

CHANGING ROLES IN FOREST RESEARCH

Prof. J.A. Sayer

Director General, Center for International Forestry Research

The globalisation of economies and the emergence of a powerful multi-national corporate sector will result in significant shifts in the geographic locations, types, and intensities of forest use. In order to ensure the competitiveness of their countries, governments will increasingly need to apply their resources to creating the optimal policy environment. They will have to focus on steering and not rowing.

Economic imperatives will inevitably lead to production forestry being more and more dominated by the private sector; market forces will force it to relocate to areas of comparative advantage, and efficiency economics will require that production becomes more intensive. Research to support increases in productivity and in processing efficiency will be profitable and will be increasingly dominated by the private sector.



Figure 1 The general areas of comparative advantage of the public and private sectors in forestry

Figure 1 shows the general areas of comparative advantage of the public and private sectors. Efficiency will mean that more forest products will be produced on less land. Production forestry will gradually cease to be based on extensive harvesting from near-natural systems and will look more like conventional monoculture agriculture. The world's timber needs could, and probably will eventually, be met from the intensive use of a small proportion of the world's forest lands. A large proportion of the world's forests will then be surplus to the requirements of conventional forestry. Figure 2 shows the impact on land requirements of an increase in productivity of timber from 1 m³/ha/year to 5 m³/ha/year.

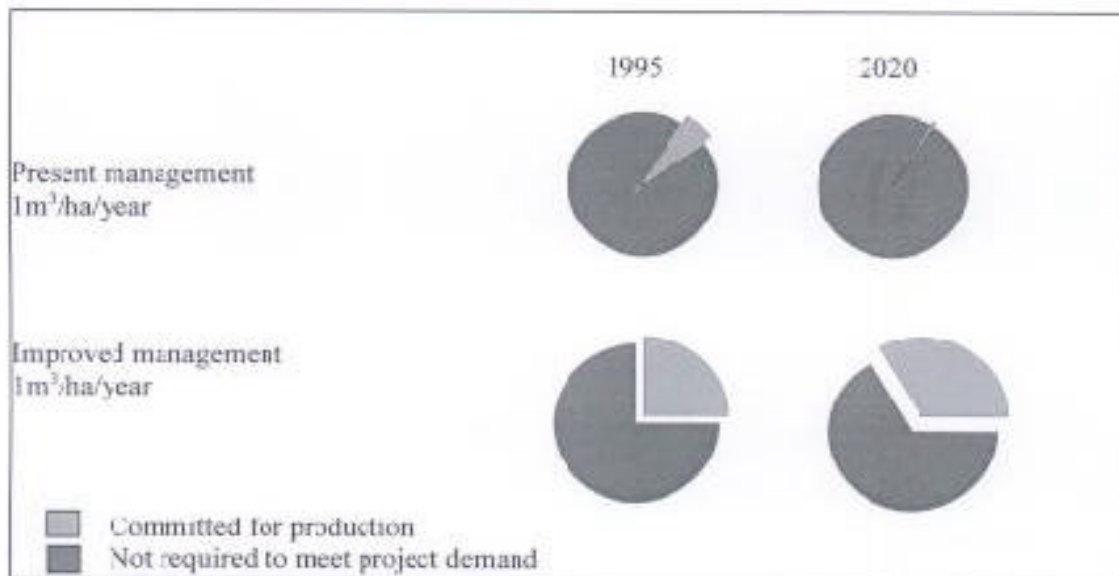


Figure 2 How much forest do we need?

These changes will occur at a time when governments are being forced to become leaner and when there will be pressures to minimise regulation in order to attract international investment. Conventional forestry institutions may be perceived as irrelevant to this new environment and may become even more starved of resources than they are now. The increasing areas of forest that are not needed for production forestry may be allocated to preservation agencies or made available for conversion to other uses. There is a danger of an erosion of the institutional capacity to actively manage the residual public forest estate.

The maximum utility of the residual forests will not be obtained by allocating them to total protection. Their prime function may be to provide local and global environmental services, but this objective is most likely to be met if the forests also make significant contributions to local economies. Optimal utility will therefore come from an appropriate balance between management for environmental functions and for the variety of products whose harvesting is consistent with the maintenance of these environmental functions. This is classic multiple-use forestry of the type that led to the emergence of public forestry institutions in central Europe in the 18th century. It differs little from the present much-discussed concept of Forest Ecosystem Management (Figure 3). The role of public forest research institutes in the future should be to provide the scientific underpinnings for multiple-use forest management, with a heavy emphasis on environmental public goods and the equitable distribution of costs and benefits.

