

A Self-learning Course

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# **Planning and Managing Forestry Research**

Volume I

## **A Guide to the Course**

Module 1

### **Forestry Research Planning and Management: An Introduction**



The initial version of this self-learning course was developed by Dr. Allen L. Lundgren, Mr. Scott J. Josiah, Dr. Hans M. Gregersen, and Dr. David N. Bengston at the University of Minnesota, College of Natural Resources, Department of Forest Resources, in collaboration with the International Union of Forestry Research Organizations (IUFRO), Special Programme for Developing Countries (SPDC), and with the advice and assistance of experienced forestry research managers around the world (see the course guide for more detail on the course development).

The course is available from:

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## Complete List of Modules

October, 1994

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### PLANNING AND MANAGING FORESTRY RESEARCH: A SELF-LEARNING COURSE

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#### VOLUME I

##### A Guide to the Course

Module 1

##### Forestry Research Planning and Management: An Introduction

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#### VOLUME II

Module 2

##### Initial Steps in Strategic Planning

Module 3

##### Identifying Key Issues for Forestry Research

Module 4

##### Producing and Disseminating the Strategic Plan

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#### VOLUME III

Module 5

##### Developing the Research Program

Module 6

##### Implementing the Research Program

---

#### VOLUME IV

Module 7

##### Financing and Budgeting

Module 8

##### Providing Support Functions

---

#### VOLUME V

Module 9

##### Managing Human Resources

Module 10

##### Monitoring and Evaluating Research Programs

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#### VOLUME VI

Module 11

##### Developing Research Linkages: Learning from Others

Module 12

##### Communicating Research Results to Users

**Planning and Managing Forestry Research**  
A Self-learning Course

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**A Guide to the Course**



International Union of Forestry Research Organizations  
Special Programme for Developing Countries  
Vienna, Austria

# Guide

## Table of Contents

Acknowledgment .....	ii
Introduction to the Guide .....	1
Outline of Modules and Study Units in the Course .....	1
<b>Study Unit 0.1 -</b>	
<b>Purpose, Audience, and Development of the Course .....</b>	<b>3</b>
Purpose of the Course .....	4
Intended Audience .....	4
Development of the Course .....	5
Activities - Study Unit 0.1 .....	8
Summary .....	10
<b>Study Unit 0.2 -</b>	
<b>Course Structure and Outline .....</b>	<b>11</b>
Course Structure .....	11
Outline of the Course .....	12
Activities - Study Unit 0.2 .....	15
Summary .....	16
<b>Study Unit 0.3 -</b>	
<b>Self-assessment of Training Needs and Suggestions for Study ..</b>	<b>17</b>
Skills and Knowledge Required for Management .....	17
Why Do I Need to Assess My Own Strengths and Weaknesses? ....	18
Approaches for Using the Course .....	18
Activities - Study Unit 0.3 .....	19
Summary .....	34
<b>LITERATURE CITED .....</b>	<b>35</b>
<b>APPENDIX 0.1 .....</b>	<b>38</b>
<b>APPENDIX 0.2 .....</b>	<b>39</b>
<b>APPENDIX 0.3 .....</b>	<b>40</b>

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## Publisher's Acknowledgment

**T**his course represents a great deal of effort by many people, over a long period of time. Foremost credit goes to Authors Lundgren, Josiah, Gregersen, and Bengston at the University of Minnesota, as well as the dozens of forestry research managers around the world who made substantive contributions. Their creative, intellectual input is the basis for the course.

No less vital was the financial backing of the United Nations Development Programme (UNDP), who committed funds in December 1989, based on a request by Oscar Fugalli, Coordinator of the IUFRO Special Programme for Developing Countries (SPDC). The result was UNDP Interregional Project INT/90/016/A/01/42, "Strengthening Forestry Research in the Developing Countries, Phase II." The project document, completely redrafted by second SPDC Coordinator Lorne Riley, designated the International Bank for Reconstruction and Development (IBRD, the World Bank) as the executing agency, and the International Union of Forestry Research Organizations (IUFRO) as the implementing agency. A contract signed by IBRD and IUFRO in October 1991 set the project in motion.



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*Thanks to all those named and unnamed for their commitment and their effort. We hope the result is justified by benefits to course users through their increased skill in the management of forestry research, wherever in the world they are located.*

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A third vital contribution was the administration of the contract, provided for by Lorne Riley through 1993. He selected the Minnesota team as authors and prime contractors, and he identified Albert Giroud and Ruben Guevara Moncada as leaders for the French and Spanish versions, respectively. For the World Bank, indispensable transfers of funds, advice, and last-minute rescue operations were provided by Beverly McLaughlin.

As the third SPDC Coordinator, I was lucky enough to join in when most of the work was already done, and to encourage three language teams as they approached the finish line. I had the pleasure of working with senior author Allen Lundgren, and with Jane Scott of Beecher-Scott, Inc., who prepared the English version for printing. Special thanks to Clara Schreiber, University of Minnesota Department of Forest Resources, for her creative and tireless effort in putting together the original word processing with its many revisions.

Thanks to all those named and unnamed for their commitment and their effort. We hope the result is justified by benefits to course users through their increased skill in the management of forestry research, wherever in the world they are located.

