PROCEEDINGS OF THE WORKSHOP

FORESTS FOR POVERTY REDUCTION:
Opportunities with Clean Development Mechanism, Environmental Services and Biodiversity

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Seoul, Korea
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Editors
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Jointly organized by

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One of the Millennium Development Goals aims at cutting extreme poverty and hunger worldwide in half by 2015. This declaration has transformed the way development assistance is conducted. In this context, the role of forests and forestry in poverty reduction and food security is gaining currency. In earlier studies and discussions, community forestry or social forestry was proclaimed to have great potential for reducing poverty and food insecurity. Promising as they may be, these apparently have their limits too. So, how can foresters increase the wealth of the forests, and enhance the livelihoods of the communities living in and near them, without compromising the forests’ integrity and ecological services? The “Forests for Poverty Reduction: Opportunities with CDM, Biodiversity and Other Environmental Services” workshop, the second in the series on the theme of forestry and poverty alleviation, looks beyond community forestry.

A number of new and interesting initiatives are examined in this volume. The Clean Development Mechanism established under the Kyoto Protocol of the U.N. Framework Convention on Climate Change is beginning to attract global attention. However, most of the opportunities to tap this source are still confined to the better-organized and bigger organizations. It remains an uphill task to bring about the required organization and procedures for the poor to capture this source of funding. Perhaps new and simpler approaches are needed, and should be tested out in the field to make a convincing case in the region.

Likewise, biodiversity wealth still remains largely unconvertible currency. It is indeed a shame that the poor, who are in possession of the greatest storehouse of biodiversity and the knowledge of its utility, are unable to convert these resources into monetary wealth. Fortunately, there is a ray of hope already visible in the case of ecological services. It does not take much convincing to convert provision of drinking water, flood mitigation, and other tangible services into financial payments. Albeit, there are still disputes about the formulae – who should be the recipients and how the payments should be spread.

The “Forests for Poverty Reduction: Opportunities with CDM, Biodiversity and Other Environmental Services” workshop, which brought together 47 experts from the Asia-Pacific region, focused on improving the contribution of forests to poverty reduction strategies. The theme is highly relevant both to forest sector policy-makers and practitioners in developed and developing countries. A summary of the recommendations of the plenary session are included in these proceedings. We would like to thank the organizers, FAO-FORSPA, APAFRI, Seoul National University, Korea Forest Economics Society and the Northeast Asia Forest Forum for organizing this critical meeting – it will certainly make an impact, and provide the basis for further collaboration on forestry initiatives for poverty reduction in the region.

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This proceedings is based on papers presented at the regional workshop on “Forests for Poverty Reduction: Opportunities with CDM, Environmental Services and Biodiversity” held at Seoul National University, Seoul, Korea, 27 to 29 August 2003. The editors would like to express their gratitude to the APAFRI Secretariat for the compilation and proofreading of the manuscripts. We are thankful to the organizing committee for the tremendous amount of effort and time spent in organizing this successful workshop. The financial and in-kind contributions of the various organizations, FORSPA–FAO, Seoul National University, Korea Forest Economics Society, the Northeast Asia Forest Forum, Korea Forest Service and Yuhan-Kimberly, have made this workshop possible and are gratefully acknowledged. We owe our most sincere thanks to the various invited speakers and participants for their active participation and invaluable contributions during this workshop. Many of them have edited their presentations to meet our editing requirements for the publishing of this proceedings.
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Welcome address

Don-Koo Lee*

Dato’ Dr Abdul Razak, Director-General of the Forest Research Institute of Malaysia (FRIM) as well as President of the Asia Pacific Association of Forestry Research Institutions (APAFRI), Dr Appanah from FAO, Professor Nagata Shin from the University of Tokyo, Ms Fiona Chandler from ICRAF, Dr Rebugio from the University of Philippines at Laon Banãs, Dr Suhardi from the Gajah Mada University, Professor Youn Yeo Chang from the Seoul National University, distinguished and honorable participants, ladies and gentlemen, I bid you all a warm welcome to Korea and this Workshop.

I am so pleased that the Seoul National University and the Northeast Asian Forest Forum are hosting the International Workshop on “Forests for Poverty Reduction: Opportunities with Clean Development Mechanism (CDM), Environmental Services and Biodiversity,” and I would like to extend my sincere appreciation to all the participants for taking their time to attend this meeting, especially speakers and moderators for their valuable inputs and contributions to today’s Workshop.

It is forests that give us fresh water and clean air as well as fertilize the soil to produce food, energy and biomass. Forests are also a major carbon sink that mitigates climate change. In other words, forests are the source of life and play an important role in the preservation of our fragile environment. In the past, we have been working mainly on the rehabilitation of degraded forest land, but it has often been ignored by the poor rural communities. It is realized that the rural poor can also play a more effective role in forest protection and conservation of biodiversity while they benefit from the forest resources which they have protected.

There have been a series of discussions on how to use forests in reducing rural poverty. In this sense, international communities are looking into how new global initiatives such as CDM and carbon credits can be directed to benefit rural populations as well as ecological services and biodiversity conservation. Without improving the living standard of the forest communities, it will be nearly impossible to stop the deterioration of forests and deforestation in this Asian region. For this reason, it is specially meaningful to hold this Workshop to identify valuable opportunities in CDM, carbon markets and related forest services that can be converted to benefit rural populations.

I sincerely hope that today’s Workshop will provide a forum for countries to identify the approaches and strategies for reducing rural poverty as well as to understand the current knowledge and developments of CDM, carbon markets and the economic value of ecological services and biodiversity conservation.

I wish you all a fruitful Workshop and an enjoyable and healthy stay in Korea.

Finally, I would like to thank FAO, APAFRI, the Seoul National University, and the Korea Forest Economics Society for organizing this timely Workshop. I am also grateful to the Korea Forest Service and Yuhan-Kimberly for sponsoring this Workshop and to all others who have contributed to make this Workshop possible and successful.

* Professor, Seoul National University; Co-President, Northeast Asian Forest Forum; Seoul, Korea.
Our tragedy with forestry began the day we started using market forces to make management decisions. The arguments then looked straightforward. Which will bring more wealth—selling the timber and saving the money in a bank, or leaving the timber stand to grow some more? Such a procedure, generally in practice among owners of private forest lots in temperate countries, was thoughtlessly transplanted into the tropics. Although the conditions in tropical countries differed substantially, forests being mostly state-owned, and their values going considerably beyond that of timber, it nevertheless captured the minds of the policy-makers who readily promoted cashing in the timber in a market that was generally underpriced and unpredictable.

Of course with hindsight, some of us now concede that we did go off the mark. We now recognize that while forests are a source of timber with market value, their values go far beyond, into influencing local and regional climate, protecting soil, providing potable water and mitigating floods to mention a few. Over and above, forests remain a significant source of livelihood for people living inside or in neighboring villages. All these functions were not taken into account or given a fiscal value, remained outside the production boundary, and distorted our decision-making when it came to logging or converting forests. Not that there was no enthusiasm to do so—we would have done the same even if we had all the information on the true values of forests as well as all the cautionary notes.

What single predominant factor propelled us along this direction? Before the colonization of many tropical countries, forests were mainly “owned” by the local villages or forest communities. Colonial governments transferred the forestlands from the communities to national control, under the jurisdiction of government agencies. Starting in the mid-1960s, when tropical timbers began to enter the international timber trade in a big way, the newly independent countries began to harvest forests for generating foreign exchange. This was argued as a means to underwrite economic growth. Did that really take place? For example, Indonesia’s natural forests declined from 150 million ha in the 1950s to 90 million ha in 1990 with aggressive logging policies. However, government income from timber tariffs and royalties never exceeded 0.1 percent of the government’s annual budget over the same period (World Bank Report on Indonesia 1993). What happened? Under heavy political pressure, forestry agencies had to give timber contracts to politically well-connected individuals at highly subsidized rates. Short-term leases, inappropriate technologies, and undervaluation of resources led to forest mining practices. The losses go beyond failure to collect the true value of the timber. Bad harvesting practices also include environmental and social costs. Reduced vegetation cover has heightened the extent of erosion, flooding, poorer agriculture and unprecedented forest fires. But perhaps the most serious consequence of bad forest management is the loss that forest-dependent communities have begun to face.

So, we are finally confronted with the reality. The forests have gone, mostly, the governments are not richer, the environment has deteriorated, and people impoverished. So is there a way out of these problems. Sustainable development is the mantra that the international community is currently pushing. Concerns are no more puritanical, mainly revolving around environmental issues. The focus is becoming more balanced, and increasing attention is given to poverty issues along with environmental problems. In this respect, foresters are also looking askance into forestry-poverty linkages and how the resource can used for ameliorating poverty. One clear proposition is to transfer more of the forest resources to be managed by the communities themselves. The shift has begun, and community forestry is beginning to show more promise—it is far less expensive to
empower local communities to protect and benefit from the forests they have traditionally depended on. This was the subject of a workshop in Beijing (FAO RAP Publication 2004/04).

This brings us into the next step in the move to making rural communities increase their earnings from forestry. Besides community forestry, what else is there or can be done? Perhaps the best lead into the discussions is to start with the penetrating analysis by M. Palo (Chapter 3) in his evocatively titled essay “Poverty reduction by tropical forests: rhetoric or a viable option?” His main question is why forest industries have succeeded in creating economic growth in countries such as Finland, while they failed miserably in most tropical countries. His analysis clearly shows that in many tropical countries, there is a good correlation between high poverty and low relative forest area. A vicious cycle may be present here – the higher population density at low-income levels can become overdependent on forest goods and services, thereby accelerating deforestation and degradation. Poorer forest environment can increase poverty. But the real problem is why the industrial model based on forestry could take off in countries like Finland, but have stunted and sent countries in the tropics backwards. In the past, there was the tendency to explain away these problems with explanations such as the “horizontal expansion of the different forms of agriculture, since it is responsible for 85 percent of deforestation.” But these days, many experts are much more prepared to admit the truth for the lack of development and the causes of deforestation. It is squarely blamed on the countries’ “policy, economic, institutional, distributional, and demographic factors.” In reality, we have to look at the relationship of the forest and the rich or the elite. In plainer words, it is corruption – the factor behind the continued decline of tropical forests and impoverishment of its people.

So much so, it is easy to become cynical about attempts to use forestry as a means to alleviate poverty, and dismiss all discussions on the subject as rhetoric. But many involved in sustainable development are not prepared to give up on forestry, and are continuously seeking for solutions. They believe the process is an aggregate of several changes, including good governance, democratization, decentralization and greater participation in the decision-making activities. They are convinced that there are many approaches possible and deserve investigation.

What approaches are available? A number of cases were presented for Clean Development Mechanism and carbon credits (e.g. M. Satyanarayana, Chapter 5; P. Kant, Chapter 6). Payments for afforestation and reforestation activities to mitigate climate change offer a potential. Many NGOs have begun to persuade industries from developed countries to subsidize tree-planting activities of poor communities. While the potential is huge, it has yet to yield the anticipated benefits. There are still many problems holding back the process; these include the problems of administration and policy that need to be cleared for the projects to have a bigger impact. Contributing to the field are studies such as the one by R. Lasco and F.B. Pulhin (Chapter 8) who examined how much carbon is found in various tropical forest ecosystems. These studies would form the foundation upon which to calculate the payments, and so the methodologies developed to measure carbon would prove valuable.

