This arrangement exists in a community where there are no legislative or judicial bodies, no enforcement agencies, and no common rules, for example, in communities where land resources are scarce, people live together in groups, practise the division of labour, and trade among themselves. In order to protect private property rights, a large share of the resources of each household would have to be allocated to the private protection of life and non-human assets, and to efforts at forming coalitions with other individuals to carry out these functions (Eggertsson 1990: 59).

Private enforcement of public rules

This kind of arrangement has been found in various communities. The political system in those communities included a constitution, a legislative assembly, and a system of courts, but the government was without an executive branch, and there was no police force or military and hence private enforcement of law. It is costly for individuals who have to defend their rights by private enforcement. For example, in the Icelandic Commonwealth where the private enforcement of public rules existed, individuals sought support to help enforce their rights (Eggertsson 1990: 60).

In a stateless society, property rights in land are often restricted to user rights whereby a household has exclusive rights to use certain plots of agricultural land. The land can be inherited, but there is no right to sell the property. Therefore, an individual cannot use surplus harvests to reduce neighbour to a state of dependence by purchasing his land (Posner 1980: 23). In all societies, variations in individual abilities and tastes tend over time to generate unequal distribution of wealth. Wealth is correlated with political power; a stateless society drifts towards concentrated power, and possibly some form of feudalism, unless the process of wealth concentration is constrained by the institutional structure.

It is possible to develop incentives for the self-enforcement of public rules, which is different from the private enforcement of public rules. If individuals act in a self-enforcing manner, this lowers the monitoring and enforcement costs that the government would otherwise have to bear. In other words, when the rights and obligations are a matter of the resource-users' interests, they will fully comply with the rules made for the use of the resources (Young 1992: 160). When individuals have control over assets that are part of a natural resource, they will act to protect that asset. An example is the rights to fish. If people own the rights to fish, they will act to ensure that the resource is not over-fished, and they will prevent illegal fishing.

State enforcement

This arrangement exists where the state sets the rules or defines the basic structure of property rights, arbitrates in disputes, and enforces the rules. Rules imposed by the state and its agencies include constitutions, statutes, common law, and executive decrees.

Nowadays, there is vast involvement of the state in economic life, spanning both the definition and the enforcement of property rights and the direct allocation of resources. By providing law and order at relatively low costs, the state expands the community's frontier of production possibilities. The relationship between the ruler and his subjects can be thought of in terms of a contract (Eggertsson 1990; North 1987; and Keefer and Shirley 2000). The structure of a contract depends on the legal system, social customs, and the technical attributes of the assets involved in the exchange. The state protects rights of private individuals by enforcing legitimate contracts through use of its monopoly over violence and the judicial system.

9.2.2. Enforcing regulations

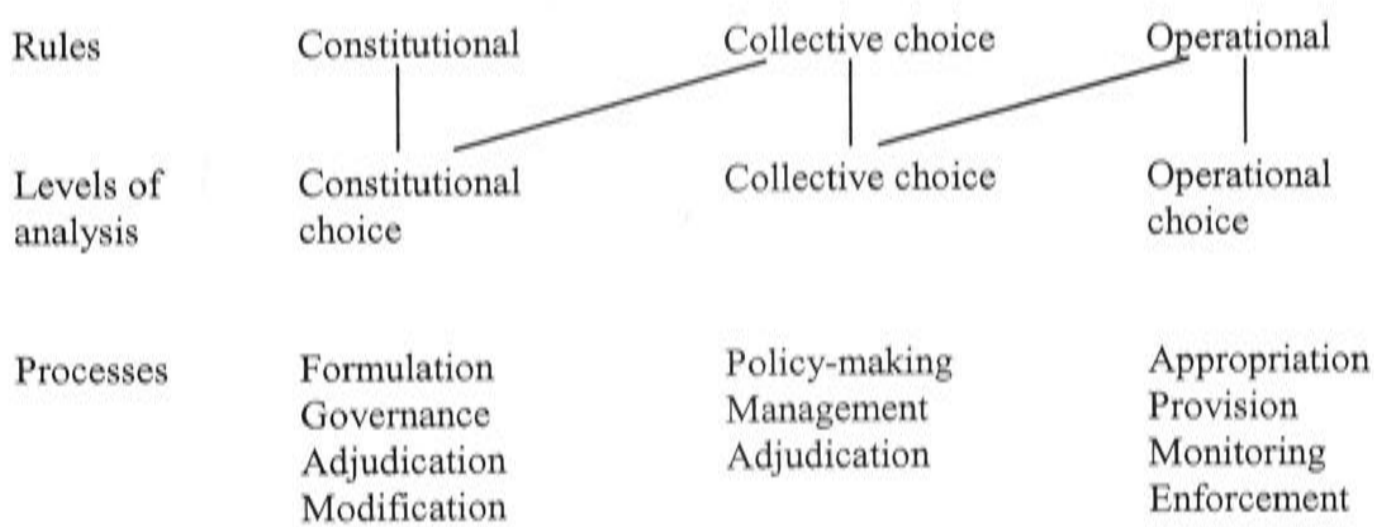
Under regulatory systems an action is either permitted or it is not. All rules contain prescriptions that forbid, permit, or require some action or outcome. Working rules are those actually used, monitored, and enforced when individuals make choices about the action they will take. Working rules are always monitored and enforced by those directly involved. Working rules may or may not be closely similar to the formal laws that are expressed in legislation, administrative regulations, and court decisions (Ostrom 1990: 51).

It is useful to understand three levels of rules (Operational, Collective-choice, and Constitutional rules) that affect the actions and outcomes obtained in using *common pool resources*. Ostrom (1990) and Oakerson (1992) showed that the linkages among these rules and the related level of regulation at which humans make choices and take actions are important for enforcement choices. The processes of appropriation, provision, monitoring, and enforcement occur at the operational level because the decisions are made by appropriators concerning the use of resources. Various types of rules can serve to limit user behaviour in the interest of maintaining the yield of the common. Limits may be imposed on both the duration and type of use, as well as on the amount of the resource flow that can be appropriated during a time period. Some types of use may be compatible; others may be sharply conflicting. Thus *operational rules* directly affect the decisions about who should monitor the others and how, what information must be exchanged, and what rewards or sanctions will be assigned to different combination of activities.

Collective-choice rules affect operational choices indirectly as the rules are used by appropriators, their officials, or external authorities in making the resource management policies or operational rules. The adjudication of policy decisions also occurs at this level. Rules that establish conditions of collective choice to allow a group of appropriators to manage their commons can be understood as a common property arrangement. Individuals are no longer entirely free to decide for themselves how to make use of the commons; they have to participate in a process of collective choice that sets limits on individual use.

The processes of formulation, governance, adjudication, and modification of constitutional decisions happen at the constitutional level. *Constitutional-choice rules* determine who is eligible to make decisions and the specific rules to be used in the set of collective-choice rules, and hence in the set of operational rules (Figure 9.1). Most frequently, several collective-choice arenas affect the set of operational rules used by appropriators for making choices about harvesting and investment strategies in a common pool resource. Decisions made in national legislatures and courts for access to all resources, when given legitimacy in a local setting and enforced, are likely to affect the operational rules that are used in particular locations.

Figure 9.1. Linkages among rules and levels of regulation analysis



Source: Ostrom (1990).

Rules do not guarantee the emergence of a particular pattern of behaviour. Individuals choose strategies for relating to one another and to the commons. On the commons, an individual must practice restraint when the beneficiaries of his or her restraint consist mainly of others. At the same time, each individual draws a large benefit from the restraint practised by others. Individuals can agree to a pattern of mutual restraint, and

mutually enforce such a pattern. Free-riding behaviour erodes reciprocity as one individual may choose not to contribute in the expectation that others will continue as before (Oakerson 1992; and Fernandez 1996). Therefore, Ostrom suggested that small-scale communities are more likely to have the formal conditions required for successful and enduring collective management of the commons. Among these conditions are the visibility of common resources and behaviour toward them, feedback on the effects of regulations, widespread understanding and acceptance of rules and their rationale, the values expressed in these rules, and the backing of values by socialisation, standards, and strict enforcement (McCay and Acheson 1996: 23).

Property rules can only be protected by effective enforcement mechanisms. Enforcement may be undertaken by others directly involved, hired agents, external enforcers, or any combination of these enforcers. The enforcing regulations in each land tenure system have considerably affected land management processes because the protection of land use rights and land resources depend on the enforcement mechanism. Young (1992: 158) pointed out that unless regulations are enforced conscientiously and equitably, it is often better to repeal them so that the remaining set of regulations retain credibility.

Many scholars have argued that the mechanism of self-enforcement of customary tenure has served to protect resources and people from over-exploitation as an identifiable group of users holds the rights and responsibilities for the use of the land resources under the invisible bodies of rules and regulations (McCay and Acheson 1987; Ostrom 1990; Oakerson 1992; and Berkes and Folke 1998). In a community, the communal members are the allocators and enforcers of rights to land within the boundaries of the commune.

The institutional arrangements in communes improve sustainable land management because the rules of co-owners protect individual shares in the yield of the land resources and also protect the total yield of the land resources (Oakerson 1992: 47). Runge (1982: 32) has also pointed out that common property institutions can be well adapted to problems of resource management in developing economies as its major implication is that inferior outcomes such as over-exploitation of natural resources, mainly from the inability of interdependent individuals to coordinate and enforce actions in situations of strategic interdependence, can be minimised.

In many developing countries, common property provides a complex system of norms and conventions for regulating individual rights to use a variety of natural resources, including forests, range lands, and water. In this system, institutional rules specifying joint use by a village or other well-defined group prevail as a form of resource management. An institutional arrangement of common property may be viable as private property on grounds of both efficiency and equity. In many cases, these institutions may play a key role in the effective management of scarce natural resources, complementing and combining with private rights (Runge 1992: 18). The above point of view has been analysed carefully by Ostrom (1990). She examined the organisation of mountain grazing and forest common-pool resources in Switzerland and Japan and irrigation systems in Spain and the Philippine islands.

Ostrom argued that these resource systems, as well as the institutions, have survived for long periods of time (100 to 1000 years) as in these institutional arrangements, appropriators have devised, applied, and monitored their own rules to control the use of their common-pool resources. The success of common-pool resource institutions has been proved in that the Swiss and Japanese mountain commons have been sustained, if not enhanced, over the centuries while being used intensively; keeping order and maintaining large-scale irrigation works in the difficult terrain of Spain or the Philippine islands have been similarly remarkable achievements. In all instances the individuals involved have had considerable autonomy to manage their own institutions.

In these cases, the appropriators designed basic operational rules, created organisations to undertake the operational management of their common-pool resources, and modified their rules over time in light of past experience, and according to their own collective choice and constitutional choice rules. These groups of self-organised principles solved the problems of commitment and mutual monitoring. Widely diverse monitoring arrangements were used. Appropriators themselves played a major role in monitoring each other's activities. These commitments and monitoring are strategically linked and monitoring produces private benefits for the monitor as well as joint benefits for others (Ostrom 1990: 58-61).

