

# **The Importance of Value Added: The Potential Role of *Prosopis* in Rural Development Forestry**

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## **Summary**

Small and subsistence farmers in the tropics grow and plant trees for a variety of multipurpose uses. Increasingly, these uses include sale in the market both for regular income and for risk management. The genus *Prosopis* is particularly well suited to meeting both domestic and commercial needs. The development of reliable and equitable markets for small farmers' tree products is essential if the planted trees are to meet their owners' perceived needs. Possible future scenarios for agroforestry in sub-Saharan Africa, Latin America and tropical Asia are briefly reviewed and it is concluded that although *Prosopis* is seen largely as a fuel and fodder crop in poorer areas, there should be potential for increasing the markets and, therefore, the price obtained for its timber, especially as many of the world's most valuable timbers are marketed in small sizes.

## **Introduction**

Rural Development Forestry may be defined as all forms of forestry and agroforestry activity where the primary objective is improving the livelihoods of rural communities, as opposed to activities which have major objectives of industrial production or conservation (Table 1). Although many activities may have a variety of objectives it is well to identify the major ones from the outset, and most aid donors identify poverty reduction and rural development as major aims for their aid.

**Table 1. The Context For Rural Development Forestry**

<b>Classification</b>	<b>Objective</b>	<b>Methods</b>
<b>Rural development forestry</b>	Private and farm forestry	Rangelands, woodlots, agroforestry
	Communal forestry	Natural woodlands, planting
	Social forestry (often welfare)	Mostly planting
<b>Industrial forestry</b>	Plantations	Plant old forest or ex-agriculture land
	Natural forest management	Enrichment plant or regeneration
<b>Conservation forestry</b>	Reclamation	Planting
	Conservation	Enrichment plant or regeneration
<b>Urban and amenity forestry</b>	Private amenity- Public amenity-	Street trees Park trees Protection

With the major emphasis on the livelihoods of rural people, many of whom are subsistence farmers, it has been traditional to pay attention to basic human needs insofar as these can be provided by trees.

Thus, for most of the 1970s and 1980s, fuelwood has been a major concern and it is significant that in some countries the control of fuelwood programmes has been given to Ministries of Energy rather than to Natural Resources or Agriculture. But concentrating on fuelwood, however much as this may be needed by subsistence farmers, leads to an emphasis on growing for one of the lowest-priced markets. In a number of instances farmers have sought higher priced markets for their trees than the fuelwood market for which a donor-funded project intended to be served.

**Table 2. What Do Development Agencies Seek?**

Addressable Through Trees	Not Addressable
Poverty alleviation Human development-education Advancement of women in development Economic liberalisation Development of the private sector Improved productive capacity Efficient democratic government Sustainable agriculture and food security Sustainable forest management Biodiversity conservation Environmental protection Urban development Research livelihood improvement Energy efficiency	Illicit drug control Children by choice HIV/AIDS

### **What Do Rural People Want?**

The many systems for rural appraisal, variously called Rapid Rural Appraisal, Participatory Rural Appraisal, Diagnosis and Design (Raintree, 1987) have produced some very important findings on what the aspirations of small farmers are. Many of the identified needs related to land use, especially farming systems and yields of agricultural crops. But, often, more important concerns are for family welfare and survival, and for the majority of countries, cash, because most small farmers are increasingly part of the cash economy, albeit at the very lowest levels. In particular, increasing agricultural productivity with improved crop varieties requires fertilizer and pesticide inputs, both of which cost money and both of which are less and less subsidized by national governments. More and more, therefore, farmers are seeking cash incomes, though there is a gender bias towards men, women often prefer subsistence benefits. It should be emphasized that rural appraisal is a continuous process and that the information obtained at any one time is only a guide to current needs. Also, the process is a dialogue; asking people what they want can be revealing, yet what can feasibly be done to enable them to obtain it is necessarily a compromise. The choice of *Prosopis* for planting must necessarily also involve compromise.

## Why Do People Plant Trees?

For most developing world farmers, *Prosopis* will be a tree to plant rather than one to harvest from the wild. Its well-known propensity to spread naturally, however, means that in many places, for instance in Rajasthan, India, the genus has become naturalized and it represents virtually a wild resource. If it is necessary to plant, what are the factors in farmers' decisions to do so on small farms? Arnold and Dewees (1995) outline four major reasons which are particularly relevant to the use of *Prosopis*:

- a) To maintain supplies of tree products as production from off-farm stocks declines
- b) To meet growing demand for tree products as populations grow, new uses for tree outputs emerge, or external markets develop
- c) To help to maintain agricultural productivity in the face of declining soil quality or increasing damage from exposure to sun, wind, or water runoff
- d) To contribute to risk reduction and risk management in the face of needs to secure rights of tenure and use, to even out peaks and troughs in seasonal flows of produce and income, and in seasonal demands on labour, or to provide a reserve of biomass products and capital available for use as a buffer in times of stress or emergency (Ibid)

In most farming situations, several of these factors will operate, but the importance of value added is apparent mainly in b) and d), that is, marketing and risk management.

There is certainly a trend to suggest that growing trees mainly for sale in the market will become an increasingly important objective of small farmers in the future and the characteristics of *Prosopis* species on different sites gives it the potential to meet this objective particularly well. The genus provides a number of very important species with a wide range of multipurpose uses, both products, such as fodder, fuel, and timber, but also services such as shade and soil amelioration.