But researchers usually like tests and trials–these give deeper insights into what works and why. Just that is being tested out by F.J.C. Chandler (Chapter 4) with a RUPES (Rewarding Upland Poor for Environmental Services) project. The argument is that upland communities have to forgo opportunities if prevented from cutting trees and keeping the ecosystem as pristine as possible. The beneficiaries are mostly downstream. So, why not pass on the environmental benefits in terms of cash to upland communities. The idea is simple and appealing, but when converted to a field situation, it can be nightmarish. Who in the upland communities should benefit, and how much? Don’t be surprised if here too the beneficiaries are large landowners and concessionaires with the muscle and the organization. The RUPES project will be looking into the contractual arrangements, who should be rewarded, and by how much. For once, we will have scientifically credible information to approach the beneficiaries downstream and make a case for paying the deprived.

Although the interest in environmental services and transfer of environmental payments is gaining currency, one big obstacle remains. That is how to assess the environmental services, what kind of market mechanisms is available, and how can all these be organized and accessed by the private forest owners. R.J. Keenan and colleagues (Chapter 7) describe a systematic approach that has been developed in Australia. In this nascent area, experience is critical, and would provide valuable guidance for other environmental payment schemes.

Environmental services are generally easier to perceive, and therefore making payments for them usually more convincing. But how can one pay communities that are playing a role in biodiversity conservation. That takes a stretch. Nevertheless, T. Ravishankar (Chapter 11) bravely explores the difficult question, “What is biodiversity worth to developing countries?” He uses the “productive-use value, consumptive-use value, and indirect or intrinsic value” approach. Admittedly, there is no uniform currency for biodiversity valuation, and it is highly location-specific, and some aspects will remain outside the economic frontier. Nevertheless, the approaches are beginning to provide a basis to handle the field. Others like Z.M. Shi (Chapter 15) go beyond to actually give value to biodiversity conservation in China. The values cited are stupendous. But why shouldn’t
they be? With our concentration on timber, we never really appreciated the value of the daffodil hidden in the woods.

There again, much of what has been discussed may seem to be mere rhetoric but for the actual demonstrated cases for environmental services. The day was saved with the cases from Japan (S. Nagata, Chapter 13) and Korea (Y.C. Youn and J.K. Chun, Chapter 14) for watershed protection. One would think that giving value to watershed protection role would be elementary. But the situation, as described by Nagata, and Youn and Chun is apparently not so straightforward. Mere market mechanism cannot deal with environmental functions and long-term elements of resource management. Special arrangements such as government intervention are needed.

Finally, it must be said that the day we began to use market mechanisms to make decisions about forest management will remain a cursed one. The question now is how to manage the situation and live with economics. We cannot deny the need to use the valuation system, and should make good use of it as much as possible. We, however, cannot allow it to overpower every decision we make. There are decisions that require moral and ethical judgments over monetary ones. As we have learned all along, bureaucrats will resist transfer of assets to the village communities. But the process is beginning to gain momentum. If we are into poverty alleviation, that would indeed be the first rule – give people access to some of the state’s resources. We are seeing community forestry is not the cure-all solution. There are other opportunities that can be explored as well, and need to be pursued. This has been the subject of the workshop. But as always, we will have to return to the issue of corruption that was raised at the start. All our efforts will not work without good institutions, supporting policies and legislation that can be enforced to ensure people are protected and not denied access to resources that are rightfully theirs. More mechanisms have to be found to return the forests to those who own it. Community forestry and harnessing other opportunities that go with forestry offer a good starting point.
Poverty reduction by tropical forests: rhetoric or a viable option?

Matti Palo*

ABSTRACT

This paper is aimed to respond to the most essential issue raised in its title. Both income (GDP/capita) and Human Development Index as national poverty measures are regressed with relative forest area as a dependant variable, and with population density, Corruption Perception Index and some other independent variables in 35–83 tropical countries covering 70–95 percent of the total tropical forest area. It was found that the two poverty variables were strongly correlated with the relative forest area. It was deduced that high population density at low income levels advances forest degradation, deforestation and desertification. The deteriorated forest environment increases poverty, which in turn increases population pressure on the remaining forest, and so on in a vicious cycle. The prevailing practice of administrative pricing of the standing timber undervalues the tropical forest. Therefore, the opportunity cost of sustainable forestry remains artificially too high and is expanding deforestation with corruption and some other causes underlying the local visible agents of deforestation. The widely prevailing corruption in the tropics is blocking the effectiveness of both the government policies and the market means, which are the only ways to control the allocation, production and distribution of forest products and services. Finland never had any wide scale corruption and it has therefore had less government and market failures than the tropical countries. In Finland increasing exports of forest products have made forestry more profitable and agricultural fields more productive and they have in this way reduced poverty on a national scale. In the tropics increasing exports have advanced deforestation with minimal impacts in poverty reduction. Finland, Costa Rica, Republic of Korea, Sweden and Japan all have transited into sustainable forestry practices. They all share prevailing private forest ownership and advanced political, social, human, financial, natural and physical capitals, while most of the tropical countries are lacking such endowments as a balanced mix. Therefore, poverty reduction on a national scale by the tropical forests will remain as rhetoric for the time being. It may become a viable option only in a couple of decades with reducing corruption and a major devolution of the prevailing socialistic forestry.

INTRODUCTION

“Members of the human species are children of the forest. The evolution of civilization is intertwined with forests; at the center of our history lies the story of their use” (Druska & Konttinen 1997, p. 15).

The Millennium Declaration of September 2000 has been adopted by 189 countries. The United Nations (UN) declared to halve the number of the extreme poor and of the people suffering from hunger by 2015 as the first of the eight goals in its Declaration. The UN Secretary-General announced to the UN General Assembly the making of a road map for achieving the eight Millennium Goals via 18 targets and 48 indicators. The Goals have been regarded unique in their ambition, concreteness and scope. It is also being recognized that the halving of poverty and the attainment of the other related goals can be achieved only through stronger partnership among all development actors and especially through increased action by rich countries (UNDP 2003, p. 27).

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Therefore, it is no wonder, that attacking poverty has lately become a popular rhetoric among the intergovernmental organizations (IGOs) and the non-governmental organizations (NGOs) as well as the national development agencies. UNDP (2003) has contributed on the follow-up and instruments on how to end human poverty since 1990 by publishing its Human Development Index annually. The latest report introduces a penetrating analysis of how the countries are related in achieving the eight Millennium Goals and how to launch improvements.

The World Bank (2001, 1990) launched its poverty report lately as a follow-up of its poverty report eleven years earlier. The concept of poverty has been expanded since 1990 in an interesting way (see below). The new forest strategy of the Bank sets poverty reduction as one of the three main pillars (World Bank 2003). The Asian Development Bank (2001) joined the effort with its poverty reduction agenda. Also FAO has adopted an agenda (FAO/DFID 2001), how forests can reduce poverty, with some later ramifications (FAO 2003). “Forests in poverty reduction strategies: capturing the potential” (Oksanen et al. 2003) is just one title of a number of seminars and workshops (e.g. SNU 2003) in this field lately.

I come from Finland, which lies in northern Europe between the 60th and 70th parallels of the northern latitude. Finland has an area of 338 000 km$^2$ (of which 10 percent is of inland waters) and a population of 5 million; thus the population density is 17 persons km$^{-2}$. Only Iceland as a whole country has such a northern location. Sweden lies next westwards from Finland, but 83 percent of the population lives more south of the 60th latitude. In those peripheral locations there traditionally were not available so many options to survive than on the more southern latitudes.

Therefore, the Icelanders have been fishing and processing fish, while the Finns have primarily, in the past, been growing and processing timber. With those means the two nations have successfully participated in international trade and created some of the highest levels of living standard among the nations in the world (UNDP 2003). Most of the tropical countries have had traditionally, by their location and endowment of natural resources, more viable options available for survival and livelihoods.

Finland has 0.5 percent of the world total forest area and 15 percent of the value of total global forest products exports. Finland has clearly the highest value of forest products exports per capita and the highest share of the value of the total commodity exports among the eight major exporters of forest products in the world (Figure 1). Forestry and forest products industry have played a key role in reducing poverty in Finland since the latter half of the 19th century. Traditionally, farm forestry has played a dominating role in timber supply in Finland. Therefore, timber stumpage markets have been more competitive than in most other countries and consequently, both the stumpage and wage incomes have had more equal geographic and functional distributions than in the other sectors (Palo and Uusivuori 1999, Palo 2003).

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**Figure 1.** Forest industry exports per capita and the share of total exports in eight leading exporting countries (source: Paperinfo)

The forest conditions in the tropical world are different from those in Finland in many ways, but it may be worthwhile to contrast the evolution of the Finnish forest cluster and its impacts on reduction of poverty with those in the tropical countries. If surprising to some readers, this comparison follows the idea by John Stuart Mill, the 19th century British classical economist and philosopher: by comparing some phenomenon in its minimum and maximum we may improve our understanding of this phenomenon.
The seminal paper on “The role of forest industries in the attack on economic underdevelopment” by Jack Westoby (1962) aimed to create welfare/eradicate poverty by developing forestry and forest industries as growth poles for entire economies via a number of linkage effects. This theoretical framework served as guidelines for FAO forestry development projects for about 15 to 20 years with weak success (Figure 2, Westoby 1978, Palo 1988). Westoby’s theory worked well in Finland (Wardle et al. 2003) but not in the tropics. Why?

Figure 2. Declining natural forest area in the tropics 1960–2050. (Palo et al. 1999, Palo & Lehto 2000a)

This paper aims to respond to this question and the most essential question raised in the title. The first purpose is to describe the concept of poverty and its linkage with tropical forests. The second is to analyse the undervaluation and deforestation of tropical forests by corruption. The third is to analyse privatization and decentralization as relevant policy instruments to facilitate large-scale poverty reduction by tropical forests. Fourth, a description is given on how Finland has applied the five-capital approach in reducing poverty by forests. Finally, some discussion with some other country cases and conclusions are given.

An underlying hypothesis of this paper is that reduction of poverty by tropical forests is perhaps, after all, a new rhetoric or slogan, rather than a viable option, to cover the failures by the IGOs, NGOs and the various national governments and development agencies in slowing down tropical deforestation (Figure 2). Poverty reduction may be also a viable instrument to facilitate more external funding for forestry development projects.

The paper is restricted to study the linkages between poverty and all kinds of natural forests in 35–83 tropical countries at the national level. The number of countries in each analysis depended on the availability of data. The aim was to cover as many countries and as large an area as possible. In fact, in this way we can capture most of the poor people (World Bank 2001) and 70–95 percent of the total tropical forest area in the world (FAO 2001, Palo and Lehto 2003a).

POVERTY CONCEPTS

Poverty can be defined and measured in different ways (Scott 1981). The term income poverty refers to people with low monetary incomes. About 1.2 billion people out of 6 billion live on less than US$1 a day. A half of all the six billion people on this earth live on less than US$2 a day. A clear reduction in the number of people living on less than US$1 a day has lately taken place in East Asia and the Pacific. On the other hand, income poverty has increased clearly both in Sub-Saharan Africa and in South Asia (World Bank 2001).

Consumption poverty is a somewhat wider term than income poverty. The concept is widened more by including the multiple aspects of nutrition and food, health and education, empowerment of people and freedom of choice. Furthermore concepts like sustainable livelihoods and five-capital approaches have been introduced. The latter are composed of natural, human, social (political), cultural (physical) and financial capital. A success in poverty reduction is dependent access to all of the five kinds of capital (Hyden 1998, Smith and Scherr 2002, Angelsen and Wunder 2003). Accordingly, a theoretical deduction can be made, that in poverty reduction access to forests as one kind of natural capital alone can only play a rather limited role.
The World Bank (2001) has adopted a three-dimensional concept of poverty: opportunity, security and empowerment. Security refers to the risk of people falling below the poverty line or other welfare indicators. Empowerment means access and control over local resources, public services and influence in local decision-making. Opportunity includes income, education and health. Therefore it is quite similar to the Human Development Index by UNDP, which is composed as a simple average of life expectancy, education and GDP per capita indexes (UNDP 2003).