More evidence illustrated this point clearly in the case of the long-serving village institutions in Japan described by McKeen (see Chapter 3). Community-based tenurial

systems in Mexico are similar to other self-enforcing systems elsewhere in the world. Each community-based tenurial system is constructed of linkages into institutions that pervade the lives of community members. This develops into an invisible body of rules, regulations and processes that guide decision-making (Ostrom 1990; and Ostrom *et al.* 1992). In this tenure system, tenurial rights and responsibility are defined by local communities within the basic framework established by the state. The local community, not the national government, is the primary allocator and enforcer of rights to resources within the boundaries of the community. Responsibilities are defined by the community, and the role of the national government is to protect the community's rights to its resources against the claims of outsiders (Alcorn and Toledo 1998). Therefore, a community-based tenurial system with the appropriate supports of the state can be a sufficient condition for ecological sustainability in many situations.

However, the institutions designed and self-enforced by appropriators in many other cases are in a fragile condition. Tensions in the structure of joint-use rights adopted by a particular village or group may arise because of a variety of complex reasons, including population pressure, changes in technology, climate, or political forces. Thus the cooperation between individuals may be broken. Sugden (1984) has argued that the more homogeneous a community, the more likely are optimal outcomes; the more heterogeneous, the more difficult coordination becomes. As the heterogeneity of the group increases, and the resource constraints facing it become more severe, common property rules may become increasingly difficult to maintain. Nevertheless, in any heterogeneous community, the coordination norms still offer their own incentives to be kept and some enforcement may readily emerge from inside the group, as well be imposed from outside it (Runge 1992: 30).

Enforcement from outside in many cases may help achieve improvement in the institutions, if the costs of such enforcement are affordable and the administrative officials work effectively. Where local-level rule making has broken down, it is necessary for local interests to request assistance in enforcing property rights that local authorities alone cannot guarantee. However, it has been argued that rather than starting with enforcement mechanisms from outside, it is better to let individuals have full freedom first to create self-binding property rules that best serve their needs. Outside enforcement may follow, if needed. Thus, property rules will be better suited to these

needs and more likely to succeed if they are based on this premise, and relevant enforcement mechanisms may be chosen depending on each case.

For example, Sri Lankan fishers, who devised an ingenious system for rotating access to an inshore fishery, found themselves unable to enforce an additional rule to prevent the entry of new appropriators. With too many appropriators, the profits obtained by local fishers have steadily declined as rents have been dissipated. The rotation system evolved in an era in which the number of nets varied around 20, and the system produced relatively equal and profitable incomes for all net owners. Until the late 1930s, fishing in Mawelle beach was largely for subsistence and to produce dried fish for a winter market. But demographic pressure (the population of Mawelle grew by 70% between 1901 and 1931), market opportunities, and the relationship between internal rules and external rules changed that situation markedly (Alexander 1982).

Therefore, it was necessary for external enforcement from the government to limit the number of nets. However, without an effective administrative system, the national officials failed to enforce their rules. In this case, instead of enforcing entry rules limiting the number of nets, national officials could be convinced with promises of votes to intervene and prevent the enforcement of a national rule considered desirable by most local fishers. Private ownership may have been the only viable institutional arrangement in this case, not because it was the only way but because the external regime was unwilling to allow local rule determination and enforcement. External intervention to prevent rule enforcement against political favourites undermines the viability of common property arrangements (Ostrom 1990: 157). This has happened in many developing countries where institutional capabilities are generally weak, enforcement is difficult, and monitoring expensive.

9.2.3. Administrative systems

The enforcement of regulations is shaped by the interaction of transaction costs, and economic, administrative and organisational constraints. Administrative structures provide the means through which legal proceedings take place. They have embedded monitoring and control mechanisms that complement some of the functions of legal traditions (Fernandez 2000: 259). It is essential for any property rights regime that an

authority system should be able to ensure that the expectations of rights holders are met. Compliance, protected and reinforced by an authority system, is a necessary condition for the viability of any property regime (Bromley 1991: 27).

In almost all developing countries, sub-national administrations are inefficient and unresponsive to the residents of the jurisdictions in which they operate. In many countries, government offices at all levels lack a sufficient number of highly trained personnel (Ostrom 1993: 196). It has been said that since bureaucrats lack the discipline of the "bottom line", they are slothful in management and not sufficiently aggressive in promoting the interests of the owners (Bromley 1991: 177). The lack of administrative capacity to implement government policy and lack of a comprehensive system of registration or documentation of rights is often a source of frustration for landowners due to the conflicts of interests between them or between landowners and government officials (Chapter 3). A central issue in land use control is to assure that the administrative process provides public policies suitable for the allocation needs of competing interests. All organisations must follow the needs of self-maintenance, which promote the stability, integrity, and continuity of control over their public domains (Williamson 2000; Ng'weno 2000).

Land administration is one of the currently important issues in respect of sustainable development. In 1999, the 25 position papers prepared by international experts for the Bathurst Workshop provided an in-depth view of the diverse and complex issues facing land administration systems. The experts came from a range of developed and developing countries and a diversity of disciplines and experience, including surveyors, lawyers, planners, valuers, information technologists, government administrators, academics and representatives from the private sector (Grant *et al.* 1999).

The workshop concluded that most land administration systems today are not able to cope with the increasingly complex range of rights, restrictions and responsibilities in relation to land, which are influenced by such factors as water, indigenous land use, noise and pollution. Many land administration systems need to be re-engineered, to be more service-oriented to meet the requirements of a greater variety of users. Land administration systems are increasingly required to handle vast amounts of data. Clear management systems and institutional arrangements are necessary to efficiently

administer land-related data sets and to ensure continuing financial support. One of the major challenges will be to build an infrastructure that is sufficiently robust to, amongst other things, effectively support the goal of enhancing security and access to credit, while at the same time being sufficiently simple and efficient so as to promote and sustain widespread participation.

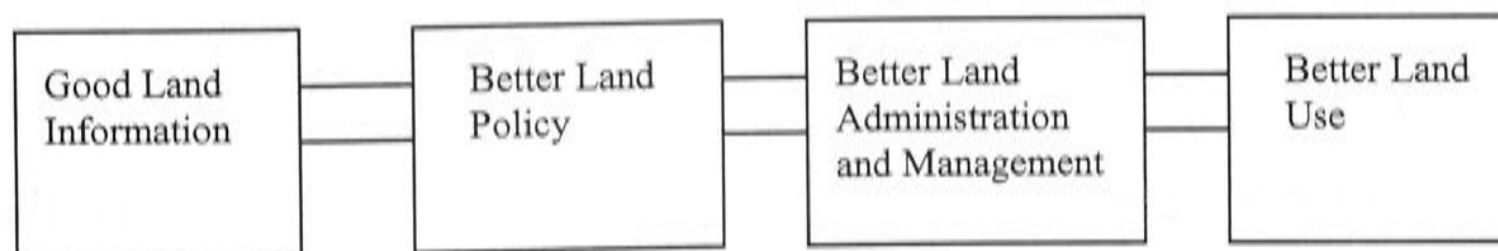
In the context of developing countries, moving away from a sole focus on the cadastral as the only source of information and having other information to be part of the land administration infrastructure will allow:

- improved administration of rural areas
- regularisation of informal settlements and the management of these areas over time
- an increase in the amount of information available
- improved conflict management in land disputes
- diversification of tenure types

(Grant *et al.* 1999: 10)

A land administration infrastructure requires a legal framework which enforces the rule of law. Such a framework requires not only good laws but also legal institutions, professionals and government officials who are versed in the law, and a justice system which enforces the law. Such a legal framework is essential to ensure that land holders are secure in their occupation, they are not dispossessed without due process and compensation, and the land market can function with confidence and security (Williamson 2000: 9).

Figure 9.2. Relationship between sustainable development and land administration



Source: Grant *et al.* (1999).

It is concluded that sustainable development is not attainable without sound land administration. This relationship is shown in Figure 9.2:

9.3. Land administration and enforcement in North Vietnam

9.3.1. Land administration system

Social institutions, land distribution systems, production organisations and psychological characteristics of the peasants have been taken into account by Vietnamese policy makers in designing and implementing agricultural and land policies. The administrative systems have changed along with the changes in land tenure regimes, which in turn affected agricultural productivity.

In Viet Nam, the family has long been both a fundamental part of society and a production unit. Families banded together to live in a selected area to cultivate land. Usually, they worked together to reclaim land, dig canals and dredge rivers in order to water and drain the paddy fields, to organise their living, and later formed a village. Like other rural communities, the Vietnamese village had a dual character in terms of land ownership: land formally belonged to the state or to the whole village. That meant the land was periodically (every three to five years) re-distributed to all families in the village to cultivate. Part of the crop had to be delivered to the state in the form of tax and contributions to the village fund, while the remaining food crops and animals were left to the families. Handicraft output, tools, and houses also belonged to the family. The location of the village and its borders were imprinted in the minds of its inhabitants, or were written down in the village rules, and these were subsequently recognised by the state.

Each village had its own management board. This board was the Council of Elders, elected by the inhabitants, in which the heads of family clans played an important role. In general, the management board of the village comprised the following:

- Village Chief (*Ly truong*): was selected by the village's male inhabitants. Along with assistance whom he chose, he had the duty to enforce all policies and measures laid down by the Council of Notables (*Hoi dong ky muc*) and carry out all orders given to the village by superior authorities.

- Council of Notables (*Hoi dong ky muc*): comprised people who had property, education, and academic, administrative or honorific ranks. It was the decision making body of the village, which discussed and made decisions on all problems relating to the village inhabitants, such as the distribution of public lands, levying of taxes, military service, devising village rules, holding trials, administering the economic, cultural, and social activities of the village, and ensuring its security.

Each village had its own rules which in essence involved customary laws that were laid down over a long period, and which were passed on orally to successive generations. In the late 15th century, King Le Thanh Tong promulgated a law designed to institutionalise the formulation of village rules, which from then on were enforced on an increasingly widespread basis. Village rules contained regulations and criteria on how village affairs would be run, the obligations, rights and interests of each organisation, and how each village should be dealt with. Villagers strictly and voluntarily abided by the rules of their respective villages. In many cases, they even gave more respect to their village rules than to the laws of the state. Thus the Vietnamese village was a social institution with its own administrative system and regulations that has existed for thousands of years (Pham X.N. *et al.* 1999).

During the initial period of French rule in Vietnam, the colonial authorities decided to maintain and use the existing management board of the village to enforce their control. Later, in order to strengthen their control over the village, the French rulers successively implemented a number of changes. The Council of Notables was disbanded and replaced by the Council of Representatives of Family Clans elected by family clans in the village for specific terms.

Following the August 1945 Revolution, the traditional village administrative board was disbanded and replaced by one comprising the Commune People's Council and the Commune People's Committee, both elected by the inhabitants and serving for specific terms. The commune became the grassroots administrative unit comprising several villages that were officially referred to as *thon*. This change was more or less strictly enforced in the areas inhabited by the Kinh. However, in the areas where the ethnic minorities lived, the village elders and the village chiefs continued to enjoy high prestige and play an important role, even until today.

