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Communication for Technology Transfer in Agriculture (CTTA)  
AID/S&T Project 936-5826

Report of

AGRICULTURAL EXTENSION AND COMMUNICATIONS CONSULTANCY  
Secondary Foodcrops Development Project (SFCD) 497-0304  
Indonesia

by

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AGRICULTURAL EXTENSION AND COMMUNICATIONS CONSULTANCY  
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## EXECUTIVE SUMMARY

The principal purpose of the consultancy was to assist USAID/I/ARD staff and their Ministry of Agriculture colleagues in designing a strategy and implementation plan for AID support to agricultural extension and communication under the Secondary Foodcrops Development Project (SFCD) 497-0304. The three principal questions addressed by the consultants were:

- What are the major communication problems related to secondary foodcrop programs?
- What institutions and programs are involved in efforts to alleviate those problems?
- How should communication support be linked into extension programs--into the present system, or will something new be required?

Based on findings related to these issues, the consultants concluded that a communication component should be incorporated into a re-designed SFCD Project, and recommend that the AID/S&T Communication for Technology Transfer in Agriculture Project (936-5826) be requested to provide technical services as described below to assist in improving communication support to extension for the transfer of secondary foodcrop technologies to Indonesian farmers.

### Summary of Findings

1. The Indonesian extension system is well-established, and has an ambitious program modeled on the World Bank Training and Visit (T&V) system. It has received extensive assistance from the World Bank, and will receive additional support in the forthcoming World Bank-supported Third National Agricultural Extension Project, primarily for infrastructural development, training, technical assistance, and studies.
2. The system's organizational structure is complex, which may present coordination problems, particularly at the national level. Such problems become less serious at the provincial and district levels, as all activities are coordinated under the provincial Ministry of Agriculture (MOA) office.
3. The demfarm approach used in the present SFCD Project is an effective mechanism for introducing improved palawija cropping systems and technologies, and for initial diffusion of technologies to other members of the farmers' group to which the demfarm cooperators belong. Over-reliance on demonstrations as the principal diffusion mechanism is unlikely to result in an acceptable rate of adoption of palawija technologies throughout the general farming population, however, taking into account the costs--financial and personnel--involved in relation to resources available to Indonesian extension.

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4. Although extensive use is made of radio and graphic/print materials, such use is largely ad hoc, unorganized, and not well integrated into extension programs--with the result that the impact of such communication support is not commensurate with the resources expended. This situation is exacerbated by lack of adequate budget allocations for production materials.
5. The extensive private sector network is already in continuing contact with extension, particularly in the provinces visited, and is making a significant investment in development and dissemination of informational and promotional materials related to their products. There is scope for building on this relationship to involve private sector firms and networks more substantively as sources of information on inputs and market factors, and as dissemination channels for information related to palawija crop production and marketing.
6. The marketing services pilot program is providing price information to farmers through regularly scheduled radio broadcasts. Although the information on impact is imprecise, studies to date indicate that farmers and traders consider price information on both vegetables and palawija crops to be useful to them. Such information is indispensable to a comprehensive technology transfer program, and this program should be linked closely to the redesigned SFCD Project.
7. The fledgling masters program in rural communications at Bogor Agricultural Institute offers the long term potential for developing a cadre of communication specialists needed by extension, particularly in the provincial information centers. That remains for the future, however, as the curriculum is still in its formative stages, facilities and library are limited, and graduate student research is just getting underway. Involvement of this program with the SFCD as opportunities arise would pay high dividends in the future.
8. There is a tendency for present extension programs to be too directive in recommending cropping systems and technologies to be used in palawija crop production, although modifications made in the field in South Sulawesi demonstrate some flexibility in this regard. There is need for recognition that such adjustments are necessary to meet region-specific requirements, and to place greater emphasis on development and use of mechanisms to determine variability and needs of farmers between and within regions.
9. Linking integrated multi-media communication strategies into the present extension system to complement and reinforce demonstration and group contact emphases is feasible, and has the potential for contributing significantly and cost effectively to the diffusion of palawija crop technologies broadly to the farming population.

## Recommendations

1. A substantive communication/extension component should be incorporated into the redesigned SFCD Project. The objectives should be to:
  - Assist the MOA in defining the extension philosophy most appropriate for Indonesia and in building into extension's methodological frame-

work the flexibility to adjust to local needs and situations;

- Assist the MOA in development of interactive communication networks linking extension, research, input and agricultural service providers (private and public sector), policymakers and planners to facilitate development and coordination of comprehensive extension programs directed to region-specific farmers' needs and possibilities;
- Assist in development, implementation and institutionalization of appropriate multi-media communication strategies to reinforce and supplement presently used extension methods for the purpose of facilitating the diffusion of improved palawija technologies among the general farming population.

2. Assistance related to the first two objectives should be focused at the central level and extend to the provincial level. To achieve the third objective, a pilot activity in one of the SFCD Project provinces should be established which functions in close association and collaboration with other components of the SFCD. As experience permits, methodologies developed through the pilot activity should be extended into other SFCD Project provinces to determine the adjustments necessary to accommodate differences in socio-economic and cultural characteristics of the farming population and in agricultural conditions and potentials.