A case study on poverty and deforestation in Cameroon was conducted by Ekoko (1996). He also analysed the concept of poverty. His conclusion was that poverty does not necessarily lead to deforestation, and property rights for the poor not necessarily to forest conservation. However, these case study findings lack any power for generalization.

Angelsen and Wunder (2003) analysed the varying concepts of poverty. After a multiple of concepts they arrived at a definition of poverty as a subjective well-being. Their one conclusion was that at the end of the day, what matters is a person’s own subjective assessment of well-being. Another conclusion on the different concepts was that ultimately the choice of the poverty indicator is dependent on the research context and goals, budget, duration and the specific need for comparative analyses.

Accordingly, there exist a number of poverty concepts available for our analysis. We are restricted in the use of a couple of objective concepts with readily available empirical measures, namely “income poverty” and “opportunity” in the meaning of the World Bank (2001). These are absolute poverty concepts. We shall not use any relative poverty concepts. On the other hand, we shall make our analysis at the national level. In this way we exclude the subjective and individual or household poverty concepts as well as a number of more multidimensional concepts, which we shall discuss to some extent only in the context of policy instruments applied in Finland.

![Figure 3. Relative forest area as a function of population density and GDP/capita in 71 tropical countries. Weighted adjusted R square = 0.24. (Forest areas from original inventory year data, t = random year 1970–1991; data sources: FAO FORIS 1995, NBER 1994)](image-url)
POVERTY AND TROPICAL FORESTS

It makes also a difference which forest concept to apply in relation to poverty (Palo 1999, Angelsen and Wunder 2003). Here we shall use the concept of natural forests, which covers all kinds of other tree formations but plantation forests. Accordingly, rain forests, moist, semi-moist, semi-arid, arid, montane and cloud forests in the tropical countries are included. Forest and tree concepts of FAO/FORIS-database (Marzoli 1995) are applied.

“Human beings have always depended on forests. Initially, we used them as places to live. We hunted in them for game, foraged for fruits and nuts and gathered for fuel. Our relationship with our habitat was essentially no different than that of any other animal. The development of settled agriculture economies to replace those based on hunting and gathering required the clearing of forest.” (Drushka and Konttinen 1997, p.17.).

We may conclude from this citation, that those forest people were, and still are in many corners of the tropical world, income poor but eventually consumption rich as long as the population densities are not too high in relation with the carrying capacity of the forest habitat. This refers to a situation of some importance still today, that income alone may not be a valid measure of poverty in the tropical world.

For this paper we made pilot modelling about the relationship of forest and poverty. Among 71 tropical countries relative forest area increased along with an increase in income per capita (Figure 3). But when forest areas are declining or deforestation is taking place in all of these countries, it is more rational to view the process from the opposite direction: at the national level increasing income poverty is reducing forest area. Population density is another independent variable applied in this simple model: also with increasing population density the relative forest area is reduced. Income poverty and population density jointly explain 24 percent of the variation of the relative forest area variable while weighted least square estimation (WLS) of the regression model is applied (see explanation in Palo and Lehto 2003b).

We measured the relationship of forest and poverty also as one dimension of the poverty concept by the World Bank (2001): opportunity or its close counterpart, the Human Development Index (HDI) by UNDP.

Figure 4. Relative forest area as a function of population density and Human Development Index in 83 tropical countries. Weighted adjusted R square = 0.43. (data sources as in Figure 3 & UNDP 1998)
HDI is a simple average of indexes on life expectancy at birth, combined adult literacy and school enrolment as well as local purchasing power parity of GDP per capita (UNDP 2003).

In 83 tropical countries an increase of poverty by this measure also decreased relative forest area (Figure 4). HDI and population density jointly explained 43 percent of the variation of relative forest area. It is highly interesting that by replacing GDP per capita by HDI the degree of determination (the adjusted R square) was doubled. A wider poverty concept, "opportunity"/Human Development Index had a double explanation effect in comparison with the income poverty concept. Also of special interest in this model is that it gives us a pan-tropical explanation over the three tropical continents.

Among 17 tropical Asian countries an even more fitting outcome from this kind of modelling was received (Figure 5). HDI and population density jointly explained 69 percent of the variation of relative forest area. The higher degree of determination in Asia than in the pan-tropics may be due to more homogenous ecological and cultural conditions in Asia than in the rest of the tropics. From our previous studies we know that the variation of ecological conditions measured with multiple variables is statistically highly significant (Palo et al. 2000, Uusivuori et al. 2002). The degrees of determination with these new two independent variable models were unexpectedly high in comparison with our previous studies.

We were able to control the above outcomes from two independent variable modelling with a seven independent variable modelling, where we applied three ecological variables and four socio-economic variables. The model explained 73 percent of the variation of relative forest area in 64 pan-tropical countries. The poverty variable of HDI was statistically highly significant (under 1 percent risk) and with an expected sign: the more poverty, the less relative forest. The other socio-economic variables were GNP/land area, external trade/GDP and agricultural productivity. All of them were statistically highly significant and with expected signs.

The message from our modelling about the role of poverty in relation to forest is not absolutely clear. The outcome is, however, unique and highly interesting for further studies. However, we may conclude that high poverty and low relative forest area at the national level are strongly statistically correlated. We may

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**Figure 5.** Relative forest area as a function of population density and Human Development Index in 17 Asian tropical countries. Weighted adjusted R square = 0.69.

(Data sources as in Figure 4)
have here a vicious cycle as described by Dasgupta (1995). Higher population density at low level of income consumes more forest goods and services and increases deforestation, forest degradation and desertification. Poorer forest environment increases poverty, which in turn increases population density in the remaining forest and so on. This may be true especially under African and South Asian conditions. These countries represent about half of our pan-tropical data.

We try to avoid the impression that a poor marginal farmer is regarded, as a consequence of our modelling, as a cause of tropical deforestation. The late Jack Westoby, the well-known forest economist of FAO, used to say that this statement is equally true if an individual soldier is regarded as a cause of war. The local economic agents are striving for subsistence or profit maximization, but they are primarily reacting to the economic incentives by the national governments and international markets. Accordingly, real causes of deforestation are the policy, economic, institutional, distributional and demographic factors underlying these local factors (Uusivuori et al. 2002).

“In the humid tropics the horizontal expansion of the different forms of agriculture (and animal husbandry) constitutes the most important direct overall factor, since it is responsible for nearly 85 percent of deforestation” (Lanly 2003, p. 79). The former head of the FAO Forest Resources Division in this citation fails to realize that the high opportunity cost of sustainable forest management is to a great extent due to the prevailing administrative underpricing of standing timber (Repetto and Gillis 1988, Treue 1994, Angelsen and Wunder 2003).

The artificially low value of natural tropical forest facilitates much wider clearing of forest for agriculture than would be the case under competitive market pricing of standing timber. Adopting local visible forest clearing agents as causes of deforestation is consequently a biased interpretation. Lanly (2003, p. 78) does report that the annual average tropical deforestation was estimated as 11 million ha in 1980, but he fails to report that it was estimated as 14 million ha in 2000 (www.fao.org). Otherwise, however, he is reporting trends from 1980 to 2000 by transfers between land cover classes and also distribution of deforestation in 2000 by continents in percentage.

In Finland shifting cultivation, deforestation and forest degradation were common during the 19th century. The Great Land Reform (Isojako) and the establishment of the State Forest Service and the College of Forestry in the middle of the 19th century supported the closing of open access to forests. Industrialization in Western Europe increased simultaneously the demand for forest products and raised the stumpage prices under clear and strong property rights and also labour incomes from forestry for the farm forest owners. Also the numerous landless people could benefit work incomes from forestry. Under poorly developed financing institutions of that time this forestry income had a key role in raising agricultural productivity. In Finland shifting cultivation and deforestation were closed down primarily as market driven processes with necessary juristic infrastructure: increasing value of forest lowered the opportunity cost of forestry and increasing agricultural productivity provided sufficient food from a smaller area than during the shifting cultivation era (Palo 2003).

Next we shall turn from the forest and the poor to the forest and the rich or elite, starting by considering the undervaluation of forest and especially the standing timber.

**UNDEREVALUATION BY CORRUPTION**

Tropical deforestation is a complex, dynamic, multisector and multilevel phenomenon. The visible direct local actors of deforestation such as colonists, agriculturalists, shifting cultivators, cattle ranchers, fuelwood gatherers, industrial loggers and infrastructure developers are acting according to prices, taxes and subsidies or coercion applied by the national or international actors. The real causes of deforestation are underlying the local level. In order to slow down deforestation we have to deal with these underlying causes (Palo 2000, Palo et al. 2000, Uusivuori et al. 2002).

Naturally, the direct local actors of deforestation have their individual motivations and goals that may be called direct causes of deforestation. Profit maximization and survival are representative examples of such goals. In a brief way, we may state that tropical deforestation is continuing in a non-decreasing pace, because for such economic agents deforestation is more beneficial than maintaining natural forest cover or practising sustainable forest management. A low monetary value of natural forest is a key factor making the opportunity cost of forestry high.

Most tropical forests are owned by the state, in one way or another. The state has had the prevailing tendency to apply administrative pricing of standing timber or stumpage pricing at lower levels than the competitive price levels (Repetto and Gillis 1988, Treue 1994, Angelsen and Wunder 2003). In this way, the high opportunity cost of sustainable management of natural tropical forests is, at least partially, artificially made. We may ask why? After more than half a century of forestry development projects by the FAO, the World Bank, ITTO and other agencies, how and why this kind of undervaluation of tropical natural forests
is continuing? When the private ownership is prevailing, like in Finland, the state forest service can get competitive price references from the private stumpage and timber markets.

We define socialistic forestry as forestry, where most forests in a country are state owned (Palo 1997). There seems to be a tendency under socialistic forestry to set stumpage prices low (e.g. Haley 2001) in order, *de jure*, to promote domestic industrialization, but, *de facto*, to facilitate a financing source for high profits of logging and often also of corruption. For example, in Indonesia during the times of President Suharto, his family, generals and concessionaires were in alliance to reap benefits from exploitation of forests (Kasa 1999). The corruption system has not collapsed in Indonesia with the removal of Suharto from the presidency. Similar corruption practices seem to flourish especially in the countries with ample commercial forest resources (FAO 2001).

Corruption can be defined as the misuse of public power for private benefit, for example bribing public officials, kickbacks in public procurements, or embezzlement of public funds (Lamsdorf 2001). Transparency International (www.transparency.org) has been integrating a Corruption Perception Index since 1995. Lately, 35 tropical countries were covered by this Index. Increasing corruption (declining of Corruption Perception Index) is decreasing relative forest area along with decreasing income/capita (Figure 6). Corruption and income/capita in a regression model behind Figure 6 are both statistically significant under 1 percent risk. They jointly explain 35 percent of the variation of relative forest area in 34 tropical countries. Corruption seems to be more rampant in poorer tropical countries.

