

## **RESULTS OF DUTCH RESEARCH**



## **DUTCH-FUNDED RESEARCH ON TROPICAL RAIN FORESTS**

**Prof. Dr. K. Verhoeff**

*Chairman of the Programme Advisory Committee of the Tropenbos Foundation*

### **THE STATE OF THE ART**

Tropical rain forests are among the most species-rich ecosystems in the world, providing a habitat for humans and for wildlife, and a source of subsistence for indigenous people and others. Because of their specific nature, their great importance, and the fact that vast areas of forest are disappearing as a result of demands for agricultural land and for timber, they require special attention. For these reasons, the Dutch Government decided to give special attention to this problem by formulating a tropical forest action plan.

The main objectives were formulated in a policy paper in which nine policy strategies were outlined:

1. Actively protecting the surviving rain forests;
2. Encouraging planned land use and land management along with sustainable agriculture and forestry;
3. Encouraging the tropical timber trade in controlled harvesting and in the formulation and implementation of long-term planned timber production;
4. Giving an increased scope to national and international tropical rain forest policies by strengthening research and institutions;
5. Providing national and international encouragement for afforestation and reforestation projects;
6. Strengthening institutions and legislation; empowering local populations;
7. Strengthening the political and social base in tropical nations;
8. Improving economic relations and relieving debt burdens;
9. In principle, no collaboration with projects or developments that are harmful, or potentially harmful, to the rain forest.

Based on that document, additional funding became available for research in tropical rain forests (i.e. fundamental, strategic, and applied research to support the policy strategies set out in the policy paper).

The funding and steering of research in tropical rain forests is done by five Dutch ministries:

1. The Directorate-General for International Cooperation of the Ministry of Foreign Affairs;
2. The Ministry of Education, Culture, and Science (through the National Science Foundation);
3. The Ministry of Agriculture, Nature Management, and Fisheries;
4. The Ministry of Economic Affairs;
5. The Ministry of Housing, Physical Planning, and the Environment.

The first two ministries listed are the most important.

The research is implemented in four ways:

1. Research coordinated and/or executed by Dutch institutions and largely financed by the Dutch Government (e.g. the Tropenbos Foundation; the National Science Foundation/NWO; the National Remote Sensing Programme/NRSP; and the National Research Programme on Air Pollution and Climate Change/NRP);
2. International research institutions financially supported by the Dutch Government (e.g. CIFOR);
3. Research funded by the Netherlands and executed by national institutions in countries with tropical rain forests;
4. Research (primarily) financed by international or foreign funding agencies (e.g. the International Tropical Timber Organisation/ITTO) and implemented by Dutch institutions.

The main research programmes on tropical rain forest in the Netherlands are:

- The Tropenbos Foundation, which conducts research and development to support conservation of biodiversity and sustainable forest use. Strategic and applied research is being done in Indonesia, Colombia, Guyana, Cameroon, and Côte d'Ivoire.
- The Priority Programme of the National Science Foundation, entitled 'Biodiversity in Disturbed Ecosystems', which is providing tools to conserve biodiversity. Research projects are being implemented in Indonesia, South East Asia, Costa Rica, the Amazon region, and Cameroon.
- The National Remote Sensing Programme, with the working group 'Remote Sensing Research of Forests'. Remote sensing techniques are being used for the systematic observation and monitoring of forests to support sustainable forest management. Work is being done in Indonesia, Brazil, and Guyana.

Table 1 Participation of Dutch institutions in national research programmes

<b>National research programme</b>				
	NRP-II	NRSP-2	NWO-biod	Tropenbos
<b>Universities</b>				
RUG			○	○
RUL	○	○		●
UU				●
UvA			●	●
WAU	○	●	○	●
<b>Research institutes</b>				
DLO		○		●
RIVM	●			
ITC		○		○
NNM			○	○
CBS			○	○
CTO-NIOO			○	

! > 3 fte involvement in TRF research

" < 3 fte involvement in TRF research

How the different Dutch universities and research institutes are participating in these four national programmes is shown in Table 1. Of the programmes and projects being implemented by Dutch universities and funded in part by these universities, and by the National Science Foundation and others, I would like to mention the following:

- PROSEA, an international programme focussed on South East Asia. The purpose of PROSEA is to make the wealth of knowledge on plant resources available for education, extension, research, and industry, through a computerised databank and an illustrated multi-volume handbook. The Wageningen Agricultural University is the focal point in the Netherlands;
- Flora Malesiana, with the Herbarium of the University of Leiden as the focal point;
- Fauna Malesiana Terrestica, with the National Natural History Museum in Leiden as the focal point;
- Flora of the Guianas, with the Herbarium of the Utrecht University as the focal point;
- Centre for Environmental Sciences in Leiden, with a programme on Environment and Development. Work is being done in the Philippines, Ecuador, and Cameroon;
- PROMAB, sustainable use of forest products in the rain forest of Northern Bolivia, a programme of the Utrecht University;
- The Forestry Department of the Wageningen Agricultural University, with the programme 'Ecology, Silvicultural Systems, and Management of Tropical Rain Forest'. The work is concentrated in Cameroon and French Guyana, with additional projects in other parts of the world;
- The Agricultural Research Department of the Ministry of Agriculture, Nature Management, and Fisheries, which is implementing various projects, mainly in connection with other larger programmes (e.g. Tropenbos and the National Remote Sensing Programme).

Figure 1 shows the participation of Dutch universities, research institutes, non-profit organisations, and private consultancy firms in research on tropical rain forest.

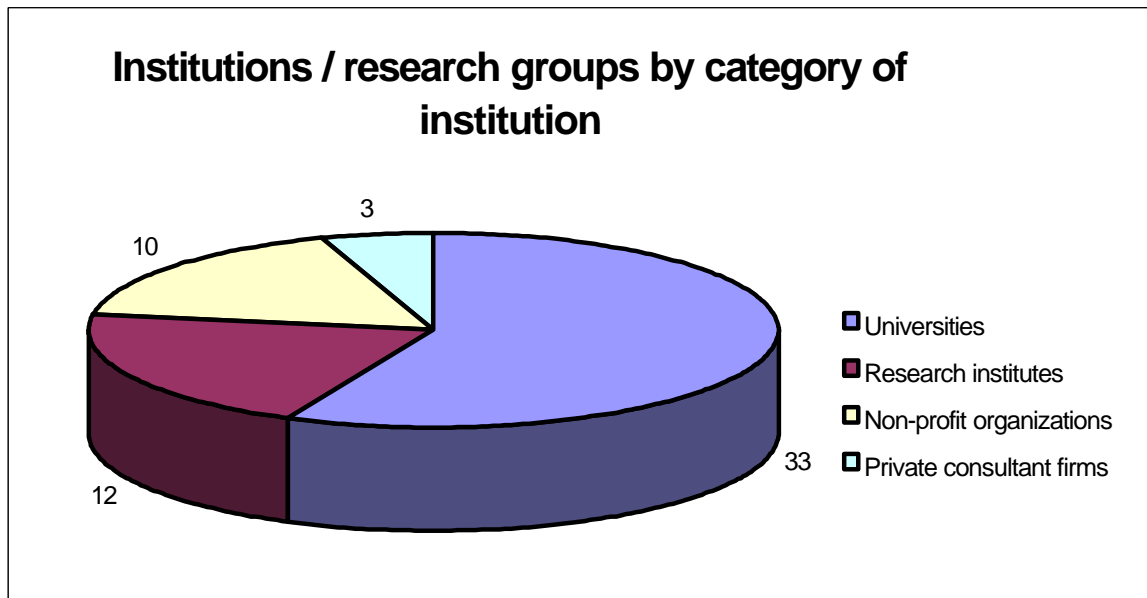


Figure 1 Institutions/research groups by category of institution

Figure 2 shows the volume, in man-years, of the research work being implemented in tropical rain forests by Dutch universities, research institutes, and non-profit organisations. Most of the research work is being done by PhD students, mainly for financial reasons. They are guided by senior staff of the research organisations.