From 1954, during the collectivisation period, cooperatives were the key element of rural organisation in Vietnam. The cooperative was an administrative unit located mostly at the village level, having responsibilities for both agricultural production and the welfare of its members. Each cooperative was a relatively independent economic organisation, provided its quota of taxes and followed the general policies of the central government. At the village level, two other structures of state authority complemented the cooperative: the political section of the Communist Party and the People's Committee. The main duty of the Communist Party was to see that national policy was implemented at the local level, and it held power over all village and cooperative decisions. The People's Committee handled the daily logistics of the village, focusing on the general well-being of the villagers. During this period, two types of land management were established in the north. Most land was put under the management of cooperatives, except for home gardens. On some land, state enterprises were established to produce cash crops on a large scale (Le T.C. *et al.* 1996).

Following the reform in 1988, the administrative system has changed along with the changes in the agricultural sector, especially in respect to the land tenure regime. Resolution 10 and the 1993 Land Law considerably reduced the role of agricultural cooperatives in agricultural production. The cooperative was stripped of its administrative functions in the allocation of land, capital, agricultural inputs and labour. Cooperatives are being transformed into an economic unit that competes with the private sector in the provision of agricultural support services. The People's Committee has become the primary government organ at the village level. Its nine-person staff includes the chair, vice-chair, financial officer, military-liaison officer, land management officer, statistician, secretary, public security officer, and cultural officer. The Committee is authorised to collect contributions from farmers to cover the cost of village services and administration.

Government policy has strengthened the General Department of Land Management as the primary agency to oversee land management issues. A national directive issued in 1994 provided for the establishment of Bureaus of Land Management at the provincial level and Boards at the district level. At the village level, the decree provides for land management officers, who work closely with the district-level Boards of Land Management. The village officers assumed responsibilities for land distribution and

management from the agricultural bureaus, which were handling these functions. The primary tasks of the village officers are to monitor and regulate land redistribution, land use and zoning, and to collect information on soils and land use (Le T.C. *et al* 1996; and Nguyen N.H. 1998).

Responsibility for implementing legislation and passing decrees, and administrative guidance, is delegated to line ministries, state committees and appropriate provincial bodies. Enforcement of laws and regulations is the responsibility of the government at the national level and the People's Committee at the province, district and commune levels. Where force is required to enforce the law, the Committee can call upon the police in their locality. Costs of enforcement can be assessed against violators of the law (UNDP/UNICEF 1995).

9.3.2. Regulation and administrative enforcement

Because land in Vietnam is owned by the State, it is a common-pool resource. Through the allocation of land-use rights, individual households now have control of an income-earning asset. The effectiveness of the land rights regime will depend upon how well the land-use rights are defined and enforced, and how well any obligations or responsibilities the farm households have towards the land are observed. The responsibility for the implementation of the land law in rural areas is shared at the central level between the Ministry of Agriculture and Rural Development (MARD) and the General Department of Land Administration (GDLA). The latter organisation is responsible for land surveying, the organisation of cadastral mapping and registration, as well as for the completion of land use plans. These tasks are implemented at the local level by the Cadastral Survey Department, which sends officials to villages in order to carry out surveys, and help the households fill out application forms (UNDP 1996: 40).

Since the 1993 Land Law was implemented, administrative officials have claimed many achievements as the successful outcome of allocating agricultural land and issuing land-use rights certificates, and attempting to establish a land registration system. However, a number of shortcomings in allocating forest lands and enforcing regulations remain. These strengths and weaknesses of the land administration system in implementing the

land law and regulations can be analysed using data collected from the survey in the four villages and several departments of the central government in northern Vietnam.

9.3.2.1. Dissemination of information on rules and regulations

Household interviews reveal that information about the Land Law is disseminated poorly in most rural areas. The majority of farmers (71.6%) of the four villages said that they did not received adequate information to enable them to understand clearly the rules of allocating land, demarcating the plots of land allotted, assessing the quality of the land plots, transferring land, and borrowing money from the banks, as well as the process of enforcing these regulations and rules (see Table 9.1). Only 20% of respondents believed that they receive enough of the necessary information about rules and regulations. Most of these people are the village managers, commune managers or officials who directly received the information about the Land Law from the provincial and central governments and have the responsibility to convey the information to the villagers.

Table 9.1. Farmers' attitudes about the dissemination of information on the Land Law

| Village | Poorly disseminated information | Adequately disseminated information | Indifferent | Total of Respondents |
|-----------------------|---------------------------------|-------------------------------------|-----------------------|----------------------|
| Thuy Dien | 10 (71.4%) | 4 (28.6%) | 1 (6.6%) | 14 |
| Bai Yen | 9 (81.8%) | 2 (18.2) | 1 (8.3%) | 11 |
| My Giang | 12 (80%) | 3 (20%) | 0 (0%) | 15 |
| Co Cham | 17 (77.2%) | 5 (22.8%) | 3 (12%) | 22 |
| Total | 48 (77.4%) | 14 (22.6%) | 5 (7.56%) | 62 (100%) |
| Standard error | 0.0531 | 0.0531 | 0.032 | |
| 95% CI | 0.67 to 0.878 | 0.122 to 0.33 | 0.012 to 0.138 | |

Source: Tran (2000). Field data.

Other than these officials, some people attempted to obtain more information by themselves as they travelled to the towns or city to buy the law books and have them interpreted by more highly educated people or their children. The standard errors (0.05; 0.05; 0.03) illustrate that the distribution of the sample means contains relatively not large dispersion, which means the responses of observations from four villages are not very different. The proportion of farmers who receive adequate information differed between the four villages The farmers living in Thuy Dien, My Giang and Co Cham villages (28.6 per cent, 20 per cent and 22.8 per cent respectively), which are located

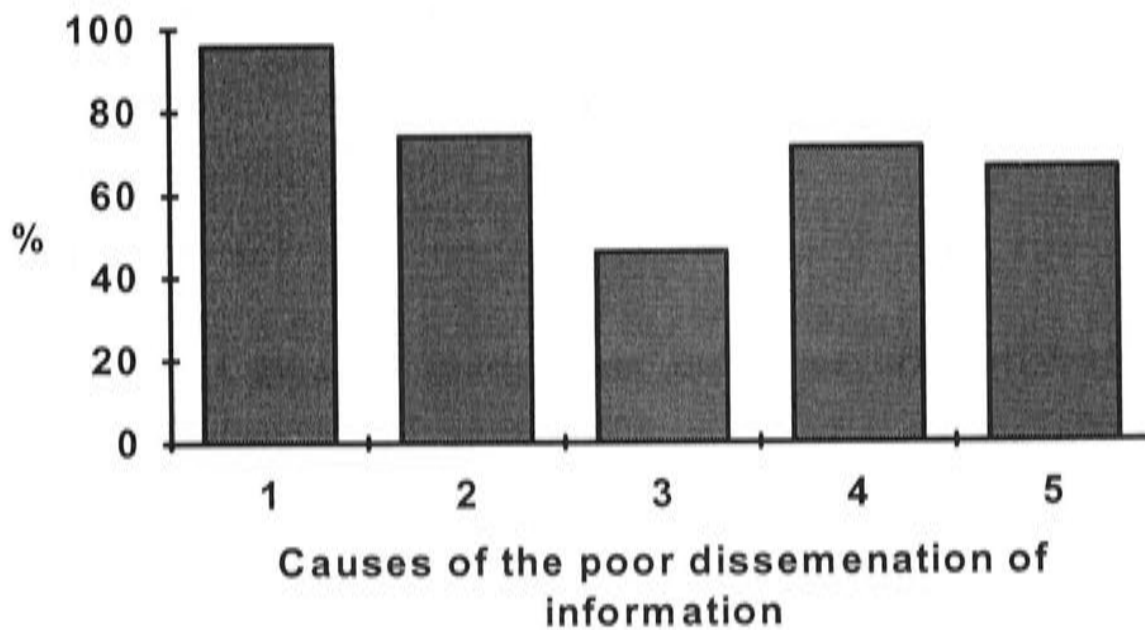
close to urban areas can access information more easily than farmers living in Bai Yen village (18.2 per cent), which is located in the highland areas. The small standard errors (0.06; 0.04) in Table 9.1 indicating the generally similar opinions of information dissemination between the four villages. Among the household interviewees, only 7.6 per cent were not concerned about this issue (Table 9.1).

The complaints about the inadequate, incomplete and erroneous information relayed to the villages are represented by the following compilation of quotations from survey respondents:

'The land law was disseminated to us in a meeting of the village. We just memorised some main points that the land can be registered to individual households, we will have land certificates to ensure the land boundaries, and some rights on land. But we have not understood many other procedures and regulations for receiving these rights. Thus we are not sure of the stability of the new land policies. We do feel it is difficult or uncertain to use land certificate in access to credit or in land transaction. No one can explain clearly the land law for us even the village managers. We are also unclear about the criteria for dividing farm plots. Land disputes occur easily when the village manager cannot remember who has made a prior claim to which piece of land' (Group of farmers in Thuy dien, Bai Yen, My Giang and Co Cham villages. Field data.).

In order to understand the main reasons for the poor dissemination of information about the land policies, interviews were conducted with officials in village, district, provincial and central governments. Nearly all respondents (96 per cent) said that the main cause of the poor dissemination of information was the lack of resources. Further, 75 per cent of interviewees believed that lack of training for officials and cadastral officers is another major cause; while 66 per cent attributed the problem to inadequate public media; and nearly half of administrators perceived that they do not respond effectively to the requirements of farmers. The lack of participation of farmers in the land allocation process was another important reason given for conveying incomplete and inaccurate information. About 71 per cent of respondents recognised this problem (Figure 9.3).

Figure 9.3. Causes of inadequate and incorrect distribution of information on land policies



1. District authorities do not have adequate resources
2. Lack of training for officials and cadastral officers
3. Lack of effective response to farmers' requests
4. Lack of participation of farmers in decision-making processes
5. Inadequate public media for disseminating information

Source: Tran (2000). Field data.

The results showed in Table 9.1 and Figure 9.3 support the evidence shown in Box 9.1, which pointed to the lack of correct and adequate information about land policy leading to land conflicts between farmers and inefficient use of land because farmers misunderstood the purpose of the new Land Law. A report by the UNDP in 1996 pointed out that sometimes the basic message that the new legislation was to ensure long-term landholdings did not reach farmers, diminishing their confidence in the system. Generally, the dissemination of the new policies was not properly prepared as material was inadequate, and officials or cadastral officers responsible for informing the households lacked the necessary training. For example, in the northern province of Lao Cai, it was found that only 57 percent of commune-level cadastral officers have a secondary-level education. Moreover, there were no budgets available for the training required for such complicated work. The information and skill shortages at the outset of the process prevented its successful completion (UNDP 1996: 42).

Box 9.1. The need for information

The Tay people living in Yen Chau district of Son La province in northern Vietnam are not happy with the new allocation policy. In the process of allocating the land, the communal leader called the village leaders to a brief meeting to announce the new policy, but without really explaining its implementation and purpose. Thereafter, the village leaders called meetings of their villagers.