3. A more exhaustive study should be made as the next major step in development of an implementation plan for the communication input into the redesigned SFCD Project. One purpose of this investigation should be to determine the province most appropriate for establishment of the pilot activity included in recommendation 2.

4. Although flexibility should be maintained pending completion of the above-recommended study, the components of communication-related assistance should be approximately as follows:

- One long term agricultural communication consultant headquartered in Jakarta to focus on the first two objectives, and to provide leadership, in collaboration with MOA counterparts, to the preliminary study and implementation plan development included in recommendation 3.

Duration of assignment: 36 mos.  
Approx. starting date: 4/87

- One long term agricultural communication consultant headquartered in the provincial capital of the province selected for the pilot activity to focus on, in collaboration with MOA counterparts and Jakarta-based long term consultant: improving overall strategic approaches to using communication to support extension, particularly programs related to palawija crop production; introducing pretesting and formative evaluation of strategies and products, including market information content; gradual improvement in the MOA audiovisual support system; more effective involvement of the private sector.

Duration of assignment: 30 mos.  
Approx. starting date: 10/87

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- Short term technical assistance with areas of expertise to be determined during early project implementation.

Level of effort: Up to 20 p.mos.  
Timing of assignments: Depending upon need

- Development and preparation of R & D materials.
- Vehicles, limited communication-related equipment and operational support for consultants.
- Staff training support (linked into present training programs).
- Discretionary fund.
- Selective summative evaluation.
- Participation in national and international diffusion activities.
- Pro-rated share of CTTA Contractor home office costs.

5. The Communication for Technology Transfer in Agriculture (CTTA) Project, an already existing worldwide project for which the Academy for Educational Development is prime contractor, has the capacity for providing the above-recommended technical services and provides a mechanism for early implementation on a shared cost basis through provision of incremental funding to the existing contract by USAID Missions. It is recommended that the CTTA Contractor be requested to provide the above-listed technical services through this mechanism.

6. The communication component of the SFCD-CTTA project should be implemented in close coordination with the World Bank Third National Agricultural Extension Project.

7. The most appropriate institutional base for the SFCD Project from the standpoint of the recommended communication assistance is the DGFA Extension Directorate.

8. The communication component should undergo an in-depth evaluation about 15 months after arrival on post of the second long term agricultural communication advisor to provide the basis for making needed in-course corrections and determining possible needs for follow-on support after completion of presently projected assistance. It is suggested that this be a joint MOA-USAID-Contractor activity with an external evaluator and World Bank representative included on the evaluation team.

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## GLOSSARY OF ABBREVIATIONS

AAETE	-	Agency for Agricultural Education, Training and Extension
AARD	-	Agency for Agricultural Research and Development
AID	-	United States Agency for International Development
AID/S&T	-	AID Bureau for Science and Technology
AID/S&T/ED	-	AID/S&T Office of Education
BIMAS	-	Bimbingan Massal Swa Sembada Bahan Makanan, "Mass Guidance for Self-Sufficiency in Foodstuffs", a farm input credit program now responsible for administration of extension personnel of all subsectors
BIP	-	Provincial agricultural information center under purview of AAETE
BPLPP	-	the AAETE
BRI	-	Bank Rakyat Indonesia, People's Bank of Indonesia
CGPRT	-	See ESCAP/CGPRT Centre
CTTA	-	Communication for Technology Transfer in Agriculture (AID/S&T Project 936-5826)
DEMFORM	-	5 ha demonstration farm comprised of several contiguous farmers' holdings, conducted under the SFCD Project
DESA	-	Village
DGFCA	-	Directorate General, Food Crops, Agriculture
ESCAP	-	United Nations Economic and Social Commission for Asia and the Pacific
ESCAP/CGPRT Centre	-	Regional Coordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific, established in 1981 by ESCAP
FAO	-	Food and Agriculture Organization of the United Nations
GATC	-	German Agency for Technical Cooperation
GOI	-	Government of Indonesia
ha	-	Hectare
IAES	-	Indonesian Agricultural Extension Service

IBRD	-	World Bank
Kabupaten	-	District
Kioskop Keliling	-	Wandering cinema show
Kiosk	-	Local farm store
KUD	-	Koperasi Unit Desa, Village Unit Cooperative
MOA	-	Ministry of Agriculture
NAEP II	-	Second National Agricultural Extension Project, supported by World Bank
NAEP III	-	Third National Agricultural Extension Project, supported by World Bank
Palawija	-	Non-rice crops
PPL	-	Penyuluh Pertanian Lapangan, field extension worker
PPM	-	Penyuluh Pertanian Madia, field extension supervisor
PPS	-	Penyuluh Pertanian Spesialis, extension subject matter specialist
R&D	-	Research and development
REC	-	Rural extension center
Rupiah, Rp.	-	Indonesian monetary unit; U.S.\$ 1.00 = approx. Rp. 1,100
SCDP	-	Secondary Crops Development Project, AID-supported
SFCD	-	Secondary Food Crops Development [Project], same project as above
SFCD/CTTA	-	Refers to proposed CTTA inputs into redesigned SFCD Project
SRI	-	Survey Research Indonesia
T & V	-	World Bank-sponsored Training and Visit extension system
TDY	-	Temporary duty assignment
USAID/I	-	AID Mission to Indonesia
USAID/I/ARD	-	USAID/I Office of Agriculture and Rural Development
WB	-	World Bank

