

Promoting rural development through forestry policy: some experiences from developing countries¹

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ABSTRACT

In many countries around the world, people living in rural areas have lower incomes and are generally less prosperous than their urban counterparts. Because of this, governments often attempt to promote rural development through the development of natural resources such as forests. This paper will attempt to describe some of the challenges of using forest resources for rural development in developing countries.

The first point worth noting is that rural development in the developing country context is quite different to rural development in developed countries. Policies in developed countries tend to focus on increasing income and employment, whereas in developing countries rural development often has to meet more basic needs such as food security. Promoting rural development in developing countries is also a greater challenge because of generally weaker government institutions and private-sector capacity, lower levels of government finances, poor infrastructure and greater social, cultural and language diversity in rural areas. To summarise, promoting rural development through forestry development in developing countries is probably a greater challenge than in the developed countries.

In most developing countries, income and employment in forestry in rural areas is very small compared with other sectors such as agriculture. However, when broader social and environmental considerations are taken into account, forests are considerably more important for rural communities. The utilisation of forest resources could generate significant revenues for governments that could be used for rural development. However, governments often do not maximise revenues from the sector and, even if they did, there is no guarantee that they would be used for rural development.

A number of developing countries have implemented forest polices that aim to help rural communities. Examples include: Joint Forest Management in India; arrangements for forest leaseholding in Nepal; the village development (Bina Desa) scheme in Indonesia; and Landowner Companies in Papua New Guinea. These schemes have met with mixed success.

Based on these experiences, the following general conclusions can be reached:

- forestry accounts for only a small share of rural income and employment in most countries;
- the additional benefits of good forest management are probably more important for rural communities;
- forestry development can contribute to rural development, but expectations have to be realistic; and
- community based forestry development is more likely to be successful than “top-down” approaches.

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² The designations and the presentation of material in this paper do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organisation of the United Nations (FAO) concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. The opinions expressed in this paper are those of the author alone and do not imply any opinion whatsoever on the part of FAO. Author's contact details: Adrian Whiteman, Forestry Officer (Sector Studies), Food and Agriculture Organisation of the United Nations, Via Terme di Caracalla, 00100 Roma, ITALY, Tel: 39-06-570-55055, Fax: 39-06-570-55514, E-mail: adrian.whiteman@fao.org.

INTRODUCTION

In many countries around the world, people living in rural areas have lower incomes and are generally less prosperous than their urban counterparts. The reasons for this are often complex and vary from country to country. However, it is generally acknowledged that rural areas have fewer opportunities for creating employment and wealth due to their distance from markets, lack of infrastructure and, in some cases, natural disadvantages such as harsh climate or low soil productivity.

In light of such disadvantages, many governments attempt to promote the development of rural areas on the grounds of social equity. Because of their natural disadvantages, rural development strategies often focus on the one factor of production that rural areas usually do have, which are natural resources such as agricultural land, forests and mineral deposits. The aim of this paper is to describe some of the challenges of using forest resources in developing countries to promote rural development.

The paper starts by first describing some of the differences between rural development in the developed and developing country context. Although rural development policies follow broadly similar objectives there are some differences that affect the way that rural development can be promoted in developing countries. The third section attempts to estimate the impact that forestry development has had on formal income and employment in rural areas in developing countries. Information about this is scarce, so the statistics presented here can only be considered as very rough estimates at best. The section following this then describes in qualitative terms some of the broader aspects of rural development through the development of the forestry sector. Section five presents a few examples from developing countries of where rural development has been integrated into forestry development policies. Some of these attempts have worked better than others and the final section attempts to draw some lessons from these experiences.

RURAL DEVELOPMENT IN THE DEVELOPING COUNTRY CONTEXT

Before discussing the potential for forestry to assist with rural development in developing countries, it is first useful to compare and contrast the way that rural development policies are interpreted and implemented in developed countries with the way that they are in developing countries.

Aims and objectives

A general statement of the objectives of rural development is given in the chapter on sustainable agriculture and rural development in Agenda 21 (United Nations, 1992):

Major adjustments are needed in agricultural, environmental and macroeconomic policy, at both national and international levels, in developed as well as developing countries, to create the conditions for sustainable agriculture and rural development (SARD). This will involve education initiatives, utilisation of economic incentives and the development of appropriate and new technologies, thus ensuring stable supplies of nutritionally adequate food, access to those supplies by vulnerable groups, and production for markets; employment and income generation to alleviate poverty; and natural resource management and environmental protection.

To summarise the above, rural development can generally be thought of as meeting the following three principle objectives:

- to enhance food security;
- to alleviate poverty; and
- to encourage the sustainable management of natural resources.

These three broad objectives are mirrored in the policy statements of many governments in both developing and developed countries, as well as in the mandates of international development agencies such as the World Bank; United Nations Development Programme (UNDP); United Nations Environment Programme (UNEP); and FAO. However, there are marked differences in emphasis on these three objectives between developed and developing countries.

An examination of rural development policies in developed countries shows that they have a few common themes (see Box 1). Firstly rural development policies in developed countries are often stated in terms of increasing income and employment, especially in the agricultural sector. Commonly stated ways of doing this are through increasing value-adding in the production and processing of agricultural commodities. Improved marketing is also often given priority as one tool for meeting this objective.

The development of a more diversified rural economy is sometimes stated as an aim of policy. Development of small and medium sized enterprises (SMEs) in manufacturing and the tourism sector are frequently given as examples of areas for development in the rural economy. In conjunction with this and broader developmental objectives, improved opportunities for training and education are also often mentioned.

Box 1 Some examples of rural development statements from developed countries

USA - USDA Rural Development Programs

Rural Development is working to eliminate substandard housing from rural America by helping rural people buy, build or rent decent housing. It also **creates jobs** by funding the growth and creation of rural businesses and cooperatives. Other Rural Development programs help rural communities **build or improve community facilities**, such as schools, health clinics and fire stations. Rural Development also has programs that help rural communities **build or extend utilities**, including water, electricity and telecommunications services.

Source: <http://www.rurdev.usda.gov/rd/aboutrd.html>.

EU - Reform of the Common Agricultural Policy: support for rural development

The new rural development policy, relating to farming and conversion to other activities, aims:

- to improve agricultural holdings,
- to guarantee the safety and quality of foodstuffs,
- to ensure fair and stable **incomes** for farmers,
- to ensure that environmental issues are taken into account,
- to develop complementary and alternative activities that **generate employment**, with a view to slowing the depopulation of the countryside and strengthening the economic and social fabric of rural areas,
- to improve living and working conditions and equal opportunities.

Source: <http://www.europa.eu.int/scadplus/leg/en/lvb/l60006.htm>.

EU - LEADER+: The Community Initiative for rural development (2000-2006)

Objectives..... are to allow rural actors.....to experiment with new ways of:

- enhancing the natural and cultural heritage;
- reinforcing the economic environment in order to **contribute to job creation**;
- improving the organisational abilities of their community.

Source: <http://www.rural-europe.acidl.be/rural-en/euro/p10.htm>.

Ireland - Strategic Policy Framework for Sustainable Rural Development

Main elements of strategic framework:

- the establishment of a dedicated focus on rural development policy in the form of institutional mechanisms to implement a strategy and ensure that the Government commitments contained in the White Paper are translated into effective action; in particular, the designation of a 'lead' Department which will have responsibility for rural development policy into the future,
- regional development aimed at sustaining a balanced population through a settlement pattern of a network of urban centres acting as hubs for economic and social development, interacting with, and sustaining, dispersed rural communities in towns, villages and the countryside in their hinterlands,
- **service and infrastructure provision** to support the objective of viable rural communities and to ensure that rural areas are competitive for investment,
- sustainable economic development in terms of exploiting indigenous potential and attracting inward investment in order to support enterprise and **generate income and employment opportunities**,
- the **development of human resources** through education and training and support for community development, and
- addressing poverty and social exclusion.