If a major concern of governments is development in poor rural areas, it becomes important to find ways of increasing the quality of the wood and marketing it equitably. The multipurpose outputs of *Prosopis* make it valuable both for short-rotation production of wood for income and also for long-term security as mature timber trees retained on farm. These characteristics also enable it to provide domestic benefits for women in farming systems.

## Market Potentials for *Prosopis*

The market price of fuelwood is commonly \$1 to \$2 per tonne. Most of this represents the value added by the labour of collection and preparation for sale. By contrast, the price of lumber is orders of magnitude greater, even in local markets. By the time that produce reaches international markets, such as that in London, England, the prices per cubic metre or tonne are of the order:

Teak	US\$3000
Rosewoods	US\$4000
Blackwood	US\$6000
Iroko (general-purpose West African hardwood)	US\$500

(Note: These prices suggest orders of magnitude only and should not be taken as indicative of any current market prices. The latest prices can be obtained from *Tropical Timbers*, a bi-monthly British journal.)

All the above species can be grown on farms, but only a few woods fetch really high prices. Iroko, for example, is a first-class hardwood with some similarities to teak, that is often grown on farms, yet

the price does not reflect this. The reason may be that it is not sufficiently specialized to have its own market niche. General-purpose softwoods are even cheaper, so we need to ask whether *Prosopis* has qualities that might lift it into the special-purpose market. Whereas the species listed above are readily saleable on both local and international markets, even in small sizes, wood from planted *Prosopis* is still relatively unfamiliar on local markets, especially if the species is an exotic. However it is worth recording that in November 1995 the author noted in the (wood-based) ship-building yards in coastal Gujerat, India, that *Prosopis juliflora* was increasingly being used for frames and planking in place of more traditional and increasingly scarce indigenous woods, notably teak. It is also worth noting that much of the teak in international trade is of small-sized stock.

### **Future Forestry Scenarios**

What potential is there likely to be for *Prosopis* growing in the next millennium? I will look briefly at the three main tropical regions.

#### ***Sub-Saharan Africa***

An increasing need for forest clearance for agriculture will result in fewer forest products and a probable rise in prices. At the same time, increasing concerns of the rural and urban poor over food security will arise as more and more marginal areas are farmed. There is likely to be an increase in concern of rural farmers for cash incomes as a way to address food security, resulting in an increased interest in cash crops, including *Prosopis*, which will also supply domestic fuelwood for which there is no foreseeable prospects of any reduction in demand, though there will probably be an increase in its commercialization.

Increased transportation fuel costs for non-oil producers will lead to increased transport costs for all products, more costly agricultural fertiliser and decreased capacity for mechanised agriculture. The main concern for the African continent, therefore, continues to be sustainable agriculture in the face of decreasing per capita wealth and rising populations and oil prices. The multipurpose nature of the *Prosopis* genus should ensure it has an important role in drier areas of Africa, especially if its timber can be marketed successfully.

#### ***Latin America***

In Latin America there is considerable variation between and within countries. Rising oil prices will certainly be of concern, but food production on a continental basis is less threatened than in Africa. The developing industrial economies have a strong interest in helping rural economies to develop and this includes encouraging value added in the rural forestry sector. Sustainable agriculture for increasing populations is increasingly important. There will be increasing commercialization of wood in all forms and *Prosopis* should have an increasing role to play in this.

#### ***Tropical Asia***

In Asia the position is more complex. Populations are still rising but so is industrial production, China and India, for example, are expected to be in the world's top three industrial nations in less than 20 years. Urbanization will continue and agricultural production may rise if farms increase in size. Increasing national incomes will ameliorate the position over oil and food imports. The poorest countries, e.g., Nepal, Afghanistan, and some middle-eastern countries may experience similar problems to some of the African countries, however. Increasingly sophisticated industries markets could well provide lucrative markets for *Prosopis* products.

### **The Way Forward**

If there are potentials for *Prosopis* development, how should research on the utilisation and marketing of its products be planned? It is possible to identify the following groups of stakeholders or special interest groups who should be part of the process:

- **Small-farmer producers and direct sellers**
- **Resource owners**
- **Small and medium traders in products**
- **Processors, handlers, entrepreneurs**
- **National and international markets**
- **Officials, donors, financial institutions**

The following matrix suggests some suggested research priority areas:

	<b>Food Security</b>	<b>Income Need</b>	<b>Livestock</b>
<b>Small Growers and Producers</b>			
<b>Traders</b>			
<b>National Planners</b>			

### **Conclusions**

The identification of constraints on the wider use of *Prosopis* in improving rural incomes would respond to a number of initiatives. Some ideas for these are suggested below, though this is by no means exhaustive.

1. **Set up a Research Working Party in the International Union of Forest Research Organisation.**
2. **Establish demonstrations in key countries and areas of *Prosopis* utilisation showing its key potentials as a fine wood. Any project of this kind could be expected to cover other small saw-log-producing species also.**
3. **Prepare a practical how-to-do-it manual on *Prosopis* use for small farmers, emphasising the risks as well as the benefits**
4. **Improve seed supplies of suitable provenances, especially thornless varieties and improved forms for better food and wood production.**
5. **Improve and disseminate information on the technology and marketing of *Prosopis* as a food product**
6. **Hold a series of training courses in different key countries and languages, such as Argentina, India, Senegal, Sudan, to cover all the technologies in items 2 and 5 above, plus propagation methods.**

7. Ensure that potential aid donors are aware of the potentials of the genus for meeting development criteria.

Several questions remain, notably, who should be responsible for any of the above, how the activities should be funded, where, and when. The Proceedings of this workshop will form one of the principal ways of publicising the need.

#### **References**

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