Report of

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Secondary Foodcrops Development Project (SFCD) 497-0304  
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I. BACKGROUND

USAID/Indonesia expressed interest in Communication for Technology Transfer in Agriculture (CTTA) (AID/S&T Project 936-5826) in preliminary September 1985 discussions with A. Meyer, AID/S&T/ED CTTA Project Manager. That interest was confirmed in a letter dated 10 October to A. Meyer from Richard A. Cobb, Chief of the Office of Agriculture and Rural Development, USAID/I, in which Cobb stated that "Our decision is to amend an on-going Secondary Food Crops Project by adding a communication-extension component. . ." In more specific terms, Cobb stated that

"At this stage, we hope to design an ag communications component which would provide technical assistance in locations where we have on-going activities that support agricultural research and food crop production. We want to strengthen the linkage between extension and research through demonstration farms and research trials. Also, we want to devise a mechanism to include more active participation from the private sector, and work with both research and extension in analyzing constraints faced by farmers which limit the adoption of new technologies. We would also like to work with research, extension and university specialists in developing communication methodologies and training programs at the local level. . .

". . . In the Spring, possibly March and April, we will be doing the first comprehensive evaluation of the Secondary Food Crops project. One of the questions we would like to address is how an extension communications component might be most usefully added to this project. As part of the evaluation team, we would like to have two or three people with experience in your S&T ag communications project, and preferably with some background in Indonesia, to look in detail at some opportunities that might be appropriate for us. Specifically, this is to ask if you could provide the names of two or three individuals for this task, as well as the funds for their TDY."

In response to the above, the Academy for Educational Development, CTTA Project prime contractor, agreed to field the short term technical assistance team requested by USAID/I, and A. Meyer so informed the Mission. In his response, Meyer stated that "Our frank wish is to arrive at a meeting of the minds--and projects--from the visit and establish CTTA as a project to collaborate with yours, on a shared funding basis." Meyer also enclosed a copy of the draft CTTA implementation plan from Honduras as an example of how the CTTA project will function in collaboration with Mission projects, but emphasized that an "implementation plan" tailored to each collaborating country determines how the general scope of work is to be implemented in a specific

country.

The CTTA Project would appear to have high relevance to the needs expressed by USAID/I. The CTTA strategy is to strengthen the institutional capacity of agricultural extension and its effectiveness in transferring improved agricultural technologies to small farmers through alleviating communication constraints. The Project will provide assistance in developing and implementing integrated multi-media communication strategies--mass media, print/graphic materials and interpersonal channels--to strengthen communication support capability and performance at the local and national levels, and for strengthening linkages between research and extension.

Typically, CTTA will focus on improving communication support in a selected pilot region in each country through developing and testing an iterative process of investigation, action, feedback and formative evaluation, monitoring, and adjustment. Appendix A includes a recent conceptualization of this multi-step process. The process, although based on state of the art agricultural communication, will also utilize relevant concepts and techniques from other disciplines such as social marketing and behavioral science and experience from other sectors such as health and education. A substantive set of diffusion activities within the CTTA Project will accelerate sharing among participating countries, and more broadly, of experience gained and methodologies developed through CTTA.

Based on the congruence of interests as expressed by USAID/I with respect to adding a communication component to its Secondary Food Crops Project (SFCO) and the CTTA Project as described briefly above, the Mission and AID/S&T agreed to involvement of a team knowledgeable about the CTTA Project in the planned evaluation of the SFCO Project. Subsequently, arrangements were made for a team comprised of Dr. Howard E. Ray, CTTA Project Director for the Academy for Educational Development (team leader), and Dr. Anthony J. Meyer, Development Communication Specialist, AID/S&T/ED and CTTA Project Manager, to provide the services requested by USAID/I and described in the following section.

## II. SCOPE OF WORK

The Scope of Work for this consultancy, as stated in Jakarta 03249 was as follows:

"1. Summary: The Mission has considered several alternative strategies for designing extension support activities to the Indonesian Foodcrops sector with an emphasis on palawija (non-rice) foodcrops. Given our present agriculture program, considerable analysis of this sector and future projected AID/I staffing and funding levels, the Mission has decided to implement a major external evaluation of the SFCO Project with a view to re-designing this project and strengthening project activities related to ag extension and communications. We propose to draw on the resources and experience of the AID/W funded S&T Communications for Technology Transfer in Agriculture (CTTA) Project to help with the evaluation. We request a two-person team, Dr. Meyer and Dr. Howard Ray, to spend up to 5 weeks in Indonesia in March-April, 1986, to assist ARD staff and our MOA colleagues in designing a strategy and implementation plan for AID support to ag extension and communications under the subject project. . . .

"6. Specific terms of reference for Meyer and Ray:

"A. The overall objective of the consultant services will be to examine the Ministry of Agriculture's extension organization and programs, with particular emphasis on activities related to foodcrop diversification, and make recommendations regarding AID support to ag extension and communications under the SCDP. While the consultants will need to gain a basic understanding of the MOA's extension system and the role of the private sector organizations within the system, the focus will be on the extension and production programs of the Directorate General, Food Crops, within the MOA.