While in principle the land is to be rationally divided among households so it will be near their home and measurements and maps made of the borders of each household's land holdings, each of the villagers was only asked, "Where are you cultivating now?" When the villager indicated several areas where he was currently planting crops, the village leader and communal leader wrote it down and then asked how much land it was. The farmer said "about 100 meters", other protested "no, it is only 50 meters", then they argued a while, and finally agreed on an amount and wrote it down.

After finishing this work, the villagers were told that they could not go to other areas to plant any more. From that point on, they could only use the land that they were currently cultivating. The villagers protested. In the past, when their land was no longer productive, they could move to other areas, now the new policy will restrict their movements. They failed to understand why this is supposed to be a good policy.

Had they received explanation on the purpose of the policy and the meaning of land use rights, and how the distribution of these rights prevented other people from moving in to exploit their land and its resources, they may have been less negative. And if they were allowed to participate more actively in the distribution of land, the outcome may have been suited to the needs of the village and they could have made arrangements among themselves on how to use the land most efficiently.

Source: UNDP (1996).

9.3.2.2. Process of issuing land use certificates

At the time the survey was conducted, most of the households in Thuy Dien village had received their land-use rights certificates (*Red Books*), and thus they were pleased with the process of registered land use rights. This result is similar to the information received from the head of Lap Thach district (the district that the Thuy Dien village belongs to) that about 95 per cent of the commune had received their land certificates. A few households have not received the *Red Book* due to disputes over the land. In contrast, the results of surveys in the three other villages showed dissatisfaction among the vast majority of farmers (83.3 per cent, 73.3 per cent and 76 per cent) who complained about how slowly the process of issuing land certificates was progressing because the administrative officers were still working on some stages of the process (Table 9.2).

Table 9.2. Process of registering land use rights

| Village | Slow process | Good process | Indifferent | Total |
|-----------------------|-------------------|-------------------|-----------------|------------------|
| Thuy Dien | 3 (20%) | 12 (80%) | 0 (0%) | 15 |
| Bai Yen | 10 (82.6%) | 1 (8.7%) | 1 (8.7%) | 12 |
| My Giang | 11 (73.3%) | 2 (13.3%) | 2 (13.4%) | 15 |
| Co Cham | 19 (76.0%) | 4 (16%) | 2 (8%) | 25 |
| Total | 43 (64.1%) | 19 (28.3%) | 4 (7.6%) | 67 (100%) |
| Standard error | 0.291 | 0.339 | 0.055 | |

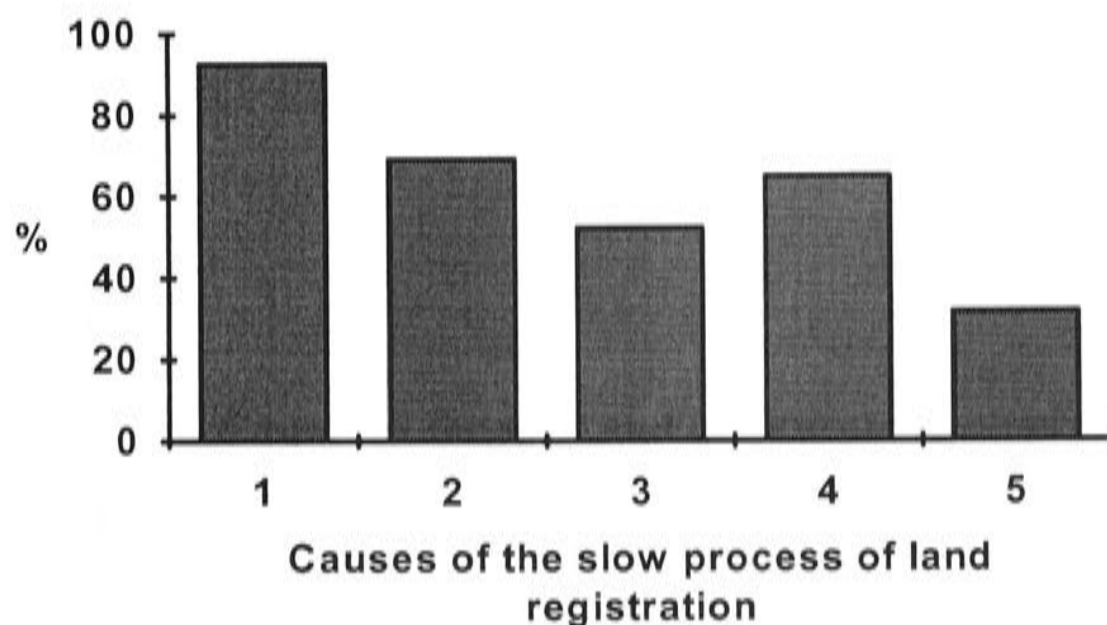
Source: Tran (2000). Field data.

According to the district land administrators in these three villages, although the district is responsible for the allocation and certification of land according to national and provincial criteria, the task of listing the size, current use and type of each household's holdings has had to be entrusted to the local management in each village. Villagers have been asked to make declarations of their current holdings. Then the announcement of the land use zones and adjustment of landholdings between households has taken place at a village meeting.

The district Land Administration Department must collate the information contained in the allocation agreements in a cadastral book, and then prepare land-use right certificates for the approval by the Chairman of the district People's Committee. However, the process of issuing land certificates has been slow in many areas in the northern region because the district authorities do not have adequate resources and the low level of training of people undertaking comprehensive surveying, demarcating and registering of land (Smith and Tran 1994; and Smith 1995; see Figure 9.4). The costs of the land allocation process are another limitation in issuing land-use certificate as many poor farmers cannot afford it. The cost of the land allocation process is 21,000 VNDong/ha and each farm household has to pay 5,000 VNDong more for the certificate (Nguyen H.N. and Gilliusson 1997).

The results of in-depth interviews with administrative officers showed that most administrators (92.6 per cent) saw the unavailability of budgets as the main cause of the slow progress in issuing land-use rights certificates. Around 70 per cent of administrative officers said that the second most important reason is the shortage of skills to carry out surveying and cadastral work. In some areas, for example in Bai Yen village, inaccuracies were occurring in the surveying and measurement of land, and the differences between recorded and actual data led to the high costs. Over half of respondents (52 per cent) agreed that ineffective resolution of land conflicts is another cause leading to the slow process of land registration. Many of them (65 per cent) also believed that insufficient participation by farmers in the land registration process contributed to the delays in issuing land certificates. However, the poor transparency of provincial guidelines was not recognised as a major problem by many officials (31.5 per cent), as can be seen in Figure 9.4.

Figure 9.4. Causes of the slow and inaccurate process of registration



1. District authorities do not have adequate resources
2. Skill shortage for surveying and demarcating
3. Weaknesses of enforcement in resolving land disputes
4. Insufficient participation of farmers in land registration process
5. Insufficient transparency of provincial guidelines

Source: Tran (2000). Field data.

9.3.2.3. Monitoring and resolving land conflicts

The interviews with farm households and local officials showed that usually the local authorities have the responsibility to monitor the rules and obligations which should be carried out by farmers. However, monitoring mechanisms have not been focused on in most areas; and the conditions, the duties and procedures for doing so have not been clarified. Officials often monitor only the boundaries of the allocated field plots between farm households and sometimes the land transfer activities.

From the interviews and observations in the survey, it appears that few conflicts over land occurred in Thuy Dien, My Giang and Co Cham villages. In contrast, land disputes have been frequent in the highland areas which comprise both agricultural and forest lands such as in Bai Yen village. The conflicts have taken place between farmers or between farmers and local officials. Provincial officials complained that, in general, households are very reluctant to accept allocations of bare hill land for purposes of afforestation. The disputes were caused by the inadequate grassroots dissemination of information about the rules, the lack of transparency of the allocation procedures, and the lack of manpower and other resources to enforce the rules and set priorities in allocating land to farm households. Usually, the local authorities have responsibility for

resolving land conflicts; however, not many conflicts have been resolved due to the weaknesses of the enforcement mechanism.

For example, in Bai Yen village, the village manager has failed to draw the individual plots of land on the sketch map of village land resources. Confusion over boundaries between households has subsequently led to disputes over land. Land disputes have also occurred between households because village managers have failed to give priority in the location and quality of land allocations to households who are eligible under state policy. Families covered by state policies (families of war heroes, and the war wounded), families who have contributed to the revolution, and single member families to whom priority should be given, should be allocated land in more favourable positions than that of other families, in keeping with that family's production capacity and the ability of the local authority to make such arrangements (Smith 1995: 13).

9.3.2.4. Obligations of land protection

The Land Law of 1993 enacted the laws on protection of the rights to use land and the responsibilities to protect the land. Farmers have to use land according to government plans. However, the criteria for protecting land productivity have not been clarified in the Law (Articles 73 to 79 of the 1993 Land Law). Farmers in the four villages were asked if they can fulfil the government obligations in terms of protecting land productivity. As can be seen from the results in Table 9.3, one-fifth of households were not concerned about such obligations, while over half of the respondents (53.7 per cent) found that it is difficult to carry out obligations of land protection. However, a number of farmers (25.4 per cent) perceived that there are no difficulties in having responsibility for the land. They are households that have invested in long-term land improvement as they feel assured of the stability of the current land tenure regime. The relatively large standard error (0.15) shows that among the four villages, less farmers in Co Cham perceived the no difficult to carry out the obligation of land protection.

In the survey, farmers were also asked about their perceptions in respect of their compliance with the rules and obligations of using land. The majority of them (86.4 per cent) said that they will comply with the rules and obligations if they can possess the land permanently. Similarly, many households (84.5 per cent) will comply with the rules

and obligations as they believe that their compliance is a condition for renewal of the land lease term. Most farmers (67.3 per cent) also recognised that if they participate in the process of making rules and obligations, they will comply with them more easily.