Source: <http://www.irlgov.ie/daff/WPAPER/Chap4.htm>.

Note: authors emphasis in bold. These statements are a random selection of policy statements available on the internet. Other developed countries (not shown here) place similar emphasis on income and employment generation, infrastructure development and human resources development.

In some cases, for example the United States of America and European Union (EU), the development of infrastructure (roads, public service buildings, and telecommunications) is given priority and occasionally rural development policies are specifically targeted at disadvantaged groups (e.g. indigenous populations, ethnic minorities, women and youth), but this is less common. Policies with the stated aim of giving rural communities greater participation in decisionmaking are relatively uncommon, perhaps because most developed countries already have fairly effective mechanisms for promoting local participation and consultation with local communities.

In contrast, rural development policies in developing countries often focus on meeting more basic needs. For example, FAO places great emphasis in its policies and programmes on increasing food security and improving access to food, because this is a high priority for many developing countries. A number of governments and international agencies also stress the importance of providing access to clean water and basic educational services and medical care. In other words, because of the nature of rural areas in many developing countries, there is often a need to look beyond just simply increasing income and employment.

It is also worth noting that, in the developing country context, some social and environmental considerations are also given relatively more prominence than they are in the rural development policies of developed countries. For example, greater emphasis is given to promoting community participation in decisionmaking, than in most developed countries. Indeed, rural development and forestry policies in developing countries often include references to increasing the participation of local communities and indigenous groups in decisionmaking.³

Finally, it is probably also true to say that, due to the fragility and importance of many tropical ecosystems, environmental protection and improvement is handled in a very different way than it is in, for example, the agricultural landscapes of many developed countries.

Role of government

Another area where there is considerable divergence between developed and developing countries is in the role of government in rural development policies. In particular, there is a divergence in approaches with respect to the use of public funds and the types of support given to rural development.

In developed countries, governments largely support rural development through fiscal measures such as subsidies to agricultural production and grants for the development of SMEs. The total amount of financial support given to rural development is, of course, also very large compared with levels of finance available for such measures in developing countries (for a few examples, see Table 1). For example, support to rural communities in Europe could be in the order of one hundred times that available in India.

³ This is not to say that such objectives are not present in developed countries. For example, Canada and the United States of America both have government agencies concerned with the rights and welfare of indigenous communities. Rather, it is more a general observation that indigenous community issues tend to be relatively more important in developing countries.

Table 1 Examples of levels of support to agriculture and rural development

Country/region	Year	Area of expenditure	Amount		
			in local currency	in million US\$	in US\$ per capita
United States of America	1998/99 actual	Farm Service Agency Crop Insurance Program Export Credit Guarantees Rural Utilities Service Rural Housing Service Rural Business Co-operative Service Total	US\$ 19.6 billion US\$ 1.4 billion US\$ 4.0 billion US\$ 2.9 billion US\$ 5.4 billion US\$ 1.3 billion US\$ 34.7 billion	34,700	125
European Union	1999 est.	Common Agricultural Policy European Regional Development Fund Cohesion Fund Total	EUR 45.2 billion EUR 35.9 billion EUR 3.1 billion EUR 84.2 billion	80,962	216
India	1999/00 planned	Agriculture Rural development Total	Rs 37.4 billion Rs 54.1 billion Rs 91.5 billion	2,049	2
Pakistan	1999/00 est.	Tractors and irrigation Agricultural credit Total	Rs 14.0 billion Rs 18.0 billion Rs 32.0 billion	882	6
South Africa	1999/00 est.	Agriculture Land Affairs Water Affairs and Forestry Total	R 702 million R 679 million R 2,815 million R 4,196 million	621	14
Malaysia	1999/00 est.	Agriculture and rural development (federal gov.) Total	RM 1,258 million RM 1,258 million	331	15

Note: not all of the above expenditure is devoted specifically to rural development or is even spent in rural areas (e.g. EU regional development assistance). Also, in some countries, these figures are only partial and expenditure on other policies and programmes not included here also relate to rural development (e.g. support to rural areas in the USA outside the Department of Agriculture is not included here). These figures are given to broadly demonstrate the vast differences in levels of government support available for rural development in different countries. Sources: US Department of Agriculture (2000); European Commission (2000); Government of India (2000); Government of Pakistan (2000); Government of South Africa (2000); and Government of Malaysia (2000).

Many developed countries also have some sort of grants or financial assistance to forestry development. Although the stated reasons for such support are often broad and cover a number of issues, such as environmental improvement and industrial development, rural development is also often cited as one objective of such policies. Most often, assistance is available for plantation establishment and improving the management of existing forests. Assistance for forest industry development and the development of rural craft industries occurs less frequently, while support for forest harvesting and marketing timber is quite rare.

The role of governments in rural development in developing countries is quite different to that in developed countries. Because of the generally much weaker tax bases of most developing countries, direct assistance to rural development (in the form of grants and subsidies) is much less common. Rather, governments tend to focus on low-cost and no-cost policy options to try to meet their rural development objectives.

Thus, for example, direct subsidies and grant schemes are rare, but loans, credits, tax incentives and exemptions from government levies or charges are relatively more common. In some countries (e.g. India), substantial government extension services and/or the provision of free tools and materials are used to indirectly subsidise forestry and agricultural development in rural areas. In the very poorest countries, expenditure on rural development is also heavily dependent on external assistance, but this is true of most areas of government expenditure in these countries. In addition, many of these countries are now facing a very high level of debt servicing, which further reduces their ability to support any sort of rural development policies.⁴

Another no-cost option that is favoured in many developing countries is the use of regulation that requires private-sector companies to engage in rural development activities when they are granted access to natural resources for commercial use. Thus, for example, it is quite common for forest concessionaires to be required to build infrastructure and/or provide some services to local communities in the areas in which they operate.

The role of forestry in rural development

In most countries, the forestry sector is relatively small, accounting for less than one percent of national income and employment. Even in terms of the rural economy, forestry is only a relatively small sector in many countries when compared with agriculture and other economic activities. In some developed countries, where the forestry sector is a major part of the rural economy (e.g. Canada, Sweden, Finland and parts of the United States of America), the forest sector is seen as an important contributor to rural development. In others, it is also specifically targeted for development to meet broader objectives (e.g. the United Kingdom and Ireland).

In developing countries, forests are often thought to have great potential for rural development because of the extent of forest cover in many countries. However, forestry development and sustainable forest management, is often more complicated than in developing countries, for the following reasons:

- Agricultural development often means expansion of the area under crops and the land used for such expansion is often covered with natural forest. Thus, agricultural development and forestry development are often competing for use of the same areas of land. Examples include: the widespread conversion of forest to agricultural tree crops, such as rubber and oil palm plantations, in Southeast Asia; conversion of forest to soyabean production in Brazil; and the conversion of forest to pasture for cattle production across much of South and Central America. Given the overwhelming priority given to food production and food security in many developing countries, it is not surprising that agricultural development is usually

⁴ For example, in a recent study of social and economic conditions in African countries, carried-out for FAO's Forestry Outlook Study for Africa, it was found that foreign aid accounted for 5% of GNP on average in Sub-Saharan African countries, and up to 50% of GNP in some countries (Danielson and Hammarskjold, 1999). Nearly all of this aid is channelled to governments rather than the private sector. Debt servicing (the proportion of government revenues required to repay debt) passed 33% in Africa in 1995.

given priority where such conflicts occur.