- Multiple products and services
- All stakeholders involved
- Balancing agricultural and forestry uses
- Adaptive - feedback mechanisms

Figure 3 Forest ecosystem management

These challenges will require new types of forest research institutions and a new culture of forest research. The new paradigm that is required for forestry has been variously described as »New Forestry« or »Ecosystem Management«. It requires science that operates at the scale of landscapes and not stands, that allows the optimisation of a number of products and not the maximisation of one, that treats forests in their social context and does not pretend that they exist in a »people-free« environment, and it requires management that can adapt quickly to changing social and economic conditions. There will no longer be a single best option for the management of any category of forest; choices will have to be made on which of a number of options is appropriate, and it will have to be accepted that the options chosen will vary over space and time. Figure 4 attempts to portray the characteristics of the new research culture that is required.

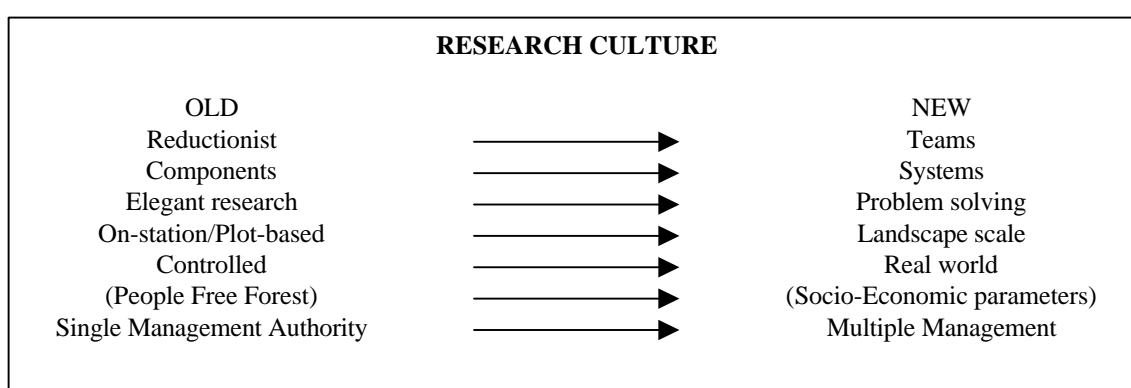


Figure 4 Research culture

The Center for International Forestry Research (CIFOR) and the Tropenbos Foundation are two initiatives that respond to this need for new approaches to forest research. Tropenbos mobilises a major capacity in the biophysical and social sciences to generate understanding of the functioning of forest ecosystems at large spatial scales and in their local social and economic context through long-term in-depth studies at a series of sites in the humid tropics. Its special contribution may be to develop our capacity to predict the response of these systems to a variety of management interventions.

CIFOR's contribution lies in drawing on the information produced by Tropenbos and other upstream science to generate options for institutional and policy interventions to achieve sustainable forestry. The potential exists to exploit the complementarity and potential synergies that exist between the work of Tropenbos, CIFOR, and other international actors to meet some of the challenges posed by the rapid globalisation of forest management. Figures 5 and 6 attempt to portray the areas of maximum potential impact of Tropenbos and CIFOR.

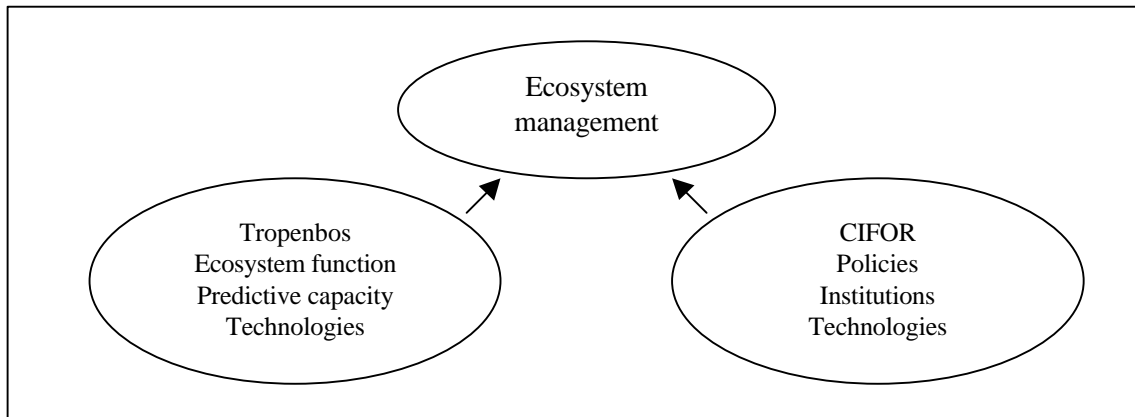


Figure 5 Research capacity of the Tropenbos Foundation and CIFOR

Tropenbos now has a decade of experience in managing a network of multi-disciplinary research programmes at key locations in the tropics. It is the most significant international initiative currently tackling the problems of understanding problems at the systems-level. The time may now have come to give increased emphasis, and resources, to achieving greater integration to the management of research within each site. The preponderance of research students preparing theses at these sites has reinforced the inevitable tendency towards reductionism and fragmentation.

