CHAPTER 1

INTRODUCTION

Why study research-extension linkages?

Agricultural technologies in the developing world must change continuously to keep pace with rising populations and rapidly changing social, economic, and environmental conditions. These technologies are generated by research institutes, universities, private companies, and farmers themselves. One of the tasks of government agricultural extension services is to communicate them among the farmer audience.

Agricultural extension is expected to draw on public-sector research institutions for much of what it communicates to farmers. But poor linkages between research and extension are often blamed for the slow implementation of new agricultural technologies by farmers in the developing world (Kaimowitz 1990:xi). Despite increasing recognition of this problem, much of the evidence remains anecdotal. Relatively few quantitative studies have documented or sought reasons for it (Seegers and Kaimowitz 1989:i).

Indonesia is a case in point. The country's approximately 2000 graduate extension subject-matter specialists (SMSs) have the task of bridging the gap between the Ministry of Agriculture's 30-plus research institutes and 29,000 field-level extensionists (Syam and Mundy, in press).

But linkages between the SMSs and research are weak (Syam 1990:25, Padmanagara 1985:141). Most SMSs have few direct contacts with researchers (Hussein 1986:422), and readership of publications among extension specialists is low (Sophia 1988:52).

If the specialists do not obtain information directly from research, where *do* they get it? And why do they use these sources? Very little research on these questions has been performed in Indonesia, or indeed elsewhere.

Why Indonesia?

I conducted this study in Indonesia for several reasons:

- Indonesia's size, the diversity of its land and people, and its geographical fragmentation into thousands of islands, pose problems for both agricultural research and extension and provide challenges to smooth linkages between them.

- The Indonesian research and extension systems are among the largest in the developing world. And many of their characteristics are typical of other Third-World countries. Findings from this study thus should have wide potential applicability within Indonesia and elsewhere.

- Despite their importance, the Indonesian research and extension systems remain under-researched. Few formal studies have been made of their activities, performance, and interaction.
- Having previously worked for six years in the communication department of an Indonesian research institute, I knew that linkages were a problem. I hoped to be able to suggest pragmatic solutions to the problem.
- This experience had also given me the language skills and institutional background necessary to conduct research there.

Purpose of this study

This study aimed to answer two main questions:

- Where do Indonesian extension specialists obtain technical information?
- Why do they use these sources?

Additional questions included:

- How important are research-extension linkages relative to other problems faced by extensionists in Indonesia?
- How quickly do research-derived technologies spread among SMSs?
- What are SMSs' unmet information needs?

Answers to these questions should help policy makers design ways to improve research-extension linkages and thereby the application of research findings by Indonesia's farmers.

Study outputs

Expected outputs of the study included:

- Data on the characteristics, communication behavior, and information needs of the primary audience of Indonesia's research institutions.
- Suggestions for improving research-extension linkages.
- A set of approaches for studying extensionists' information sources and research-extension linkages.
- A more enlightened perspective on agricultural knowledge systems as a whole.

Assumptions

This study rests on some untested assumptions:

- The Indonesian research system produces a flow of information that is potentially relevant and appropriate for extension and farmers. In many countries this is not the case: research is often criticized as irrelevant. I make this assumption because Indonesian farmers have rapidly adopted some research-derived technologies (especially for rice cultivation). I discuss the differences between rice and other commodities in Chapter 4.

- Subject-matter specialists are motivated to seek and disseminate information, but face constraints in doing so. I base this assumption on the interviews I conducted as part of the study.

- Within these constraints, subject-matter specialists are relatively free to choose among information sources available to them. While they may be mandated by their superiors to purvey certain types of information, they themselves can determine what other information to disseminate. This assumption is also based on the interviews and survey results.

Contents of this volume

This study reports the findings of two surveys of SMSs in Indonesia and numerous semi-structured interviews with SMSs and others involved in the research and extension system.

Research-extension linkages form part of a broader knowledge system. Chapter 2 describes some approaches to studying agricultural knowledge systems and information flows within them.

Chapters 3 and 4 provide the background for the study. Chapter 3 describes the agricultural extension system in Indonesia, while Chapter 4 discusses the research system and its linkages with extension.

Chapter 5 defines the key concepts used in the study and proposes a model containing eight variables as predictors of information flow between a source (such as a research publication) and a receiver (such as an extensionist).

Chapter 6 describes the methods used for the interviews and surveys, and outlines the analyses performed on the data.

Chapters 7 to 10 give results of the research. Chapter 7 describes the characteristics of the SMSs who responded to the surveys. It goes on to analyze their extension activities and contacts with research. It concludes by addressing the question, "How important are research-extension linkages relative to other problems extensionist face?" This necessitated comparing the importance of information scarcity with other constraints that extensionists face: mobility, lack of teaching aids, and so forth.

Chapter 8 focuses on SMSs' information sources. It contains three parts, each corresponding to one of the questions listed above.

- Where do SMSs obtain technical information? Answering this question required listing possible sources and asking SMSs to indicate how much they used each. I discuss which sources respondents used heavily and which they did not, and compare these with source they would like to use under ideal conditions. I also look at the readership and usefulness of several research and extension publications.

- How quickly do technologies spread among SMSs? I report findings based on questions about six selected food crops and six livestock technologies.

- What are SMSs' unmet information needs? The questionnaire listed more than 50 topics SMSs may need information on. Findings are reported here.

Chapters 9 and 10 are devoted to answering the question, "Why do SMSs use certain sources?" They analyze the model proposed in Chapter 5, first looking at each variable individually (in Chapter 9), and then combining them into an overall model (in Chapter 10). Because of logistical and space limitations, it was possible to study only four of the many possible information sources.

Chapter 11 summarizes the study findings and discusses their implications for improving research-extension linkages in Indonesia and elsewhere. The chapter concludes with suggestions for improving these ties.

Appendices 1 to 4 contain copies of the questionnaires, together with their English translations. Appendices 5 and 6 present frequency tabulations for responses to questions in the two questionnaires.