"B. Specifically, the consultants will:

"(1) Identify constraints to the agricultural extension system as it applies to promotion and dissemination of new technologies and innovations with the foodcrops sector.

"The analysis will include a brief description of the structure of the extension system; and an analysis of its major constraints from the perspectives of its implementors and clients.

"(2) Using information from IBRD reports and studies, AID Project Reports, and other available sources, assess the requirements for adapting extension effort to region-specific requirements for non-rice crops production.

"(3) With a focus on the three SCDP Project provinces and after performing an analysis of project experience in the extension/communications area to date, evaluate and recommend specific steps for increasing the efficiency and timeliness of technology dissemination within the parameters of budgetary and staffing constraints.

"(4) Evaluate the linkages between research and extension within the context of foodcrop diversification including the role of university involvement and provide discrete recommendations for improving these relationships. This would

include an assessment of the new Bogor Agricultural Institute's rural communications master's degree program and how this activity could better link with research and extension in the three project areas.

"(5) Provide an assessment of the role of private firms as sources of information on input supply and application and market demand, with a focus on the three current project provinces.

"(6) Assess the status of the marketing services pilot program in the Directorate General of Food Crops. This program includes price and marketing analysis and daily radio reporting of the information to rural areas. Determine whether the SCDP Project should support these activities and a mechanism for doing so.

"(7) Follow-up on earlier discussions with Mission personnel regarding the role of the (CTTA) Project in supporting the ag communications component of the SCDP Project.

"(8) Provide a concise single report covering the above 7 areas of analysis. The report should include an executive summary and specific recommendations for incorporating ag communications and CTTA into a revised project design, and a plan and schedule for implementing these recommendations. Coordination with the other four team members will be important to assure that the Meyer-Ray recommendations are relevant to findings of the overall evaluation. . ."

Meyer and the Mission agreed informally that the above Scope of Work would be reviewed and revised upon arrival in-country of the consultant team, as the team originally requested prior to Jakarta 03249 had been reduced by two persons. In a briefing with R. Cobb and ARD staff on 4 April, it was agreed that the consultants should focus on:

1. What are the major communication problems related to secondary food crop programs?
2. What institutions and programs are involved in efforts to alleviate those problems?
3. How should communication support be linked into extension programs-- into the present system, or will something new be required?

It was emphasized that Meyer and Ray should relate closely to the other four members of the SFCD evaluation team, and interact with them to the maximum extent possible. Cobb indicated that the Ray/Meyer report would be viewed by USAID as a report to the larger evaluation team for their consideration in developing recommendations for redesign of the SFCD.

### III. METHODOLOGY

The assessment and recommendations included in this report are based on study of relevant documents; interviews with key people at national, provincial, kabupaten, and village levels; observations from field trips to South Sulawesi and East Java, two of the three provinces presently included in the SFCO; interaction with USAID/I staff, SFCO consultants and the SFCO evaluation team; and prior experience of the consultants in development communication and technology transfer programs and projects elsewhere in Asia, Latin America and Africa.

The work of the consultancy was divided roughly into four phases:

1. 3/30-4/07 - Initial briefings with USAID/I; interviews with Ministry of Agriculture officials, private sector firm representatives, Bogor Agricultural Institute staff, and representatives of other donor agencies; and study of relevant reports and documents.
2. 4/07-12 - Field trip to South Sulawesi (Meyer) and East Java (Ray and Meyer).
3. 4/13-18 - Follow-up interviews in Jakarta area; interaction with SFCO evaluation team; briefings with USAID/I; drafting of consultancy report.
4. 4/19-23 - Final interviews with MOA and donor agencies; revision of draft report; final briefings with USAID/I; and submission of consultancy report.

A comprehensive list of contacts made by the team is attached as Appendix B.

The assessment and recommendations presented herein represent the best judgment of the consultants based on information that could be obtained during the period of the consultancy. Due to time constraints, however, much of what is reported is largely impressionistic and could not be verified through cross-checking and repeat interviews. Therefore, although a framework for increasing the effectiveness of communication support in Indonesian agricultural extension programs--including possible involvement of the CTTA Project--is suggested in Section IX, further study will be required to develop a communication strategy closely attuned to Indonesia's needs and diverse cultures. Such a follow-on study is included in the team's recommendations as the next major step in developing an implementation plan for a SFCO-CTTA joint activity.

#### IV. INDONESIAN AGRICULTURAL EXTENSION SYSTEM

The Indonesian extension system offers the promise of widespread coverage of scattered populations through a modified training and visit plan (T & V). Yet, a first examination of the system reveals two fundamental issues that could present serious obstacles to effective extension if not addressed directly and positively. One relates to the system's organizational structure and the other to extension philosophy.

Within the organizational structure of the Ministry of Agriculture (MOA), extension responsibilities are divided among several agencies. One has responsibility for formulating extension methodologies and for providing coordination at the national level. Another set of agencies is responsible for technical and operational control over extension staff and for formulating extension programs to fit needs of specific commodity production programs. Still another agency is responsible for the administration of agricultural extension personnel of all subsectors.

The philosophical conflict can be described as the difference between "problem-solving" and "directive" approaches to extension.

As will be discussed in greater detail below, accommodations appear to have been reached at the provincial and local levels that permit extension programs containing elements of both approaches to be developed and implemented.

