

AGRICULTURAL DEVELOPMENT IN QUANG NAM PROVINCE, VIETNAM: ASSESSING POLICY IMPACTS

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Rapid economic growth has led to great reductions in poverty in Vietnam in recent years, and policies will continue to emphasize economic growth as the key to poverty alleviation. However, this rapid growth has failed to address the associated problems of unsustainable exploitation of natural resources. Degradation of environmental services on which the poor depend – water, soil, forest and marine biodiversity – is beginning to constrain economic development in some rural areas. In response, many national decision-makers, development agencies and NGOs are paying greater attention to the protection of natural resources that support economic growth and poverty reduction. This study, which used the Strategic Environmental Vulnerabilities Assessment approach, assesses how current agricultural development policies in the mountainous districts of Vietnam’s Quang Nam Province may affect sustainable resource use and poverty alleviation in a region that offers a great opportunity for biodiversity conservation.

Quang Nam

Quang Nam is located in Central Vietnam, in the Central Annamites region. Its 17 districts are classified in three regions: mountainous, hilly (midlands), and lowlands. Six districts are considered mountainous. The total land area is just over 1 million ha, of which 43% is forested and 11% in use for agriculture. The population of the province is about 1.4 million, of which 1.2 million live in rural areas. About 7.5% of the population is categorized as ethnic (non-Kinh) minorities. As in the rest of the country, economic growth has

been strong in recent years, outpacing population growth substantially.

The share of agriculture, forestry and fisheries in the provincial GDP has been shrinking, but still remains over 35% and accounts for about 70% of the labor force. In the mountainous districts, agriculture is the primary income-generating activity of almost the entire population, and accounts for about 90% of the labor force.

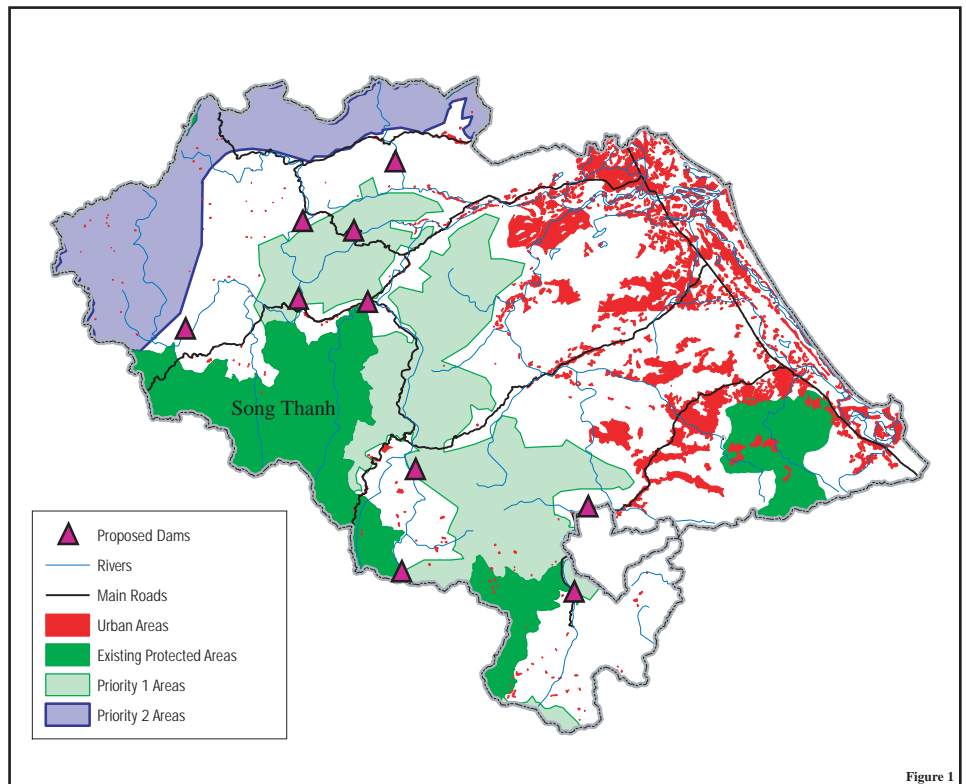


Figure 1

However, arable land is scarce in the mountains, particularly for cereal crops such as paddy rice and maize. Forests are considered a valuable provincial resource, but rapid degradation in recent years has severely damaged both their productive and ecological value. The area of highly productive timber forest now accounts for only 10% of the remaining forest, and commercial logging has been banned since 2002. The forests still provide essential environmental services, including watershed and biodiversity protection, and many non-timber forest products (NTFPs). According to estimates made by WWF, 40-45% of products of this area are harvested from the forest.