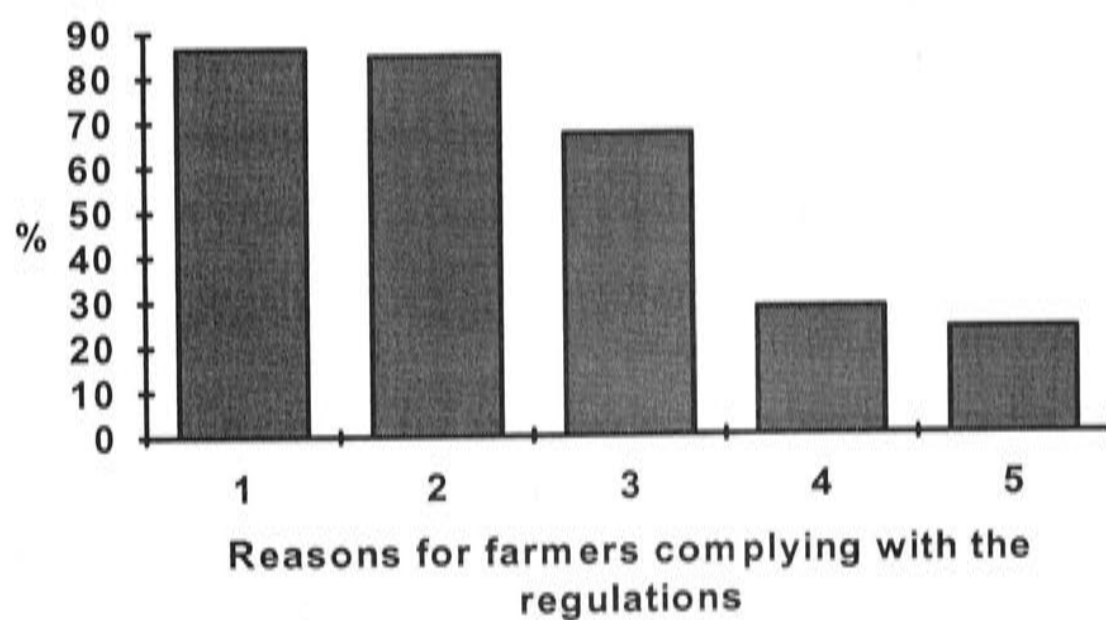
Table 9.3. Perceptions of farmers about imposed obligations of land protection

| Village | Difficult | No difficulties | Indifferent | Total |
|-----------------------|-------------------|-------------------|-------------------|------------------|
| Thuy Dien | 8 (53.4%) | 4 (26.6%) | 3 (20%) | 15 |
| Bai Yen | 5 (41.6%) | 6 (50%) | 1 (8.4%) | 12 |
| My Giang | 8 (53.4%) | 3 (20%) | 4 (26.6%) | 15 |
| Co Cham | 15 (60%) | 4 (16%) | 6 (24%) | 25 |
| Total | 36 (53.7%) | 17 (25.4%) | 14 (20.9%) | 67 (100%) |
| Standard error | 0.076 | 0.152 | 0.081 | |

Source: Tran (2000). Field data.

In contrast, if the rules come solely from the governments, without the involvement of farmers, only 28.3 per cent of them may definitely comply with the rules. Around 23.5 per cent of respondents said that they will observe the rules and obligations as they want to invest in improvement of the land (Figure 9.5). Thus, when the conditions match their interests, farmers are willing to observe the rules and carry out obligations.

Figure 9.5. Reasons for farmers complying with rules and obligations



1. Have permanent land use rights
2. It helps to renew land lease term
3. Participation in process of making law
4. Mandate from the local and central governments
5. Want to improve land productivity

Source: Tran (2000). Field data.

9.4. Conclusion

The change in land tenure regimes from the Collectivisation period to the Renovation period was not simply the granting of the land use rights to individual households; it

also involved change in the administrative systems as well as in the enforcement mechanisms to ensure effective exercise of the land use rights. In implementing the 1993 Land Law, the government authorities from the central, provincial, district and village levels have attempted to strengthen the administrative organisations and the enforcement of regulations in land allocation. However, there remain a number of weaknesses in disseminating the land law, issuing land-use certificates and land transfer contracts, and resolving land disputes.

It is difficult for the village and district authorities in rural areas to fulfil the aims which the central and provincial authorities seek in implementing the new land law. The main problems are the inadequate grassroots dissemination of information about the new rules and regulations, the lack of transparency of the allocation process, and the insufficient participation of farmers who are most directly concerned the process of allocation. The study finds that the most important reason for these problems is the limited availability of resources for the village and district authorities to undertake accurate land surveys and demarcation, which can eliminate land disputes between households. The shortage of budgets for the proper training, required for cadastral officers and other administrators, and the lack of the involvement of farmers has led to the slow progress in the issuance of land certificates. Resolving conflicts over the land also requires the effective exercise of responsibilities of the local and provincial or central authorities.

Obligations imposed on farm households to maintain the quality of agricultural land can be a very important part of a land tenure regime. Especially in the forest lands and other lands that are susceptible to degradation, or where bio-diversity needs to be preserved, there is a case for making farmers bear responsibility for meeting environmental benchmarks. Self-enforcement of these obligations would minimise the public cost of monitoring and enforcement of these obligations. However, to be effective, the farmers should realise some benefits from carrying out these responsibilities. Thus, the obligations written down in the Land Law that farmers have towards the land quality must be implemented with effective monitoring mechanisms, and conditions can be made upon the land use rights such as renewal of the land lease if farmers are willing to conserve land productivity.

Chapter 10. Conclusions: well-defined property rights in land encourage sustainable land use

This research focuses on the question of the significant of the relationship between land tenure regimes and long-term land improvement in the context of sustainable agricultural development. The research aimed to develop policy recommendations for promoting sustainable agricultural land management in North Vietnam. Under the different land tenure regimes along with the changes in the social, political and economic regimes in Viet Nam, agricultural land has been managed in different ways.

Land fertility may be degraded or improved depending on farming practices, which are affected in turn by the rights to use the land. The root causes of human-induced land degradation such as population pressures, market and policy failures, land tenure structure and institutional weaknesses have been discussed widely. Addressing how these factors influence land use and farming practices can help the policy-makers and other stakeholders to understand why farmers, landowners or land managers are often unwilling or unable to prevent soil degradation.

The concepts of sustainability, sustainable resource management and property rights are the principles on which the analysis of this study is based. The basic challenge for sustainable agriculture is to make better use of available biophysical and human resources. The security level of a land tenure regime play an important role in the interaction between human and land resources and hence in making agriculture more sustainable. Land tenure security is understood as an individual rights to use a piece of land on a continuous basis, and the rights to reap the benefits of labour and capital invested in the land without the fear of interference by outsiders or of eviction.

The basic hypothesis of this research is that insecure land-use rights can adversely affect the behaviour of farmers in respect of land improvement activities. The more secure land tenure is, the more incentives there is for farmers' investment in land conservation. In order to examine this hypothesis, an analytical framework is adopted that focuses on why and how land rights and rules influence farmers' attitudes towards land management and to what extent well-defined rights of access to land, rights to transfer land, of access to credit and appropriate enforcement of these rights can provide

incentives for adopting land conservation practices. The primary evidence used for the analysis came from four study sites within the North Viet Nam region - Bai Yen village in Hoa Binh province, Thuy Dien village in Vinh Phuc province, My Giang village in Ha Tay province and Co Cham village in Hai Duong province.

As shown in this study, some extraordinary changes in agricultural development and farming practices have taken place since the 1993 Land Law was implemented in Vietnam. These changes are summarised below.

Remarkable changes in security levels of land tenure systems

In North Vietnam, serious degradation of agricultural land has resulted from unsustainable farming practices and the neglect of practices of long-term land improvement that stemmed from the insecurity of the land tenure system prior to the Renovation period. From a comparison of land managements in the Collectivisation and Renovation periods, the findings of the thesis are that the land tenure arrangements in the Collectivisation period were insecure and land tenure arrangements in the Renovation offer much more security.

Under Collectivisation, farmers did not have an individual land title such as a long-term lease; they faced the possibility of eviction and loss of their capital if they invested in the farm. Without land title and rights to inherit, sell, lease and mortgage the farmland, farmers were limited in their ability to access credit which was necessary for improvement of their own plots and other agricultural purposes. Credit was accessed from informal sources which charged very high interest rates. Moreover, the state or cooperative executives, not farmers, had responsibility for all management and investment in agriculture. The cooperative executives were usually underqualified and had little capital, production experience and poor technical qualifications which led to weaknesses in enforcement tasks. The survey data indicated that only four per cent of farmers in selected areas prefer to retain this cooperative system, while most of them wish to own the land permanently.

In contrast, the current land tenure regime under the Land Law of 1993 is preferred by farmers as it granted long-term land-use rights to individual households. The lease titles are ensured by the provision land rights certificates that reduce the threat to a

household's land tenure caused by unresolved disputes over land claims. Moreover, in this land tenure system, the long-term lease to the state-owned farmland can be inherited, sold, bought, rented out and used as collateral for loans. Thus by receiving these rights, farmers manage their land individually with confidence to invest in agricultural productivity. The function of management of cooperatives has been changed. Cooperatives have given up their leading role in production and this role has been handed to individual farm households. Cooperatives now have to compete with private firms in the provision of support services to farmers.

The changes in land tenure security from the Collectivisation period to the Renovation periods led to changes in farmers' attitudes towards long-term land improvement. Under the tenure regimes of state ownership but without individual tenure, farmers who worked on the cooperative fields had no rights to the use and management of farmland and the payment they received from their farm labour was based on the length of the time they spent in the fields. Thus they had no incentives to care for the farmland or invest in the land, as their income level was not related to agricultural productivity. Recently, farmers have been applying many soil conservation measures on their farm, both in terms of their labour and capital, as they have more confidence in the security level of the current land tenure regimes.

However, there are a number of limitations in the 1993 Land Law and problems with its implementations such as difficulties in registering land certificates, constraints on land lease terms, the limitations on transferring and mortgaging land-use rights, and difficulties in enforcing these rights. These constraints that affect adversely the investment of farmers in land conservation need to be abolished or improved as set out in the following discussion and recommendations.

Long-term lease certificate is a security title for individual households

Land and land certificates for land-use rights have been handed to households on a long-term basis. This registration of land lease title is important in providing adequate and efficient mechanisms by which to safely transfer interests in land and to reduce the costs and risks in land transactions. Secure legal rights in the form of long-term lease rights can be expected to facilitate farmers access to cheaper, long-term and more extensive

credit because possession of a land title or certificate is often a precondition for formal bank loans. The study found that the majority of farmers agreed that having land-use rights certificates can ensure their rights to use of a confirmed land area over a long period; can ensure that they reap the benefits of investing in land improvements; and can ensure the legal sale of their land, provide easier access to credit, and reduce land disputes.

However, the process of issuing land-use rights certificates must be improved and brought up to date in many areas, especially in the upland region and the regions with high population density. The contents of the certificate should be more transparent and more adequate information added: such as adding the name of the wife in addition to the name of the household head, so that she can have equal rights to use the certificate. Also, even though the law states that the rights to land have been increased to five rights - i.e., the rights to exchange, transfer, inherit, mortgage and lease - on a long-term use basis, these five rights need to be explained clearly on the certificate. Doing so, will ensure farmers have a better understanding of their rights and obligations under the lease contract.

The lease terms of land-use rights - 20 years for annual crops and 50 years for perennial crops and forestland - has encouraged farmers to adopt soil conservation measures as this means that they will be able to reap the benefits from their investments. There is a difference between the effects of the land law on different terms of soil conservation practices. Adopting short-term soil conservation, the short-term of land lease may not play a significant role as with the long-term conservation. For instance, planting of perennials is a long-term investment as its conservation benefits can only be received after years of investment, while investment in fertilisers, pesticides and seeds has immediately pay off within a year in terms of increased yields. Nevertheless, most farmers favour having the rights to use land permanently. Moreover, the conditions for renewal of the land lease are not clear to farmers. Making these conditions clear is an important task to give incentives to farmers to carry out their obligations in respect of their land-use rights and for optimal investment in land because the time horizon is an essential condition in making investment decisions.

