

## **EFFECTIVE RESEARCH FOR THE CONSERVATION AND WISE UTILISATION OF TROPICAL RAIN FORESTS**

**E.M. Lammerts van Bueren and H.C. Vellema**

*The Tropenbos Foundation*

### **INTRODUCTION**

This presentation elaborates on the question of when research is effective for the conservation and wise utilisation of tropical rain forests. We present five criteria that should be met for research to be effective. The managerial tasks and challenges to meet the criteria are subsequently highlighted. Finally, some observations are made on interdisciplinary research.

### **1. THE QUESTION OF EFFECTIVE RESEARCH**

The aim of Tropenbos is to contribute to the conservation and wise utilisation of tropical rain forests. The Foundation does this by generating relevant knowledge and insights, and by developing techniques and methods to implement forest policy and management.

The effectiveness of scientific research as being conducted by Tropenbos can be assessed against five criteria. Research must be (1) relevant; (2) scientifically sound; (3) the results must be accepted; (4) the results must be applied; and (5) their application must have a positive impact on tropical forest ecosystems and on socio-economic systems.

The requirements on programme management in meeting these criteria are given special attention and some are further elaborated in Section 2.

#### **1.1 Research must be relevant**

Research should be relevant to the social and policy issues that are being addressed. This is particularly of interest to policy makers, forest users, NGOs, and donors.

It must be relevant to training and capacity building, being spearheads to achieve a definite anchorage in the country. The main interested parties are policy makers, forest users, research institutions, and donors.

And, last but not least, research should be relevant to those who are conducting the research. Here, the interest of research institutes is most profound.

The selection of relevant issues requires programme management:

- To conduct participatory procedures to identify forest policy and management issues and to set priorities. Tropenbos has gained experience with two processes: (1) Project Rapid Rural Appraisal and (2) the Objective-Oriented Planning Procedure;
- To match and reconcile the different interests of different partners.

From the fields of interest of the different parties distinguished above, it is clear that matching these interests requires specific efforts. Universities are focussed on the scientific interest of the subject and the scientific quality of the results, whereas forest users and policy makers are much more interested in an outcome that is meaningful for their purposes.

### **1.2 Research must be scientifically sound**

Research results must be fully accountable and verifiable to support the credibility of information and advice.

- Programme management should secure a strong commitment from the scientific community.

### **1.3 Research must be accepted**

Research results must be accepted by the different partners, specifically by those who are directly responsible for planning and managing the forest use.

Some prerequisites for acceptance:

- Research should produce knowledge and insights that cannot be ignored, and hence should determine planning and actions;
  - Implications of research findings must be presented to the users of these results in understandable language and digestible portions;
  - Recommendations must be realistic (financially, socially) with a potential for immediate application;
  - Acceptance will be promoted by the long-term presence of all involved, including interested groups, and by good communication among those involved. Agreements at a high policy level should provide favourable conditions for support to the programme and for the acceptance of the results at that level.
- Programme management should continuously provide conditions to involve policy makers and forest users, to solicit their input, and to keep their interest during the course of the programme.

### **1.4 Research must be applied**

This requirement lies beyond the responsibility of research managers. Whether research results are applied is heavily dependent on political will or political power. Results accepted at a certain decision level may not be applied if they are undesired by a more influential decision level or by a group of users who are beyond the control of the national or sub-national administrations.

- During the course of a programme, *research management* should deliberately work at establishing and extending a network with the aim of promoting favourable conditions for the implementation of the research recommendations.

### **1.5 Evaluation and monitoring**

Indispensable for programmes like those of Tropenbos is the availability of a system to evaluate the effect of a research programme on forest policy and management. Unfortunately, evaluation methods to assess the impact of strategic research programmes still have to be elaborated or tested. Tropenbos, together with a scientific consultant agency, Sci Quest, has made a first attempt to develop a methodology to measure the success of a programme. This methodology, however, still appears to be too rigid a framework to be applied by persons who were not involved in its design.

Finally, in cases where research results and recommendations are applied, they should be monitored as to their real impact on the conservation of forest ecosystems, on the contributions of these resources

to the local and national economy, and on the social conditions of the local population.

- Programme management needs to develop and implement evaluation and monitoring systems.

## **2. MANAGERIAL TASKS**

Some of the managerial tasks, notably those referred to under the criteria of relevance and acceptance, will be more extensively elaborated.

### **2.1 Securing the societal relevance of research**

In the context of this presentation, research is of societal relevance if it provides information, insights, and methods indispensable for sound policy and management for the conservation and wise use of tropical rain forests. Securing the societal relevance is a point of attention throughout the whole project cycle.