The national development strategy, reflected in the CPRGS/PRSP¹, calls for: a doubling of GDP growth from 2001-2010; export expansion above 100%; and annual growth of value-added agriculture, forestry and fisheries between 4.0% and 4.5%. In addition to these broad economic targets, the PRSP also targets improved infrastructure and social services for the poor. The provincial development strategy likewise aims for 4% growth in agriculture, to be achieved through expansion and productivity improvements, primarily in paddy rice production.

People: Poverty and Vulnerability

Economic growth in the province has had a major impact on poverty. GDP per capita increased from US\$ 178 to US\$ 266 from 1998 to 2003, and the rate of poverty reduction has been over 6% annually since the late 1990s. Between 2001 and 2004, some 27,000 households were lifted out of poverty. Despite this achievement, poverty remains critical, particularly in the mountain districts and among ethnic minorities. Poverty levels in the province correspond closely with elevation. The average poverty rate² in the mountain districts is 35.5%, and in two districts the rate is over 50%, well above the provincial average of 14.2%. One of every five households in the mountain districts faces a grain shortage from 3 to 6 months of the year. High poverty levels also correspond with ethnicity. Rough estimates suggest that ethnic minorities account for 70% to 90% of the total number of poor households in the region³.

Poverty in the mountainous region is largely attributable to the poor conditions for agriculture: scarcity of arable land, steep slopes, and ongoing soil erosion. The average area of paddy rice land per capita in the uplands is only 204 m², compared with 376 m² in the rest of the province. Sloping land, unsuitable for paddy rice, makes up 60-90% of arable land in the region. Agriculture on these slopes is very vulnerable to weather, such as heavy rains, and soil erosion, which greatly increase the vulnerability of these communities. Loss of forest cover contributes to this vulnerability by increasing soil erosion and exposure of hillside crops to rain and drought. Swidden agriculture has traditionally been practiced by the upland communities on the sloping land in Quang Nam, with a fallow period of 10 years and little population pressure until recently. Now, however, population growth, migration, government sedentarization policies, and greater enforcement of forest protection put pressure on traditional farming

methods. In response, fallow periods have been shortened, and soil degradation greatly exacerbated.

In addition to subsistence agriculture, the upland communities, particularly the ethnic communities, depend heavily on the forest for food, shelter, fuel, medicine and other products, some of which can be sold to generate income. NTFPs include rattan, honey, fruits, and vegetables, as well as firewood. Because communities have had very little control over forest resources, rapid exploitation of both timber and NTFPs by outsiders has reduced the goods and services that could benefit local communities. Nevertheless, these forest resources continue to provide an important safety net for local communities when crops are lost or other calamities strike.

Environment: Vulnerability and Conservation Priorities

Quang Nam's remaining native forests, about 390,000 ha, are found primarily in the mountainous and midland districts. Forest lands are divided into Special-Use forests (protected areas); watershed protection forests; and production forests. Special-Use forests include the Song Thanh Nature Reserve, established in 2000. Biodiversity levels are high for both flora and fauna species. In the Song Thanh Nature Reserve, 1,129 species of flora have been identified, including 56 that are endemic to Vietnam, 6 that are included in the 2000 IUCN Red List and 47 in the 2003 Vietnam Red Data book. Of the region's fauna species, 25 are listed in the IUCN Red List. Large mammals recorded in the Reserve include tigers, the gray-shanked douc, the red-shanked douc, and the recently discovered Annamite and large-antlered muntac. Other large mammal species found in the province include the Asian elephant and the saola. The six mountainous districts are identified as part of WWF's priority landscape for the Central Annamites and are included in the Central Truong Son Biodiversity Conservation Initiative of the Government of Vietnam.

Major threats to the mountain region's natural resources, particularly the remaining native forests and biodiversity, include: agriculture, hydro dams, road construction, poaching, collection of NTFPs and illegal logging, according to provincial authorities.

- Agricultural land is very vulnerable to erosion and landslides. Most arable land in the mountain districts is on steep slopes, averaging 25-30 degrees. The limited flat arable land, which has potential for irrigation in these districts, is critical for the expan-

1 Comprehensive Poverty Reduction and Growth Strategy/Poverty Reduction Strategy Paper

2 Low-income levels-the measure of poverty used here-reflect a variety of factors that contribute to poverty in this region including: limited assets, under-employment, large families, and high risks, particularly food security problems.