- Infrastructure and industrial developments are another major source of forest conversion. Open cast mining has involved the clearance of large areas of forest in several countries (e.g. Papua New Guinea, Malaysia, Brazil and Suriname). Dams, roads, pipelines and airport construction have also led to forest clearance in some countries (e.g. Cameroon and Malaysia).
- Rights of access to land and land tenure are much less certain in developing countries than they are in developed countries. Rural farmers may only have traditional rights over the land that they are working and, in many cases, these are uncertain and are not enshrined in national law (or in some cases, they may even contradict national law). This can make rural farmers reluctant to manage and develop any forest resources that they might have on their land. In some countries, forest clearance is also encouraged by traditional legal systems, where one way to establish rights to a piece of land is to “improve” it in some way. In such cases, clearing forest is often interpreted as one way of establishing such rights (i.e. by taking “unimproved” forest and turning it into a field of crops). Forest concessionaires can also face considerable uncertainty that makes them reluctant to invest in sustainable forest management, even where they have proper legal contracts with their governments.
- As in developed countries, forest harvesting and the establishment of forest plantations, can attract controversy at the local, national and international level. The use of sustainable forest management techniques can result in forestry development that is more acceptable, but implementation is currently weak in many countries due to economic, social and political factors.
- The expected long-term benefits from sustainable forest management are also much less certain in developing countries than they are in developed countries. A solid legal framework and stable political and social institutions are essential for the long-term sustainable management of a resource such as forests and these conditions are simply not present in some developing countries. In addition, there is evidence that individuals are much more risk averse and have a higher level of time preference (i.e. preference for now rather than the future) than in most developed countries. This also makes it more difficult to encourage sustainable forestry development.
- Underlying many of the difficulties noted above, is a general weakness in institutions in many developing countries. Many developing countries have very good forest policies and regulations, but implementation is weak due to a lack of resources (financial and human resources), a lack of co-ordination with other government agencies, or a lack of real political will to implement such policies. Some would argue that this is the main obstacle to sustainable forestry development, rather than technical or economic factors.

On a more positive note, as incomes grow and agricultural activities are transformed from subsistence agriculture to more intensive forms of agriculture, marginal agricultural land can revert to forest if it is no longer used for agricultural production. This is starting to occur in a

few areas (e.g. in South and Central America), but this trend is not widespread and it remains uncertain whether this will occur on a large scale.

To summarise, it is probably true to say that the forest managers and policymakers task has become much more challenging in recent years in most developing countries. Compared to say 10 to 20 years ago, when their main focus was on producing roundwood at a competitive price, they are now expected to pay much more attention to environmental considerations, to help develop local communities and to encourage local participation in forest management and decisionmaking. In many cases, forest managers face situations that are probably more complex than in most developed countries. Expectations are high, yet forest managers and policymakers in developing countries often do not have the capacity to meet these demands.

Another point worth noting is that forestry is often not seen by developing country Governments as important within their overall development objectives and priorities, even in cases where the forestry sector accounts for a major share of national income or trade. For example, Table 2 shows forestry's contribution to GDP and international trade in African ACP countries⁵ and notes where forestry is mentioned as a focal or non-focal area in their indicative programmes for the Eighth European Development Fund. A focal area is a sector of the economy earmarked for a potentially large allocation of the funds granted to the country. A non-focal area is a sector of the economy that has been earmarked for potential financial support but is considered as secondary in the country's development strategy. These priorities are determined by recipient countries in consultation with the EU. For each country or region where forestry has been mentioned, the focal or non-focal area under which it has been mentioned is also given.

As the table shows, forestry is mentioned only five times out of the 18 countries where the forest sector accounts for more than 10% of GDP and, even then, it is not mentioned in its own right, but as part of a broader area for development. Forestry accounts for a huge proportion of international trade in Liberia and Equatorial Guinea, but is not mentioned at all. Only in Gabon is forestry specifically mentioned as an important sector for the country's development, but only there as a non-focal area. FAO and other agencies concerned with forestry are constantly working to get development of the forestry sector integrated into countries overall development plans in cases where the sector is of major importance.

Other challenges for forestry and rural development in developing countries

The final point worth noting is that forestry and rural development in many developing countries is also made difficult by more general conditions in rural areas. Challenges that have to be faced (in some countries) include the following:

- ethnic conflict and civil strife;
- cultural, ethnic and language diversity;
- high population density and growth;

⁵ Signatories to the Lomé Convention.

- a generally low level of human resource development in rural areas; and
- low levels and poor quality of infrastructure.

It is also often the case that development of forestry and rural areas is made difficult by policies in other sectors and overall macroeconomic policies in some countries. Poor co-ordination within Government and the lack of an overall coherent strategy for development further exacerbates these problems in many cases

Table 2 Forestry's position in plans agreed for the Eighth European Development Fund

Country	Forestry's share in 1991 (in %)		Mention of forestry?	Programme area where forestry is mentioned
	of GDP	of trade		
Uganda	23	<1	Focal area	Social sectors: agriculture and the environment
DR Congo	21	3	No	
Swaziland	20	13	No	
Kenya	19	<1	No	Productive sector Natural resource conservation Rural development and natural resources Rural development
Zambia	17	<1	Focal area	
Nigeria	16	<1	No	
Burundi	15	n.a.	No	
Chad	15	n.a.	No	
Malawi	15	<1	Focal area	
Sierra Leone	14	<1	No	
Madagascar	13	1	No	
Rwanda	13	n.a.	No	
Sudan	13	n.a.	No	
Central African Republic	12	20	No	
Gambia	12	n.a.	No	
Ghana	12	9	Focal area	
Benin	11	<1	No	
Burkina Faso	11	<1	Focal area	
Cote d'Ivoire	9	10	Focal area	Agriculture and the environment
Mali	9	n.a.	No	Agriculture and renewable natural resources Environment Management of forest resources Promotion of peasant farmers, rural development and environmental protection Agriculture
Niger	8	<1	No	
Zimbabwe	8	<1	Focal area	
Republic of Congo	7	16	No	
Cameroon	6	15	Non focal area	
Gabon	6	12	Non focal area	
Guinea	6	<1	Focal area	
Guinea Bissau	6	8	Focal area	
Angola	4	<1	No	Environment and preserving biodiversity Natural resource utilisation and conservation Environment
Equatorial Guinea	4	42	No	
Senegal	4	n.a.	Non focal area	
South Africa	3	2	No	
Togo	3	<1	No	
Botswana	2	n.a.	Focal area	
San Tome & Principe	<1	<1	Non focal area	
Cape Verde	n.a.	n.a.	No	Environment Rural sector, conservation of the environment Environmental protection
Comoros	n.a.	n.a.	Focal area	
Djibouti	n.a.	n.a.	No	
Eritrea	n.a.	n.a.	No	
Ethiopia	n.a.	<1	No	
Lesotho	n.a.	n.a.	No	
Liberia	n.a.	31	No	
Mauritania	n.a.	n.a.	Focal area	
Mauritius	n.a.	n.a.	Focal area	
Mozambique	n.a.	<1	No	
Namibia	n.a.	n.a.	No	
Seychelles	n.a.	n.a.	No	
Somalia	n.a.	<1	No	
Tanzania	n.a.	1	No	

Source: GDP and trade data from FAO (1993) and information about the European Development Fund from European Commission, DG VIII.

FORMAL INCOME AND EMPLOYMENT IN FORESTRY IN DEVELOPING COUNTRIES

This section will discuss income and employment in the forestry sector. Very little quantitative information is available about this topic, so the figures presented here should only be considered as very rough estimates at best. The section concentrates on income and employment in the formal sector (i.e. paid employment) rather than subsistence use of forests, which will be considered in the next section.

Industrial roundwood production

One of the few global surveys of forestry employment is given in Poschen (1997). Taking data collected by FAO (1989) and the International Labour Organization (ILO), it was estimated that total global employment in the industrial forestry sector was approximately 3.3 million in 1985 and 3.0 million in 1994/95. These figures only include direct employment in forest management and harvesting and do not include forest industry employment or any indirect employment.

Based on these surveys and other data, Poschen also produced the more detailed figures shown in Table 3. These figures are somewhat higher than those given above. They suggest a total for industrial forestry of around 3.7 million and a total of 45 million for the sector as a whole, including informal (i.e. subsistence) employment and employment in forest industries.