We made also more integrated regression modelling with relative forest area as a dependent variable and with nine independent variables. Four ecological variables controlled the variable ecological conditions among countries. Corruption and four other economic variables were considered as underlying causes of deforestation. The nine independent variables explained 96 percent of the variation of relative forest area in 29 tropical countries with 69 percent of total natural tropical forest area. Corruption Perception Index had

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**Figure 6.** Relative forest area as a function of GNP per capita and Corruption Perception Index in 34 tropical countries. Weighted adjusted R square = 0.35. (Data sources: FAO 1999, Transparency International 2001, World Bank 1999)
the highest elasticity among the five economic variables: a 10 percent decrease in corruption would increase relative forest area by 6 percent (Palo and Lehto 2003b).

We have only two principal means on how to control allocation, production and distribution of tropical forest resources in order to satisfy human wants for various forest goods and services: the public and private means (Figure 7). In the public route there are such instruments as laws, plans, budgets, taxes and subsidies. In the private route markets, contracts and traditions play the most important roles. Corruption tends to block both of these means by creating government failures and market failures (Wibe and Jones 1992, Bass and Hearne 1997, Palo 1997). This is the secret behind continuously declining tropical forest area (Figure 2, 1980: 11 million and 2000: 14 million ha y\(^{-1}\)) despite all the global politics and rhetoric to stop deforestation (FAO 2001, 2003).

![Figure 7. The two control systems of production, distribution and consumption of forest goods and services: the public means and the private means (Palo et al. 2001)](image)

Our conclusion here states that combating corruption would be a key to revalue tropical natural forests at a competitive stumpage price level. Eliminating corruption would not be a sufficient instrument alone, but it would be an effective and necessary beginning. This would dramatically lower the opportunity cost of sustainable forest management and in this way save more forest also for poverty reduction. This transition could be an important initial process in the reduction of poverty by tropical forests. Surprisingly, in a great number of forest valuation studies (e.g. Wardle and Kaoneka 1999, Kristrom and Boman 2001, UNU 2001) the concentration is in non-timber products and services and the undervaluation of the most valuable forest product, timber (cf. Angelsen and Wunder 2003), is excluded.

An increased activity has lately taken place in the front of reducing or eradicating corruption (often covered by the term of “illegal logging”) in forestry (e.g. FAO 2001, Landell-Mills et al. 2002). A wide agenda may not be viable in this front, because corrupt governments are not willing to implement such wide agendas. A few selected measures in order to transform the corruptive culture via external funding and pressures would be more effective. Such instruments might include as follows (Palo and Lehto 2003b).

First, as a short-term measure, a nationwide information campaign could be launched in the schools, universities and via media to the public at large. The message of the campaign would tell all the negative consequences of corruption in order to try and change the attitudes and eventually the corruptive culture (cf. FAO 2003):

Second, another short-term measure is to simplify forestry and marketing regulations, because in many tropical countries the system of public regulations and fees has been done by purpose into a complex one in order to facilitate more frequent points for corruption (cf. Smith and Scherr 2002, Angelsen and Wunder 2003).
Third, as a medium-term instrument adapt assessment of competitiveness of stumpage pricing in a market driven process of forest certification. This measure would create an incentive with external market and NGO pressures to neglect the administrative pricing system (Palo 2000).

Fourth, another medium-term instrument would be to improve forest research, statistics and forest monitoring systems in order to have valid, reliable, transparent and timely follow-up of the changes in forest ecosystems, in forestry, forest industry, in the markets and policies (cf. Wardle 2003).

Fifth, a demanding long-term instrument would be to privatize and decentralize forest resources (cf. Hyden 1998, Smith and Scherr 2002, FAO 2003, see below).

Implementing these five instruments would provide an effective beginning in combating corruption and deforestation as well as mobilizing a large-scale poverty eradication in the tropics. An integrated approach in all sectors of economy would produce even better outcomes in combating corruption.

Finland was assessed by Transparency International in 2001 and 2003 as the least corrupt country among the 102 and 133 countries included in the report (www.transparency.org). By reviewing the historical evolution of forestry in Finland, we do not find any period when corruption in forestry had played as negative role (Palo 2003). In some other industrialized countries such as the United States of America and Great Britain, corruption in forestry was a real problem 100–200 years ago (Albion 1926, Pinchot 1949).

When Finland had in the past practically no corruption, it was possible to avoid the worst government and market failures. In fact, these failures block the effectiveness of the two control systems, public and private means (Figure 7), in allocation, production and distribution of forest goods and services in the contemporary tropical countries.

Next, we introduce some of the policy reforms we consider as necessary in order to eliminate corruption and to facilitate a large-scale tropical forest-based poverty reduction scheme.

**Privatization and Decentralization**

As we have shown above forests and poverty are strongly correlated. Less forest at the national level in the tropics means more poverty (Figures 3–5). Most likely, slowing down deforestation would be beneficial for poverty eradication. However, according to our analysis (Figures 6–7), in order to slow down deforestation, first corruption has to be combated. Our long-term policy proposal above to combat corruption was privatization and decentralization of state forests.

The Clean Development Mechanism CDM of the Kyoto Protocol identifies reforestation and afforestation as relevant forestry measures for application. Prevention of deforestation projects is not presently eligible under CDM. Via CDM new funding from industrialized countries to tropical forestry is feasible, when the Protocol will become ratified. Some local poverty reduction in this way may be a viable option, but no large-scale poverty reduction is likely to occur under prevailing socialistic forestry in the tropics (cf. Smith and Scherr 2002.).

In order to slow down deforestation and to facilitate effective poverty reduction by reforestation and afforestation open access to forests has to be closed by property rights (Figure 8). Along with economic development, until a certain threshold point of time, natural forests will continue to decrease. In the case of strong and clear property rights and closed access to forests the stumpage prices (prices of standing timber) will start to increase, when economic scarcity of timber has appeared. The rising real stumpage prices give the profit-making motivation to the property rights holders and they start to plant more trees.

**Figure 8.** From deforestation to transition via markets—a model (Palo 2000)
The efficient property rights structure is universal, exclusive, transferable and enforceable. Universality means that all resources are privately owned. Exclusivity refers to a situation where all benefits and costs accrue only to the owner. Transferability means that property rights are transferable from one owner to another on a voluntary basis. Enforceability refers, finally, to a situation where property rights are secure from involuntary seizure or encroachment by others (Bromley 1991, Zhang 2000).

We introduce next one empirical graph indicating how total forest area (natural plus plantation forests) is correlated with income per capita—an empirical response to Figure 8. Among 166 countries we may find some empirical support for the key role of the private property rights (Figure 9). Here a U-shape distribution of countries can be observed. If Ireland is considered as the bottom of this U-shape, above and right from it there lie 19 countries. Among them only Brunei and Canada practise socialistic forestry. In the other 17 countries private forest ownership is prevailing. We found further empirical evidence of the existence of this U-shape distribution among 67 tropical countries with multiple regression modelling (Uusivuori et al. 2002).

Establishment of property rights can be a complex and slow process; at least this was the case in the past. In Finland the Great Land Reform (Isojako) was mobilized in the 1770s and it lasted about 150 years to cover all of the country. The aim was to delineate private fields and forests out of the state domain and the commons both in the terrain and in the official files. As a consequence already by the middle of the 19th century private forest ownership began to dominate in Finland.

A poor country has not perhaps adequate funding available to cover the transaction costs needed for this kind of land reform. Here exists a vital option for the ODA and other external funding. Transaction costs are composed of costs accruing from closing of open access and marketing costs. Ex ante costs of closing access derive from defining the property rights in the terrain and in the official files. Ex post costs of closing access, on the other hand, are due to protecting the property rights. Marketing costs are composed of marketing intelligence, buyer identification, marking of trees, tendering and business negotiations, scaling of timber and making the exchanges (Coase 1937, Zhang 2000).

Major problems may be encountered in implementation of this kind of land reforms. First of all, the political will of the government to allocate the state forests to private hands may be missing due to corruption. Second, if a land reform is executed under corruptive conditions a total failure may result as many experiences from Latin America indicate (Laarman 1996). Accordingly, first corruption must be eradicated to a workable level and then the implementation must be guided by a fair and democratically based strategy of privatization (Hurskainen 1996). The strategy, as a minimum, should define, who are eligible people for getting forest from the state, on which terms, under which schedule, under which kind of implementing organization, and under which kind of further regulation of forest management and logging activities.

Privatization of state forests has been an expanding process since 1990, especially in the countries with economies in transition nearly everywhere but not in Russia (FAO 1997, Zhang 2000). Some privatization of plantation forests has also taken place in such countries as New Zealand, the United Kingdom, Republic of South Africa and Australia. If privatization and decentralization are based on economic theory, then the extent of market external effects, externalities, is decisive on how far and how to proceed (Bass and Hearne 1997).

The forests without remarkable externalities fit best for private property rights. Forests with local externalities such as local watershed, landscape or biodiversity impacts fit best to be decentralized to local communities. Finally, forests with national externalities should be left in the hands of the national government. Usually, these forests are in the minority of the total forests and thus state forestry or conservation of forests in this situation is not considered as socialistic forestry. The degree of privatizing socialistic forestry depends thus on the context of the environmental and socio-economic conditions of the country concerned. A dogmatic ideological neo-liberal orientation should be avoided. Rather an optimum mix of markets and policies should be strived for (Figure 7, Stieglitz 2003, Palo et al. 2001).

Decentralization of forests from the national government to the local governments or communities has been practised lately on an expanding scale (Landell-Mills and Ford 1999, FAO 2003). It may be a step forward from a socialistic forestry system in the way that open access is easier to close down, when the local community is motivated to watch and implement it. A major risk in decentralization under corruption is to decentralize, not only forests, but also the corruptive culture.

On the other hand, community ownership is missing one important market, the market of forest holdings, which under the private property rights is feasible to create. This market has been operating in Finland for more than a century but from 1925 to 1996 under some state regulation. In recent years this market has been fully liberated. Lower personal motivation in community forestry makes it also inferior to family forestry. Mexico with 77 percent of community forests for nearly a century and Papua New Guinea with 99 percent of community forests also for a long time provide cases, which indicate, that decentralization in this way cannot always be successful (cf. Angelsen and Wunder 2003).
Poverty reduction by tropical forests: rhetoric or a viable option?

Figure 9. Total forest area (natural and plantation forests) divided by total land area as a function of GNP/capita in 166 countries (Palo 2000)
The competitive forest holding market plays an important role for the intensification of forest management, because it shortens the time horizon of investments with otherwise long maturation times (in Finland 60–150 years). When tending of a seedling stand or pruning of standing trees is accomplished, the owner can take the increased value of the holding either by selling the holding or in the form of increased value of the holding as a collateral, while borrowing money. The system of allocating only use rights to the local people, but the government remaining the owner of land, such as implemented in plantation forests in China (Zhang 2000), suffers from the same reason. Accordingly, community forestry seems to miss one key market, namely forest holding market, in support of sustainable forest management.

Reducing poverty by tropical forests and especially via the CDM of the Kyoto Protocol provides new options, but may be rather time consuming in order to safeguard expected results on any larger scale. First corruption has to be reduced, land reforms carried out and a number of market supporting juristic and information infrastructure created. Implementation of such projects can provide labour income and with some use rights and also some sales income, but the full arsenal of the market system, which has eradicated poverty in Finland in a national scale, is still missing in the tropics. Next, we shall take a closer look at the evolution of this system in Finland.

**FIVE-CAPITAL APPROACH IN FINLAND**

Without a continuous economic growth any major poverty reduction is not feasible. However, a delicate issue remains on how the welfare would trickle down to the poor? “Sometimes growth helps the poor, sometimes not. There are policies that in the long run may enhance growth and reduce poverty, such as enhancing education opportunities…” The countries in East Asia have promoted simultaneously growth and equity. Therefore, they provide illustrative cases of the effectiveness of this strategy (Stieglitz 2003).