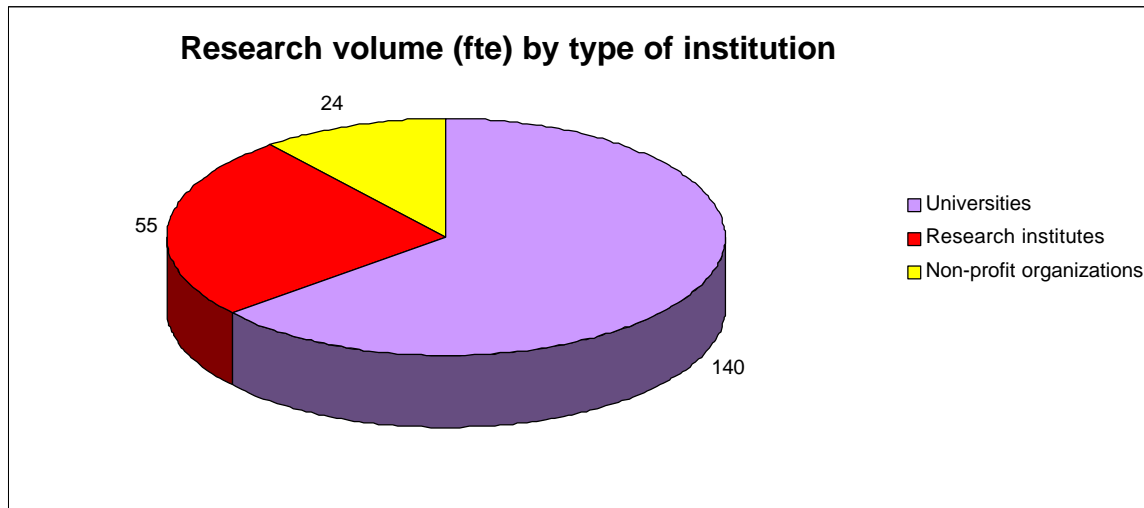


Figure 2 Participation of Dutch institutions in (inter)national research programmes

There are, of course, linkages between programmes and with international programmes, funded by others. Examples are CIFOR (Center for International Forest Research), IGBP (International Geosphere and Biosphere Programme), and LBA (Large-scale Biosphere- Atmosphere Experiment in Amazonia).

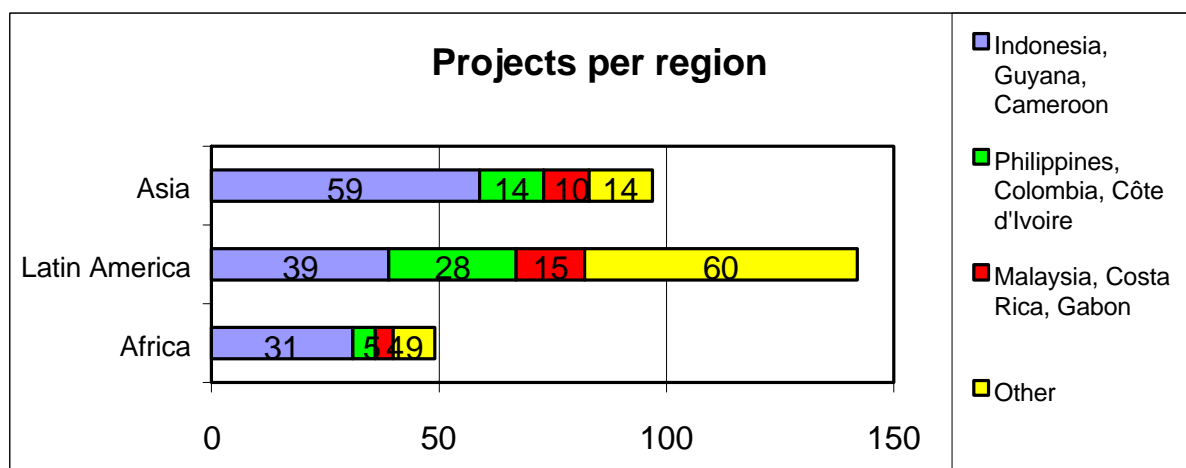


Figure 3 Geographic orientation of Dutch TRF research

A map showing the areas in the world where the research is being, or has been, implemented demonstrates that the work in Asia and Africa is somewhat concentrated in one or two countries: Cameroon in Africa and Indonesia and the Philippines in Asia (Figures 3 and 4). In contrast, the work in Latin America is more evenly distributed over a larger number of countries, with the highest concentration in Colombia and Guyana.