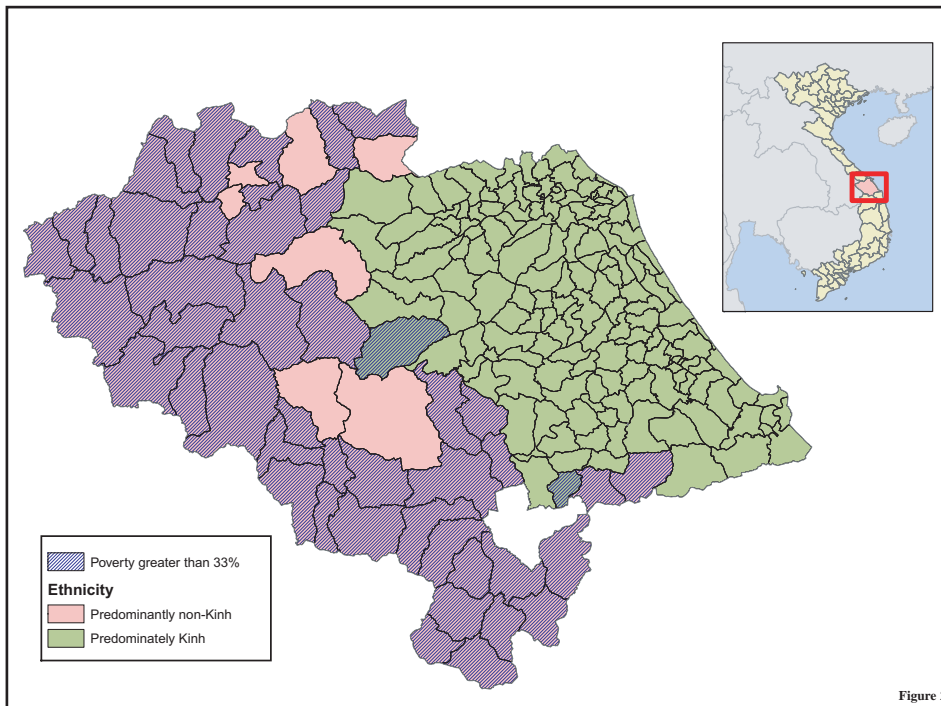
3 Author's calculation

sion of paddy rice. However, this land is located close to rivers and streams, making it subject to flooding and landslides. At present, only 2,794 ha are paddy rice in these districts; an estimated 3,500 ha of this land has been abandoned since 1995 because of natural disasters.

- Water resources in the province face major threats from land-based activities including infrastructure development. The construction of hydro dams and the loss of forest cover due to road construction threaten water quality and may affect seasonal avail-

promoting sustainable use of land and water resources. The Forest Protection Department (FPD) is the enforcement agency protecting the forest against illegal use and conversion. These departments have functioning bodies at the district level in most instances; however, the division of functions and responsibilities among these district-level bodies is often unclear.

Conservation of biodiversity in the region depends on protection of the remaining native forests. The Central Truong Son Biodiversity Conservation Initiative was approved by the Government of Vietnam in 2003 to ensure effective conservation of Vietnam's biodiversity.



The initiative defines regional conservation priorities for the next 20 years for a 6-province area, including a fairly extensive area in Quang Nam. More recently, in 2005, the provincial government has established conservation priorities (the Quang Nam Biodiversity and Natural Resource Conservation Strategy) with collaboration from WWF, which more accurately reflect conservation opportunities in Quang Nam's part of the Central

Figure 2

ability. Gold mining is increasing in the region, which also contributes to water contamination, which makes irrigation less feasible.

- Illegal logging, extraction, and hunting, including inside the Song Thanh Nature Reserve, is common. About 2,500 cases of forest poaching and illegal trafficking in timber and forest products were reported annually by provincial authorities from 1997-2002. Since many cases are not identified, the total is much larger. Many rare and endemic species are hunted and logged illegally.

These threats are compounded by weak provincial and district-level capacity for environmental management. At the provincial level, several departments have environmental responsibilities. The Department of Natural Resources and Environment (DONRE) has overall responsibility for the environment and takes the lead on land-use planning. The Department of Agriculture and Rural Development (DARD) has a role in

Annamites. Figure 1 shows three levels of conservation priorities set by the initiative: first-level priorities include existing protected areas, including Song Thanh and the proposed Ngoc Linh Nature Reserve in Quang Nam; second- and third-level priorities include the extension of protected areas and the establishment of corridors linking protected areas to form broader conservation landscapes.