History may not know any country where a remarkable poverty reduction has taken place via a voluntary action by the elite class. The poor have to take the economic and political power in order to change the income distribution to reduce poverty. The idea of sustainable livelihoods and the five-capital/assets approach (Hyden 1998, Angelsen and Wunder 2003) may be helpful to understand the operation of this process. The framework for action by the World Bank (2001, p. 37) reads as follows: “To attack poverty requires promoting opportunity, facilitating empowerment, and enhancing security—with actions at local, national and global levels. Making progress on all three fronts can generate the dynamics for sustainable poverty reduction.”

In Finland the real income per capita as a precondition for poverty reduction has grown to 16.5 times in the 85 years since final independence (the volume index of GNP/capita 0.4 in 1917 and 5.8 in 2002, when 1938=1: personal communication by Riitta Hjerppe, University of Helsinki). In the early 20th century Finland was predominantly an agrarian society, and poverty was mainly located in the rural areas (www.tilastokeskus.fi). In the early 20th century Finland was predominantly an agrarian society, and poverty was mainly located in the rural areas (www.tilastokeskus.fi).

Human capacity building was then expanded in the form of compulsory primary school to cover the whole country. University education was considerably expanded and intermediate education mobilized, e.g. for forest rangers and agrotechnicians. Human capacity building was also expanded by creating various civil society NGOs.

Finland has created this wealth primarily with the key role of exporting forest products. Even Nokia began as a pulp and paper company in 1870. In 1984 it sold out all its forests as well as pulp and paper mills and changed its strategy towards electronics and mobile phones. The share of forest products from the value of all the commodity exports varied in Finland between 70 and 90 percent from 1920 to 1960. Afterwards the share declined (Figure 1) due to diversification of the economy, although the volume of forest products exports has remained on a continuously increasing trend (Palo 2003).

For a small economy like Finland exports play a key role in economic growth. Finland has relied on this strategy of export-lead growth. Westoby’s (1962) theory of forest industries in the attack of underdevelopment has found strong empirical support in Finland (Wardle 2003), but it is difficult to find any tropical country with similar development. Of course, forest industrialization in Finland started towards the end of the 19th century, when no globalized forest industry corporations existed. The technology was then also relatively simple. It was possible for the corporations not only to process timber, but also start manufacturing the machinery needed in timber processing and logging as well as to expand into related consultancy, research and development areas. Gradually a strong forest cluster was created (Palo 2003).

Finland has today 20 million ha of forests, which cover 66 percent of the national land area. Private families own 61 percent of the total forest area and private corporations 9 percent. Accordingly, a total private ownership of forest area covers 70 percent of the national forest area. The state has 25 percent and the remaining 5 percent is owned primarily by communes and the church parishes. However, the private families make up 85 percent of the commercial timber supply of 54 million m$^3$ y$^{-1}$ and about 90 percent of stumpage income. The growing stock of timber is today at about the same level as it was two centuries ago in spite of large-
scale exploitation of timber for two centuries (Figure 1). The growing stock is still projected to increase until 2030 (METLA 2003, www.metla.fi).

The share of family ownership of forests has been increasing over the long-term, also due to several land reforms favouring farmer ownership, which prevailed until recently. Urbanization and ownership transition through inheritance have lately left the farmers in a slight minority among the family forests.

The farmers and farmer forest owners organized themselves in a strong political party (Maalaisliitto/Keskustapuolue) nearly a century ago. This party was able to seize remarkable political power starting in the 1920s. The current (October 2003) Prime Minister of Finland, Mr Matti Vanhanen, comes from this party. On the other hand, workers in the forest sector along with other workers established their own political party, a Social Democratic Party (Suomen Sosialidemokraattinen Puolue) a century ago. That party has also been surviving strongly and has been supporting the well-being of forest sector workers. Accordingly, the poor in Finland have been able during about a century to capture enough social and political capital for reduction of poverty from forest resources.

The farmers started simultaneously with their political mobilization to reap also economic power by establishing the Farmers Union, MTK, and a number of cooperatives in processing food and forest products and in retailing. The labour established even somewhat earlier various labour unions and also cooperatives in processing and retailing. Both kinds of unions are surviving very strongly as well as the main part of the cooperative movement. For example, family forest owners are the main owners of M-Real forest product corporation, which by turnover is the third largest in Finland and fourth largest in Europe. Human capital building jointly with social and political capital building helped the poor reap a remarkable share of economic power in a century in Finland.

The natural forest capital increasingly in the hands of farmers in Finland for a century also facilitated an increase in agricultural productivity as explained above. Increasing income flows both from forestry and agriculture facilitated creation of two primarily farmer-based banking systems: a saving bank system and a cooperative banking system. Both were established as local banks but eventually they created two strong central banks to coordinate their financial operations. In this remarkably successful way the poor were able to create easier access to financial capital. The two systems were essential ones in reducing poverty until the 1960s, when processing industries and services along with urbanization surpassed employment in the primary industries.

DISCUSSION

I defined the title of this paper following considerable thought as: “Poverty reduction by tropical forests: rhetoric or a viable option?” It is now time to respond to this vital question.

Why has the Westobian theory (Westoby 1962) obtain empirical support in Finland and not in the tropics? It may be so, that the necessary implicit preconditions, such as closed access to forests, strong and clear private property rights and absence of corruption, absence of major government and market failures, have existed in Finland but not in the tropics. When openness of a country to external trade increased in Finland, it has supported both economic growth and sustainable forest management.

On the other hand, in the tropics an increase in the openness of a country to external trade has increased deforestation (Palo and Lehto 2000). No “invisible hand” in the form of increasing real stumpage prices as a market-based brake has appeared along with advancing deforestation (Figures 2, 8, 10). When the value of the decreasing remaining tropical forests has not been increasing, no financial incentive for intensification of sustainable forest management has appeared. Additionally, too often the financial capitals have flowed abroad or to luxury goods by the elites benefiting from timber exploitations, instead of investments in domestic forest plantations or timber processing.

The FAO transited from export-led or import-substituting forest industrialization paradigm towards community and social forestry in the later part of the 1970s and 1980s, as did also the World Bank (Palo 1988). The mission of community and social forestry was to attack economic underdevelopment /poverty not through the top-down as in the Westobian approach but through the bottom-up strategy. So far, we have not seen any remarkable large-scale poverty reduction via community and social forestry. Why? Maybe no integrated theoretical framework supporting them has been developed far enough. Theory at its best is very practical: it can guide research and policy in the face of complex processes like poverty reduction by forests. Action without guidance of relevant explicit theory will remain ineffective. Human actions are mostly guided by theories, but often in an implicit way.

Poverty reduction on a large scale by the tropical forests, we believe, will stay as rhetoric as long as no integrated theory exists to indicate the operational steps to be followed. “Sustainable livelihoods approach combined with governance” process as described by Hyden (1998) for the UNDP is one worthwhile candidate
in this front. In fact, we have implicitly adopted an approach close to that in this paper. This recap is, however, strong: to advance stable and democratic governance. Such recap has earlier been considered as a radical engagement into the internal affairs of the national governments, if not even revolutionary. Hyden (1998) regards that supporting effective “governance” or changing the rules of the politics to favour the poor is a fitting approach for UNDP experts and consultants.

In fact, UNDP (2003) was supporting this approach and has been quite radical already for 13 years by publishing most sensitive national data about the progress of human welfare. What about agencies that have been more concerned with tropical forests, such as FAO, the World Bank and ITTO? No similar publishing of national progress in sustainable forest management or forest-based development has taken place. Maybe the UNDP is by its organizational structure closest to the UN mainstream ideology?

As long as “socialistic forestry” paradigm is prevailing in this world, we cannot see any chance for a large-scale reduction of poverty by the tropical forests. I wrote an article “No sustainable forestry without adequate privatization” (Palo 1997), where I introduced and defined the term “socialistic forestry”. As a conclusion of this analysis I may revise that title to read as follows: “No large-scale poverty reduction by the tropical forests without large-scale devolution of socialistic forestry”.

Why have the IGOs and NGOs presently adopted the rhetoric of poverty reduction? For decades global and other international politics have failed in stopping deforestation (Figure 2). There is a good reason to cover this failure by introducing a new rhetoric as has happened already since the 1960s by shifting from forest-based industrialization to community and social forestry. Another potential explanation is that when the rhetoric is up-to-date (according to the UN Millennium Development Declaration), the agency has better chances to get more external financing for forestry development projects of various kinds with a poverty hat.

We may conclude here, that poverty reduction by the tropical forests will remains as rhetoric at least for some decades to come, if no radical change in the strategies and their implementation take place. We have indicated in this paper with empirical evidence, that decreasing forest area and increasing poverty are strongly correlated, especially in the 17 tropical Asian countries (Figures 4–5). Our scientific scenarios show a continuous decline of tropical forests at least until the 2020s (Figure 2). During the same time 29–44 percent of the Asian tropical forests will be deforested. These findings are based on two scientific articles (Palo et. al. 1999, Palo and Lehto 2000a). A third article indicates that about half of the African tropical forests may be lost by the 2020s (Figure 10, Palo and Lehto 2003c). When most of the poor reside in tropical Africa and tropical Asia, these scenarios undermine seriously the ambitious goals of poverty reduction by the UN and its family members.
We may have another conclusion as good news: a visible rhetoric plays a positive role in the world politics. A number of positive past global achievements by the UN has been identified (UNDP 2003, p. 31). It can be regarded as an achievement that poverty reduction by the tropical forests is included in the world political agenda, but it is not a sufficient advancement. Under continuous deforestation and socialistic forestry no real advancement in a large-scale reduction of poverty is registered. What makes the bad news? After changing the rhetoric each decade, from forest-based industrialization to community forestry, to social forestry and to poverty reduction, an impression is given to the media and the public at large, that each rhetoric/agenda has been effectively implemented. This paper serves the purpose of mobilizing an evaluation of the accomplishments of these varying agendas.

However, in order to avoid too pessimistic a view, it may be worthwhile to introduce some other positive country cases. Costa Rica may today be the only tropical country which has been able to stop deforestation – with 2 million ha of remaining forest, which cover 38 percent of the land area of 51 000 km² and a population density of 77 inhabitants km⁻². The Republic of Korea provides another interesting case with 6 million ha of forest, which covers 63 percent of the land area of 98 000 km² and a population density of 471 inhabitants km⁻². Sweden and Japan as major forestry and forest industry countries have maintained high forest covers, are practising sustainable forest management and have reduced during the past hundred years poverty by forests in remarkable degrees (FAO 2003).

In fact, this combination of both high forest cover and population density makes Korea a unique case among 197 countries in the world (Palo 2000). Costa Rica and Korea exhibit illustrative cases along with Finland of the effectiveness of land reforms, privatization of forests, economic growth and advancements in democratization and removal of corruption (www.transparency.org) in support of sustainable forest management. Costa Rica, on the other hand, provides illustration, on how commercialization of forest services, e.g. carbon sequestration, biodiversity and ecotourism, can bring additional benefits in the reduction of poverty by tropical forests.

Malaysia in tropical Asia, and especially Peninsular Malaysia, provides an illustrative case, on how large-scale deforestation of natural forests into rubber and oil palm plantations has created sustainable development but mostly outside forestry. Both logging and timber processing have been in the domestic hands, which has increased the impact on income sustainability. The long-term stability of the government, relatively low corruption, and the income distribution policy in favour of the poor have been other factors in advancing sustainable development. However, maintaining of socialistic forestry has undermined intensification in sustainable forest management. As a consequence, some options in poverty reduction by forestry have been missed. But Malaysia is still distinguished in the advancement of poverty reduction in comparison with the neighbouring countries, e.g. Indonesia and the Philippines (UNDP 2003, p.198). In both these countries rampant corruption and unstable governments have undermined, not only the past but also, the future prospects of poverty reduction by the tropical forests.