With respect to land distribution, one constraint is the fixed land allocation to households for at least 20 years, based on their household size. The farm size needs to be adjusted every three to five years according to the suggestions of the interviewed farmers. However, this administered solution does not help much compared to the alternative market reallocation of land. Establishing convenient conditions for field exchanges between farm households is necessary for the application of conservation technology and the reduction of the costs of labour and transport, because farm fragmentation in many cases makes use of mechanical equipment uneconomic.

Transferability of land-use rights

Granting the rights to transfer land to individual households has improved the security of land tenure. Under Collectivisation, land and farm equipment were pooled and all agricultural work was done collectively under the unified management of the cooperatives. Land market transactions were prohibited. Since the 1993 Land Law has been implemented, land markets have gradually developed in North Vietnam as farmers sell, buy, exchange and lease their farmlands. Most farmers involved in the survey believed that the right to transfer land-use rights placed a value on their farmland, provide them better opportunities to obtain credit, allowed them to buy more land, or exchange field plots to reduce land fragmentation, and reap the benefits from their investments in their fields if they changed to other work or they moved out of the villages.

However, the findings of this study are the land markets in this region have developed slowly because of the scarcity of arable land; the traditional belief of peasants to hold land even though they may not cultivate it; constraints on the transfer conditions, regulations such as the high rate of taxes on land transfers; the unclear regulations covering land transactions, and restrictions on the transfer of land-use rights (Article 75 of the Land Law allows for transfer of land-use rights, but only in certain cases). The common forms of land transaction in the region are renting land and exchanging farm plots between households and bidding land from the communes.

However, the study did not find much evidence to support the hypothesis that land transfer rights have significantly affected the adoption of soil conservation measures by

farmers. This response appears contradictory in that while farmers said that land transfer rights did not affect their land conservation decisions, they believed that this right helped them to realize their investment in land and get out of farming if they like. In fact, they are not interested in selling their farmland. The reason for this contradictory situation may be that the current villagers are not solely of long-term farmers and some of them may not intend to work off farm in a long-run.

The obstacles to development of land markets should be removed. Regulations relating to the lease term need to be clear so that there are no misunderstandings as to lease terms when land transactions are being negotiated (it is difficult to determine if the right to renew the term belongs to the original land user or to the transferee when the 20-year term expires). The very high land transfer taxes, which discourage land sales and inhibit the development of an efficient market in land rights, should be set at a low rate to encourage the transfer of land to the more productive farmers. The concern about landlessness and poverty should be addressed in other, more efficient ways, such as through freeing up markets for land, labour and capital in the industrial and services sectors, and the removal of barriers to the development of labour-intensive industries in these sectors.

Land-use rights as collateral

Prior to the Renovation period (*Doi Moi*), and particularly during the Collectivisation period, farmers in North Vietnam could not access credit from formal lending institutions. Farmers could only obtain credit from informal sources at very high interest rates, which limited investments in land improvement. The policy that began in 1988 has changed the face of rural credit service development significantly. The rights to mortgage farmland have been very significant for the development of credit markets. These rights have facilitated farmers' access to credit, which is obviously important for agricultural productivity.

An important finding of this study is that granting the right to use land-use rights as collateral to individual farm households has contributed to the increased security of land tenure. Farmers prefer to have the right to pledge land-use rights to obtain credit, whether from formal or informal credit markets and they want to access credit for

investment in agricultural production and long-term land improvements. In contrast with the preferences expressed by farmers, however, the study found that there was not much evidence of farmers using credit for soil conservation investments. In particular, a large percentage of farmers interviewed saw the right to mortgage their land-use rights as being important in their investment decisions, but not many farmers have mortgaged their land rights to access formal credit.

Although the limits on loan size and the difficulties of mortgaging land use rights are not significantly affected the short-term investments in soil conservation, the present rural finance system does not adequately cover smallholders. The main constraints on farmers' access to credit are the complexity of the lending schedule, the high interest rates of loans, the short terms of loans, the loans limit, the unclear requirements for collateral, and the mortgage mechanism. Thus the government must continue to improve the regulations relating to the formal credit sector. Improvements in saving mobilisation and borrowing procedures, developing the financial market and applying the market interest rates, are necessary to enhance rural household access to credit. Enabling longer term borrowing of larger loans, and encouraging farmers to use their land-use right as collateral through having easier and clearer conditions for borrowing, will give farmers better access to capital to invest in land productivity.

Institutions and enforcement mechanisms

The effectiveness of the legislation and policies relating to land use depends heavily on the effectiveness of the administrative system and the enforcement mechanisms. The administrative systems have changed along with the change in land tenure regimes. Responsibility for implementing legislation and passing decrees, circulars, by laws, and administrative guidance has been delegated to line ministries, state committees and appropriate provincial bodies. The main tasks of village officers are to monitor and regulate land distribution, land use and zoning, and to collect information on soils and land use. In implementing the 1993 Land Law, the government authorities from the central, provincial, district and village levels have attempted to strengthen the administrative organisations and the enforcement of regulations in land allocation.

The conclusions drawn here are that the village and district authorities in rural areas have not been very effective in implementing the law. The majority of farmers complained about the inadequacy of the information provided, and that they do not understand clearly the rights and rules of allocating land, demarcating the plots of land allotted, assessing the quality of the land plots, transferring land, and borrowing money from the banks. As well, the process of enforcing these regulations is not effective. This problem of poor dissemination of information appears to have resulted from the lack of resources, lack of appropriate training for officials and cadastral officers, inadequate public media, and the lack of participation of farmers in the land allocation process.

The process of issuing land-use certificates has been slow because the district authorities do not have adequate resources and because of the poor training of people undertaking comprehensive surveying, demarcating and registering of land. Monitoring the rules and regulations and resolving conflicts over land have not been exercised effectively. The obligations of farm households in respect of the protection of land productivity and the scope for the self-enforcement of such obligations have not been thought through and imposed clearly.

Thus this study suggests several critical points, including that the administrative organisations must be strengthened, from the national to the local level, to match the comprehensive changes in the land law and policies. These changes should include the improvement of the administrative structure, the education of officials, the responsibilities of officials, and the participation of farmers in the process of land allocation and the enforcement of the rules and regulations. A more robust administrative system will avoid the problems of inadequate grassroots dissemination of information about the rules and regulations, the slow progress in issuing land certificates, and the inefficient enforcement.

Monitoring and resolving conflicts over land require the effective exercise of the responsibilities of the local, provincial and central authorities as well as the responsibilities of farmers. The close link between the operational rules, collective-choice rules and constitutional-choice rules should be taken into account. The imposition of clear obligations on farm households to maintain and improve land quality is an essential task of the government. Self-enforcement of these obligations must be

encouraged because self-enforcing mechanisms would minimise the public costs of monitoring and enforcement. Therefore, farmers should participate in the process of establishing the rules and obligations, and conditions can be imposed upon the land-use rights, such as the renewal terms of the land lease, to provide incentives for farmers to carry out their obligations in protecting land resource.

The current land tenure regime in Viet Nam is a combination of private and state property rights. Young (1992), Hanna *et al.* (1995) and Tietenberg (1996) have argued that entitlements and obligations should be as fully specified as possible and arranged to promote sustainable investment in resource use (see Chapter 2). From the findings of this study, except for a number of problems in coding and implementing the land law, the land tenure regime in Vietnam in large part meets the broad criteria of a well-defined property rights regime appropriate for sustainable use and management. In summary, the outcomes of this study set out the following characteristics of this current land tenure system:

Universality - the land resource is privately managed and titled on a long-term basis; all entitlements are specified

Exclusivity - land-use rights are allocated exclusively, so that farmers have a secure right to prevent others from utilising their land in any way that diminishes its value to them

Enforceability - the local authorities are authorised to secure land-use rights of farm households from involuntary seizure or encroachment

Transferability - land-use rights are transferable from one household to another in voluntary exchange

Collateral security - land-use rights can be used as security to finance investment associated with the use of the land

Compensation - the law states that any modification of the rights/obligations which diminishes the value of land and investments upon it should be compensated. (This regulation has not been implemented widely, however).

Sustainability guarantee - farmers perceive that providing they continue to use the land sustainably, their heirs, assigns and successors will be entitled to use that land at least on a long-term leasehold basis. (However, to guarantee sustainability the entitlements for use of the land should be held in perpetuity) (Chapter 2).

Taking into account farmers' perceptions, aspirations and obligations, the rights and rules on land use and the enforcement of these regulations of the 1993 Land Law has contributed significantly to promote sustainable land management in agriculture. Farmers in North Vietnam have been facilitated by the current land tenure arrangements. Farmers were granted the rights to use agricultural land individually in the long-term basis, thus with the security of land-use rights they now have, farmers can with confidence increase agricultural productivity to improve their livelihoods while at the same time they are encouraged to conserve land fertility, which is the goal of sustainability of agriculture (Figure 2.1).

This research has been somewhat limited in its access to information for investigating all issues related to land tenure regimes and land management and the information or data have been collected only from some areas of the region. But while the findings of this study may not be fully applicable to all locations of the northern region, they should contribute to the development of principles for sustainable land management for the region and indeed the whole country. As a general conclusion of this study, it may be said that well-defining land-use rights and obligations of using land will give incentives to farmers to invest in the long-term land improvement.

This thesis focuses mainly on the impacts of land tenure regimes on farmers' attitudes and practices with respect to long-term land improvements. Many other aspects of Vietnam's institutional arrangements, particularly those relating to land-use rights regimes and the implementation of the laws and policies relating to agricultural development, should be examined in order to fully investigate the security of land-use rights and build up an appropriate policy framework for sustainable agricultural management in Vietnam.