Table 3 *Estimate of global forest based employment in the early 1990's*

Region	Sector	Activity	Employment (in millions)
Developed countries	Formal forestry sector	Industrial roundwood production	1.0
	Formal/informal forestry sector	Fuelwood production	0.3
	Forest industries	Sawnwood and panels	4.5
Developing countries	Formal forestry sector	Forest harvesting	1.9
	Formal forestry sector	Reforestation and silviculture	0.8
	Formal/informal forestry sector	Fuelwood production	13.3
	Forest industries	Sawnwood and panels	3.3
	Formal/informal forestry sector	Wood and non-wood products	16.0
All countries	Forest industries	Pulp and paper production	4.3
Total			45.0

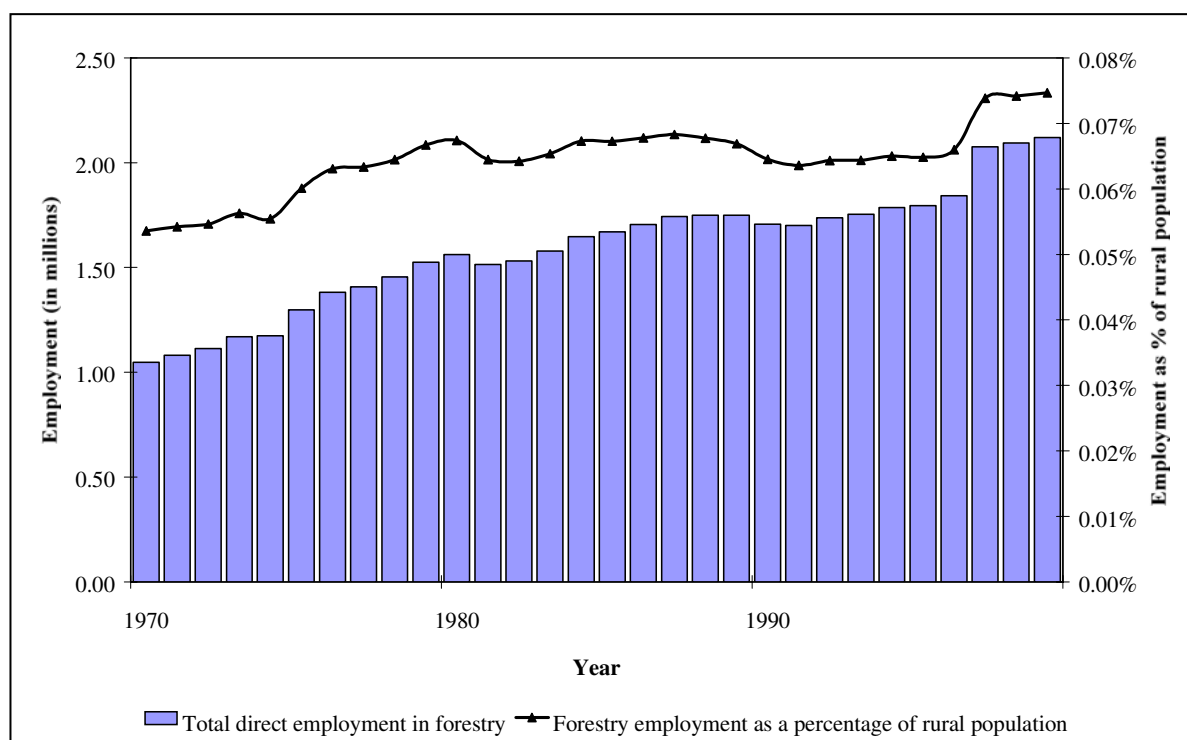
Note: the employment figures quoted here have been converted into full-time equivalents.

Based on the first set of figures given in Poschen and adjusting these for changes in industrial roundwood production and the productivity gains implied by comparison of the 1985 and 1995 figures, an estimate of the trend in forestry employment in developing countries since 1970 is given in Figure 1.

Overall, employment in these countries has probably increased from about 1 million in 1970 to just under 2 million in 1999. Employment has increased by less than the increase in industrial roundwood production because of productivity gains (estimated to be around 1 percent per annum).

However, forestry's contribution to rural employment is only modest at the aggregate level. The figure also shows forestry employment as a percentage of the total rural population. This may have increased from about 0.055 percent to 0.075 percent over the same period. Taking into account that these numbers have been divided by the total rural population rather than the rural population of working age, the contribution of forestry to rural employment may currently be around 0.1 percent. In other words, probably only one in one thousand people of working age in rural areas in developing countries work in the formal forestry sector.

Figure 1 *Estimated employment in forestry in non-OECD countries (excluding Europe)*



The contribution of forestry to rural employment might be much higher than this if employment in forest industries were to be taken into account, but statistics are not available about the proportion of forest industries that are located in rural areas.

Another uncertainty about the contribution of formal forestry activities to employment in rural areas arises because of the practice of using labour hired in urban areas in forest concessions. In some countries, it is quite common for large-scale forestry operations to build logging camps and transport and house workers in these camps, offering little employment to local communities. This is sometimes unavoidable, because of the remoteness of the forest operation. In other cases, this occurs because of the very low levels of human resources in rural areas. Jobs requiring fewer skills or local knowledge (e.g. forest inventory) may be given to local people, but it is rare to find them handling large and expensive pieces of logging machinery. The lack of local employment in such cases can be a source of discontent with local communities.

In a few developing countries, forestry does make a slightly higher contribution to rural employment (see Table 4). However, there are only two countries (Turkey and Chile) where forestry employs more than one percent of the rural population. At a more detailed

sub-national level, forestry may account for a greater share of employment, but even in areas where forest cover is very high, employment is probably only relatively compared to agriculture (see Table 5).

Table 4 Countries where forestry makes an above average contribution to employment

Africa		Asia and Oceania		South and Central America	
Country	Forestry employment (as % of rural population)	Country	Forestry employment (as % of rural population)	Country	Forestry employment (as % of rural population)
Gabon	0.80%	Turkey	2.43%	Chile	2.20%
Republic of Congo	0.47%	Malaysia	0.73%	Argentina	0.69%
Liberia	0.25%	Fiji	0.13%	Brazil	0.59%
Côte d'Ivoire	0.22%			Venezuela	0.35%
South Africa	0.17%			Peru	0.16%
Cameroon	0.16%			Mexico	0.12%
Ghana	0.11%			Colombia	0.12%

Note: figures based on the estimates of employment in 1994/95 presented in Poschen (1997).

Table 5 A few examples comparing employment generated by forestry and agriculture

Region	Activity	Employment per 1,000 ha	Employment per 1,000 m ³	Source
Brazilian Amazon	Slash and burn agriculture	62.5	n.a.	de Almedia and Uhl (1995)
Brazilian Amazon	Perennial cropping	714.0	n.a.	
Brazilian Amazon	Forest management for wood production	6.5	n.a.	
Brazilian Amazon	Forest management for wood production	3.2	2.85	Precious Woods (1996, 1999)
Kalimantan, Indonesia	Forest management for wood production	1.7	1.50	Scotland and Whiteman (1997)
Suriname	Forest harvesting	2.9	4.00	Whiteman (1999)

Note: in some cases, the above figures are derived from data presented in the original sources. The first four examples are quoted in Kägi (2000).

Very little is known about employment multipliers for forestry in rural areas in developing countries. Some authors have suggested national and sub-national multipliers for forestry of the order of two to four (see: Poschen, 1997 for further references) but, in terms of forestry's contribution specifically to rural areas, the multiplier effect is probably lower than this.