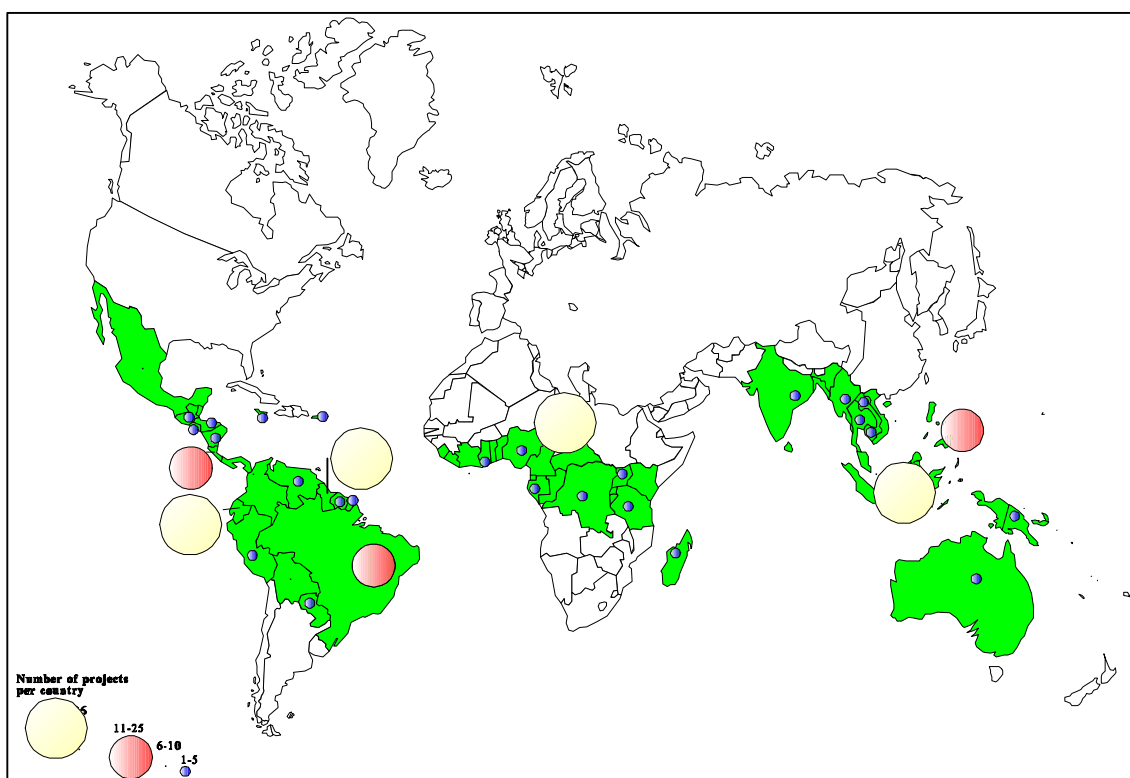


Figure 4 Geographic orientation of Dutch TRF research

The emphasis of much of the research work is in the field of ecology and, within this sub-discipline, in plant ecology. This is shown in Figures 5 and 6. As such, this is quite understandable, because work in forests starts with gaining ecological knowledge of the vegetation and the various processes involved with this. At a more detailed level, it appears that the research work is concentrated on:

- Conservation and biodiversity;
- Sustainable forest management;
- Sustainable land-use planning;
- People-forest interaction.

Less attention has been given to the utilisation, processing, and trade of forest products; policy and the legal and institutional framework; the reforestation and restoration of secondary forests and the use of their products; information, communication, and extension; and climate change.