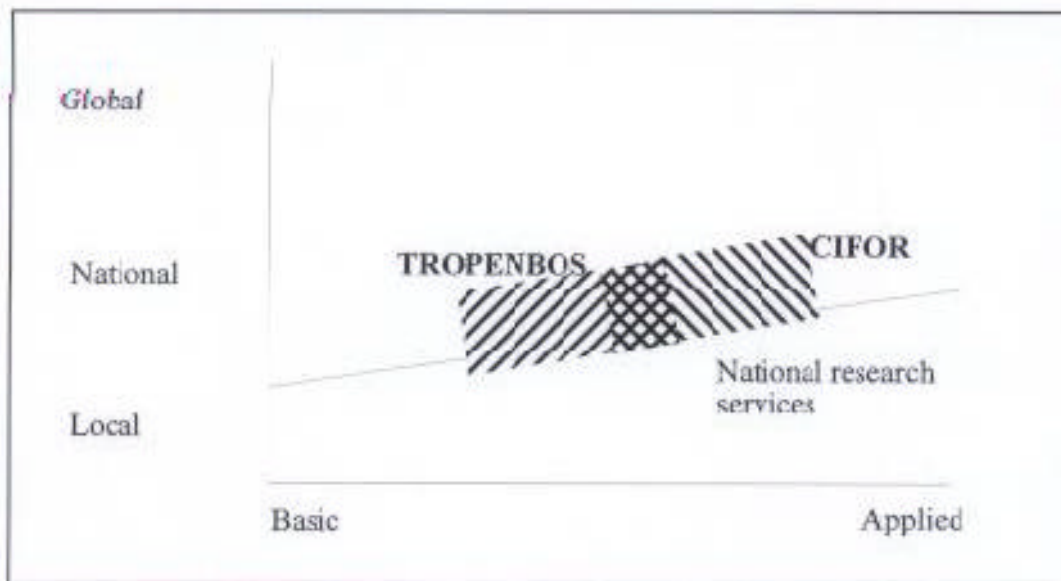


Figure 6 Research domains of CIFOR and the Tropenbos Foundation

Resources need to be allocated to strengthen the cohesion of the research at each site so that the whole-research impact becomes greater than the sum of the parts. Similar gains in terms of more broadly generalisable outputs can probably be obtained by exploiting a number of potential synergies and complementarities between sites. The present conference and other similar ones will contribute to inter-site collaboration. There may also be opportunities to take inter-site initiatives on specific themes. Work by Tropenbos on non-timber forest products and biodiversity has already gone some distance

in this direction. The past investments in Tropenbos have enabled the Foundation to get to the stage where it has the potential to have a major impact on the global forest agenda. CIFOR, in particular, sees Tropenbos as a major strategic partner and will continue to strive to work in partnership with the Foundation.

Together, CIFOR and Tropenbos must also align themselves with other initiatives and changes that are taking place in the world of forests and forestry. In particular, we must evaluate our potential contribution to the work of the Intergovernmental Forum on Forests (IFF). Austria and Indonesia will be co-hosting an inter-sessional meeting of the IFF at Ort/Gmunden in Austria in September 1998, to bring together scientists, decision-makers, and other forest stakeholders to produce recommendations for the IFF on global research and information needs for forests and forestry. This paper attempts to set out some of the considerations that will be important in thinking of these issues. It also aims to stimulate a debate which will help to strengthen the combined capacities of CIFOR and Tropenbos to meet these challenges.

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Challenges and Problems; Information Needs

- New types of forest research institutions and a new culture of forest research are required: science that operates at the scale of landscapes and not stands, that allows the optimisation of a number of products and not the maximisation of one, that treats forests in their social context and does not pretend that they exist in a 'people-free' environment and it requires management that can adapt quickly to changing social and economic conditions.

Points for Future Research

- Tropenbos' special contribution may be to develop our capacity to predict the response of these systems to a variety of management interventions.
- CIFOR's contribution lies in drawing on the information produced by Tropenbos and other upstream science to generate options for institutional and policy interventions to achieve sustainable forestry.
- Give increased emphasis, and resources, to achieving greater integration to the management of research within each site.

Conclusions

- Optimal utility of the residual forests will come from an appropriate balance between management for environmental functions and for the variety of products whose harvesting is consistent with the maintenance of these environmental functions.
- The role of public forest research institutes in the future should be to provide the scientific underpinnings for multiple use forest management with a heavy emphasis on environmental public goods and the equitable distribution of costs and benefits.