In terms of income, the contribution of formal forestry activities in rural areas may also be quite low. A study of forest harvesting costs in Suriname in 1999 (Whiteman, 1999) showed that, out of a total average harvesting cost of US\$ 26.50 per m³, labour costs accounted for only US\$ 5.50 per m³ or 21 percent of the total. Furthermore, this may be at the high end of the range of labour costs. In Indonesia, where labour costs are generally lower and labour productivity is much higher (due to the greater use of capital), the share of production costs going to labour may be much lower. For example, based on cost data collected for a forest concession production cost model in 1996 (Scotland and Whiteman, 1997), it can be calculated that labour costs may account for only US\$ 1.50 per m³ to US\$ 2.00 per m³ of industrial roundwood produced.

Taking these figures as upper and lower bounds, it can be estimated that income from forestry employment in developing countries might currently be in the order of US\$ 0.8 billion to US\$ 2.8 billion. To put this into context, assuming that income levels in rural areas are, on average, one-quarter of average income levels in most developing countries, this would amount to 0.1 percent to 0.3 percent of rural income on average. These figures are, of course, highly speculative, but serve to show that formal forestry employment is probably not a major contributor to rural incomes except, perhaps, in a few small areas where the forestry sector is particularly important.

To summarise, what little evidence currently exists would seem to suggest that, on average, forestry makes only a negligible contribution to formal income and employment in rural areas in developing countries. Forestry undoubtedly makes a much greater contribution in a few particular locations (i.e. those areas with high levels of forest cover and significant commercial forestry operations), but even in these areas it is still likely to be relatively modest compared to other uses of the land such as agriculture. The general trend towards the establishment of forest plantations for industrial wood supply in many developing countries may offer greater opportunities for formal employment in the future, because this type of forest management is generally more labour intensive. It seems likely however, that forestry's contribution to rural income and employment will remain modest at best.

Fuelwood and non-wood forest products and services

Information about formal income and employment from the production of fuelwood and non-wood forest products and services in developing countries is even more difficult to find. Generally, the overwhelming importance of these goods and services is in the informal sector (see later), where they are collected for own use. However, some information exists for a few countries.

India is one such country, where the size and importance of the non-wood forest products (NWFPs) sector has resulted in the collection of some statistics on the importance of these activities to the national economy and trade. Ahmed (1997) reports that over 2 million people in India are currently employed collecting NWFPs and that the majority of these workers are women. This figure equals about 0.3 percent of the rural population of India.

The total value of this production and its contribution to local income is currently unknown. However, exports of non-wood forest products in 1990-91 amounted to Rs 40.2 billion (around US\$ 2 billion), equal to 70 percent of the value of forest products exports or 13 percent of the total value of all exports from India. A relatively high proportion of the local sale value of NWFP production probably remains in the rural economy as labour income, because most collection activities are labour intensive.⁶

In many countries, the production of wood fuel has also become a commercial activity, providing formal income and employment. Again, very little information is available but, in a few cases, some data exists. In the Philippines, for example, commercial wood fuel activities are estimated to be the main source of income and employment for about 10 percent of the

⁶ However, as noted later, probably only a small percentage of the export price will remain in the rural area, because the prices of most NWFPs increase dramatically as they travel along the production and marketing chain.

rural population, accounting for about 40 percent of their total income. Like NWFPs, these activities also involve many women (FAO, 1998). Charcoal production is also largely a commercial activity in all developing countries and contributes to rural economies across Asia, Africa and South and Central America.

India is a rare example of a country, where the production of NWFPs has been formalised and turned into a major economic activity in some rural areas. This is not typical however, and there are several reasons why the production of NWFPs might only make a relatively small contribution to formal income and employment. These are briefly described below.

Size of markets. The markets for NWFPs might be quite limited, particularly in places where individuals have rights to collect these products from the forest and access to the forest is generally good. The markets for some services may be significant in the future (e.g. for ecotourism or for bioprospecting rights) but they are currently undeveloped in most countries and they are unlikely to employ large numbers of people anyway.

Commercialisation. In the few cases where there have been significant markets for NWFPs, the production of such products has often been commercialised and taken out of the natural forest. Thus, for example, the production of natural rubber, which used to be a major activity in the Brazilian Amazon, has largely been transferred to commercial rubber plantations in Southeast Asia. Synthetic alternatives to rubber have also been developed, that reduce the demand for the natural product. Medicinal products provide many more examples of where a naturally occurring NWFP has been synthesised to meet growing market demand. Aspirin and quinine are two examples of NWFPs that were discovered in the natural tropical forest, but have been largely replaced by synthetic substitutes. As these examples show, even where market size is not a limit to development, commercialisation of the product may take production out of the rural area and/or out of the forestry sector and reduce the potential for production of the natural products to generate income and employment.

Local scarcity. Another challenge to developing commercial NWFP production activities is that the products themselves may become scarce once a significant market develops and production increases. For example, certain types of dark wood in Kenya, which are favoured for the production of woodcarvings for tourists, are becoming locally scarce.

Value-added along the production and marketing chain. One final point worth noting is that much of the income generated from the development of NWFPs is generated further down the marketing and production chain and, thus, occurs largely outside the rural area. To take the example of woodcarvings in Kenya again, local people producing such products receive only a few Shillings for each carving that they produce. By the time that they reach the main tourist destinations in the country, their price increases several times, but this income goes to traders and shopkeepers, many of whom live in urban areas. If these products are exported to developed countries, their price multiplies several times again, but very little of the income and value added during this process is likely to go to rural areas or even remain within the country as a whole.

OTHER BENEFITS TO RURAL AREAS FROM FORESTRY DEVELOPMENT

If forestry development is considered in its wider sense to include the sustainable management of forest resources for all of their multiple outputs, then the contribution of forestry development to rural areas is far greater than its contribution in terms of income and employment alone. Subsistence use of forest products, the protection of soils and watersheds that forests provide and the potential of commercial forestry activities to generate government revenues for rural development are all important aspects of forestry and rural development and these are considered below.

Subsistence use of forest products

As the statistics in Table 3 showed, the number of people involved in informal collection of roundwood (both for fuel and for other purposes) and NWFPs is far higher than the numbers employed in the formal sector in developing countries. Indeed, the numbers are probably several times greater than those shown in the table because those figures were converted to full-time equivalents and it is likely that most people who use forests for subsistence use, do so for only a small proportion of their time.

The collection of wood to use as fuel is, perhaps, the largest informal use of forest resources in developing countries. Statistics on fuelwood use are currently quite unreliable, but give some indication of the scale of use for this purpose. For example, wood fuels are estimated to supply the basic energy needs of over 2 billion people in the Asia-Pacific region and account for about three-quarters of all the roundwood produced in the region. In the 18 largest countries in the region, wood fuels account for about 18 percent of total energy consumption, varying from nine percent in Malaysia, to over 80 percent in Bhutan, Cambodia and Laos (FAO, 1998). The share of wood fuels in total energy consumption in Africa is probably higher than this on average, while in South and Central America the average share may be similar or slightly lower.

Apart from wood fuels, the collection of roundwood for other subsistence uses is also important in many rural areas. In the rural areas of many developing countries, forest resources provide the basic materials for house construction, boat building, the production of tools and agricultural implements, fencing materials and yamsticks. As this list suggests, many informal uses of roundwood are for production in the agricultural and fisheries sector and, thus, contribute indirectly to food production and food security. Statistics on industrial roundwood production for such uses are even less reliable than those for wood fuels, but subsistence production is believed to account for the majority, if not all, of the production of such materials in rural areas of developing countries.

In terms of the direct contribution to food production, the collection of edible NWFPs could be quite large. A few indigenous groups rely almost entirely on the forest for their food needs, but their numbers are small and the vast majority of the rural population in developing countries now relies mostly on fishing and farming for food production. However, in almost all rural areas in developing countries, NWFPs provide at least a small part of total food consumption. They can also act as an important "safety-net" that can be relied upon when crops fail and, thus, make a very important contribution to food security.