##### A. Organizational Structure

The general organizational structure of the Ministry of Agriculture is illustrated in Figure IV.1. Those Directorates and Agencies of particular relevance to agricultural extension are indicated in the bold boxes.

##### 1. Directorates General

A Directorate of Extension has been established in each Directorate General which is responsible for technical and operational control over extension staff and for formulating extension programs to fit the needs of specific commodity production programs. In the case of the Directorate General Food Crops Agriculture (DGFCFA) within which the Secondary Food Crops Development Project (SFCDF) functions, The Director of Food Crops Extension is responsible for guidance to extension programs, farmer's institutions, extension staff, extension facilities, and the transfer of technology.

One issue, the resolution of which will have implications for building a communication component into the SFCDF, is whether the SFCDF will continue to function within the DGFCFA Production Directorate as at present or will shift to the Extension Directorate (or some other GOI entity).

Each of the Directorates General is represented at the provincial level by a provincial department. The provincial departments are divided into bureaus, including a Bureau of Extension, reflecting the functional directorates in the Directorates General. Although the heads of the provincial departments are administratively responsible to the Governor and Provincial Government, they

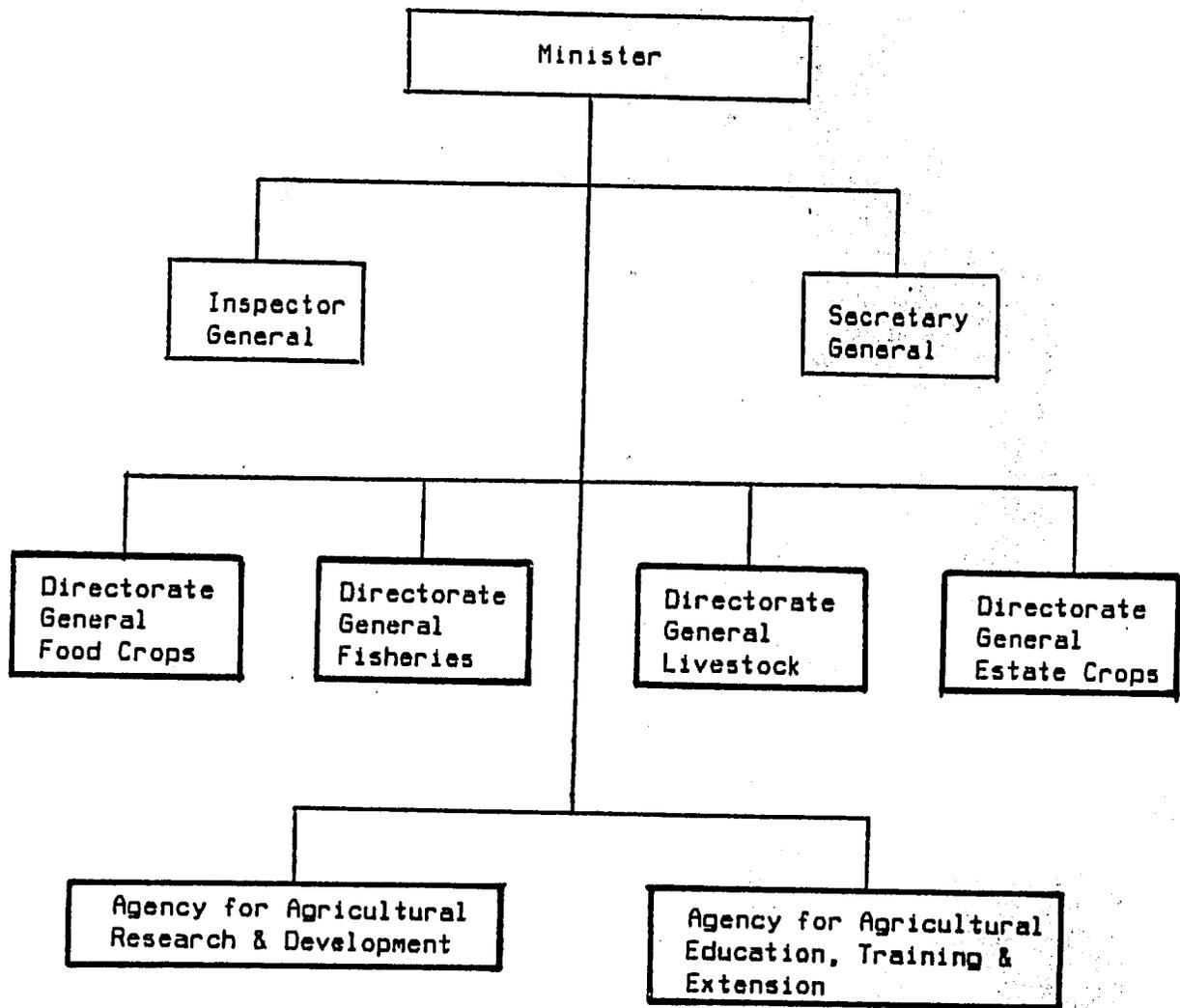


Figure IV.1  
Organizational chart of Ministry of Agriculture

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remain responsible to the respective central Directorates General for implementation of national programs and general technical matters. Typically, the provincial offices maintain district (Kabupaten) offices which may be organized into sections corresponding to the bureaus at the provincial level. Extension Subject Matter Specialists (PPSs) are attached to the Extension Bureau and Extension Section. Field extension supervisors (PPMs) are attached to Rural Extension Centers in the Districts, and field extension workers (PPLs) are posted at the village level.

