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# The Great Eucalyptus Debate: What is It Really All About - John B. Raintree

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## ABSTRACT

The debate relates to the controversy surrounding social forestry programmes in India in the 1980's. The eucalypt debate related, not to eucalypt as such, but to the style of officially promoted farm forestry, which benefitted the better off segments and failed to address the poorest members of society, i.e. the farm forestry programme was socially insufficient. As a result eucalypt became a symbol, a central theme, of complex objections and issues to the establishment of social forestry; the problems are not tree specific. An outstandingly important outcome of the Indian experience is that great care must be exercised in assessing local tree growing needs and potentials and to the differentiation of needs of all major client groups. These findings must be carried forward as specifications into the design of planting programmes and practices.

**Key words:** *Eucalyptus*, India, *Eucalyptus* controversy, farm/social forestry, agroforestry.

## INTRODUCTION

The "Great *Eucalyptus* Debate" is the name that has been used to refer to an actual, historically circumscribed event, a controversy which raged in and around the Social Forestry Programme of India during the 1980's. This event must be regarded as one of the most interesting chapters in the recent history of tropical forestry. Judging from the amount of discussion currently appearing in the newspapers here in Thailand and elsewhere it is evident that the debate on *Eucalyptus* is neither over nor restricted to India. This meeting itself is testimony to that fact.

Some time ago, at the request of the FAO Forestry Department in Rome, I undertook a socioeconomic analysis of the eucalypt debate in India. The Indian debate is particularly instructive, not only because it was one of the earliest national debates on eucalypt but also because it was exceptionally well represented in the popular as well as the scientific press. The Indian debate generated a voluminous body of documentary material, which comprised the data for my analysis. The more I looked into the controversy the more fascinated I became, for it became increasingly clear that although, ostensibly, the debate was about species choice, there were many more questions than species choice at issue. While most of the argument was couched in ecological terms, many of the underlying issues in the debate were socioeconomic in nature.

By the end of my analysis, it was clear to me that eucalypt had become a symbol of a whole host of issues, many of which had little to do with the inherent biological characteristics of the genus. To be sure, the uses to which eucalypt trees were being put in India made the genus an efficient carrier of this symbolic load, but the debate seemed doomed to go round in circles as long as the participants failed to distinguish between the attributes of the tree itself and the uses to which the trees were put.

My purpose in this paper is not to enter into the debate on one side or the other, nor even to give a detailed account of the various arguments pro and con, but rather to identify the kinds of issues that have been debated, with a view toward trying to improve the quality and precision of the ongoing debate in other countries.

### What was really at issue in the Indian debate?

What the analysis revealed was that what was being debated in most cases was not the appropriateness of eucalypt *per se*, but the whole technology and style of Government promoted tree planting programmes within the Social Forestry Programme of India at the time. It was not just eucalypt but the whole farm forestry approach that was being called into question by the critics of eucalypt, along with the economic development strategy for which wood lots on private farmland was the technology of choice.

The crux of the controversy in India was the issue of the opportunity cost of social forestry programmes that were devoted, quite successfully, to helping the relatively better off segments of

the population (landed farmers) while failing to address the needs and opportunities of the poorest members of society (landless and marginal farmers). This was regarded by the critics as a particularly objectionable misuse of public resources because, as originally conceived by Government planners, the primary intended beneficiaries of the national Social Forestry Programme was to have been the poor.

The problem with eucalypt farm forestry was not so much that it was not successful or that it was in itself wrong, but that it was insufficient. Had the Social Forestry Programme of the time also included programme elements that addressed the needs of the poorest members of society, it might have not come under such heavy criticism.

### More than a question of species choice

Ostensibly the debate was about species choice but, as we have seen, much of it centered on eucalypt as a symbol of popular disenchantment with many aspects of Government development programmes. The part of the debate that was about species choice was complicated by the fact that such choices are always embedded in a complex of interrelated decisions about other aspects of the tree growing practices in which eucalypt has been employed.

Thus, the analysis of the press literature revealed that what the most of the critics of eucalypt in India really objected to was the promotion of: eucalypt planting by landed farmers in high density, low labor monocultures on private farmland as a cash crop for sale to urban industries. What most of the critics said the social forestry programme should have concentrated on instead was:

- the planting of a variety of multipurpose trees by marginal farmers and landless labourers integrated with other useful plants in multispecies woodlots on commons and wastelands for fodder, fuel, food, medicines and other subsistence needs; or
- a variety of multipurpose trees planted by small and marginal farmers, integrated with crops in and around homesteads and farmland for household cash and subsistence needs.