Soil and water protection

The benefits of forests for soil and water protection are well known and understood in developed countries. However, these benefits are also highly valued in some rural areas in developing countries, where forests can safeguard agricultural production from the effects of soil erosion and flooding. Indeed, some of the most successful examples of where community based forest management has contributed to forestry and rural development, have occurred in response to local concerns over reductions in these functions due to deforestation and forest degradation.

Unfortunately, these benefits are often not fully recognised until forest cover has been considerably reduced and forest resources have been significantly degraded. Thus, in areas of high forest cover and high population densities, it is likely that the demand for expanding agricultural areas will outweigh any consideration of these benefits. However, in areas with lower forest cover, even where population pressure is intense, there are examples of communities that have developed forest management strategies to protect or enhance these forest functions, while allowing for the sustainable production of wood and NWFPs. In as much as these forests protect agricultural production and contribute to food security, they are probably much more valuable from this point of view than for their production of marketable and subsistence products.

Revenues from commercial forest operations

Commercial forest operations in rural areas have tremendous potential to generate revenues for government and/or local communities in the form of forest charges.⁷ The level of revenues that could be collected varies depending upon the costs of forest operations in different rural areas, the level of stocking of commercial timber species and the value of the commercial species found in different areas. Thus, for example, forests in the Guyana Shield region of South America might only have a standing value⁸ of US\$ 10/m³ on average, due to high production costs, low stocking and species of relatively low commercial value. In Southeast Asia, on the other hand, standing value (and, consequently, forest charges) could be as high as US\$ 40/m³ (or even more for some species), because of lower production costs, much higher stocking of commercial species and the generally higher prices paid for many species coming from these forests.

The literature on forest policy and forest economics in developing countries contains many articles showing that forest charges are often set administratively and are rarely high enough to reflect the standing value of the timber (see, for example, the pioneering work of Gray (1983) and Repetto and Gillis (1988)). A recent survey by Contreras-Hermosilla (1999),

⁷ Forest charges is a general term covering the wide variety of possible systems for collecting money in return for rights to produce forest products and services. Other terms include: levies; royalties; fees; stumpage; taxes; rents or retributions, for: permits; cutting rights; concessions; standing sales; management agreements; or leases. For a fuller description of different forest charging systems in operation in developing countries, see Gray (1983).

⁸ Standing value is the value of roundwood at its final point of sale less the costs of producing and transporting it there. Theoretically (i.e. in a perfect market), forest charges should equal the standing value of the roundwood.

reported that forest charges from a number of developing countries only captured between six percent (in Nicaragua) to 70 percent (in Sarawak, Malaysia) of the standing value of roundwood harvested in recent years. Until recently, forest charges in Suriname collected only a fraction of one percent of the standing value of the roundwood harvested there (Mitchell, 1998).

To give an impression of the scale of lost revenues in some countries, it was recently estimated that in Indonesia US\$ 2.1 billion is lost each year through the setting of artificially low forest charges and low collection of the charges that have been set (reported in: Whiteman and Scotland, 1999). Indonesia is, perhaps, a country where a very large amount of potential revenues have not been collected, but similar situations on a slightly smaller scale can be found in numerous other countries in Africa, Asia and South and Central America. These revenues could contribute significantly to government finances and resolve the problem (noted earlier) of the generally weak tax base in many developing countries.

One final point worth noting is that, even if the full amount of standing value was to be collected in forest charges, this does not of course mean that they would necessarily be used to fund rural development. Several countries have systems of revenue distribution that attempt to return a proportion of the forest charges collected back to local communities (e.g. Indonesia). In some others, the revenues are collected by local authorities (e.g. Morocco) or are paid directly (in theory) to villages (e.g. Papua New Guinea). Such situations are relatively uncommon however and, even where such mechanisms are in place, they do not always function effectively. Consequently, the sharing of benefits from commercial forest operations with local communities living in the forest remains a contentious issue in many countries.

SOME SPECIFIC EXAMPLES OF FORESTRY AND RURAL DEVELOPMENT

Some of the general points raised above can be best illustrated with reference to a few specific examples. Examples from the Asia-Pacific region will be given here, because the size of the population in this region has led to a number of attempts to integrate rural development into forestry policies. As these examples will show, these attempts have met with mixed success.

Joint Forest Management in India

India has a long history of forest management, being one of the first countries in the world to establish a national forest service. However, due to expanding forest harvesting and increasing population pressure, India's forest has gradually degraded over the last century. Fifty-four million tribal people currently live mainly in forest areas and a further 250 million to 300 million rural people are believed to depend on the forest for a significant part of their livelihoods (Poffenberger, 1996). With the projected increase in India's population from a current level of around 1 billion to a stable level of about 1.5 billion in 2050, population pressures on forest resources are likely to remain high.

In response to severe forest degradation in some areas and a loss of wood, NWFP and protective functions of forests, local communities have taken a proactive role in developing local strategies to stabilise forest areas and promote forest regeneration. Starting in the mid-1980's, community based forest management has developed, largely led by small villages wishing to protect their surrounding forests from further degradation and develop forest resources for their own use and sale to others.

In the 1990's these developments have been gradually endorsed by state forest services under the name of Joint Forest Management programmes. Joint Forest Management legislation has been passed in a number of states and typically involves the formalisation of community based management of state forest resources and the sharing of certain rights and responsibilities in these areas. It is currently estimated that between 12,000 and 15,000 villages, primarily in Eastern India, have developed Forest Protection Committee's (FPCs), to protect between 1 million and 2 million of the nation's forest resources (see Figure 2).

Poffenberger (1996) suggests that the following factors have led to the successful development of this movement:

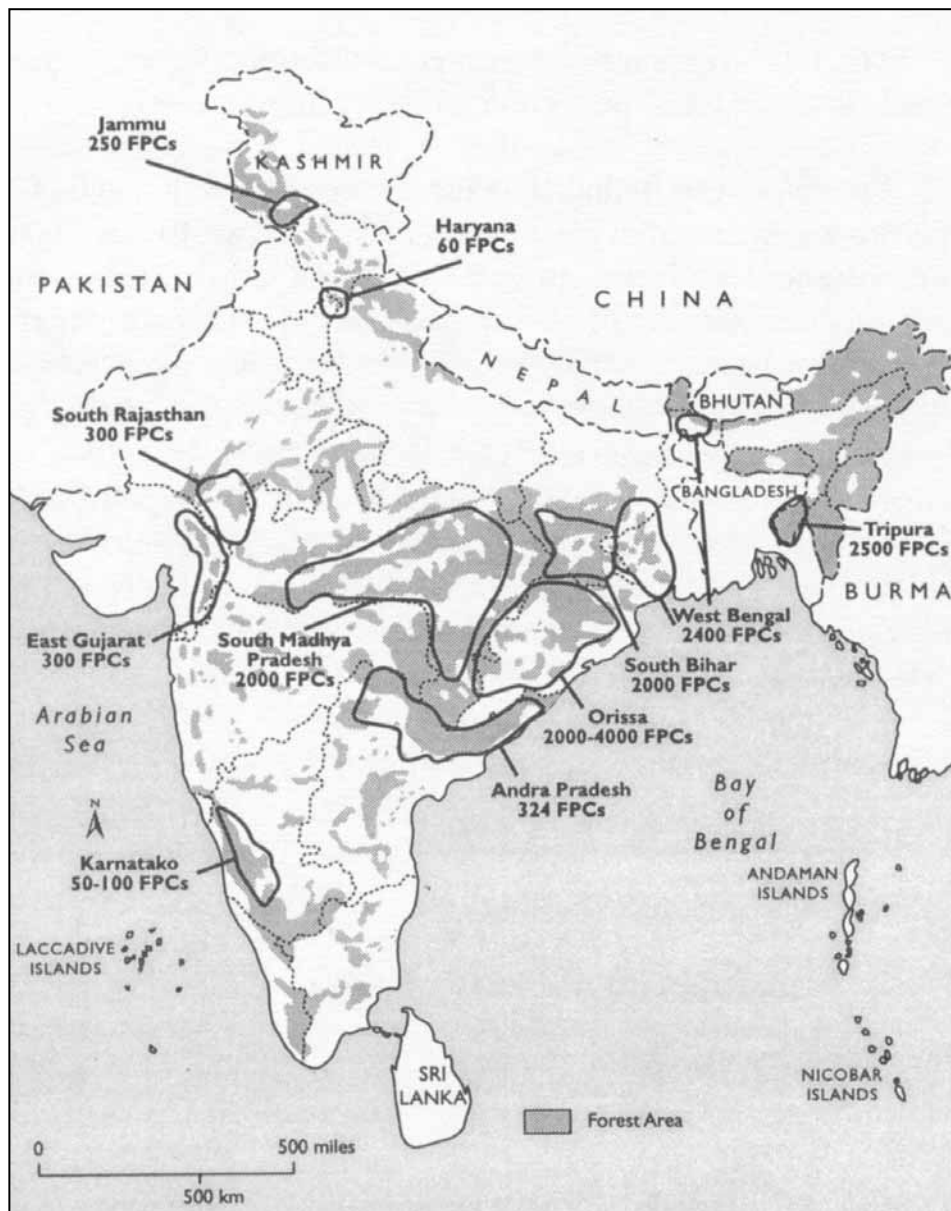
Forest/poverty/tribal interface. Forest protection activities are most common in areas with a high concentration of poverty and tribal communities and where forest cover is high. Tribal and single caste communities are generally more cohesive and this adds to the stability of FPCs.