Brian R. Payne  
Vienna  
December, 1994

## Introduction to the Guide

### **Study units covered in this guide**

#### **Study Unit 0.1.**

*Purpose, audience, and development of the course*

#### **Study Unit 0.2.**

*Course structure and outline*

**Study Unit 0.3.** *Self-assessment of training needs and suggestions for study*

**W**elcome to the self-learning course on the planning and management of forestry research! This course is specifically designed for self-study by those who are interested in the planning and management of forestry research. The course consists of a set of twelve relatively self-contained modules, each of which covers a broad topic that relates to forest research planning and management. Within each module, we have prepared several individual study units that explore in greater detail the topic of each module.

In this initial module, you'll be introduced to the overall content and organization of the course. You'll read about the purpose of the course and learn how the course is structured. You'll also assess your particular research planning and management skills and abilities, and develop an independent course of self-learning

*Following is an outline of modules and study units for a self-learning course on the planning and management of forestry research.*

### **PART I. INTRODUCTION TO THE COURSE**

#### **A Guide to the Course**

- 0.1. Purpose, audience, and development of the course
- 0.2. Course structure and outline
- 0.3. Self-assessment of training needs and suggestions for study

#### **Module 1. An Introduction**

- 1.1. Scientific research and the innovation process
- 1.2. Diversity of organizations conducting forestry research
- 1.3. Overview of the planning and management process
- 1.4. Responsibilities of the research manager

### **PART II. STRATEGIC PLANNING FOR FORESTRY RESEARCH**

#### **Module 2. Initial Steps in Strategic Planning**

- 2.1. Developing a strategic planning process
- 2.2. Identifying and clarifying organizational mandates
- 2.3. Identifying stakeholders and their concerns
- 2.4. Addressing the concerns of policy makers
- 2.5. Formulating a research mission statement

### **Module 3. Identifying Key Issues for Forestry Research**

- 3.1. Determining the research needs of users
- 3.2. Distinguishing between information needs and research needs
- 3.3. Assessing external and internal environments affecting research
- 3.4. Identifying emerging issues related to natural resources and forestry
- 3.5. Determining strategic issues and setting research priorities

### **Module 4. Producing and Disseminating the Strategic Plan**

- 4.1. Formulating strategies to address strategic issues and achieve research goals
- 4.2. Designing a format for the strategic plan
- 4.3. Developing consensus and gaining political and public support
- 4.4. Updating strategic plans in response to change

## **PART III. MANAGING FORESTRY RESEARCH**

### **Module 5. Developing the Research Program**

- 5.1. Developing an effective organizational structure
- 5.2. Planning the research program
- 5.3. Linking the strategic plan and the research program

### **Module 6. Implementing the Research Program**

- 6.1. Determining resource needs and other requirements
- 6.2. Developing the annual plan of work
- 6.3. Coordinating activities and uses of resources
- 6.4. Managing time

### **Module 7. Financing and Budgeting**

- 7.1. Financing research programs and organizations
- 7.2. Developing and evaluating research proposals
- 7.3. Preparing budgets
- 7.4. Managing funds
- 7.5. Promoting research programs with funding agencies

### **Module 8. Providing Support Functions**

- 8.1. Providing scientific support services
- 8.2. Providing administrative services

### **Module 9. Managing Human Resources**

- 9.1. Providing leadership
- 9.2. Creating an appropriate environment and incentives
- 9.3. Managing personnel effectively
- 9.4. Providing training and education

### **Module 10. Monitoring and Evaluating Research Programs**

- 10.1. Designing monitoring and evaluation systems for research management
- 10.2. Monitoring research progress toward objectives
- 10.3. Monitoring and evaluating research quality
- 10.4. Monitoring and evaluating the impacts of forestry research

## **PART IV. COMMUNICATION IN FORESTRY RESEARCH**

### **Module 11. Developing Research Linkages: Learning from Others**

- 11.1. Facilitating research networking
- 11.2. Utilizing computer networks

### **Module 12. Communicating Research Results To Users**

- 12.1. Communicating research results for scientific use
- 12.2. Communicating research results for application
- 12.3. Strengthening linkages between research and users



*The course consists of this guide and the twelve modules listed here. Each module has several independent study units.*

# Purpose, Audience, and Development of the Course

## Objectives

*When you have completed this study unit you should be better able to:*

- understand why this course was developed;
- understand the audience for which this course was created, and for whom it is most appropriate; and
- understand the sources of the information upon which this course was based.

**M**anaging forestry research programs is not an easy job. High quality research planning and management are required to produce the results needed to resolve the important forest resource issues that confront society today. As a forestry research manager you are called upon to:

- play an active role in formulating a national forestry research policy;
- develop and implement strategic plans that provide a sense of direction for your organization;
- maintain effective working relationships with key stakeholders outside of the research organization;
- develop and implement operational plans that will outline research activities to carry out the research strategies you have developed;
- develop budgets and obtain funding to finance planned research activities;
- provide research support services, including scientific support and administrative services;
- provide leadership to the organization, and manage the research and support personnel under your direction;
- monitor and assess research program activities and results;
- develop linkages with other researchers and research organizations; and
- ensure that research results are effectively communicated to potential users.

This self-learning course is intended to help you improve the management skills you need to effectively manage the forestry research organization or unit that is your responsibility. In this course you will find helpful suggestions for dealing with the tasks outline above, and others as well.