As the momentum of the controversy increased and as the symbolic loading on eucalypt grew and grew numerous other issues sprang up around this central theme. It is instructive to attempt a more detailed enumeration and classification of the issues raised (again without taking sides and without recounting the actual arguments in detail). Using the same categories as in the above annotations, Figure 1 presents a breakdown of some of the main issues identified in the literature review.

**Figure 1. Issues raised in the context of the *Eucalyptus* debate in India.**

Factor	Issues raised and debated
<b>Issues relating to the design of tree planting interventions.</b>	
<b>Function</b>	Whether trees should be planted for cash income (pulp, poles from eucalypt) vs. for subsistence uses (food, fodder, fuel, medicine, etc. from a variety of trees); single-purpose vs. multipurpose plantings.
<b>Location</b>	Whether eucalypts should be planted in crop land, thereby displacing foodcrops and employment opportunities for landless labourers while driving food prices up; whether they should be planted in private crop land (i.e. the farm forestry approach where only landed farmers could benefit) vs. in the commons (where landless and marginal farmers could benefit); whether the planting of eucalypt woodlots on farmland was forcing adoption of eucalypts as the only crop that could compete with adjacent woodlots; whether eucalypt woodlots had played a role in government alienation of village common lands; whether the planting of eucalypts woodlots on the commons was displacing fodder and other multipurpose plantings; whether extensive eucalypt plantings had enabled large landowners to meet minimal cultivation requirements and thereby avoid redistribution of land under new land reform legislation.
<b>Arrangement.</b>	Whether trees should be planted in block plantations (fully occupying the land) or in mixed species woodlots or agroforestry intercropping systems or along boundaries, etc.; whether polycultures should be favored over monocultures for ecological reasons; whether high density, short rotation plantings (as practiced by some commercial eucalypt farmers) are ecologically sustainable.
<b>Management.</b>	Whether the displacement of labor intensive food crops by low labor eucalypt woodlots was depriving landless labourers of traditional employment opportunities; whether trenching was an effective and economically viable way of reducing competition from eucalypt roots.
<b>Issues relating to the larger socioeconomic context of tree planting</b>	
<b>Economic.</b>	Whether tree planting interventions should be geared to support an development

industrial growth strategy (integration into the global economic strategy system, modernization of agriculture and rural life, marginalisation of farm labor and migration to the cities as labor for large scale, capital intensive urban industries) or an ecocodevelopment strategy (local self reliance in basic needs, preservation of peasant culture and improvement of the indigenous agricultural base, absorption of population increase within the rural areas, small scale, labor intensive rural industry); or whether, in fact, a dualistic (or even pluralistic) strategy might be needed to secure the benefits of economic development for all members of society.

The truth or falsity of any of the criticisms leveled against eucalypt planting in India is not the question here. The object is to identify what issues were actually the focus of debate. To qualify an issue as a legitimate concern it is enough that it was raised and debated.

### **Who benefits from tree planting?**

Obviously, the issue of beneficiaries is at the heart of the eucalypt debate. Let us take a closer look at this issue as it relates to the Indian case. Much of the early debate in India centered on the charge that only "large farmers" were benefiting from eucalypt farm forestry, but subsequent studies on actual adoption patterns soon revealed that even relatively small farmers were adopting eucalypt woodlots and doing quite well with them in fact (Shepherd, 1988).

What seems to have been given insufficient attention in the whole debate was that the cut off point between adopters and non-adopters, between beneficiaries and non-beneficiaries, appears not to have been between the large and the small farmers, nor between the rich and the poor - but between the landed and the landless or near landless, between the poor and the very poor. It is not surprising, therefore, that the parts of India in which eucalypt planting was most fiercely contested (certain districts of Karnataka) are areas where the landless or near landless constitute nearly half of the population!

The problem of the landless presents us with a paradox. Direct production to meet subsistence needs is a major economic strategy of small farm households in developing countries, and there are many agroforestry options to support this. But this is not a viable household strategy for the landless, who may have only a house site or less, nor for the large category of rural poor classified as marginal farmers (those whose landholdings are insufficient to meet subsistence needs). These households necessarily depend upon wage labour or other income generating activities as their primary survival strategy.