Forest degradation and environmental concerns. Forest protection becomes an important issue once a critical level of degradation has been reached. In particular, major concerns arise when changes (for the worst) in microclimate, groundwater levels and biodiversity become noticeable and the degradation of forests starts to have an impact on agriculture.

Local leadership and adaptation. The process of establishing FPCs has been largely led by those local leaders who are more accountable and have greater credibility with their communities. Locally based strategies are also more adaptable to each village's resources, needs and capacities. Outside encouragement from NGOs and forestry staff has supported this process.

Ecological resilience. Community forest management and Joint Forest Management has been most successful where ecological resilience has led to rapid and visible improvements in forest condition after a few years of management.

Figure 2 The location of Forest Protection Committees in India in 1996



Source: Poffenberger (1996).

Because this movement has been largely decentralised, systematic information about the success of JFM is limited. However, there is already a lot of local evidence of improvements in forest condition in areas that have been managed by FPCs. Forest area, stocking and

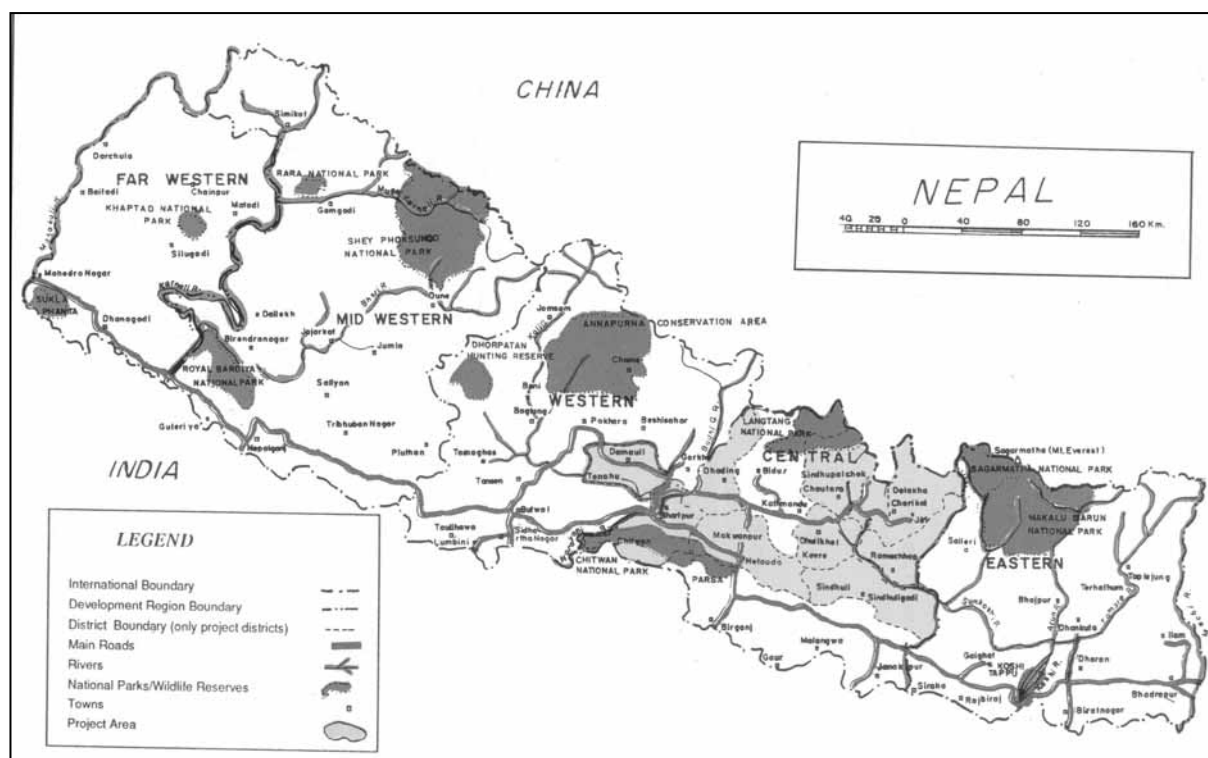
regeneration has increased, as has the production of some wood products and NWFPs (for examples, see: Poffenberger, 1996). Joint Forest Management has become a major initiative of forestry authorities in India, which are now working to train the 150,000 state foresters in the country to assist with this new development.

Community forestry leases in Nepal

Rural poverty in Nepal's Middle Hills region is high and coincides with high levels of forest degradation. Nepal's forests are all technically owned by the Government (since nationalisation in 1957) but, due to a lack of resources, the Department of Forests is unable to control deforestation or manage these resources effectively. Local people have *de facto* access to forests but no recognised rights, so they treat them as common property and tend to overharvest products and have no incentive to protect or regenerate the resource.

The Hills Leasehold Forestry and Forage Development Project was established in 1993, with the aim of improving the living conditions and income of families living below the poverty line. It also aims to improve the ecological condition of the Mid Hills of Nepal's central and western regions by leasing degraded and barren forest land to poor farmers (see Figure 3).

Figure 3 Location of the Hills Leasehold Forestry and Forage Development Project



Source: Sterk (1998).

In the five years to 1997, 600 leaseholder groups (representing 4,100 families or 27,000 people) have been formed covering just under 3,000 ha of degraded forest and hill land. This is still much less than the area of community forests in Nepal (estimated to be around 360,000 ha), but this approach to community based management is a relatively new phenomenon.

Perhaps the greatest contrast with traditional community forest management is that this approach gives control to much smaller forest user groups (on average about seven households rather than over 100) and that the poorest households are selected for leases. After consultation with local communities, leases are given to groups of the poorest members of the community for 40 years for the development of forest and fodder resources.

Benefits of the scheme have been a reduction in conflict over resources, increased involvement of women in resource management, improvement in the ecological condition of many of the areas, increased income from the sale of NWFPs and improved fodder yields. The scheme has also begun to have an institutional impact, bringing together different agencies involved in rural development within the country (Source: Sterk, 1998).

The Bina Desa scheme in Indonesia

The Bina Desa scheme in Indonesia aims to use private-sector financing from the forestry sector to support the development of communities within forest concessions. As part of a concession agreement, concessionaires have to set aside some of their income for local development schemes such as the building of roads, schools, clinics, mosques and agricultural improvement. Local needs are based upon diagnostic surveys, which also paid for by the concessionaires.