We encourage you to begin the course by reading this brief introductory study unit, where you will learn about the purpose of



*The information presented here is drawn from a wide range of sources, but is based primarily upon FAO Forestry Paper 96, "Planning and managing forestry research: Guidelines for managers," by Gregersen, Lundgren, and Bengston (1990), published by the Food and Agriculture Organization of the United Nations. However, the outline and structure of the course has been changed considerably from that earlier document.*

this course, who it is intended for, and how it was developed. You'll be introduced to the self-assessment activities that are an important part of each study unit. You also will become familiar with the general outline that is common to all study units of the course.

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## Purpose of the Course

This set of distance learning modules was designed to provide a systematic course for self-study about principles and practices of planning forestry research programs and managing forestry research organizations and research units. It brings together in one place a considerable amount of previously scattered information on research management and relates it to the special problems of managing forestry research. Although the course was designed for self-learning, it can be used by managers as a course of study directed at specific topics to help subordinates improve their performance of specific management functions.

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## Intended Audience

This course is specifically designed for current or potential mid-level managers in forestry research organizations who wish to prepare themselves for increased responsibilities in management and administration. In general, the course is aimed at four levels of managerial responsibility within forestry research organizations:

- 1. Directors (including Director Generals)** of research organizations, who have responsibility for planning and managing all phases of operations of the organization;
- 2. Division managers or directors**, who have responsibility for planning and managing a particular function or portion of a research program;
- 3. Heads of research centers or officers** in charge of research stations, who have responsibility for planning and managing research programs and facilities at a particular field location; and
- 4. Project managers or leaders**, who have responsibility for planning and managing a particular research project.

Directors of organizations and other supervisors may wish to target appropriate parts of this course to specific people in the organization to improve particular managerial skills.

The course also is appropriate for forestry researchers and others who wish to improve their planning and management capabilities to meet their increasing management responsibilities in forestry research, including those who function in a university setting.

The course may also be of interest to more experienced research managers who wish to compare their own styles of research planning and management to those suggested here. Sections of the course are quite appropriate for use as an adjunct to existing training courses in research planning and management.

Because it is based upon general principles of planning and management, the course may also appeal to a wider audience, including research managers outside of forestry.

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## **Development of the Course**

The material presented in this course is drawn from a number of sources, including personal experience of the authors and collaborators, and publications related to the planning and management of research and to planning and management in general. However, the development of this course, and FAO Forestry Paper 96 that preceded it, represent a cooperative effort that goes far beyond that of the authors. A great many researchers and research administrators contributed their insights and experiences. The choice of topics to be covered, and the relative emphasis given to each, was based on both formal surveys of research administrators and informal discussions with many individuals directly involved in research planning and management.

Some of the formal surveys that contributed to the design of this course and the preceding FAO publication include:

- a survey of forestry research planning and evaluation in developing countries, undertaken by the University of Minnesota in collaboration with the International Union of Forestry Research Organizations (IUFRO) (Gregersen 1984);
- a survey of factors influencing research capacity in forestry research organizations in developing countries, undertaken by the University of Minnesota in collaboration with IUFRO (Bengston 1986; Bengston and Gregersen 1988);
- a survey of research directors in the Asia-Pacific region, undertaken by the East-West Center (Lundgren, Hamilton and Vergara 1986);
- a survey of research organizations in developing countries that are members of IUFRO, undertaken by the International Task Force on Forestry Research (ITFFR) as background material for the Bellagio II (Wiston House) meeting; (ITFFR 1988 and Gregersen 1988);
- regional surveys undertaken by members of the ITFFR (Bellagio II Task Force), published as background papers to the main report

of the Task Force (e.g., deCamino 1988, Iyamabo and El-Lakany 1988, Huguet 1988, Salleh and Abdul Manap 1988);

- numerous FAO surveys and studies (see FAO studies cited in the literature cited section of this module);
- a survey of participants in the International IUFRO Workshop on Management of Forestry Research, Farnham, UK, April 1989 (Lundgren 1989); and
- a survey of, and consultations with, heads of forestry research organizations from African countries during the IUFRO Workshop on Forestry Research Management, Nairobi, June-July 1989 (Iyamabo 1990).

In addition to these surveys and studies, the authors had the benefit of advice from a number of individuals with long experience in the management of forestry research organizations in developed and developing countries.

The preparation of this course involved the collaboration and cooperation of many experienced forestry research managers in Asia, Africa, and Latin America. The original complete English-language draft of this course was sent to a number of forestry research managers and organizations in Asia and Africa who had expressed a willingness to participate as reviewers. Copies of this original draft also were sent to the team leaders who were coordinating the translation and testing of the French and Spanish language versions of the course. Responses with comments on the course and suggested revisions were received from 14 research managers, some representing more than one individual who participated in the review (see appendix 0.1 for a list of responding reviewers).

In response to these comments and suggestions, the English-language version of the course was revised. This revised version was sent to seven forestry research managers from Asia and Africa forestry research institutions, who had been selected from among previous reviewers to participate in an English-language workshop held in Kuala Lumpur, Malaysia (see appendix 0.2 for a listing of workshop participants). This workshop was held to develop final revisions of the English-language version of the course that would better meet the needs of intended users. Following the workshop, the suggested revisions were incorporated into another revision of the manuscript. Copies of this third version of the course were sent for review to two members of the English-language workshop who had been selected to participate in a final workshop, and to the coordinators of the French and Spanish translation/testing teams. Meanwhile, the French and Spanish teams had conducted their own reviews and workshops for their respective versions of

the course. A final workshop, composed of representatives from the English, French, and Spanish teams (see appendix 0.3 for a list of participants) was held to reconcile the three language versions of the course, and to coordinate preparation of the final version. This final workshop resulted in some reorganization of study units within the course in response to comments and suggestions by the participants. The fourth and final English language version of the course was completed in September 1994.