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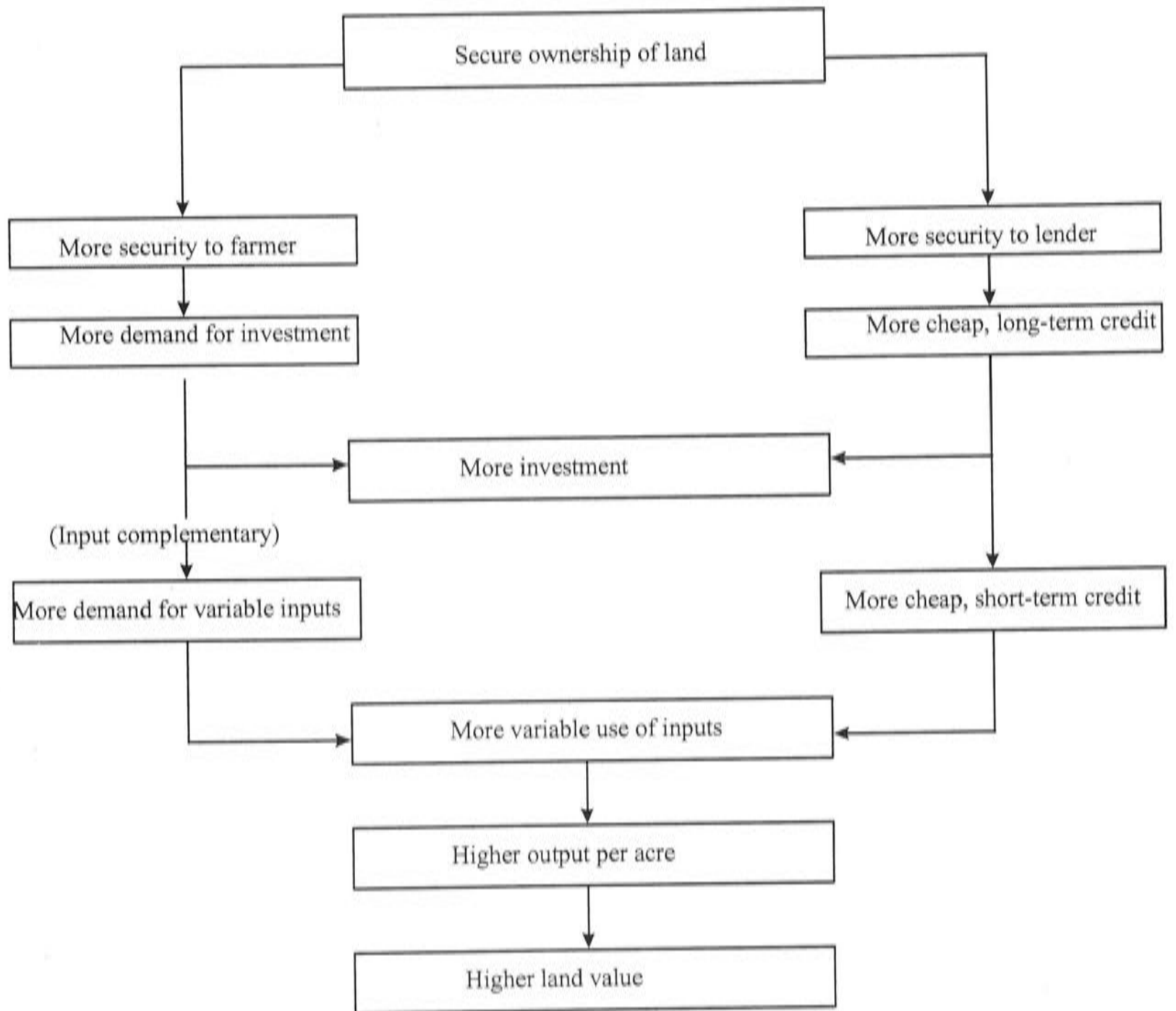
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Appendices

Appendix 2.1. Relationship between secure title and productivity



Source: Pearce, D.W. and Wardford, 1993.

Appendix 2.2. Design Principles Illustrated by Long-Enduring Common Property Resource Institutions

1. Clearly defined boundaries

Individuals or households with rights to withdraw resource units from the CPR and the boundaries of the CPR itself are clearly defined.

2. Congruence between appropriation and provision rules and local conditions

Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labour, material, and/or money.

3. Collective choice arrangements

Most individuals affected by operational rules can participate in modifying operational rules.

4. Monitoring

Monitors, who actively audit CPR conditions and appropriator behaviour, are accountable to the appropriators and/or are the appropriators themselves.

5. Graduated sanctions

Appropriators who violate operational rules are likely to receive graduated sanctions (depending on the seriousness and context of the offence) from other appropriators, from officials accountable to these appropriators, or from both.

6. Conflict resolution mechanisms

Appropriators and their officials have rapid access to low-cost, local arenas to resolve conflict among appropriators or between appropriators and officials.

7. Minimal recognition of rights to organise

The rights of appropriators to devise their own institutions are not challenged by external government authorities.

For CPRs that are part of large system:

8. Nested enterprises

Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organised in multiple layers of nested enterprises.

Source: Ostrom 1993: 3.

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Source: Ostrom 1993: 3.

Appendix 4.1. Questionnaires for the survey in northern Vietnam

QUESTIONNAIRES OF FARMER HOUSEHOLD COMPOSITION
(Sample of 25 farmers in each site)

NamePlace.....
 District.....
 Date.....
 Number in family.....

| | | | | | | | | |
|--|--|--|--|--|--|--|--|--|
| (1) Status in family | | | | | | | | |
| (2) Sex | | | | | | | | |
| (3) Age | | | | | | | | |
| (4) Education level | | | | | | | | |
| (5) Work on-farm | | | | | | | | |
| (6) Work off-farm | | | | | | | | |
| (7) How many months/year work off-farm | | | | | | | | |
| (8) Years of settlement in this location | | | | | | | | |
| (9) Years of farming experience | | | | | | | | |
| (10) Income (kg/year; <i>dong</i>) | | | | | | | | |

- (1) **Status in family**.....(2) **Sex**.....(5) **Work on-farm**
 1 = Head.....1 = male.....1 = Full time
 2 = Spouse.....2 = female.....2 = Part time
 3 = Son/Daughter.....(3) **Education level**.....0 = No
 4 = Relative.....5 = Grade 5.....(6) **Work off farm**
 5 = Parent.....9 = Grade 9.....1 = Yes
 6 = Other.....12 = Grade 12.....2 = No
C = College
U = University
 (11) What are the sources of labour used for farming production?
1. only family labour3. both family and hired labour
2. only hired labour

QUESTIONNAIRES OF FARMING SYSTEM
(Sample of 25 farmers in each site)

| | | | | | | |
|--------------------------------|--|--|--|--|--|--|
| (12) Plot number | | | | | | |
| (13) How far from the house | | | | | | |
| (14) Plot size (hectares) | | | | | | |
| (15) Land type | | | | | | |
| (16) Activity type | | | | | | |
| (17) Type of farming practices | | | | | | |
| (18) Sources of water supply | | | | | | |
| (19) Type of fertilisers | | | | | | |
| (20) Ownership type | | | | | | |

(15) Land type

- 1 = low land
- 2 = slope land
- 3 = hilly
- 4 = mountainous

(17) Type of farming practices

- 1. = monoculture
- 2. = multi-cropping
- 3 = shifting cultivation
- 4 = agro forestry

(19) Type of fertilisers

- 1 = chemical
- 2 = green manure
- 3 = crop residue
- 4 = livestock manure

(16) Activity type

- 1 = growing rice
- 2 = growing field crop
- 3 = orchard/tree
- 4 = home garden with livestock

(18) Sources of water supply

- 1 = rainfall
- 2 = irrigation

(20) Ownership type

- 1 = own
- 2 = rent in
- 3 = rent out

(21) If rent in, how much land is rented?

.....

(22) If rent out, how much have you received from?

.....

(23) Why do you rent the land out?

.....

.....

QUESTIONS FOR IN-DEPTH INTERVIEW OF FARMER HOUSEHOLDS
(Sample of 15 farm-households in each site)

A. Land management

(1) What cropping patterns have you cultivated?

-1. one crop
-2. double crops
-3. triple crops
-4. agro forestry

(2) How many kilos/year of chemical fertilisers are you using for your farm?
.....

(3) What are the difficulties you face in applying fertilisers?
.....
.....
.....

(4) What are farming practices you have been carrying out?

-1. mono-cultivation with annual crops
-2. inadequate use of fertilisers
-3. inadequate water use
-4. shifting cultivation with shortening fallow periods
-5. expanding fields to marginal areas
-6. Intensifying cultivation on steep slopes
-7. others (specify)

(5) Why do you continue this farming practice?
.....
.....
.....

(6) Do you consider that your farmland is being degraded (Collectivisation/Renovation period)?

-1. yes
-2. no

(7) If yes, what is the main type of land degradation?

-1. soil erosion
-2. soil salinity
-3. soil acidity
-4. depletion of soil organic matter
-5. others (specify)

(8) What do you think are the main causes for land degradation?

-1. inappropriate irrigation and drainage patterns
-2. slope length and steepness
-3. tree density
-4. rapid population growth
-5. inappropriate farming practices
-6. ill-specified land use rights
-7. weakness of enforcement
-8. climate change
-9. other

(9) Have you been applying some conservation practices?

-1. yes
-2. no, Why?

.....

.....

(10) If yes, what are the conservation practices have you been using

-1. intercropping with fertilisers application
-2. contour made of green manure plants
-3. gradual terracing
-4. alley cropping with hedgerows of leguminous
-5. agro forestry
-6. others

(11) Where did you have the know ledges in (10)?

-1. From neighbours
-2. From your children
-3. From extension services
-4. From your own experience of farming
-5. Other (specify)

(12) How do these conservation methods compare in terms of cost?

.....

.....

(13) What do you think are the significant constraints to adopting land conservation practices?

.....

.....

.....

(14) Do you intend invest money and labour in land conservation?

-1. yes, Why.....

-2. no, Why.....

(15) How much money and labour days do you spend every year on conservation practices?

(16) What were the crop yields after one year, two years, three years or five years of applying land conservation practices?

.....

.....

.....

(17) If you were required by the government to adopt conservation practices, would you need any assistance?

-1. yes
-2. no

(18) What assistance would you need?

-1. labour
-2. capital
-3. extension services
-4. stability of legislation
-5. others

(19) What changes in agricultural policies and legislation could encourage land conservation investment?

.....
.....
.....
.....

(20) Would you prefer to receive permanent use rights to the state-owned land? Why?

B. Land ownership

(1) Have you had a land certificate (red book/green book)?

- Yes
- No

(2) Do you think the rights and rules indicated in this certificate are clear in terms of use?

- Yes
- No, Why not?

(3) How long is the lease of farmland and of the forestland?

(4) What is the length of the lease, particularly for land conservation purposes?

(5) Do you think that you can get the land lease renewed if you obey the rules?

- Yes, Why?
- No, Why not?

(6) Do you plan to invest in land conservation after year 2013?

- Yes, Why?
- No, Why?

(7) How does the current land lease term influence your decision of adopting land conservation practices?

(8) What farming systems do you use now? Why?

(9) What did you do in land management in 50 years and 20 years ago? Why?

.....

C. Land transfer rights

(1) Have you transferred your farmland to the other users?

- Yes
- No

(2) Did you invest in land conservation before selling it?

Yes

No

(3) If yes, for how long?

(4) How much did your land cost?

(5) Was the value of your land greater or lesser after land conservation investment?

(6) Did you face the difficulties to obtain the transfer rights?

Yes

No

(7) If yes, what are they?

(8) What is the transfer tax?

(9) What do you think about the tax of land transfer?

(10) What are the influences of the transfer rights on your decision of long term investment in land conservation?

(11) Currently, what are the your land conservation practices that reflect the negative effects of the transfer rights on it?

(12) How does the land market encourage you to invest in long term land improvement?

(13) What should be made in changes in the regulations for land transfer?

D. Access to credit

(1) Have you borrowed money for agricultural investments?

Yes, What particular investment have you been taking?

No, Why

(2) What was the source of your loans?

State banks

Private moneylenders

Others (specify)

(3) How long is the loan?

(4) How did the loan term affect your conservation plan?

(5) What is the interest rate?

(6) Your opinion of the interest rate?