The impacts of the scheme have been mixed. There are, for example, many examples of inappropriate developments having been funded by concessionaires. This is mostly due to institutional weaknesses such as a lack of technical knowledge on the part of concessionaires and local forestry staff in the area of community development. In some cases, development efforts have been wasted because of a lack of follow-up actions for the Government (e.g. a forest concessionaire builds a school but the Government does not have the resources to provide adequate staffing, materials and maintenance).

Hutabarat and Prihartini (1997), summarise some of the factors contributing to poor performance of the scheme as follows:

1. local communities are often not involved in planning developments;
2. the lack of education in some communities makes it very difficult to conduct a meaningful discussion of development needs and priorities;
3. forest concession holders do not have a strong commitment to community development and have very few skills or experience in this area; and
4. extension activities have not followed-up developments, reducing their long-term impact and sustainability.

Another criticism of the scheme is that it is inequitable, in that some forest concessions have low timber income and many communities within their boundaries, while the reverse is true for others (Djakaria *et al*, 1997).

However, there have also been successes. In particular, the Bina Desa scheme has been much more successful on Java than on Indonesia's outer islands. Village development in and around the teak plantations of the state company Perum Perhutani has had a long history and is internationally recognised as a successful model of integration between forestry and rural development. This is partly because community development is strongly supported throughout the whole company, from the Board of Directors down to the forest foreman level (Handadhari and Sumantri, 1997).

Agroforestry is one development encouraged on Java by Perum Perhutani. Local farmers are organised into forest farmers groups and allocated small areas of forest where they can practice agroforestry. Farmers are trained in agroforestry techniques and, in some places, are given subsidised seedlings, fertiliser and pesticides. Collection of NWFPs such as honey and resins is also encouraged and large numbers of local residents are employed in forestry operations. The benefits of this approach are perhaps greater on Java than on the outer islands, because the combination of high population density and the presence of a very valuable timber crop might otherwise lead to management problems.

Landowner Companies in Papua New Guinea

In contrast to much of the rest of the Asia-Pacific region, Papua New Guinea has much less population pressure on forest resources. Another feature of the Pacific Islands in general is that rural communities often own their surrounding forest resources rather than the Government. Indeed, in Papua New Guinea, local communities are referred to as landowners. It might be expected that, in such a situation, forestry and rural development would be relatively easy to implement under such circumstances. However, recent developments in the country have demonstrated that, even where property rights are well established, forestry development can still be problematic.

The first attempt to develop forest resources in Papua New Guinea involved the Government purchasing timber rights from local communities, which could then be used by the state or private companies to allow them to harvest commercial timber. However, this process was slow and difficult to implement so, in 1979, the Landowner Company concept was developed as part of the National Forest Policy. The aim of this concept was to increase local participation in the forestry sector (Government of Papua New Guinea, 1998). Since then, the number of Landowner Companies has increased dramatically and many of them have been issued with timber permits to develop their own resources.

While the concept is good in theory, the National Forest Service has reported that the practical reality has not been so good. Most Landowner Companies have been plagued by mismanagement, corruption and in-fighting between different landowner factions. The result has been that most Landowner Companies have alienated the people they were supposed to represent. Most of the income from the Landowner Companies operations has also ended-up in the pockets of their directors (often village leaders or the most educated members of villages) and many have become closely linked to foreign logging companies

The government of Papua New Guinea is currently trying to rectify this situation by restricting the issuance of timber permits to these companies until they improve forest management and take measures to guarantee that they will distribute their profits to the

groups they are supposed to represent. As this example shows, even where there is a strong basis for forestry and rural development, development can have unintended effects where institutional frameworks are weak and the level of human resources is low.

SUMMARY AND CONCLUSIONS

Based on the earlier general discussion and the specific examples given above, the following conclusions about forestry and rural development in developing countries can be reached:

- **The main benefits of forestry development in these areas are the non-market benefits of subsistence use and environmental protection, which are probably quite large.** Subsistence uses of forest products and forest functions such as soil and water protection are far more valuable than formal income and employment in most cases. Thus, forestry development in rural areas plays an important role in rural development by contributing to food security, poverty alleviation and providing other goods and services that help to sustain rural livelihoods. Forestry development, whether it is for economic reasons or social and environmental reasons, should therefore take these considerations into account at all times. As the examples from India and Nepal demonstrate, rural communities can be mobilised to sustainably develop forest resources when these benefits appear to be threatened.
- **However, forestry's contribution to formal income and employment in these areas is generally quite small and is only located in a few places where significant forestry sectors have developed.** Much of the employment and income generated by the forestry sector occurs in downstream processing industries, which tend to be located in urban areas. Furthermore, forest harvesting is becoming increasingly capital intensive and in many tropical countries requires relatively low labour inputs to produce roundwood from large forest areas. The development of forest plantations may increase income and employment in the future, but such developments are still likely to employ relatively few people when compared with alternative land uses such as agriculture.
- **The production of roundwood probably contributes more to formal income and employment in most rural areas than NWFPs, forest services and commercial wood fuel production and this situation is likely to continue in the future.** Due to the size of markets and the potential for commercialisation, it is likely that the production of roundwood will remain the main income and employment generating activity of forest operations. The development of markets for NWFPs, forest services (such as bioprospecting and ecotourism) and wood fuels can increase income and employment, but probably only marginally. However, the latter do have other advantages from a wider development perspective, in that they are generally more environmentally friendly and often involve women and indigenous groups in production activities.
- **Clearer property rights would help forestry and rural development.** A major constraint to the development of sustainable forestry and rural development is the lack of clearly defined and legally enforceable property rights in many countries. This uncertainty reduces the incentive to invest in rural areas and encourages overexploitation, forest degradation and deforestation. However, as the example from Papua New Guinea shows, clear property rights are not a sufficient condition for success. Forestry institutions, plus broader institutional factors such as democracy, accountability and good governance, are also required for forestry and

rural development policies to be successful

- **Policies outside the forestry sector are also critical for success.** Another important condition necessary for the success of forestry and rural development policies is to have a more general “enabling environment” that supports investment, social development and environmental protection and improvement. Improved co-ordination between different Government agencies working in rural areas could help to improve the efficiency of policy planning and implementation and the delivery of public services. The implications for rural areas of broader macroeconomic and social policies should also be considered.
- **Forestry policy is a weak tool for implementing social development.** A great deal of emphasis has recently been placed in forestry policies on social aspects of forestry development in developing countries. Certainly, it is true to say that the social and environmental implications of development should be identified and analysed in any proposed forestry project or policy. However, it appears that it is quite difficult to go beyond this. For example, it is notable that, in the case of Joint Forest Management in India, the popular movement to form FPCs and protect forest resources came before this became a forestry policy. Experiences in Indonesia (and elsewhere), also suggest that it is difficult to get commercial forest managers to take social development seriously, except where it is really in their interest to do so. Associated with this point, it also appears likely that community led approaches to rural development will probably be more successful than “top down” approaches.
- **Promoting rural development through forestry development may be easier when opportunity costs are low.** The main benefits to rural areas from forestry development appear to be in the area of non-market benefits rather than income and employment. This suggests that, to maximise rural development benefits, local communities have to be quite intimately involved in the protection and management of their surrounding forest resources. It appears that this may be easier to achieve where forest resources are of relatively low value (e.g. in the degraded forests of India and Nepal, rather than the commercially valuable forests of Indonesia and Papua New Guinea).

Finally, it has to be said that expectations for what the forestry sector can and can't do have to be realistic. Large numbers of poor people in developing countries live in forest areas, but this does not mean that the forestry sector can solve all of their problems. Forestry development can make a valuable and important contribution to the improvement of peoples lives if it is handled carefully. However, to do this requires a large effort to revise policies and legislation and train those working in the forestry sector to be more responsive to these concerns.

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