Because these forested landscapes provide important resources for the local communities, efforts are underway to improve community management and increase community benefits from the forest. A project entitled Management of Strategic Areas for Integrated Conservation (MOSAIC) has been established through a partnership of WWF Indochina, the Quang Nam FPD, and numerous other provincial departments in order to ensure biodiversity conservation and secure local livelihoods. This project supports community allocation of natural forest land, community forest management regulations, community-based natural resource

harvest mechanisms, and other efforts along these lines. Giving communities greater control over local forests should improve their access to NTFPs and reduce incursion by outsiders.

Comparing the poverty map with the priority landscape maps illustrates the large overlap between conservation priorities and vulnerable populations. The next section of this assessment looks specifically at the implications of ongoing agricultural policies for these forests and the people who depend on them.

Agriculture and Rural Development Policies: Recent Experiences

Major policy changes have reshaped the agricultural sector in recent years. In the late 1980s, a shift toward markets boosted production and food security. The initial policy focus was on meeting local food needs; agricultural growth stemmed from improved productivity and increased use of fertilizers and chemical inputs. Beginning in the mid-1990s, the national policy focus shifted to development of a market-based, indus-

trialized agricultural sector. This change is reflected in current policies designed to diversify and intensify agricultural production; increase investment in irrigation and extension services; and promote forestry and agroforestry. The following sections discuss the impacts of some of these policies on the vulnerable people and ecosystems of Quang Nam.

increasing paddy production are financial support for land conversion, expansion of irrigation, and extension services. From 2001 to 2003, the area in paddy rice increased by 534 ha in the six mountainous districts, and per capita production increased. However, the increase in paddy rice has not reduced the dependence of many poor households on use of sloping land for upland rice, nor improved their food security. The explanation for this lies, at least in part, in the fact that paddy rice area is not evenly distributed among households.

The promotion of land conversion for paddy rice and the emphasis on increasing productivity raise concerns about soil erosion, resulting siltation, and water demand. Flat land suitable for paddy rice is found primarily near rivers, and plays an important role in protecting river banks from erosion. A study of water resources in Quang Nam (DONRE-WRMI 2003) found evidence that rivers had been straightened in several places, increasing the velocity of the flow and causing severe erosion of the river banks. The ironic result of

this erosion is the loss of the flat land suitable for paddy production.

A second concern raised by the expansion of paddy rice is the increased demand for irrigation, which could lead to the construction of more dams and reservoirs. Currently, no environmental guidance is attached to financial support for land conversion.

Promotion of Cash Crops: Crop diversification has taken place in many parts of Quang Nam. In the