It is interesting that Costa Rica, the Republic of Korea, Sweden and Japan have applied, to a great extent, a similar five-capital approach as we have described above in the illustration of the evolution of sustainable forestry and poverty reduction by forestry in Finland. No doubt, more of both theoretical and applied research are needed in support of poverty reduction by the tropical forests (cf. Angelsen and Wunder 2003). On the other hand, no more research findings are needed in order to change the implementation strategies and policy instruments with their effective implementation of national and international agencies active in this front. A viable option to transit from rhetoric in effective reduction of poverty by the tropical forests is already described in this paper.

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4 Making markets for forest communities: linking communities, markets and conservation in the Asia-Pacific region—The RUPES project

F.J.C. Chandler*

ABSTRACT

Current thinking is that market oriented approaches to forest management are going to provide an efficient mechanism for promoting and financing forest protection and sustainable forest management. However, linked with the continuing degradation of forest ecosystems in the tropics is the issue of poverty. In Asia, nearly one quarter of the absolute poor (some 250 million people) eke out a meager existence in upland areas and most depend directly on a mixture of agriculture and forest resources for their livelihoods. They live in contexts where their natural resource base is rapidly deteriorating. Many upland and mountain communities in Asia manage landscapes that provide environmental services to outside beneficiaries, but without sharing in the benefits of those services. Clear opportunities are now emerging in this respect. However, the current successes in environmental transfer payments have only benefited large landowners and concessionaires. In addition there is a danger that some types of transfer payment mechanisms that are currently evolving are being designed and implemented to the disadvantage of the upland poor. Rewarding Upland Poor for Environmental Services (RUPES) is a programme to develop appropriate methods for rewarding the poor upland communities for the environmental services that they provide. The RUPES Programme will build working models of best practices for successful environmental transfer agreements adapted to the Asian context. The programme will look at whom the rewards should go to, who will pay the rewards, how and in what form they would be collected and what amount or form is appropriate. This paper provides the rationale for the RUPES project and how it has and will contribute to linking upland communities, markets and conservation of ecosystem services in the Asian region.

THE CHALLENGE

Market oriented approaches to forest management are becoming increasingly common as they are seen as being able to provide an efficient mechanism for promoting and financing forest protection and sustainable forest management (Landell-Mills and Porras 2002). It is often the failure of markets along with policy and institutional failures that causes deforestation and environmental service loss. Market and policy failures mean that forest products are undervalued in the market place while for forest services providing public good values there is usually no market place at all (Richards and Moura-Costa 1999). It is presumed that the market will ensure that beneficiaries of the services provided by forests pay the land managers for adopting land management practices that deliver the desired services.

The total value of forests to human kind is not insignificant. There are both use and non-use values of forests that can directly and indirectly benefit people. Forests provide livelihoods (direct-use values) both at present and, for many forest users, provide a buffer in times of hardship and so act as a “bank” when there are shortages (option values). The indirect values of forests include watershed protection, soil fertility, landscape value, biodiversity protection and carbon sequestration. Other values, often seen as non-use values, are those associated with the forests’ ability to provide peace of mind (bequest value) and benefits to culture and society (existence value). As often happens the more valuable the benefits from forests, the greater the competition for control, and in competitive environments it is the poorer and marginalized groups who become vulnerable. And conversely the continuing loss of forest ecosystems—especially in the tropics—is linked to rural poverty.

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Among the vast multitude of the poor in Asia, the populations that have been most affected by the process of marginalization are those living in the uplands, namely in the hills and mountainous areas which cover almost half the total area of Asia\(^1\). Nearly one quarter of Asia’s absolute poor (some 250 million people) eke out a meager existence in these areas and most depend directly on a mixture of agriculture and forest resources for their livelihoods.

The benefits of national and local investments in economic development have tended to bypass most of the poor upland people because the composition of development initiatives and/or their products are often irrelevant or inaccessible to the upland communities. Being far away and disconnected from administrative and economic power centres means that the political, social, economic and ecological niches occupied by them are not central to national development concerns or priorities. Hence their development needs and aspirations are often not on the “map” of the decision-makers and rank very low in the hierarchy of national priorities.

In addition, upland and mountain people often bear a disproportionate share of the negative externalities of the development process. This may be due to the loss of their production base to land acquisition for development projects or to migration from the lowlands or the appropriation of natural resources (including forest and water) by national and non-local interests. The lack of security of tenure over livelihood resources has led not only to disempowerment but also to unsustainable natural resource management practices.

The steepness of slopes and the high risks of erosion, landslides and flooding in downstream villages, however, should make the uplands a priority target for development initiatives to reduce poverty. However, lack of local capital and security of tenure over land and tree resources have resulted in a low level of investment. It has also led to practices that are environmentally unsustainable, such as slash-and-burn agriculture with insufficient fallow periods, farming on steep slopes with inadequate investments in soil and water conservation, or inappropriate exploitation of forest and other biological resources.

It is increasingly realized that the real plight of mountain and upland poor has been overlooked. The vulnerability of poor areas and poor people to different livelihood shocks and stresses was never seriously considered, resulting in inadequate measures to safeguard these people. Years of continuous neglect and the recent crises (financial, El-Nino, La-Nina, political insurgency) have created a sense of helplessness in the uplands. There is a major challenge to help restore the lost self-confidence of these people in their own abilities to come out successfully from the current situation. The poor clearly need policies, markets, technologies, and infrastructure that can help them improve their incomes and well-being.

The urgency for preventing or reversing the deterioration of livelihood systems of target groups in upland areas is not justified exclusively by humanitarian concern for these marginalized populations. Many upland and mountain communities in Asia manage landscapes that provide environmental services to outside beneficiaries, but without sharing in the benefits of those services. The services include clean and abundant water supplies from watersheds, biodiversity protection, landscape beauty as a core element of ecotourism, and stocks of carbon that alleviate global warming.

Clear opportunities are now emerging to bring environmental services into the marketplace. However, the current successes (re: Malaysia, Costa Rica, Colombia, Venezuela, Chile) in environmental transfer payments have only benefited large landowners and concessionaires. In addition there is a danger that some types of transfer payment mechanism that are currently evolving are being designed and implemented to the disadvantage of the upland poor. They may actually exacerbate the displacement of poor people from the uplands, and increase their poverty. This is potentially true for carbon sequestration. There are also risks that the concerns of national and global societies about biodiversity protection, and about the hydrological services of watersheds, may negatively affect the welfare and land rights of poor upland communities. These risks must be countered by proactive efforts.

Given the above, there is a pressing need to ensure that the major potential benefits offered by transfer payments are tailored to the specificity of target groups and directed to them. This, as the Environment Report (November 2000) has stated, is one of the most strategic and forward-looking interventions that can be undertaken in the coming years.

**THE RUPES PROJECT**

There are many initiatives across the world to develop new markets and economic instruments to buy and sell forest services; however, these initiatives are dispersed and often isolated within particular disciplines, sectors or countries (Scherr and Martin 2000). The valuable lessons generated from these initiatives are not readily accessible to the growing number of stakeholders around the world interested in this topic.

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\(^1\) Out of a total of 1700 million hectares that make up the continent, nearly 236 million hectares (14 percent) have slopes exceeding 30 percent and a further 664 million hectares (39 percent) have slopes between 8 and 30 percent.
In 2002, the World Agroforestry Centre (ICRAF) in collaboration with the International Fund for Agriculture and Development (IFAD) designed a project to develop appropriate methods for rewarding the poor upland communities for environmental services that they provide.

ICRAF has taken on the role of coordinating a consortium of partners interested in participating in rewarding upland poor for environmental services they provide (RUPES). These include such organizations as the Center for International Forestry Research (CIFOR), World Resources Institute (WRI), World Conservation Union (IUCN), Winrock International, Conservation International (CI), the Ford Foundation, The Nature Conservancy (TNC), International Institute for Environment and Development (IIED), Worldwide Fund for Nature (WWF), national partners from the countries in Asia where RUPES is conducting action research, and other investors.

RUPES aims to enhance the livelihoods and reduce poverty of the upland poor while supporting environmental conservation at local and global levels. The purpose of undertaking the project is to create the basis for applying proven institutional mechanisms that will recognize and reward poor upland communities for the environmental services they provide.

To achieve this, project activities will be aimed at creating the knowledge to direct rewards to upland communities. New methods for environmental transfer payments to upland communities will be tested and monitored through action research. These methods will ensure that the transaction costs for these activities are competitive and that there is full community involvement in the decision-making process. The programme will also explore the most appropriate means of institutionalizing a sustainable process of transfer payments.

To lay out the framework for the RUPES action research activities, the World Agroforestry Centre, in February 2002, hosted a workshop to review and learn from mechanisms for environmental transfers. Commissioned papers were presented on insights from developed country experience (Anne Gouyon); experience and potential for the Philippines (Herminia A. Francisco), the setting in development assistance for Philippine upland communities (Lina Jensen), and CIFOR assessment of carbon transfers (Mary Milne).

The following is a summary of the papers delivered at the review workshop that examined various issues associated with linking poor, upland communities, markets and protection of forest ecosystem services.

### REWARDING THE UPLAND POOR FOR ENVIRONMENTAL SERVICES: A REVIEW OF INCENTIVES FROM DEVELOPED COUNTRIES (PREPARED BY A. GOUYON, DIRECTOR, IDE FORCE, JAKARTA, INDONESIA)

Developed countries have already established a number of mechanisms to implement environmental transfers either within their own country or towards other countries, including developing nations. All these mechanisms have been designed to provide rewards to farmers for environmental services and the study done for the RUPES workshop focused on those that seemed to target upland farmers. In as much as not all the schemes had poverty alleviation as their objective, they did have some social orientation and so could be targeted to reach poor upland communities. Five main types of mechanism were identified, as summarized below:

1. **People-friendly conservation strategies** group all the projects in which conservation objectives are linked with interventions aimed at making sure that the rural population benefit from conservation activities and has an interest in contributing to them. This includes Integrated Conservation and Development Projects (ICDPs), community forestry, community-based resource management projects, etc. These activities are usually funded out of public expenditures, including levies on environmentally harmful activities, local taxes, and international development funding. In some cases they are also financed or co-financed by private donors and NGOs.

2. **Contractual rewards for environmentally friendly agriculture and forestry.** This includes several types of instruments in which environmentally beneficial practices are defined and rewards are proposed to their users on a contractual basis. This contractual basis usually includes payments from a public source (for example, public subsidies), sometimes from a private source (from an NGO), or certification of products (ecolabeling), in which case the reward is an improved market access. Several sources can be combined. The main limitation of contractual approaches in developing countries is the degree of institutional development needed for their design and implementation, and the costs involved in the process. They can be applied in developing countries, but there are a number of conditions.

   First, there must be some institutions able to design contracts adapted to local conditions. Second, funds must be available to finance the process if it has to benefit the rural upland poor, who cannot pay for requested changes or even for the certification of existing beneficial environmental practices. This can be done through public aid, through NGO funding, or through private companies marketing ecolabeled products purchased from the poor. Finally, the whole process depends on the credibility and accountability of the institutions managing it.
All these conditions mean that contractual approaches, despite the huge hopes that they create—especially in the case of certification—remain difficult to implement on a large scale in developing countries, especially if the upland poor are the target beneficiaries.