## 2. Agency for Agricultural Education, Training and Extension (AAETE)

The AAETE is responsible for all agricultural education, training and extension methodology, and now has overall responsibility for coordinating agricultural extension at the national level. It has no district-level organization. AAETE supervises three types of institutions: 1) agricultural high schools which produce technical level graduates who provide the primary source of new PPLs; 2) regional in-service training centers to upgrade the skills of agricultural staff; and 3) agricultural information centers (BIPs) at the provincial level to produce extension materials and to support extension work through organizing farmer competitions, field days and conferences. In addition, AAETE operates a national training center which provides longer term in-service training courses for agricultural teachers and instructors from the regional schools and centers, and for senior personnel of the provincial and central agricultural agencies. The AAETE is organized into three Bureaus relating to its various categories of activity: Extension, Agricultural Education and Training, and Staff Education and Training.

It is anticipated that the Project Implementation Unit for the World Bank-financed National Agricultural Extension Project III will be established at the national level in the AAETE.

## 3. BIMAS

Established as a national program to raise food crop production and farm income by applying credit and cash inputs at subsidized prices, BIMAS (literally translated as "Mass Guidance") is not shown in Figure IV.1, although it functions as a secretariat within the Ministry of Agriculture and has a critical extension-related responsibility. BIMAS is now responsible for administering agricultural extension personnel of all subsectors, and for synchronizing provision of inputs, credit, marketing and cooperative development. It also exercises administrative control of rural extension centers constructed by the DGFOA that have not been handed over to local government.

## 4. Agency for Agricultural Research and Development (AARD)

Research functions of the Ministry of Agriculture are carried out by AARD. Although not involved directly in extension programs, the AARD is critical to extension both in terms of the new agricultural technologies developed through its programs and technical backstopping of extension workers by research staff (as, for example, in training extension staff). The establishment of on-farm trials through the SFCD Project brings AARD research institutes and staff into closer contact with extension.

## 5. Programmatic implications

The AAETE Secretary summarized the responsibilities of extension-related agencies in the following terms:

- The DGPCA Extension Directorate is responsible for determining what to teach.
- The AAETE is responsible for determining how to teach.
- BIMAS is responsible for doing the teaching.

The need for effective coordination among these agencies, and with AARD, in developing and maintaining a comprehensive, integrated and viable extension program attuned to the needs of the people and the country is self-evident. However, national-level planning must take into consideration not only national goals and policy issues, but also provincial and local differences in: land quality, water availability, climate, and other natural constraints; farmers' socio-economic and cultural characteristics and resource constraints; and market and demand factors. Related resources such as the radio marketing information service (see Section VI) and private sector networks (see Section VII) should also be brought into the planning and implementation process.

Although the communication component of a redesigned SFCD Project will focus major attention on communication support to extension in the transfer of appropriate technologies to farmers, there is also need to facilitate inter-agency coordination through enhancing the two-way flow of information among the agencies involved directly or indirectly in extension programs at the national and provincial levels, and between the central agencies and the provinces.

## B. Methodology

Three methodology-related factors are of major importance in considering the nature and magnitude of the communication component to be incorporated into a redesigned SFCD Project. One, extension philosophy, has been cited earlier. Of at least equal importance is the flexibility of the extension system to adjust, within general parameters, to the social, economic and cultural characteristics of the farmers in a given region. Finally, the methods and communication channels currently used by extension in the dissemination of information to farmers--how effectively they are used, how well they are integrated into a total extension program, and how appropriate they are in the local setting--provide the initial base upon which communication assistance must be developed. All of these factors must be considered within the context of the extension system's organizational structure as discussed above.

### 1. Extension philosophy

The differences in extension philosophy which have been pointed out by observers in Indonesia can be defined most sharply as a "directive" vs. a "problem-solving" approach. The former may be characterized by setting of targets at the national level which are passed on to provincial and local levels with directives as to how those targets are to be achieved--including the crops to be planted and the technologies to be used by farmers. The latter

involves participation by the farmers in determining what will be to their advantage to produce and how.

In practice, nearly every extension program, including Indonesia's as observed by the consultants, contains elements of both philosophies. As discussed in Section V in relation to the SFCD Project, for example, although the cropping systems and technologies developed and recommended by research appear to fit the needs of Kabupaten Ponorogo farmers in East Java reasonably well and to be consistent with their mode of farming, it is reported that some adjustments have been needed to make them more appropriate for use on demfarms. Demfarm "technological packages" designed for farmers in Kabupaten Bone of South Sulawesi have been modified to an even greater extent to take into account local conditions and farmer characteristics.

The critical need is to recognize that extension planning and programs must take local needs and variability into consideration and establish a balance between meeting national goals and responding to farmer requests for specific types of information and assistance. The SFCD Project communication component should provide assistance in clarifying the "philosophy" issue at both the national level and in the provinces in which the Project is functioning; and it should serve as a catalyst in institutionalizing this philosophy at all levels.