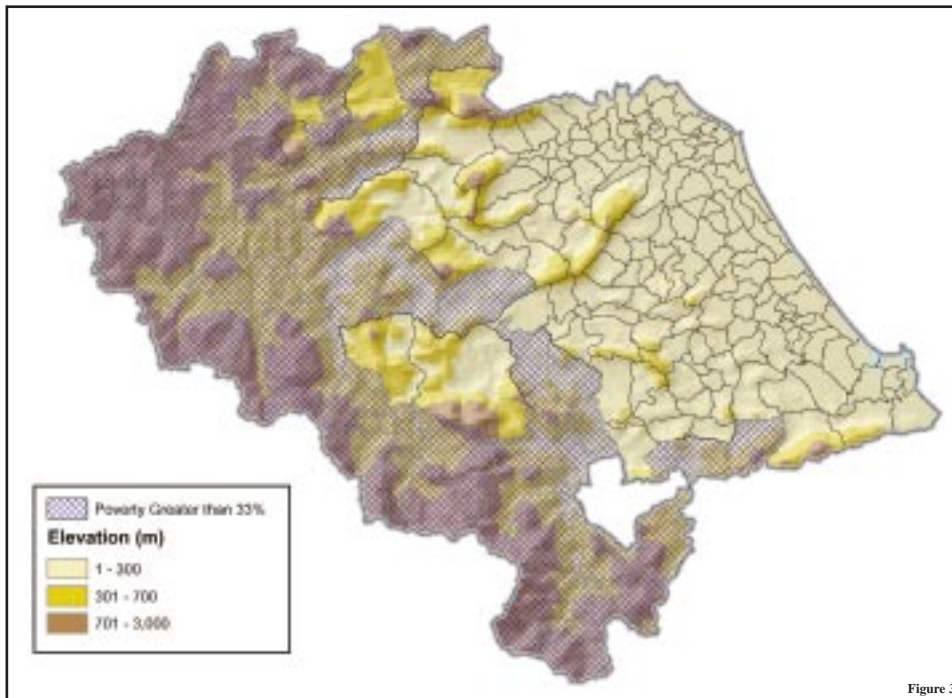


Figure 3

lowland region, farmers were encouraged to reduce the number of rice crops per year, in favor of mixed crops of rice, maize and beans. Increased production of these crops is unlikely to promote poverty alleviation in Quang Nam, however. First, expansion of these crops took place almost exclusively in the lowlands. Second, the high input costs and increased risks associated with their production make them unattractive to the very poor.

Increasing Paddy Rice Production: Decision-makers at the district and provincial levels generally agree that the key to tackling hunger in the mountainous regions is to increase paddy rice production. The tools for

Irrigation Development: Irrigation is one of the key services for development of paddy rice. Substantial

investments in irrigation for the midland and mountainous regions of the province have certainly contributed to the increased production of paddy rice and improved food security. Some 70 irrigation projects were planned for 2004, primarily small-scale dams which serve 5 to 10 ha of paddy rice. (See Table). However, irrigation does not serve the hillside crops – upland rice and maize – that make up the bulk of the food basket for the upland poor. Since only a small fraction of the upland population has access to paddy land, many mountain communities, particularly those with large ethnic populations, are unlikely to benefit from irrigation investments. In terms of the environment, it is difficult to foresee the impacts of new irrigation investments, given limited information on both the environmental impacts of existing dams and the region’s aquatic biodiversity.

Provision of Agricultural Services: Government provision of inputs and training are intended to boost agricultural productivity. Effective extension services could substantially reduce the vulnerability of the poor by introducing cultivation skills and reducing the risk

of crop loss. However, current efforts are not very effective in addressing the needs of the upland poor: (1) the extension service in these districts is underfunded and lacking in capacity; (2) extension is primarily targeted to the lowlands, rather than to those in greatest need; (3) new crop varieties have been introduced without regard for the ability or interest of farmers in adapting to new agriculture techniques; and (4) the extension service has emphasized productivity rather than sustainability. Environmental problems associated with agricultural production—including problems of production on steep slopes, soil erosion, and the high levels of pesticide and fertilizer required by the new varieties—have been largely ignored.

Forest Program: Forest program components included sedentarization, forest plantations, promotion of agro-forestry, and forest rehabilitation. There is a consensus at the province level that the long-term livelihood of the mountain communities should be based on forest plantations and forest services, given the relative abundance of forestry land. In the midlands, there is substantial land suitable for tree plantations. Currently

Assessing the impacts of agricultural development on vulnerability

Major Agricultural Trend Promoted by Government Policies	Implication for Vulnerable Peoples			Implication for Environment		
	Type of Impact	Level of Pro-Poor	Scale	Type of Impact	Level	Scale
Paddy Rice Expansion and Intensification	<ul style="list-style-type: none"> Positively contribute to food security of the poor; however, the scale is small Mixed between poor and non-poor 		S	<ul style="list-style-type: none"> Negative on water Increased soil erosion (when converting land) Increased pesticide and chemical use for newcrops 		S
Cash Crop Promotion (maize, cassava)	<ul style="list-style-type: none"> Little contribution or may even destabilize food security of extremely poor 		M	<ul style="list-style-type: none"> Negative on forest, land and water Increased soil erosion if large plantations are established Increased pesticide use 		M
Large-Scale Agricultural Production	<ul style="list-style-type: none"> Little contribution to livelihoods of the extremely poor 		M	<ul style="list-style-type: none"> Negative on land Increased soil erosion 		S
Irrigation Development	<ul style="list-style-type: none"> Indirectly contribute to food security 		S	<ul style="list-style-type: none"> Negative on forest and water Level of impacts on forest and land is subject to the size of dams 		S
Extension Service	<ul style="list-style-type: none"> Short-term contribution to food security 		L	<ul style="list-style-type: none"> Negative on land and water Promotion of high-yield varieties could lead to more soil erosion 		L
Forest Resource Management	<ul style="list-style-type: none"> Positive but constrained by current policy on forestry 		S	<ul style="list-style-type: none"> Positive on forest Would require policy changes to succeed 		S