3. **Environmentally and socially sound tourism (Ecotourism)** includes all interventions in which tourists are brought to a natural area in conditions that are aimed to benefit environmental conservation and the welfare of local people.

   Like in all other RUPES instruments, ecotourism, to be sustainable and to succeed in actually reaching the poor, must be based on a proper institutional framework. Adequate institutions and funds are also needed to provide capacity building to local players in the form of training, marketing support and seed financing when needed. Finally, ecotourism projects need to ensure that there is a dialogue between the stakeholders to avoid harmful conflicts and set up a participatory monitoring and evaluation system managed by the stakeholders. Ecotourism can be subject to ecolabeling to guarantee consumers and other stakeholders that it actually meets a number of social and environmental conditions. But this brings in the constraints associated with certification, i.e. complexity and costs.

4. **Sharing of benefits from genetic resources** includes all kinds of rewards received by rural people and other stakeholders in exchange for the conservation and provision of genetic resources that can be used commercially by the agriculture, pharmaceutical or biotechnology industries. However, there are a number of issues to be considered, which explain the controversies surrounding these schemes.

   First, the earnings from genetic resources use are uncertain and take at least 10 years to materialize. The recipe for success seems to combine public funds to start a programme and royalties from private companies as a “bonus”. The involvement of public institutions, especially international ones, can also help to ensure that the host country receives assistance in its negotiations with the foreign private partners, and that there is some transparency in benefit sharing within the country.

   Another cause for controversy is the fact that because the largest part of the added-value in the creation of a new crop variety or drug is made in high-tech developed countries laboratories, the share of the benefit going to the suppliers of the raw genetic information will always remain small—unless they can access that technology. Hence technology transfer and capacity building should be key components of any genetic resources benefit-sharing project.

5. **Trade in emissions permits** includes watershed conservation strategies based on waste emissions trade and, more recently, carbon trade. Direct trade of waste emissions in watershed was found to be difficult to implement in developing countries due to the institutional conditions required to establish and regulate such a market—too many occasions of fraud would be possible. Levies and funds from industrial polluters or users of water can, however, be used for funding community-based natural resources management projects.

   This mechanism remains weak for a number of other reasons. First, the funds available are not that great yet. For the moment, the market seems rather experimental and based on the goodwill and image strategy of companies, and their anticipation of the market. If this market fails to materialize and if countries and private companies can continue emitting carbon without any clear sanction or benefits in case of emission offset, they might lose interest in this type of project. Another worrying element is the number of projects and countries that are offering carbon credits or planning to develop some. When compared to the actual low requirements of carbon emissions reductions, this means that supply could become so abundant that prices will fall. This means that the future of such projects will depend a lot on the success of international organizations to make international treaties stronger and binding.

There are three main conclusions to this review. The first is that the path leading to effective implementation of RUPES mechanisms is very narrow. All the mechanisms reviewed here require a fair amount of institutional development, and hence need funding for capacity building, if they have to actually reach the poor and effectively promote environmental conservation. This is bad news since the funds available for such projects are very limited when compared to the needs.

The second lesson is that market-based mechanisms seem to have a much larger potential in terms of funding available and that they can be effective RUPES whenever they are implemented by the private sector in cooperation with NGOs or other institutions enabling the involvement of all stakeholders. Market-based mechanisms are defined here as the ones which are the most efficient at internalizing the social environmental costs or benefits of a particular practice. The involvement of private companies often result in a greater efficiency under the condition that their activities are closely monitored and complemented by NGOs representing all stakeholders, and ensuring that the benefits of these mechanisms actually reach the poor.

The last and first lesson of this review is that these mechanisms in most cases have little chance to be of use because their potential impact is contradicted by a number of perverse incentives running against
the upland poor and against environmentally friendly practices. Identifying and trying to remove these penalties should be the first step before starting to design and implement RUPES mechanisms. The effectiveness of removing them rather than trying to implement complicated RUPES mechanisms with limited resources needs to be assessed. In many cases, it is likely that removing the penalties will provide a more effective way of meeting environmental conservation and poverty alleviation objectives than any of the RUPES mechanisms.

ENVIRONMENTAL SERVICE “PAYMENTS”: EXPERIENCES, CONSTRAINTS AND POTENTIAL IN THE PHILIPPINES (PRESENTED BY H. AROCENA-FRANCISCO, DEPARTMENT OF ECONOMICS, COLLEGE OF ECONOMICS AND MANAGEMENT, COLLEGE, LAGUNA, PHILIPPINES)

The paper discusses the various forms of environmental service “payments” that have been implemented through the various upland development programmes in the Philippines. Environmental service “payments” (ESP) as defined in this paper refers to assistance in cash or in kind received by upland dwellers in exchange for their participation in efforts to protect the environment. “Payments” often take the form of free planting materials, wages as hired labourers in reforestation and other forest protection activities, material support in construction of soil conservation measures, credit, technical assistance and training opportunities, among others.

Several upland sites were analysed to investigate the forms of ESP, the kind of services rendered by the upland communities, and the potential for the implementation of RUPES initiatives. The sites chosen represent varying socio-economic, environmental and political conditions to capture the diversity in upland situations.

The paper strongly emphasizes the need to look at payments from two perspectives: payments to the providers (upland poor) of the environmental services (SUPPLY-SIDE) and payments from the beneficiaries of the environmental services (DEMAND-SIDE). It makes the point that current RUPES document seems to negate the demand-side aspect, which is equally important in sustaining efforts to support the supply-side payment. These two aspects though would require different strategies and may involve different collaborators but are two important efforts that should be pursued side-by-side to ensure a more sustainable system of “payment” to the upland poor. Finally, the paper closes by identifying key questions that must be addressed in the development of the reward mechanism for RUPES.

DEVELOPMENT ASSISTANCE TO UPLAND COMMUNITIES IN THE PHILIPPINES (PRESENTED BY C. JENSEN)

Over the last two decades, there has been a growing concern about the alarming rate of Philippine forest degradation and upland poverty. The government has initiated and implemented programmes, and policy reforms were adopted to address the problem. The country has also been the recipient of substantial development assistance of loans and grants from international funding agencies in support of sustainable forest management and poverty reduction. Although there were some successes, upland development assistance has been short of its targets in addressing poverty reduction and natural resource degradation. This can be attributed to:

1. Sustainable forest management is a long and costly process. Implementation periods are not long enough to achieve sustainable forest management and poverty reduction. As indicated in the programme/projects reviewed, follow-on to previous endeavours becomes necessary to sustain programme-initiated activities.
2. Community-based forest management democratizes resource use rights, but politics still has the “distributive power”. Enabling, broad, legal framework empowering the community to develop, utilize, manage and conserve forest resources is in place. However, policy implementers have deferred devolution and decentralization of resource management through unnecessary bureaucratic requirements.
3. Ineffective policy implementation contributes to deforestation. Ineffective policy implementation had been attributed to lack of understanding, inconsistent interpretation, constant policy changes due to change in administration, “patronage politics” and lack of political will.
4. Ecological values of the forest are implicit in the programmes. The need to value resources is recognized; however, this has not been an explicit programme/project activity. Putting monetary value on the resources and the benefits therefrom could serve as an incentive to and make various stakeholders appreciate the need for resource protection and conservation.
5. Good environmental governance is key to effective forest management as it promotes transparency and accountability, hence could effectively address the systemic graft and corruption prevailing in the forest sector.

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The Clean Development Mechanism (CDM), under Article 12 of the Kyoto Protocol, is one of three “flexibility mechanisms” available to industrialized countries (Annex 1 countries) to meet their emission reduction targets and also contribute to sustainable development of non-Annex 1 countries. A pilot phase called “Activities Implemented Jointly” (AIJ) was initiated to explore ways of implementing CDM-like projects and institutionalizing, in the future, the provision for working jointly to achieve emissions reductions objectives. Drawing on experiences from the AIJ pilot phase, it is possible to begin assessing, whether or not, land use, land-use change and forestry (LULUCF) projects have the potential to protect carbon and biodiversity, and simultaneously contribute to long-term sustainable rural development.

This study assesses the actual and potential livelihood impacts of PROFAFOR, a carbon sequestration project in Ecuador, in the knowledge that the AIJ phase projects did not have a sustainable development requirement, but that this was an opportunity to explore the livelihood opportunities and risks of LULUCF projects. For PROFAFOR, addressing the livelihood needs of contracted communities will help to increase the duration of the carbon sequestered.

Short-term impacts on community assets

In the short term, the financial contribution, technical assistance and provision of planting material by PROFAFOR have, to differing degrees, increased the financial, environmental, human, social and physical capital of project participants. In most cases, the subsidy had been used for paying local wages and food for the community members in establishing the plantations and the surplus funds had either been used for community or individual needs. Since the project prohibits the grazing of livestock and agricultural activities in the plantations, there were some reported community conflicts over the use of the land under plantation.

Short-term livelihood impacts on community activities and income

The project has provided the communities with the opportunity to either expand their existing exotic plantation area or diversify on-farm activities. Many of the surveyed community members were experiencing reduced income from livestock and agricultural activities and hence needed the project subsidy to establish the plantations to provide local employment and additional income.

Long-term livelihood impacts on communities

All communities expected that the plantations would generate increased income for community members in the future. Community projections of the importance of forestry activities, particularly in terms of contribution to income, were varied. In a few cases, if existing constraints to livestock and agricultural activities continued, forestry activities were likely to replace agricultural activities. Some communities were establishing plantations to diversify their income base whilst others were expecting timber revenues to become the major income source for the community.

Given decreasing returns from other on-farm activities, the project contracts for 15 to 20 years represent a potentially profitable investment for the surveyed communities, particularly to those with plantations of exotic species. Fire, harsh climatic conditions, pests and diseases, and access to markets were noted as the major risks to the profitability of the plantations. However, under the new 99-year contracts, only communities interested in both financial and environmental benefits are likely to gain. As a purely financial investment the 99-year contracts are likely to be unprofitable, especially if the opportunity cost of the land increases in the future. Community members would be better off establishing plantations under other schemes, where contract conditions are more flexible.

Recommendations

Forest carbon projects have multi-stakeholders and multi-objectives. To ensure that all objectives are met and that no stakeholder is made worse off, it is important to identify potential trade-offs and conflicts of interest at the start of the project. In the two case studies, the community members were not expected to receive benefits directly from the carbon offsets, but instead earn income from project related activities.

At the outset, projects managers should implement socio-economic assessments in communities that are interested in participating in the projects or are expected to be impacted on by project activities, in order
to identify initial risks and opportunities to project goals. In particular, the opportunity cost of land under the project needs to be assessed in detail before projects are implemented. Once projects are implemented, monitoring of socio-economic conditions should continue, thereby capturing changes at the community level that may impact on the goals of the project.

Since forest carbon projects have a longer time frame than most development projects, project designers need to provide adequate incentives to stakeholders to ensure their long-term commitment and enter into collaborative and flexible partnerships with communities. For poorer communities with limited land, inflexible long-term contracts are likely to have adverse livelihood impacts, and may also be counter productive to achieving the carbon sequestration goals.

Most forest carbon projects have invested in long-term benefits to communities, either through supporting community plantation activities or supporting local enterprises. In doing so, project managers will need to ensure that the community members receive adequate training and information on both the production and the marketing side, to develop profitable and sustainable enterprises. If community ventures do not generate adequate funds for the community, the project risks negative leakage and early emission of carbon.