Some of the self-assessment exercises used in the course have been adopted and adapted from numerous published sources, including those developed by the International Service for National Agricultural Research (ISNAR). In all cases, permission was sought and obtained for the use of copyrighted materials, and throughout the course credit is given to the source of the information incorporated into the course.

The materials in the course related to the planning and management of research rely heavily upon basic management principles that have appeared in the English-language literature over the past three decades or so, much of it from the United States. The principles outlined in the course are not meant to prescribe a particular course of action, but rather to suggest ideas and principles that the authors believe are worth considering. Because the management of forestry research around the world is carried out under such diverse circumstances, it is likely that the management principles and techniques outlined in the course will have to be modified and adapted to fit the local management and cultural context.

There is no single prescription for successful management, no one correct way to manage forestry research. What this course attempts to do is review and outline a general approach to management that can provide a basis from which readers can develop and improve their own skills and knowledge in managing forestry research projects and programs.

**Activities**

*These activities and comments help to review the material already presented, and provide an opportunity to apply the information to your own situation. Activities and comments are the heart of the course. Always review the comments carefully, since they will further clarify the information presented in the test, often from a different point of view. They also will help you to validate your own responses, and ensure that you fully understand the topic at hand.*

## STUDY UNIT ACTIVITIES

**Activity 1**

**Based on the intended audience for whom this manual was written, how relevant do you feel this course will be in meeting your training needs on management and planning?** *Circle the response in the list below which most nearly describes the course's relevance to your needs.*

- a. very relevant
- b. somewhat relevant
- c. a little relevant
- d. not very relevant
- e. not at all relevant



*We encourage you to complete all activities and read the comments so you can derive maximum benefit from the course. Good luck!*

As we stressed earlier, this course was written specifically to assist potential and current mid-level managers of forestry research to improve their management and planning skills and abilities. Since managers will bring different degrees of management skill to their jobs, you may find that some of the modules and study units presented here will be more useful than others.

We hope you circled a, b, or even c. We feel this course has something for everyone, and suspect that most managers, even those with considerable experience can find much of use throughout this training course. With this in mind, review the outline of the modules and their study units carefully, looking for particular aspects of interest. Keep these modules in mind for later review and completion. study units carefully, looking for particular aspects of interest. Keep these modules in mind for later review and completion.

**STUDY UNIT ACTIVITIES****Activity 2**

**Are there other managers or scientists in your organization that may be interested in taking this course to improve their management and planning skills? Write their names as you think of them in the space below.**

While you were reviewing the relevance of this course to your own needs, perhaps you thought of others that may benefit from this course. You may feel they are weak in particular management skills. Or you may know up-and-coming researchers or young mid-level managers that would benefit greatly from this course. If so, be sure that these people are also aware of this course, and have the chance to take it.

**STUDY UNIT ACTIVITIES****Activity 3**

**How can these managers or scientists gain access to this course? Write your ideas in the space below.**



*Got the idea how this works? Good! Now feel free to move on to the Summary and then to the next Study Unit.*

We hope you came up with several ways that people can access the course. Perhaps a photocopy can be made locally; or your office may request several copies from the main distribution center; or perhaps your copy can be circulated module by module.

## Summary



*The purpose of the course is to help research managers improve their forest research planning and management skills and abilities.*

This study unit discussed the purpose of the course, the audience it is intended to help, and how the course was developed. The purpose of the course is to help research managers improve their forest research planning and management skills and abilities. While it is intended for use by current or potential mid-level managers of forestry research, we feel that this practical course has something for everyone. Even managers with extensive management experience may significantly benefit from completing some of the modules or study units.

In preparing this course the authors have drawn from a number of sources, including their personal experience, FAO Forestry Paper 96, several working papers and other publications of the International Service for National Agricultural Research (ISNAR), numerous other publications related to planning and management, and the contributed insights and experiences of many researchers and research administrators.

# Course Structure and Outline

## Objectives

*When you have completed this study unit you should be better able to:*

- understand the overall structure and content of the course; and
- understand how the individual modules relate to each other.

**T**he planning and management of forestry research covers a broad range of topics. To help you gain the most from this course, the topics covered have been carefully organized so that one module flows logically into the next. The course also has been designed so that individual modules can be selected to meet specific individual needs, without having to proceed through the entire course.

This brief study unit explains how the course is organized by describing the format used for each module and study unit, and the topics covered in each of the course modules.

## Course Structure

The content of the course is organized as a series of relatively self-contained self-study modules. Each module is dedicated to a particular broad topic important in the management of forestry research, and is subdivided into a number of study units. Each study unit covers a specific part of the general module topic. Module formats *always* follow this format:

### Module Format

- Introduction to the module
- List of study units covered in the module
- Initial skill and knowledge assessment for the module

### Study Unit Format

- Introduction
- Objectives
- Discussion of the topic
- Activities and comments
- Study unit summary

### Following the Last Study Unit In Each Module

- Final skill and knowledge assessment for the module
- Literature cited and additional sources of information
- Selected readings

You'll note that each study unit has a section called "activities." *These activities and comments are the heart of the course.* They are composed of a variety of questions, exercises, case analyses, and evaluations of yourself or your own organization that allow you to practice what you learned by reading the text. Since this course is designed to be self-taught (without the provision of any external assistance or input), it is vital that you receive prompt feedback on your work. Thus, we have designed the Comments to the Activities to provide feedback on your responses to the exercises, as well as to help you to assess your own performance and advancement in the course.