## 2. Flexibility in planning and implementation

Communication support, to be effective, must be based on understanding of the target audience (farmers), their commonalities and their differences. That audience must be segmented, even within a District, and the communication interventions targeted in such a manner that the information presented is relevant, appropriate for, and understood by each.

As discussed earlier, AAETE has responsibility for the extension methodology to be used in Indonesian extension programs. Designation of a national level institution for this purpose is sound, as a methodological framework is essential to rational planning, determination of resource requirements, and general allocation of resources.

In order to meet the requirements for effective communication support, however, the methodological framework needs sufficient built-in flexibility to permit the design and implementation of communication strategies that are region and audience-specific. In addition, it must include linkages with both the farmers and providers of technology, inputs, credit and other agricultural services that permit continual re-examination and adjustment of the program and its content to meet changing situations promptly and appropriately.

It was not possible for the consultants to examine the Indonesian extension system in depth with regard to the flexibility issue, particularly at the central level. Observations in South Sulawesi and East Java indicated fairly strict adherence to the standard T&V methodology, although there appeared to be some flexibility in program content as discussed in greater detail in Section V.

The communication component in the redesigned SFCD Project should direct attention to the "flexibility" issue, and provide assistance--in collaboration with the World Bank-funded Third National Agricultural Extension Project--in re-examining and adjusting the current methodological framework as appropriate

to best serve the needs of Indonesian farmers in all provinces and kabupatens.

### 3. Methods and communication channels currently used in extension programs

Although concentrated attention is being given by extension to the demfarms in the SFCO Project kabupatens, numerous other communication channels are also being utilized. Such channels and approaches are discussed briefly below.

Demfarms. Both extension staff and farmers participating in the demfarms visited were enthusiastic about both the demfarms and results being achieved. The consultants' observations concerning impact of the demfarms in South Sulawesi and East Java are summarized in Section V. One matter of concern, however, was the inability to ascertain how, in practical terms, the demfarm technologies would be extended into demonstration units of about 25 hectares and then into surrounding demonstration areas of approximately 500 hectares, as described in the original project plan (see Section V).

The Head of the East Java DGFOA Palawija Crops Section feels that excellent training for PPLs and other extension staff has resulted from their participation in the SFCO Project. At the same time, he is of the opinion that their emphasis on the Project demfarms should not be continued indefinitely, as other extension needs require greater attention than is possible at present.

Farmers' groups. The mechanism used by Indonesian extension for promoting change is the farmers' group. By directive, all farmers are members of a group; and all projects and activities are channeled through the group mechanism. Such a mechanism permits PPLs to reach a greater number of farmers than would be possible through relying on individual contacts, and makes efficient use of the T&V system's contact farmer concept.

In densely populated East Java, group activity fits traditional patterns well. In an outer island such as South Sulawesi, there is less of a group activity tradition--which may influence the effectiveness of extension activity. In general, specific government objectives--such as increased soybean production--are passed through the local political leadership and translated into objectives for villages. These, in turn, are divided into objectives for specific farmers' groups within each village. Where this mechanism has in the past resulted in significant yield improvements and related benefits, such government recommendations are often widely and rapidly implemented. When a particular recommendation has some unforeseen negative impact, however, adjustments take place at the local level or may not be adopted (such as a third crop in labor-scarce South Sulawesi).

When the recommendation works, it can spread rapidly through the group mechanism. Educational materials and a variety of communication support strategies have the potential to translate SFCO technology rapidly and effectively to farmers within this context. Such translation appears to be necessary, since not all groups are contiguous nor the benefits of all technologies self-evident.

Radio. The East Java Information Center (BIP) reported that it broadcasts nine hours of live and recorded programming daily over its transmitter, some of which is agricultural in nature. Present uses of radio for agricultural programming are discussed in greater detail in Sections V, VI and VII. Although relatively few details concerning content and formats were available

to the consultants, it is clear that radio programming produced and/or sponsored by government agencies and the private sector is significant in volume and varied in format and content.

Although extension staff expressed high interest in the use of radio in extension, the opinion expressed by one PPL that programs should be general in nature with the specifics left to the PPLs appeared to be rather widespread. The possibility of localizing radio messages and targeting them to specific audiences appeared to be a completely new concept. A notable exception is the radio market information service which presents market prices at several levels--Kabupaten, Province, National.

There was little evidence of public sector agricultural radio programming being integrated into a total extension communication strategy. Likewise, there appeared to be inadequate understanding of the value and use of radio for educational purposes directed toward specific audiences. (Radio can be a powerful medium for providing farmers with information about and creating interest in new technologies and their use, particularly if the radio messages are reinforced by the same information received through other dissemination channels. The credibility to farmer listeners of those messages can be increased through incorporating interviews with local farmers who have used the technology successfully into the programming format.)

Radio listening groups. Although informed in Jakarta that radio listening groups were an important part of extension, the consultants found no evidence of such group activity in South Sulawesi or East Java. It was reported that a Canadian student who was in Bone recently to study farmers' listening groups for her Master's thesis verified that numerous listening groups had been established. In the course of a year, however, she was unable to find one that was functioning. Such a finding is not entirely unique, as various forms of listening groups (such as radio forums) tried elsewhere in the developing world have had mixed success.