**IMPLEMENTING THE RUPES PROJECT**

As concluded from the input to the RUPES Inception Workshop, the main challenge found in all RUPES mechanisms is how to make sure that the rewards effectively reach the upland poor. This is all the more difficult since upland communities are remote, isolated, and usually lack institutions able to represent them in a democratic and effective way. There are three main types of institutions that have been found to channel environmental rewards to the poor.

The first is government, whether at national, regional or local level. They usually take part in the coordination and regulation of RUPES mechanisms. When they are the ones counted on to deliver the rewards, lack of capacity and corruption are important constraints to effective delivery. For this reason, NGOs—including international, national and community or local level ones—have increasingly been relied upon to deliver benefits to the rural poor through their capacity, representatively and legitimately. Finally, a number of mechanisms rely on the market to deliver the benefits to the farmers such as ecolabeling and trade in carbon emissions offsets. However, even in such cases, NGOs are often needed to make sure that the poor really benefit from the transfer.

Another way to differentiate amongst RUPES mechanisms is through the type of rewards. Three main types have been identified. The first is direct financial rewards such as subsidies given in exchange of the implementation of a particular land-use change. The second is rewards in kind, like the case in many community development projects providing infrastructure, training or other material benefits or services to the upland poor. The third is access to resources or markets such as land tenure, or access to better markets through ecolabelling, or schemes in which the allocation of public contracts is given partly based on environmental quality.

The most effective RUPES systems are the ones in which a clear link of conditionality between the environmental service and the rewards with some sanctions exists, usually in the form of a contract. This is the case of targeted agro-environmental subsidies in Europe and the USA, and is also the case of most ecolabelling schemes, as well as some bioprospecting schemes. However, these schemes require a sophisticated institutional setting, with the capacity to understand contracts and to enforce them.

This directly leads to the last point in the RUPES analysis, i.e. whether there is a monitoring and evaluation system to ensure that the poverty alleviation and environmental targets are met. Schemes that are based on a contract usually have such evaluations in order to check that the contracts are respected. Mechanisms that are project-based usually rely in classical project cycle evaluations.

The approach taken in the RUPES project is to build working models of best practices for successful environmental transfer agreements adapted to the Asian context. It will conduct targeted action research at a number of sites across the region to examine and explore what the environmental services are and how they can be measured. Mechanisms to anticipate and prepare for changes to environmental services will also be considered as part of the programme.

The programme will look at whom the rewards should go to, who will pay the rewards, how and in what form they would be collected and what amount or form is appropriate. The action research will define appropriate methods with the beneficiaries for best practice in environmental transfer payments. It will provide simple, practical examples of how innovative, institutional arrangements and reward mechanisms can be applied to foster local development while at the same time preserving and restoring the environment.

The emphasis will be on easily understood, sound and financially and institutionally sustainable approaches. There will be a particular focus on the development and strengthening of local institutions associated with environmental transfer payments. Networking at global, regional and national levels will be another key element of the RUPES Programme.
PROGRESS TO DATE

Through the RUPES Programme, a target set of ten sites is expected to generate the diversity of experience and lessons for institutionalization leading to wider applications throughout relevant situations in Asia. The first year of the programme focused on reviewing past experiences and initiatives to assist in the planning and establishment of the criteria for the selection of the action research sites. Initial sites were identified in the first year; however, it was recognized that further investigation and solicitation are needed so as to ensure a diversity of sites are included. Efforts were made to firm up the organizational and institutional collaboration for the RUPES Programme to set in place a firm foundation for the set of activities that will be implemented at the pilot sites and at a wider programme level according to each of the programme outputs.

Inputs to the project identified well over 50 initial “ideas” for RUPES sites. Through a series of interactions, conversations, discussions, etc., more formal indication of probable sites was received through the completion of 31 in-depth, comprehensive questionnaires. These in turn were honed down and developed into 17 proposals that were considered by the RUPES International Steering Committee (ISC).

Two sites are now officially conducting RUPES activities. The first is in the Philippines and the second in Nepal.

The Ikalahon Ancestral Domain includes the Kalahan Reserve and totals approximately 58 000 ha of mountain lands between 550 and 1717 m above sea-level on the island of Luzon in the Philippines. The reserve has been under the legal control of the Ikalahon community, represented by its People’s Organization, the Kalahan Educational Foundation, Inc., since 1974. The Philippine Government in 1999 approved the Ancestral Domain Claims.

The Domain provides both water for drinking and irrigation systems and has a proportion of the land in production forests as well as agriculture. About 20 000 persons live within the Ancestral Domain of whom at least 90% belong to the Ikalahon and another 5% belong to other tribes of indigenous people, primarily the Ifugao, Ibaloy and Kankanaey. About 2500 persons live within the Kalahan Reserve.

The RUPES project with the Kalahan Foundation will confirm the carbon sequestration and watershed protection functions of the reserve and the Ancestral Domain and test payments for these services. The buyer of the carbon is still to be determined although there is some certainty that the managers of the irrigation systems will provide the payment for the Ikalahon community’s efforts in protecting the watershed. In addition there is the possibility of using payments from ecotourism efforts to bolster the biodiversity conservation in the reserve.

The Kulekhani watershed is located in the Makwanpur district, approximately 50 km southwest of Kathmandu in Nepal. At an altitude of between 1400 and 2300 m this watershed has a total area of 12 496 ha and has a total population of 43 003 with the majority of the inhabitants being disadvantaged ethnic groups and low caste people (Dalits).

Water from the Kulekhani River and its tributaries is the source of power for two hydropower plants located downstream of this watershed. In their work with RUPES, Winrock International will work with local communities to identify the range of environmental services being provided, quantify and value such services, and identify transfer payment mechanisms, including new methods and approaches, and determine what preconditions are necessary and constraints to consider in implementing these services. The project will work towards strengthening the capacity of local institutions to implement transfer payments through appropriate institutional arrangements, agreements, and monitoring and enforcement mechanisms, and then compile and disseminate best practices and lessons learned from these projects to raise awareness at all levels on how the transfer of payments in delivering environmental services can benefit upland communities in Nepal and other Asian countries.

Nine additional sites are just completing their project proposals. These sites are in Indonesia (6) and the Philippines (3) and cover the testing of rewards and reward mechanisms for biodiversity conservation (2 sites) and watershed protection (7 sites). Currently there are two sites (under the auspices of WWF) that are included in the RUPES portfolio but are there purely for sharing of information and knowledge (e.g. no funds are required from the project to assist the activities).

In addition to the action research activities at the sites, there are a number of other studies underway to facilitate the understanding and implementation of RUPES. These include an institutional study in Indonesia that will help to understand and shape social, political, legal and economic environments to become more supportive of rewards that are linked to environmental services provided by upland communities.

Also being undertaken is a typology of environmental services as the term “environmental services” is often used as a generic concept. Yet, for any effective relationship between outside beneficiaries of these services and the upland communities that generate them, it is necessary to be explicit in defining what the functions are, and how they can be measured and monitored. The typology aims to decompose the broad concept into components.
ICRAF is leading a study to review the development of environmental services markets in Indonesia. The objective of this study is to undertake a literature review to assess the development of environmental services market. The assessment will follow a framework of environmental services typology that has been developed and the focus of the assessment will be to identify the sellers and buyers of environmental services, the payments/rewards of environmental services and the mechanisms, intermediaries, transaction cost, supporters and obstructors.

To facilitate any transfer of benefits from environmental payments, it will be necessary to understand at each of the action research sites, what the environmental services are, who provides them, and how they are generating benefits. Threats to these services that cause changes across various spatial and temporal scales will need to be assessed to facilitate the development of appropriate land management schemes and the corresponding environmental reward mechanisms that will benefit the upland poor. RUPES is currently undertaking a scoping study to make recommendations on the design of an appropriate information system that will support the needs of the RUPES sites, enable both local and independent monitoring of the welfare of the beneficiaries and provide regular and credible monitoring of environmental services at appropriate levels. The design of the appropriate information system that will serve these objectives will include an inventory and analysis of existing information systems on upland poor target beneficiaries of environmental rewards, land-use practices at the site level, environmental services and their users and potential buyers at three of the RUPES action research sites (Indonesia, the Philippines and Nepal) in order to guide an appropriate information system for all action research sites working with the RUPES project.

In Viet Nam, RUPES has been supported by the Swedish SIDA to explore constraints and potential to addressing important aspects of poverty in Viet Nam uplands through rewarding the upland poor for environmental services they provide. The conclusion of this study in late 2003 will result in the nomination of potential RUPES testing sites in that country.

There has already been a RUPES “kick off” workshop in Yunnan Province, China, which brought together over 25 participants from a range of organizations in both the governmental and the NGO sectors to discuss China’s Sloping Lands Conversion Programme and the feasibility, roles and action plan for initiating one or more RUPES testing sites in China.

With the leadership of the IUCN’s Regional Environmental Economics Programme in Asia, RUPES “kick off” workshops are being planned for Lao PDR and Sri Lanka that will lead to more awareness of the RUPES project and identification of RUPES testing sites in those countries.

In support of the capacity building aspects of the RUPES project, the Netherlands under an SII grant to ICRAF is conducting a nine-day workshop in September for invited participants (including, but not limited to, site personnel at RUPES action research sites who can influence decisions on their site project) to share their experiences and add to their knowledge on environmental reward payments and the poor. The workshop will be a combination of theoretical knowledge on the basic principles of rewarding upland poor for environmental services they provide interwoven with case studies relating experiences and the extent to which rewards or payments for environmental services did or did not reach and benefit the poor.

**CONCLUSION**

The primary impact of the RUPES project will be to create and study experiences, on the use of environmental reward transfers as a tool for promoting effective and sustained environmental management while at the same time increasing benefit flows to poor upland communities. The main result will be a deeper and more practical understanding of how to formulate such arrangements, their viability and potential for replication. This initiative will serve as an intellectual focal point for collection and analysis of experience derived for these innovative approaches.

Experience and analysis will feed directly into government planning for environmental management and poverty alleviation in the uplands of selected countries and present opportunities for IFAD to become the leading financial and intellectual resource in support of such approaches in IFAD priority areas.

Poverty alleviation impact will likely come from rewards to upland communities taking the form of secure land tenure, development assistance such as credit, market infrastructure, improved/expanded extension services, particularly in terms of better access to quality germplasm for trees or other agricultural products, and when appropriate, direct financial payments. The emerging market for carbon, whether or not linked to offset arrangements, offers the most immediate potential opportunity for the upland poor to generate a capital base on which to grow economically. As more experience is gained and analysed in this and other environmental service markets, the greater is the potential for magnifying impact beyond the initial project areas.

Another anticipated project impact would be on understanding and addressing factors that constrain efforts to link the provision of environmental services to rewards to the providers. It is likely that institutional...
and policy constraints will be prominent and a deeper understanding of these and a way to address them may be among the important impacts of the project.

**Expanding the influence on the global poverty and environment agenda.** The global climate agenda has been largely driven by global environmental issues, with little recognition of the tight linkages between environmental degradation and poverty. The international agencies and developed country governments driving the efforts in climate change mitigation are often focused on this limited objective, without adequately considering how their actions may negatively impinge upon the poor. They are not always adequately cognizant of how, with careful attention, their actions and investments in environmental mitigation could also better contribute to meeting the objective of eradicating poverty.

The RUPES project will be a mechanism to acquire the necessary knowledge base to influence the global poverty and environment agenda. The programme will provide a flow of scientifically credible knowledge and pragmatic, tested solutions that enables it to confidently influence the entire direction of climate change investments. (For more information on the RUPES project please visit the RUPES website at http://www.worldagroforestrycentre.org/sea/Networks/RUPES/index.htm).

**BIBLIOGRAPHY**


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