There are an increasing number of technically and economically viable commercial tree growing innovations. No one could benefit more from these innovations than the rural poor and disadvantaged. Unfortunately, it is the experience of many tree planting projects that no one is less likely to benefit from such innovations than poor people. Eucalypt farm forestry is a prime example of a practice that has brought significant cash income to many of those who have been able to adopt it, including some marginal farmers who put their small plots under eucalypt woodlots and went off to work in the cities. But what about the landless and those marginal farmers who lack off farm employment opportunities?

It is a sad irony of development that, all too often in stratified societies, as soon as an innovation begins to generate a significant cash flow it attracts the attention of the local elite and is taken away from the poor. One strategy that has emerged to deal with such frustrations is to restrict the project's focus to subsistence oriented interventions in order to avoid attracting unfavorable attention from local elites. This is what many of the critics of eucalypt farm forestry said should have been the strategy of the community forestry programmes that focused on common property management.

That is one solution. Are there no others? It would be a pity to abandon the possibility of commercial tree planting for the poorest of the poor and simply accept that those who could benefit most from such income generating activities are irrevocably blocked from doing so.

### **Ways to bring the benefits of tree growing to the landless**

Fortunately, there are exceptions to this discouraging pattern. Cases have been reported in which the poor and disadvantaged *have* managed to obtain significant benefits from participation in income generating tree production. A search of the literature turned up four cases of demonstrably successful, or at least promising, approaches. No doubt there are more. Comparing these four cases to the controversial eucalypt farm forestry approach (Figure 2) reveals some of the differences that can make a difference in bringing the benefits of tree planting to the landless and near landless.

**Figure 2. Differences in the technology and social organization of tree growing that make it possible for the landless and near landless to participate in the benefits of tree-based production systems. (Eucs = eucalypts, MPTS = multipurpose trees and shrubs)**

Tree planting approach	Purpose	Species	Characteristics
<b>Eucalypt farm forestry</b>	Cash	Eucs	Monocultural woodlots on private farms
<b>Alternative approaches</b>			
· MPTS on commons (the traditional alternative)	Subsistence	MPTS	Functions, location & species
· Commercial development of MPTS in common property forests and small farm woodlots in Maharashtra (Shah and Weir 1987)	Cash + Subsistence	MPTS	handling (local value added processing and marketing to urban consumers)
· Agroforestry (various forms) on farms and public spaces in Bijapur (Hoekstra <i>et al.</i> 1985)	Subsistence + Cash	MPTS	Function, location, management, and species
· Group farm forestry on redistributed "patta" land in West Bengal (Shah 1987)	Cash	Eucs	Social infrastructure (tenure) (no technology change necessary)

In three of the four cases a change in the tree growing practice was involved (i.e. a change in one or more of the following: species, function, location, arrangement or management). One of these cases represents the traditional alternative to eucalypt woodlots on the commons, i.e. a multipurpose mixture of trees for a variety of subsistence uses. The example from Maharashtra entailed the commercial development of such trees and other indigenous plants of the hilly commons for traditional medicines and fruits through a processing and marketing cooperative run by the local tribal people with assistance from an NGO (Shah and Weir, 1987). This success story involved not only a different tree growing practice but also some important social infrastructural innovations.

The third case involving a different practice is part of an agroforestry research proposal resulting from a diagnostic and design study that was carried out in the Bijapur area of Karnataka, (Hoekstra *et al.*, 1985). Because the inhabitants of the watershed study area were, as a matter of standard methodological practice, differentiated into diagnostically distinct categories -- in this case the "resource rich" and "resource poor" land users - the overall design for agroforestry interventions incorporated elements that specifically addressed the needs and opportunities of the marginal farmers and landless labourers within the watershed. Had such a procedure been followed from the start in designing the controversial social forestry programme of Karnataka, the controversy might have been avoided altogether.

In one successful case (West Bengal) no change of tree growing practice was necessary. A social infrastructural innovation, the allocation of long term tenure rights in marginal land to landless families, was all that was required to secure for them the benefits of conventional farm forestry with eucalypt woodlots.

These examples demonstrate that, far from being merely a question of species choice, the right combination of other technical or socioeconomic design variables can effect a sufficiently favorable rearrangement of production factors so that even the poorest of the poor can participate in the benefits of tree growing. What these examples also show is that we are far from exhausting the potential for creative solutions to the kind of issue that has deadlocked the eucalypt debate. We still have a lot of under utilized technological and socioeconomic options in the repertoire of the New Forester, if only we have the imagination and the political will to use them.