At the beginning of each module there is a skill and knowledge assessment for the module that you can use to assess your level of skill and knowledge related to the subjects covered in the module. Further, at the end of each module, the skills and knowledge statements used in the initial self-assessment are repeated, so you can test yourself once again to note the degree to which you may have increased your level of competence for that skill or knowledge area.

Supplemental readings related to the material covered in each of the course modules have been provided at the end of each module. These provide additional viewpoints and more in-depth discussions of topics covered in the module. We strongly urge you to read these course supplements if you want additional information about the topics covered in the module.

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## **Outline of the Course**

The course is presented in four sections or parts:

### **Part I: Introduction to the Course**

Two modules introduce the course:

**A guide** to using the training manual; and **Module 1**, which introduces forest research planning and management by:

- reviewing the technological innovation process and the dimensions of the existing forestry research system;
- providing an overview of the planning and management process; and
- describing the responsibilities of the manager.

### **Part II: Strategic Planning for Forestry Research**

Part II is comprised of three modules:

**Module 2** describes a number of factors that are critical to effective strategic planning including: developing a strategic planning process, clarifying organizational mandates, identifying

stakeholders and their concerns, addressing the concerns of policy makers, and formulating a research mission statement.

**Module 3** outlines an approach to identifying key issues for forestry research that includes the following steps: determining the research needs of research users, distinguishing between information needs and research needs, assessing external and internal environments affecting the research organization, identifying emerging issues related to forestry, and determining strategic issues and setting research priorities.

**Module 4** reviews the production and dissemination of the strategic research plan including: formulating strategies to address strategic issues and achieve your research goals, designing an appropriate format for the strategic plan, developing consensus and gaining political and public support for the plan, and updating strategic plans in response to change.

### **Part III: Managing Forestry Research**

Part III contains six modules:

**Module 5** outlines a process for developing the research program including: developing an effective organizational structure, research program planning, and linking research programs to the strategic plan.

**Module 6** describes some of the key tasks in implementing the research program, including: determining the resources and other inputs needed to conduct the planned research, developing an annual plan of work, coordinating activities and the uses of the available resources, and making effective use of your time.

**Module 7** discusses important financing and budgeting concerns of research organizations including: obtaining financing for research programs and organizations, developing and evaluating research proposals, preparing budgets, managing funds, and promoting your research program with potential funders.

**Module 8** describes the need for and special problems of providing research support, including scientific support services and administrative services.

**Module 9** discusses the management of human resources, perhaps the most critical of all management functions, and the importance of: providing leadership, creating an appropriate environment and incentives, managing personnel effectively, and providing appropriate training and education.

**Module 10** describes the monitoring and assessment of research programs including: designing monitoring and evaluation systems for research management, monitoring research progress towards

objectives, monitoring and assessing research quality, and monitoring and evaluating the impacts of forestry research.

## **Part IV: Communication in Forestry Research**

Part IV contains two modules:

**Module 11** explores the development and use of linkages with other researchers and research organizations as a means of acquiring and sharing data, information, and knowledge, by: facilitating research networking and utilizing computer networks.

**Module 12** addresses the critical problem of communicating research results to their intended users, with particular emphasis on: communicating research results for scientific use, communicating research results for application in practice, and strengthening research-user linkages.

The individual study units that comprise each of these modules are shown in table 0.1 in the introduction to this guide.



## Summary



*By reviewing an outline of the topics covered in the various modules and study units, you should now have a good idea of the scope of this course, and how it can assist you in your day-to-day management activities.*

The planning and management of forestry research are broad and complex subjects, and cannot be dealt with in great detail in one publication. This course provides you, the research manager, with a broad overview of management and planning topics critical to the success of forest research management. The study units offer greater detail, and are specifically designed to emphasize the practical.

Each study unit has a section called Activities. *These activities and their comments are the heart of the course.* They contain a variety of questions, exercises, case analyses, and evaluations of your own skills, performance, or organization which allow you to practice what you learned when you read the text. The Comments to the Activities provide feedback on your responses to the exercises. They will help you assess your own performance and advancement in the course.

This study unit explained how the course is organized and structured. By reviewing an outline of the topics covered in the various modules and study units, you should now have a good idea of the scope of this course, and how it can assist you in your day-to-day management activities.

*Congratulations on finishing another study unit! We strongly encourage you to continue on to Study Unit 0.3, where you can conduct a personal, self-assessment of your own training needs. This assessment can help you identify your own strengths and weaknesses so you can make more effective use of this training course. It also can serve as a benchmark for comparing your increased understanding and skills resulting from completion of individual modules.*

# Self-assessment of Training Needs and Suggestions for Study

## Objectives

When you have completed this study unit you should be better able to:

- identify and assess your own capabilities, strengths, and weaknesses in planning and managing forestry research.