Low

Reasonable

High

(7) Have you experienced any difficulties in borrowing money from private moneylenders? If yes, what are they?

(8) What requirements do the banks impose when you want to borrow money from them?

(9) How do these requirements encourage or discourage you in borrowing money?

(10) Has your farmland has been used as collateral?

Yes, what do you think of this policy

No, why?

(11) What are the constraints of using land as collateral?

(12) What did you do with the borrowed funds?

(13) What are the your future plan of borrowing funds? Why?

D. Land distribution and farm size ceiling

(1) If you could consolidate your holdings what would you do with it?

(2) What do you think about the policy of farm-plot exchanges between farmers?

(3) What is land size ceiling in this region?

(4) How does this limited land size affect land conservation practices?

F. Enforcement

(1) Do you make decisions independently about farming activities?

.....1. yes

.....2. no

(2) Do your neighbour help you to make those decisions?

(3) If yes, what kinds of help?

(4) If not, does the cooperative help you to make decisions?

.....1. yes

.....2. no

(5) Does the cooperative alone make decisions about your farming practices?

.....1. yes

.....2. no

(6) What kinds of decisions does the cooperative participate in?

.....1. crop patterns

.....2. Input use

.....3. irrigation

.....4. marketing for production

.....5. others (specify)

(7) What kinds of decisions do the cooperative make alone?

.....
.....

(8) How do the decisions made by the cooperative constrain yields from your field?

.....
.....
.....

(9) Does the Department of Agriculture impose land protection obligations?

.....1. yes

.....2. no

(10) What are these obligations?

.....
.....
.....

(11) Do you comply with these obligations?

.....1. yes, Why?.....

.....2. no, Why?.....

(12) What are the difficulties for carrying out the obligations of land protection?

.....
.....
.....

(13) What land policy would most assist you in carrying out these obligations?

.....
.....

.....
(14) If you have longer-term or permanent use rights to the state-owned land, will you carry out these obligations?

.....1. yes

.....2. no, Why.....

.....
(15) Which land tenure arrangement gives you the best incentives to carry out the long-term land improvement investment? Why?

.....
.....

QUESTIONS FOR OFFICERS OF DISTRICTS AND THE CENTRAL GOVERNMENT

- (1) How many households of the districts and province have been given land title?
.....
.....
- (2) Are any households losing land? If so, Why.....
.....
.....
- (3) Have any households returned land to the village, being unable to farm it?
.....
- (4) What are the main causes for this?
.....
.....
- (5) Have the interests of farmers in land been taken into account when the land-use rights and rules are made?
.....1. yes, Why.....
.....2. no, Why.....
- (6) Are the traditional culture and beliefs of local farmers taken into account when these rules are made?
.....1. yes
.....2. no
- (7) Have farmers participated in the process of rule making?
.....1. yes
.....2. no
- (8) If yes, how does their involvement give them incentives to comply with the rules?
.....
.....
.....
- (9) How does their involvement give them incentives to monitor land use by others
.....
.....
.....
- (10) Are there many disputes over land?
- (11) Who has responsibility for resolving conflicts among the different parties with claims to the land?
- (12) Are the administrative officers reluctant to resolve these conflicts?
.....1. yes
.....2. no
- (13) If yes, Why?
.....
.....
.....
- (14) What difficulties does the district face in implementing the law?
.....

.....
.....
(15) What do you believe to be the benefits and problems with the current land law?
.....
.....
.....

.....
.....
(16) What improvements in implementing the law should be carried out?
.....
.....

.....
(17) Should any agricultural policies, particularly land policy be changed to encouraging land improvement investment?
.....

.....
(18) Have any policies, regulations and incentives for land improvement been established?

.....1. Yes

.....2. No

(19) What are the plans for implementation of conservation on public lands?
.....
.....

.....
(20) What forms of support and guidance in conservation efforts on private land are provided?
.....
.....
.....

QUESTIONNAIRES FOR SCIENTISTS

(1) Do you study land degradation in this area?

.....1. yes

.....2. no

(2) If yes, what is the main type of land degradation?

.....1. soil erosion

.....2. soil salinity

.....3. soil acidity

.....4. depletion of soil organic matter

.....5. others (specify)

(3) What do you think are the main causes for land degradation?

.....1. inappropriate irrigation and drainage patterns

.....2. slope length and steepness

.....3. tree density

.....4. rapid population growth

.....5. inappropriate farming practices

.....6. ill-specified land use rights

.....7. weakness of enforcement

.....8. climate change

.....9. others (specify)

(4) How do water conditions affect the cropping patterns?

.....
.....
.....

(5) What is the impact of chemical fertilisers and pesticides on water quality and agricultural land ?

.....
.....
.....

(6) What conservation practices have been applied by farmers?

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.....
.....

(7) Are these conservation methods difficult for them to adopt? If so, why?

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.....
.....

(8) What will determine farmers' decisions to adopt form of land improvement?

.....
.....
.....

(9) What do you think are the significant constraints to adopting land conservation practices?

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.....
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(10) Did you encourage farmers to use their traditional conservation techniques?

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.....

.....
(11) Have these techniques required high labour or capital inputs?

(12) Have farmers been introduced to and trained in land conservation techniques?

(13) Do you have any measures for encouraging farmers to adopt conservation methods?

.....1. yes

.....2. no

(14) What are these measures?

(15) Have you set priorities for land development and matching land-use potential to conservation needs?

.....
.....

(16) Have you had programs of evaluation of conservation needs and technical support, extension, and implementation of conservation investment?

.....
.....

Appendix 5.1. The survey data on households composition of the four villages in North Vietnam

5.1a. Number of agricultural labourers

| Labourer | 1 - 2 | 3 - 4 | 5 - 6 | Total |
|----------------|-----------|-----------|----------|------------------|
| Village | | | | |
| Thuy Dien | 7 | 6 | 2 | 15 (100%) |
| Bai Yen | 6 | 5 | 1 | 12 (100%) |
| My Giang | 6 | 7 | 2 | 15 (100%) |
| Co Cham | 11 | 10 | 4 | 25 (100%) |
| Total | 30 | 28 | 9 | 67 (100%) |

5.1b. Farm size (hectares)

| Hectares | 0.1 - 0.19 | 0.2 - 0.29 | 0.3 + |
|----------------|------------|------------|-----------|
| Village | | | |
| Thuy Dien | 4 | 7 | 4 |
| Bai Yen | 5 | 3 | 4 |
| My Giang | 9 | 5 | 1 |
| Co Cham | 9 | 11 | 5 |
| Total | 27 | 26 | 14 |

5.1c. Number of farm plots

| No | 3 - 5 | 6 - 10 | 11 - 15 | 16 - 20 |
|----------------|-----------|-----------|----------|----------|
| Village | | | | |
| Thuy Dien | 11 | 3 | 1 | 0 |
| Bai Yen | 1 | 3 | 3 | 5 |
| My Giang | 9 | 5 | 1 | 0 |
| Co Cham | 9 | 16 | 0 | 0 |
| Total | 30 | 27 | 5 | 5 |

5.1d. Distance of furthest plot from homestead (meters)

| Distance | 300 - 500 | 600 - 1000 | 1100 - 1500 | 1600 - 3000 |
|----------------|-----------|------------|-------------|-------------|
| Village | | | | |
| Thuy Dien | 5 | 6 | 4 | 0 |
| Bai Yen | 0 | 10 | 2 | 0 |
| My Giang | 2 | 11 | 2 | 0 |
| Co Cham | 1 | 11 | 4 | 9 |
| Total | 8 | 38 | 12 | 9 |

5.1e. Income (USD per capita/year)

| Income | < 80 | 80 - 150 | > 150 |
|----------------|-----------------|-----------------|-----------------|
| Village | | | |
| Thuy Dien | 5 (33%) | 8 (53%) | 2 (14%) |
| Bai Yen | 3 (25%) | 5 (42%) | 4 (33%) |
| My Giang | 5 (33%) | 8 (53%) | 2 (33%) |
| Co Cham | 5 (20%) | 14 (56%) | 6 (24%) |
| Total | 18 (26%) | 35 (52%) | 14 (22%) |

Appendix 6.1. A Land-Use Rights Certificate of household in My Giang village

Page 1. The land-use rights certificate

Page 2. The Peoples Council of Phuc Tho district Certify

the household of Do Tien Mieng in Group 2 has been granted the rights of using 1626 m² of land at Tam Hiep commune, Phuc Tho district, Ha Tay province following the table below:

| The map No. | Plot number | Area (m ²) | Purposes of land use | Expiry date | Note |
|-------------|-------------|------------------------|----------------------|-------------|------|
| 4 | 1617 | 271 | Cultivation | 2013 | |
| 4 | 1759 | 433 | Cultivation | 2013 | |
| 4 | 1906 | 98 | Cultivation | 2013 | |
| 4 | 1909 | 195 | Cultivation | 2013 | |
| 4 | 1916 | 306 | Cultivation | 2013 | |
| 4 | 1917 | 323 | Cultivation | 2013 | |

Date Month Year

President of the Peoples Council

Book of land rights certificate: No 75

Page 3. (Proposed for map of farm plots)

Page 4. The changes after granting the land use certificate

| Date, month, year | Number and the content | Certification of local government |
|-------------------|------------------------|-----------------------------------|
| | | |

The holder of this certificate should pay attention:

1. A land user has rights and obligations following the rule of 73, 74, 75, 76, 77, 78 of the 1993 Land Law.
2. When the holder changes the use-scale, and purposes of land use, the holder must register with the local authority.
3. The holder is not allowed to change the content of the certificate. If the certificate is lost the user must report the loss to the local government

Appendix 8.1. Investment and access to credit in rural areas of Vietnam

Since the Vietnam Agriculture Bank established the program of providing credit to farmers, about two million households had borrowed money from the banks at the end of 1993, and 26 per cent of the total farm-households had obtained credit from the banks by the middle of 1994. These results show that farmers need credit for agricultural production. Most banks have improved their lending procedures, and they are using land-use rights as collateral, and improving the availability of credit by borrowing from the central bank through the programs of poverty elimination, program of green cover on the barren hills, program of reforestation, and organising many small credit groups of farmers.

However, the credit available for farmers is still limited. It is estimated that about 50 per cent of all farm-households which need access to credit cannot borrow money from the banks. In particular, the loans with longer term (2 to 3 years) are few (only 8.9 per cent of the total) while many farmers need longer-term loans for developing plantations. Therefore, most farmers who have established plantations have used their own capital which was obtained from off-farm incomes. For example, Mr Thiem Van Vu, a farmer living in Ly Thanh commune, Nghe An province, has established 80 hectares of eucalyptus, 4 hectares of fruit trees, and a cow herd. He said that he had used his own 180 million VNDong (US\$12000) which he had saved from the off-farm work of his family. He did not want to borrow money from the banks because of the limited loan size and loan terms as well as the high interest rates of loans.

Thus, in order to help farmers access credit for investments in agriculture, the banks must make several changes in policies such as improving lending procedures, reducing interest rates and providing adequate credit for farmers.

Source: Tran D (1995).