Tropenbos distinguishes four stages in the project cycle, during which continuous monitoring and regular evaluation should take place. The first three stages of the cycle (Figure 1) are under the control of the programme management. They are (1) programme formulation, (2) programme execution, and (3) the dissemination and translation of results. Stage (4) is the implementation resulting in a positive impact on ecosystems and social conditions. The realisation of this stage is in the hands of policy makers and forest managers or users.

Specifically, Stage 1 (i.e. programme formulation) needs closer observation. Several steps can be distinguished, each of them requiring specific attention and procedures.

1. Identification of societal problems and/or targets;
2. Identification of policy and management objectives and prioritisation on the scope of the programme;
3. Identification of information needs;
4. Formulation of research questions;
5. Decisions on project objectives and output.

The first two steps can be tackled together. The outcome is information in terms of forest policy and management issues. The third step provides an insight into the information needs and shows the necessity for prioritisation on the scope and subjects of the research programme. Priority setting selects the issues and sub-issues to be addressed by the research programme. These (sub)issues are formulated in forest policy and management terms. This is followed by the formulation of the research questions, and finally institutions/scientists will be assigned to formulate and execute the research projects.

An example of the transformation of a policy question (Step 3) into a research question (Step 4) and into a research project (Step 5) is the following. Policy-makers face the challenge of designing a network of protected areas with the aim of covering close to 100% of the biodiversity occurring in the natural forests. Policy questions are: where to locate the protected areas, and what size should they be? Research questions are: what biodiversity occurs, what are their distribution patterns, and what is the impact of fragmentation on (generic) diversity? Projects that will be formulated to address these questions should be tested on their effectiveness and efficiency against possible alternative projects.

Programme management faces the challenge of selecting and conducting participatory procedures to identify forest policy and management issues and to set priorities. It is strongly recommended to involve professionals to guide such procedures as Rapid Rural Appraisal (RRA), Participatory Rural Appraisal (PRA), Participatory Technology Development (PTD), and Objective-Oriented Project Planning (OOPP).

## 2.2 Involvement of different partners in the project cycle

The input in the first stages of programme formulation must be dominated by forest policy makers, forest users and managers, and NGOs (Figure 1). Those who are supposed to benefit from the programme should have a strong voice in the focus and prioritisation of the programme elements. The scientific community plays only a modest role in the very first stage of programme formulation, but its involvement becomes much stronger in the course of the process.

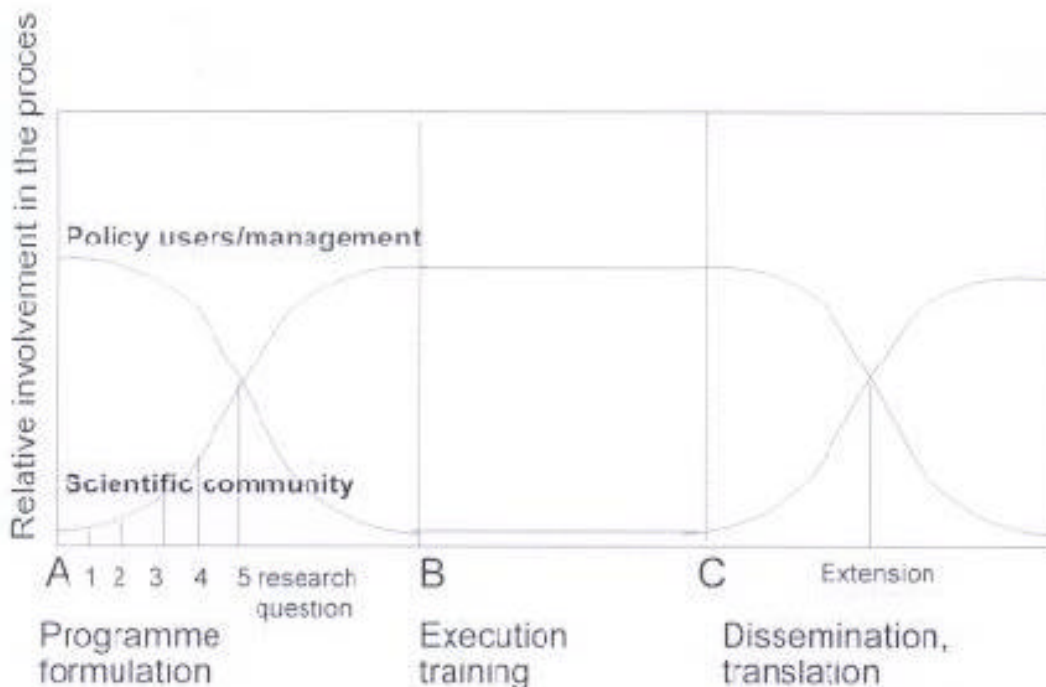


Figure 1

Identifying the need for information, technologies, and techniques is a finely-tuned process requiring a thorough analysis of the forest policy and management decisions and actions that are and will be

taken. The role of scientists becomes more pronounced.