**M**anagers of forestry research differ in their managerial experience, training, and capabilities. Some have more experience; others have less. Some have received formal training in management and administration; others have learned everything “on the job.” Others are just starting out in the field of forestry research and its management. We designed this course to meet these diverse needs.

This study unit provides a means by which you can test yourself to determine what subject areas are likely to be most helpful in improving your research planning and management skills. Thus, this study unit will help you to assess your own strengths and weaknesses and focus your study activities for maximum return.

Although completion of this study unit is not required, *we strongly urge you to complete this self-assessment activity.* It will provide you with a benchmark against which you can judge the improvement in your knowledge and skills related to research planning and management that result from completion of the individual modules.

## Skills and Knowledge Required for Management

The activities that follow contain sets of skill and knowledge statements that describe skills and knowledge that would be useful to the manager of forestry research. There is a set of statements for each module in the course. They indicate in some detail the topics covered by the various course modules.

Each skill or knowledge statement was derived from one of the specific objectives that are outlined in each study unit in the course. These objectives describe a specific skill or piece of knowledge covered by the study unit that is important to research management. By reading these before beginning the course, you can determine for yourself what you believe to be your own strengths and weaknesses in research

planning and management. The same activities also are included at the beginning and end of each module, so that you can assess your strengths and weaknesses before and after completion of the module. By completing this set of activities before beginning the module and after completion of the module, you will be able to compare your rating before and after to determine what improvements you have made by your study of the materials covered in the module.

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### **Why Do I Need to Assess My Own Strengths and Weaknesses?**

As we mentioned in the introduction, research managers vary in their knowledge of planning and management of forestry research. We all have our strengths and weaknesses when it comes to managing complex research organizations. Some of us may be better at managing people, others may be strong in financial or logistics management. You may be particularly good at planning, but are a little unsure of how to convert plans to action. Or, you may be a very good manager of existing resources, but just can't seem to be able to locate enough funds to implement all the plans of your organization.

The fact that you are reading this text indicates you recognize that you could improve your own skills and abilities in managing forestry research. But let's take that recognition a step further and translate it into action. By completing the Self-assessment Activities below, you will be able to identify your strengths, pinpoint your weaknesses, and will be much better prepared to target your use of this course.

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### **Approaches for Using the Course**

This course was designed to cover a wide range of material relating to the planning and management of forestry research. Not all of the material contained here may be of direct interest to any one individual at any one point in time. Because the course may be used in a variety of different management, organizational, and cultural situations, it has been necessary to introduce some topics that may not be particularly applicable to your current management assignment. Although all of the topics covered in this course may be of some interest, you may wish to give special attention to those topics of particular relevance to your own research management situation.

This is a complex course, covering a broad range of topics of considerable interest and use to managers of forestry research. There a number of approaches you could use in taking this course.

One approach may be for you to simply complete each module and study unit in the order of presentation. This is entirely appropriate if you wish to have an overview of the entire subject area, or if you have had little experience with research planning and management. By doing so, you'll gain a broad understanding of forest research management, as well as learn specific planning and management methods and skills that may significantly improve your ability to plan and manage forestry research.

However, you may have already had considerable experience in various aspects of management, and may simply want to review particular aspects of research planning or management. If this describes your background, or if time is short, you may wish to identify the most relevant modules and study units that directly address any managerial or planning weaknesses you may have.

The following activities will help you determine which parts of the course are most appropriate to meet your needs. By using the results of your personal self-assessment, you'll develop your own specific program of study by selecting the modules and study units that you feel are most appropriate for addressing your own particular needs.

The following exercise is intended to help you to personally assess your level of skills and knowledge related to the planning and management of forestry research. It will help you clearly identify any skills or knowledge you wish to improve or acquire, and develop a personal plan of action regarding this course.

**Each module's skill and knowledge assessment is also located at the beginning and end of the module. If you do not wish to take the time to prepare a plan of action, and already have a good idea what parts of the course you wish to focus on, then skip this exercise! But be sure to complete the individual assessment for the modules you plan to complete so you can gauge your personal progress and learning.**

As you work through this and all other exercises in this course, keep in mind that your responses are for your use only; no one else needs to see them. *Thus, to accurately identify your own strengths and weaknesses, we encourage you to be as open, objective, realistic, and sincere as possible!*

In the list that follows, you'll find a series of statements that indicates a skill in a particular activity, or that calls for some level of knowledge, for each of the modules. These were derived from the objectives of the various study units in each module. *Please read each statement carefully and indicate by checking only one choice your level of skill or knowledge relating to that statement. Ratings of your level of skill or knowledge range from 1 to 5.*

## STUDY UNIT 0.3

### Activities

#### STUDY UNIT ACTIVITIES

### Activity 1



*Be sure to complete the individual assessment for the modules you plan to complete so you can gauge your personal progress and learning.*

## Skill & Knowledge Assessment

### Module 1 - Forestry Research Planning and Management: An Introduction



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 1.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5, using the following descriptions:

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Outline the process of technological innovation in forestry research.					
b) Identify the ways in which your forestry research programs are likely to affect economic, social, and cultural institutions in society.					
c) Identify types of organizations conducting forestry research related to your research mission.					
d) Compare research programs of your organization with those of other organizations conducting forestry research.					
e) Identify potential cooperators and collaborators for your research programs.					
f) Describe the differences between strategic, operational, and annual planning.					
g) Distinguish between organizational mission, goals, and objectives.					
h) Describe the major responsibilities of research management.					
i) Identify some of the skills, personal characteristics, and attitudes needed for successful research management.					