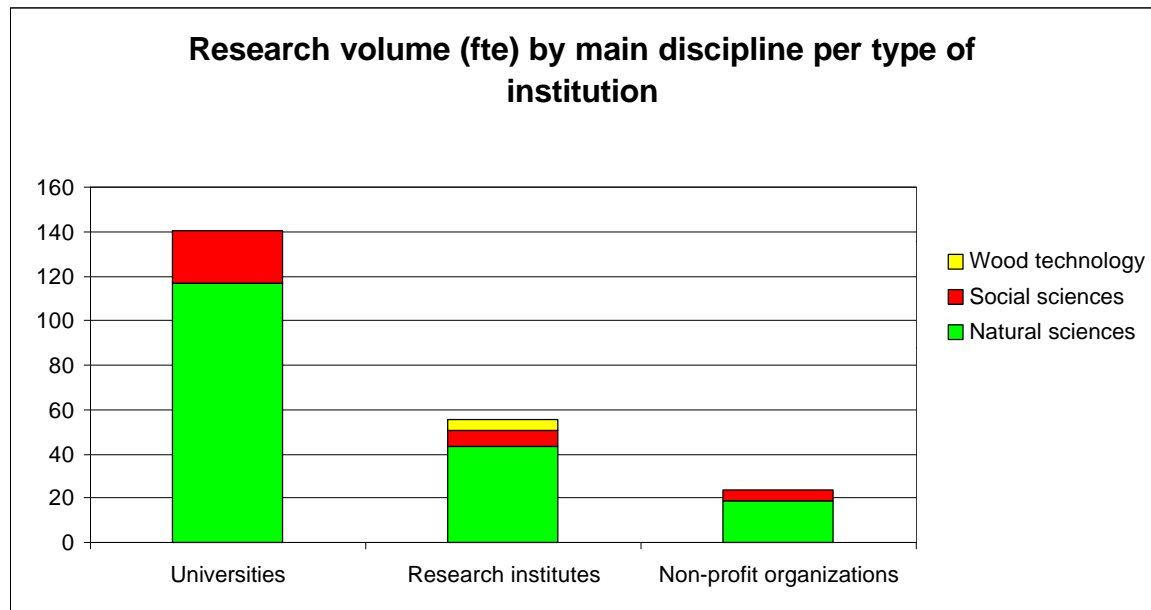


Figure 5 Research volume (fte) by main discipline per type of institution

Although a number of research programmes on tropical rain forest have started only recently, interesting and important results have already been obtained. More information can be found in other papers in this book, but I would like to mention a few, at the same time indicating the impact of that work:

- A number of volumes of the PROSEA handbook have been published and were well received;
- The same holds for volumes of the Flora Malesiana and the Flora of the Guianas;
- The CELOS system for timber harvesting in rain forests is being used in other locations (e.g. in Brazil);
- Work on the Tropenbos site in Indonesia has led to adaptations in the Indonesian forest policy and regulations, to the successful re-planting of Meranti trees, and to the re-introduction of Orang-utans;
- The results of the work on the Tropenbos site in Colombia were used for the elaboration of a Colombian research strategy and land-use planning.

Some preliminary conclusions can be drawn.

Publications, reports, and other means of disseminating results show that the Dutch-funded work in tropical rain forests is successful. Not only is this work cited in other publications, but it has already led to the implementation of the >wise use of tropical rain forest=. In addition, communication and collaboration with timber companies is receiving more and more attention.

A first glance at the database of Dutch research, now available at the Tropenbos office (Simons 1997), shows that the research projects are well-attuned to the priorities defined in the Dutch policy on tropical rain forests. But there are also some points that are lacking or under-represented.



A major shortcoming in most of the research work, as yet, is the lack of integration of its results. This integration is badly needed because, as said before, most of the work is being done by PhD students. This work tends to become somewhat mono-disciplinary, which is fair enough for the students, as they have to finish their work in a fairly short period and with a thesis as their final document. Unfortunately, the integration of the various results of these theses is usually not budgeted for. This needs to be done, however, as such information is necessary for >translation= for policy makers and for implementation by the various governments. It ought to be done by senior scientists, or by the PhD students after finishing their thesis work.

Another shortcoming is the virtual neglect of the socio-economic aspects of ecosystems and biodiversity conservation (e.g. attitudes of local communities and property rights). The involvement of social and societal sciences is still marginal. This hinders a real multidisciplinary approach. In addition, the current contribution of social sciences to the development of alternative land-use options is insufficient.