### **Lessons from the Indian experience**

The socioeconomic impact of trees like the eucalypts varies greatly from one situation to another and is characterized by a loose possibilism rather than a strict determinism. Thus, while the commonly used species of the genus do indeed have attributes that permit them to be used in ways that enhance their utility for certain categories of users while limiting their suitability for certain other categories of users, there is nothing inherent in the species that compels them to be always used in these ways.

The corollary to this is that simply changing the species won't necessarily solve the problems of an inappropriate tree growing practice if the problem is with an incomplete or inappropriate

decision on one or more of the other design variables: beneficiary, function, location, arrangement, management practice, etc.

One of the most important lessons that we can learn from the Indian experience is that in assessing local tree growing needs and potentials great care needs to be given to the differentiation of client groups. Problems arising from failing to do this may express themselves differently in different countries. In India, for example, the main overlooked client group was the large population of landless labourers who were unable to benefit from eucalypt farm forestry for the simple reason that they did not own farms. In a country like Thailand, the issue seems to be not so much landlessness *per se*, but the desire of many rural people for an alternative to contract farming and a broadly based approach to forestry which, in addition to the single minded promotion of eucalypt farm woodlots, also supports multipurpose community forestry and agroforestry practices.

It is usually more efficient and cost effective to avoid problems rather than to solve them. If we want to avoid this kind of controversy in future the following conclusion seems to be inescapable: we must tailor our tree planting programmes to address all major user groups within the target area; we must base our planning on a careful assessment of the needs, constraints and tree planting opportunities of each group; and we must make a deliberate and systematic effort to carry these findings forward as specifications for the design of appropriate tree plantings practices and programmes.

What the analysis of the eucalypt debate in India also makes clear is that the choice of an appropriate tree planting practice involves far more than just selecting trees on the basis of site matching. What we are dealing with is always the attributes of a particular species in the context of a particular tree growing practice intended for a particular user within a particular socio-economic setting in support of a particular development strategy. There is no use in blaming a tree for human errors in other aspects of program design.

The attributes which determine the appropriateness of a particular tree are strongly conditioned by their interaction with an interrelated set of design decisions about other aspects of the tree growing practice; namely, the management system under which the trees are grown (e.g. the pruning, lopping, coppicing, pollarding, thinning, harvesting or browsing regime), which is in turn conditioned by the spatial arrangement in which the trees are planted (i.e. the pattern and density of planting, either singly or in combination with other trees or crops), which is itself strongly influenced by the location within the landscape at which the trees are planted - all of which decisions will depend, as already indicated, upon the function the tree is intended to perform for a particular user within a particular socioeconomic context and an overall economic development strategy.

To avoid unintended consequences and to sharpen the focus of particular tree planting interventions we are obliged to deal with these factors in a conscious and systematic way. The way to do this is to make each the focus of a deliberate design decision.

### **Beyond site matching: a simple user oriented matching algorithm**

The conventional site matching approach is not so much wrong as simplistic. There is more to the job than just matching the biophysical characteristics of the site. The tree must also fit the socioeconomic profile of the user. In matching trees to users, the tree growing practice is an intervening variable between the biophysical attributes of the tree and the socioeconomic attributes of the tree user.

The task of making rational decisions about species choice for different users can be best approached through a two step process: 1) First match the tree growing practice to the user, then 2) match the trees to the practice. A simplified decision algorithm employing this approach is given below. To use this design tool, first work through the questions to arrive at a design for each major client group within the target area. Then, go back and review the interactions between groups, adjusting the choices to reduce conflicts and accentuate complementarities. Note that site matching is subsumed under the location matching part of the design algorithm. Any standard site matching methodology can be used to complete this portion of the design exercise.

**Figure 3. A decision algorithm for matching trees to practices and practices to users**

	<b>Choice of client and strategy</b>
<b>USER</b>	Who is the intended beneficiary or client?
	What is the appropriate development strategy given the socioeconomic context of this client?

	<b>Choice of practice to match the client</b>
<b>TREE GROWING PRACTICE</b>	What specific function is it intended to serve?
	At what location within the landscape?
	In what planting arrangement?
	Under what management?
	With what input requirements?
	With what output expectations?
	<b>Choice of tree to match the practice</b>
<b>TREE</b>	Listing of tree specifications to match the practice.
	Choice of trees to match the specifications.

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