## Skill & Knowledge Assessment

### Module 2 - Initial Steps in Strategic Planning



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 2.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Describe the role of strategic planning in a forestry research organization, and discuss some of its major advantages and limitations.					
b) Identify the key elements of a strategic plan for a forestry research organization.					
c) Outline a procedure for developing and updating a strategic plan for your research organization.					
d) Identify key formal and informal organizational mandates that influence the activities of your research organization.					
e) Conduct a stakeholder analysis to be used in developing a strategic plan for your research organization.					
f) Identify specific contributions forestry research has made or potentially could make to sustainable development in your own country.					
g) Explain why it is important to obtain input from policy makers when developing a strategic plan for your research organization.					
h) Describe the importance and role of a mission statement in a forestry research organization.					
i) Formulate a research mission statement for your research organization.					

## Skill & Knowledge Assessment

### Module 3 - Identifying Key Issues for Forestry Research



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 3.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Describe the general differences between research users and scientists in their perceptions of research needs.					
b) Distinguish between information needs and research needs.					
c) Identify and assess potential issues, problems, and opportunities external to your organization, but related to its forestry research activities.					
d) Identify and assess the internal strengths and weaknesses of your organization in relation to potential programs of forestry research.					
e) Describe why the identification of emerging issues in forestry is an important step in developing an organization's strategic plan for research.					
f) Use a structured procedure (the Delphi System) to identify emerging issues that can be used as a basis for specifying research needs relevant to your organization.					
g) Explain the differences between basic, strategic, applied, and adaptive research.					
h) Develop a set of criteria appropriate for judging potential research programs and projects and setting broad research priorities for your organization.					

## Skill & Knowledge Assessment

### Module 4 - Producing and Disseminating the Strategic Plan



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 4.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Describe a 5-step process to identify strategies that will address previously identified important forestry research issues, or that will help your organization to achieve high-priority research goals.					
b) Describe the most commonly included elements of a strategic plan, and why they are important.					
c) Develop a format for a strategic research plan that is appropriate for your organization.					
d) Describe the importance of continuous interaction with policy makers, funding agencies, research users, and other key stakeholder groups to gain and retain political and public support for your strategic plan.					
e) Describe the types of changes in the external environment and within your organization that could affect future research needs and program activities.					
f) Explain why it is important to update strategic plans to adapt to changing conditions in the external environment or within your organization.					
g) Develop a practical procedure that could be used by your organization to periodically review and update its strategic research plan.					

## Skill & Knowledge Assessment

### Module 5 - Developing the Research Program



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 5. Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Identify and describe the various organizational models commonly used by public and private sector forestry research organizations.					
b) Identify three key desirable features of a forestry research organization's structure which enhance forestry research capacity, and explain how these three features contribute to improved efficiency and effectiveness of research implementation.					
c) Explain what research program planning is and why it is needed.					
d) Describe three program levels commonly encountered in a forestry research organization that play important roles in program planning.					
e) Describe five factors that are essential when conducting program planning, and describe how they can be incorporated into the program planning process.					
f) State the importance of linking program planning to strategic planning.					

## Skill & Knowledge Assessment

### Module 6 - Implementing the Research Program



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 6.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Assess your own research organization's research capacity, and identify key factors or constraints that could hinder successful completion of proposed research projects and programs that your research organization might undertake.					
b) Describe the functions of annual planning and budgeting.					
c) Utilize timelines to assist in annual work planning.					
d) Understand the importance of and need for coordinating the use of resources needed in implementing your organization's research program.					
e) Utilize several techniques to identify and resolve potential resource use conflicts within your organization.					
f) Describe a number of practices that can help you better organize your work.					
g) Identify some weaknesses in your personal style of time management, and take steps to address or minimize those weaknesses.					

## Skill & Knowledge Assessment

### Module 7 - Financing and Budgeting



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 7.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Describe the advantages and disadvantages of long-term core funding and short-term project funding.					
b) Recognize the variety of sources from which research funding is obtained.					
c) Structure and outline funding requests and proposals to address both the requirements of the funder and your own research institution.					
d) Describe a procedure that can be used to evaluate proposed research projects and programs.					
e) Develop appropriate budget formats for research programs, projects, and studies.					
f) Use a matrix approach to cope with dual budget systems.					
g) Recognize potential problems encountered in annual budgeting.					
h) Understand the importance of closely monitoring expenditures in managing accountability in the use of funds.					
i) Recognize the need for and importance of periodically reconciling planned (budgeted) and actual expenditures.					
j) Explain the importance of marketing your research program and capabilities.					
k) Develop a strategy and plan for influencing potential funders of research.					

## Skill & Knowledge Assessment

### Module 8 - Providing Support Functions



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 8.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Identify and assess the needs for various scientific support services within the organization or unit you manage.					
b) Assess the capacity of your organization or unit to provide the scientific support services needed, and identify alternative sources of such services.					
c) Describe the various administrative services provided by your research organization, and identify the personnel who provide those services.					
d) Describe the functions of the various administrative services within your organization.					