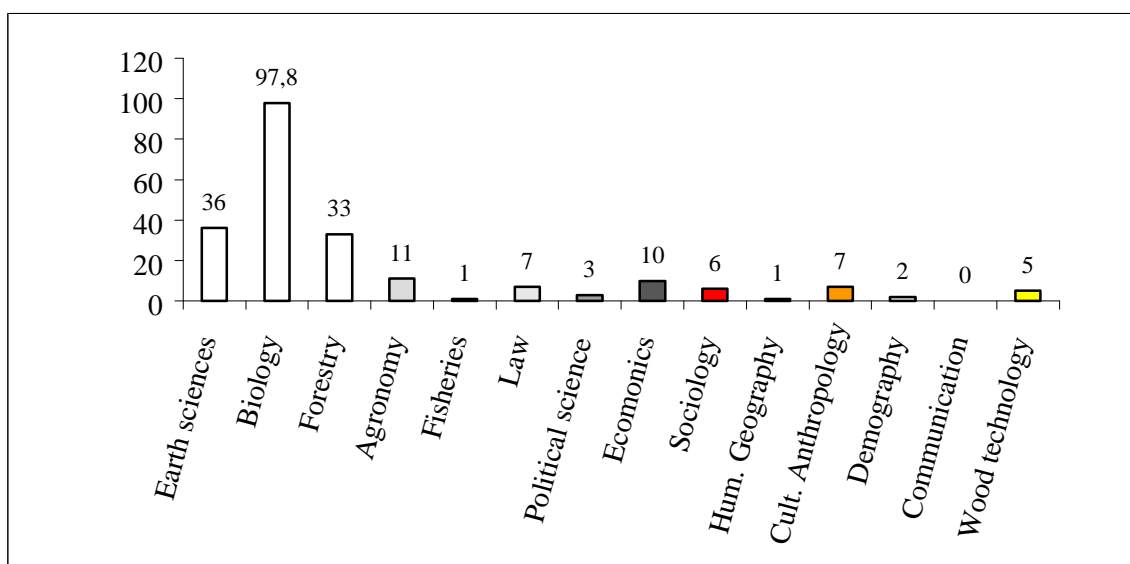


Figure 6 Research volume (fte) by scientific discipline

Whether Dutch research on tropical rain forests is adequately geared to developing strategies related to all the priorities set in the Dutch policy paper is not so easy to say. One should bear in mind that, of all the research world-wide in and on tropical rain forests, the Dutch work is a relatively small part. But considering the results obtained so far, it must be said that the Netherlands is definitely playing a role.

Furthermore, it would be a waste of money if the Dutch expertise in various fields on, and related to, tropical rain forests is not used.

For the coming years, the following points can be raised:

- The number of programmes and projects funded completely or partly by the Dutch Government, directly or indirectly, is quite large, namely 72 different groups. Although all on-going research is now in a databank, this does not guarantee that coherence between the various projects will be improved. I think it would be wise to have not only a central registration of projects, but also a sort

of clearing house, which would advise researchers planning to conduct work in tropical forests on opportunities for the combination with other work, sites where the work could be most successfully implemented, and so on. A clearing house will convince (if still necessary) the funding agencies that their money is being efficiently used. It will make research programmes more coherent and effective.

- Up till now, the scientific community has been playing a dominant role in formulating the research programmes. This means that the process of ‘translating’ general policy strategies into a research agenda is primarily in the hands of the research community. Is that correct?
- In addition to demand-driven research, there has to be sufficient funding for basic research. Demand-driven research has to be supported by results of basic research. Is there a balance between demand-driven and basic research in tropical rain forests?
- ‘Translation’, dissemination, and extension of the results of scientific research for policy makers need to be improved. Is this a matter of public relations only?
- The current contribution of social sciences is not sufficiently reflected in land-use planning and biodiversity conservation programmes. Social scientists execute their research separately and their research methodologies often do not match with those of the biological sciences.
- Multidisciplinary work is still scarce; social scientists and biologists do not speak each other's language.
- NTFP research is a focal issue in socio-economic research. Is that correct?
- Should Dutch-funded research focus on certain themes and thus play a more specific role in the international research community on tropical rain forests?

## **REFERENCE**

Simons, H.W. (1997). *Dutch research on tropical rain forests: an overview and analysis*. Tropenbos Documents 13, The Tropenbos Foundation, Wageningen, the Netherlands.

**Achievements**

- Dutch-funded work is cited in other publications, and has already led to implementation into the 'wise use of tropical rain forest'.
- There is a good attunement and matching of the research projects with the defined priorities of the Dutch policy on tropical rain forest.

**Challenges and Problems; Information Needs**

- Integration of scientific results is required because of existing tendency to monodisciplinarity.
- There is an under-representation of the study of socio-economic aspects of ecosystems and biodiversity conservation, like attitudes of local communities and property rights.
- Involvement of social and societal sciences to tropical rain forest research is marginal.
- Social scientists and biologists do not speak each others language.

**Points for Future Research**

- A clearing house should advise on opportunities for scientific cooperation and appropriate localities for carrying out research.
- Improve the involvement of policy makers in setting of research agendas, and translation of results towards them.
- Improve the balance between demand-driven and basic research.

**Conclusions**

- A large number of Dutch (research) organisations and universities is involved in research in tropical rain forests, distributed over 72 research projects and -programmes.
- The emphasis of much of the research work is in the field of ecology and within this sub-discipline, in plant ecology, with special attention for conservation and biodiversity, sustainable forest management and land use planning, and the people - forest interaction.
- Less attention has been given to utilisation, processing and trade; policy, the legal and institutional framework; reforestation and restoration of secondary forest and the use of their products; information, communication and extension; and climate change.