In terms of level of pro-poor: (directly solve a problem faced by the poor, reduced vulnerability, food security)



In terms of level of environmental implication:



In terms of scale of the implication:



afforestation is being carried out under a program called 661 aimed at reducing pressure on the forest by establishing sustainable forestry-based livelihoods. Forestry land (with or without forest) is allocated and contracted to households or institutions for plantations or forest protection. Compensation for afforestation is a small cash payment plus shared benefits of the wood and NTFPs, which is not enough to support a forestry-based household. In the mountainous areas another government program (supported by the MOSAIC project) aims to allocate all natural forest land outside of Special-Use Forest to communities. This will grant community rights to forest lands, which should improve their ability to make use of NTFPs and to control illegal logging, poaching and extraction, and therefore empower communities to pursue sustainable harvest of natural resources. This empowerment should alter the current situation where their natural capital is exploited by 'outsiders'. This provincial-level program will be implemented throughout the six mountainous districts.

Implications for Vulnerability

The table below summarizes the implications of agricultural development policies in Quang Nam for both vulnerable peoples and places. In terms of vulnerable people, the policy on expansion of paddy rice supported by small irrigation dams and extension in the mountainous region seem to have the greatest positive impacts for the food-poor, though it does not reach the most vulnerable populations. Promotion of cash crops is primarily of benefit to the lowland and midland regions. Agricultural development policies promoting crop expansion and intensification give little consideration to the environment. Irrigation development and extension services are failing to address the needs of the upland poor who are farming on steep slopes. Sustainable management of forest resources, despite considerable potential for stabilizing livelihoods, reducing poverty and conserving soil, has not been implemented in such a way as to meet the needs of poor communities. Major constraints are the policy on cash compensations and benefit-sharing among farmers, as well as the failure to recognize the value of forest products to communities or the values of watershed protection and biodiversity conservation.

Conclusions

Sustainable use of land, water, and forests are crucial for Quang Nam's economic development and poverty alleviation, particularly in the mountainous region where subsistence agriculture and forest products are central to the livelihoods of the rural poor. The Quang Nam Biodiversity and Natural Resource Conservation Strategy (2005-2020) clearly identifies the conservation priorities for this region of the province. These priority

places also provide the environmental resources and services that are critical for the large impoverished population of the region. Agricultural development policies and forest management policies to date, many of which are ongoing, have not addressed the requirements of sustainability or poverty alleviation for the most vulnerable populations in these vulnerable places.

Policy Implications

This review has led to the following conclusions:

- Heavy investment in agriculture as the primary livelihood in the mountainous region is likely to be very expensive for its rate of return in terms of poverty alleviation. Difficult environmental conditions—steep slopes, shortage of arable land, large irrigation requirements, proclivity for soil erosion—make agriculture unprofitable. Likewise, the socio-economic conditions which characterize vulnerable peoples – limited economic resources, low adaptability – keep the returns to investment in new agricultural techniques low.
- Current agricultural policies emphasize productivity, with little regard to quality or environmental sustainability. Implementation of this model of agricultural development is likely to have high future costs. It will deplete the very resources – soil, forests, and water – on which agriculture depends, and which provide other critical services for the poor population.
- The mountainous region has a very valuable resource in its forests, which protect biodiversity, watersheds and soil in the region, as well as providing resources to the province and communities alike (timber and NTFP). Making this sector work for the poor is likely to be the most successful route to poverty alleviation in the region. To date, forestry policy and programs have not developed a strategic vision for poverty reduction that makes sustainable use of these resources. To be successful, forestry policy must allow the poor to benefit from activities that maximize the benefits of the ecosystem services that the forest can provide. A new, well targeted, provincial program seeks to address the issues of land and resource allocation to communities, which is a step in the right direction. In addition, appropriate extension services and management and investment tools are needed by the poor to improve their forest-based livelihoods while ensuring sustainability.
- Several issues/problems require further monitoring and research. One is the need to develop better indicators of poverty and vulnerability that reflect not only income levels but other contributing fac-

tors, and to measure poverty and vulnerability at a local level. Another is to improve the availability and accuracy of environmental data, for example on water quality, logging, poaching, and other issues.

- There is little capacity at the provincial or district level for environmental management. Careful consideration needs to be given to strengthening local capacity and ensuring that the various levels of government work together to promote sound environmental management that addresses forest degradation, soil erosion, and water pollution.

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This program is carried out with support from:



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