The relevant research questions must be identified in a dialogue between scientists and policy-makers, forest users, and NGOs. The scientific community takes the initiative in project formulation and execution, and in producing the integrated scientific results.

Translation into meaningful information, presented in a digestible way, is again an activity of extension services and programme management, in consultation with the scientists.

In conclusion, emphasis must be put on some crucial conditions for a better chance of success:

- Prioritisation on subjects and scope of the research programme is needed;
- For each subject area, a number of projects must assure sufficient coverage to make meaningful recommendations;
- Formulation of right research questions is an art in itself and should be accomplished in an intensive dialogue between the scientists and the future users of the information or methods.

### **3. INTERDISCIPLINARITY**

By their very nature, research programmes oriented to societal problems are multidisciplinary. The challenge is to make them interdisciplinary. The output of the programme should consist of meaningful recommendations that integrate information from different, closely-linked disciplines (hydrology, soil science, population dynamics), and combining the insights of the a, b, g sciences.

A meaningful integrated outcome starts with an integrated problem approach. A wrong start cannot be compensated for by high-quality disciplinary research. The decomposition of problems into a coherent set of researchable elements is a prerequisite to achieve results that can be integrated into meaningful information for forest policy and forest management.

Some constraints on interdisciplinary research programmes that need the specific attention of programme management are:

- Differences in interest of the scientific community and of forest policy makers and forest users. Matching the interest by careful programme development is the answer, as explained above. Fundamental research questions may be most challenging to the scientific community. It is a misunderstanding that the development of demand-driven social problem-oriented research programmes would prohibit the identification of fundamental research questions;
- Conflict of interests between PhD students and programme management. PhD students have to earn their disciplinary excellence. Time for communication, collaboration, and an exchange of data is often lacking. Management must keep the researchers on track, leading them to the common objective. A solution may be to extend the involvement of PhD students after they have defended their theses;
- Lack of an adequate rewarding system to promote interdisciplinary research. Incentives should reward skills and experiences required for successful team work. In the selection of researchers, programme criteria such as a good team player, disciplinary generalists, should play an important role;
- Project objectives and formulated project output that are too ambitious. This causes delays in project execution and an expansion of project time. Project outputs should be committed through binding contracts;
- Difference in perception and expression between disciplines. Management must recognise these differences and invest time and energy to bring about mutual understanding and respect;

- Difficulties related to planning, presence in the field, and data exchange. Create-use matrix is a tool to identify the production and use of information among researchers. It is a helpful tool to compose packages of projects for submission to funding agencies. Nevertheless, carefully planned time schedules may have to be changed, depending on the availability of funds and thus of the interest of donors, or according to changing circumstances.

Preconditions for the implementation of interdisciplinary research are:

- Allocation of time for communication and collaboration;
- Ample availability of logistic support: the availability of transport, computers, and operational funds creates a supportive environment for interdisciplinary research;
- Funds, capacity, and time for the integration, translation, and dissemination of project results.

#### **4. FINAL COMMENTS**

Effective problem-oriented research requires:

- Complex identification procedures, avoiding disciplinary bias and a dispersed research programme;
- Interdisciplinary programmes;
- Communication strategy, especially when the programme is being conducted in a form of cooperation between countries;
- Long-term presence in the host country;
- Agreements (Memoranda of Understanding) at high policy level.

The management of these programmes requires:

- Experience, focus, and abilities that are complementary to disciplinary skills;
- An environment that is conducive to fulfil these criteria.

The overriding management objective, however, is to keep all players motivated and to give them a sense of co-ownership.

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#### **Challenges and Problems**

- Research must be relevant, scientifically sound, the results must be accepted, the results must be applied and application must have a positive impact on tropical forest ecosystems and the socio-economic systems.
- There are inherent differences in interest of the scientific community, cq. PhD students and of forest policy makers and forest users.
- There are no incentives that promote true inter-disciplinary research.

#### **Conclusions**

- The scientific community plays a modest role in the first stage of programme formulation but its involvement becomes much stronger in the course of the process.
- Effective problem oriented research requires complex identification procedures, avoiding disciplinary bias and a dispersed research programme.
- Interdisciplinary programmes are needed for most societal problems.
- A clear communication strategy facilitates effective research.