## Skill & Knowledge Assessment

### Module 9 - Managing Human Resources



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 9. Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) List some qualities of a good leader.					
b) Describe several management styles and the circumstances where they are appropriate.					
c) Identify several types of incentives that can be used effectively to motivate forestry researchers.					
d) Describe the four career stages in the life of a research scientist.					
e) Prepare a staff recruitment plan to meet the present and future staffing needs of your organization.					
f) Evaluate individual scientist and staff performance, and take measures to correct deficiencies or improve performance.					
g) Assess training needs of the personnel you supervise to determine what knowledge and skills need to be enhanced to increase the effectiveness of your research organization.					
h) Identify obstacles within your organization that may impede the application of knowledge or skills newly acquired through training.					

## Skill & Knowledge Assessment

### Module 10 - Monitoring and Evaluating Research Programs



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 10. Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Specify the purposes of your organization's monitoring and evaluation system.					
b) Identify the potential users of the information provided by your monitoring and evaluation system.					
c) State and use six basic questions that help to focus and make more meaningful the results of monitoring and evaluation activities.					
d) Describe the primary uses of monitoring in research management.					
e) List three types or levels of monitoring, and describe their functions.					
f) List a number of methods or mechanisms which can be used to monitor forestry research activities.					
g) describe three criteria for evaluating the quality of research produced by your organization.					
h) describe several review mechanisms that ensure the production of research of acceptable quality.					
i) Describe the difference between ex ante and ex post impact evaluations.					
j) Identify the various types of impact evaluations used to determine research impacts.					

## Skill & Knowledge Assessments

### Module 11 - Developing Research Linkages - Learning from Others



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 11.

Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Describe the various types of research networking used in your organization.					
b) Suggest ways in which your organization could strengthen and expand its research networking.					
c) Describe the benefits of establishing a management information system in your organization.					
d) Describe the benefits of linking your organization to international computer networks such as Internet.					

## Skill & Knowledge Assessments

### Module 12 - Communicating Research Results to Users



Below are listed a number of skill and knowledge statements derived from the objectives of the study units in module 12. Please read each statement carefully and indicate with a checkmark the level that best describes your current skill or knowledge, from 1 to 5.

- 1 I cannot perform this skill, or I have not been exposed to the information.
- 2 I cannot perform this skill, but have observed the skill or have been exposed to the information.
- 3 I can perform the skill or express the knowledge with assistance from others.
- 4 I can perform the skill or express the knowledge without assistance from others.
- 5 I can perform the skill or express the knowledge well enough to instruct others.

Skill or Knowledge Statement	Your Level of Skill or Knowledge				
	1	2	3	4	5
a) Describe the most effective methods, and their limitations, by which forestry research results are communicated to scientists.					
b) Describe the most effective methods, and their limitations, by which forestry research results are communicated to users for application.					
c) Identify potential users and adopters of your organization's research.					
d) Determine and describe how research produced by your organization is adopted and used by its intended users and identify potentially weak links in the research dissemination-adoption process for your organization.					
e) List seven actions managers can take to promote effective linkages between research, extension, and research users.					
f) Describe nine principles for using linkage mechanisms to improve the usefulness and dissemination of research results.					



*Congratulations! You now have a good idea of your own strengths and weaknesses, and are ready to maximize the benefits derived from this course.*

## Activity 2



Now that you've identified your relative strengths in the many aspects of planning and management of forestry research, you can develop a personal plan of study in this course that will most efficiently address your own needs.

We recognize that you are quite busy in your day-to-day professional activities. Thus, this part of the self-assessment exercise is specifically designed to help you focus on areas which you most wish to improve, and to efficiently address these needs.

Take a minute to review your self-assessment responses. Note in particular the skills or knowledge statements that you rated "1" or "2", which indicate weaknesses which you may want to address to improve your performance. To strengthen your skills and abilities with particular topics, we suggest that you locate the module under which the skill statements are listed, and complete those study units that apply to that topic. To locate the appropriate study units, check the study unit objectives, from which the skill and knowledge statements were derived.

Those items which you rated "3" indicate that you feel there is room for some improvement, and might merit referring to the appropriate module for a refresher, or to enhance what you already know or have mastered.

Finally, items which you rated "4" or "5" are well understood and have been essentially mastered. Thus, you might prefer to skip these modules.

If you plan to go through the entire set of modules in sequence, then you can skip the next step, and start with module 1. However, if you want to develop a special course of study, consisting only of those modules of particular interest to you, then turn the page to develop your personalized sequence of study.



*Summary*

The management and planning improvement needs of research managers are broad and highly variable. We designed this study unit to help you determine what subject areas will be most helpful in improving your research planning and management skills. This study unit helped you assess your own strengths and weaknesses and focus your study activities for maximum return by formulating a plan of action for using this course.

By adhering to this personal program of study, you will directly address your planning and management needs, and will be well on your way to improving your forest research management skills, abilities, and thus your performance and that of your organization.

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## APPENDIX 0.1

Reviewers of the original English-language draft of the IUFRO self-learning course on the planning and management of forestry research who provided comments and suggestions for revision.

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## APPENDIX 0.2

Participants at a IUFRO workshop held in Kuala Lumpur, Malaysia, December 6-10, 1993, to review and present suggestions for revisions to the IUFRO self-learning course on the planning and management of forestry research .

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### APPENDIX 0.3

Participants at a IUFRO workshop held at the University of Minnesota, St. Paul, Minnesota, July 27-29, 1994, to coordinate preparation of the final English, French, and Spanish versions of the IUFRO self-learning course on planning and managing forestry research.

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