Other techniques for achieving the same purpose hold more promise than organized listening groups continued for an extended period. For example, it was reported in East Java that many farmers and their families listen to radio programs that they later discuss with members of their group and other friends and neighbors. A more structured approach that has been used successfully elsewhere is to combine the use of pre-recorded cassette tapes with accompanying graphic materials and handouts in meetings of extension workers with farmer groups. This system is probably of greatest utility for a limited series of regularly scheduled meetings linked with the use of other dissemination channels such as demonstrations and mass media.

Graphic/print materials. Numerous folders, posters, leaflets and bulletins were shown to the consultants which had been prepared by the BIPs, provincial extension offices, research centers, and kabupatens. According to the PPLs attached to one Ponoroga Rural Extension Center (REC), they distribute an average of five or six such materials to their farmer groups annually. In addition, other materials are prepared by private sector firms as discussed in Section VII. With the exception of materials prepared by firms to promote their own products, however, such materials appear to be produced on an ad hoc basis rather than as part of a defined communication strategy.

Audiovisual aids. Teaching materials and aids such as flipcharts and slide

presentations appeared to be in limited supply. The use of slides by PPLs is seriously constrained by lack of sufficient projectors. For example, at the REC referred to above, only one projector was available for use by its 12 PPLs.

A major constraint to the production of materials in any of the media is the scarcity of funds for purchasing film, paper, cassettes, and the other supplies required.

Comprehensive communication strategies. In total, the range of extension methods and communication channels used by extension is impressive. Their impact in promoting the transfer of technologies to farmers is seriously constrained, however, by failure to integrate them into multi-media communication strategies in which the various methods and channels are mutually reinforcing and directed toward well-defined audiences.

The communication component of the redesigned SFCD Project should provide substantive assistance in developing and implementing such strategies, as well as in improving the quality of materials produced--through communication related investigation and pretesting and staff training. Such assistance will be particularly crucial to extension success in meeting the needs of palawija crop producers or, in other words, "to bring the extension to a par with the technology".

## C. Agricultural Technology and Research-Extension Linkages

### 1. Agricultural technology

Communication support, no matter how well it may be planned and implemented, can help to accelerate technology transfer only if appropriate, locally adapted, improved technologies are available that can be beneficially adopted by farmers. Furthermore, significant investment in an ongoing communication support capability can be justified only if the research system is capable of generating, testing and adapting a continuing stream of new and/or improved technologies that meet the same criteria. Therefore, the "availability of improved technology" question must be addressed as one of the early steps in determining the potential viability of incorporating a significant communication component into a redesigned SFCD Project.

Other factors which influence (and, in some cases may place an absolute constraint on) technology transfer include government policies which provide incentives--or disincentives--for use of the improved technologies; availability to farmers of the inputs and services required to enable them to adopt the technologies; farmer access to markets; elasticity of demand for the commodities produced; a viable marketing system; and cost of production : product price ratios that enable farmers to realize a reasonable profit from use of the technologies. Major emphasis in the SFCD Project is being placed on crop diversification. From the consultants' observations and interviews with knowledgeable people, it would appear that increasing attention now should be directed to factors such as those just cited.

The consultants found several indicators of appropriate improved technologies which are presently underutilized by the general farming population. Such indicators are largely impressionistic and could not be fully verified during

this consultancy. Nevertheless, they were judged to be sufficient to justify an investment in communication support as part of the redesigned SFCD Project. Examples include:

- In Kabupaten Ponoroga, East Java, it was reported that production levels on the demfarms have been up to 25 percent or more higher than general production levels in the surrounding community. Observations of crop conditions in areas near the demfarms visited supported this conclusion.
- In Kabupaten Bone, South Sulawesi, the average demfarm soybean yield is about 1.5 tons/ha. which is approximately double the Kabupaten average.
- In a summary of results from about 20 on-farm maize trials conducted by the Malang Research Institute for Food Crops on soils representing approximately 10 percent of the maize area of East Java, it was reported that cooperating farmers were able to raise their maize yields from 1.8 to 4.8 tons dry grain per hectare and net benefits from Rp. 198,000 to Rp. 573,000 per hectare through using improved varieties and management.

According to this report, substitution of the improved variety Arjuna for the local variety without introducing other improved practices resulted in only a modest increase in average dry grain yield (expressed in tons/ha) from 1.8 to 2.1. When carbofuran was applied at planting in combination with use of Arjuna, average yields increased to 3.0 tons/ha. A further increase in average yield to 4.4 tons/ha was reported when improved management of plant population and fertilizer application were added to the Arjuna-carbofuran package, and to 4.8 tons/ha when an increased plant population at harvest was maintained in addition to the above.

It should be emphasized that indicators such as those just cited could not be verified by the consultants. A more intensive examination of new and/or underutilized technologies will be required to determine those to be included in the technological content of communication support programs (see Section IX.B.2).

With regard to other factors which influence the rate of technology transfer, the lack of adequate supplies of improved seeds and other inputs was among the constraints to widespread diffusion of demfarm technologies mentioned to the consultants both in the provinces visited and in Jakarta. The need for both farmers and traders to have access to current market price information (now being provided by the market information service in eight provinces) and for greater understanding of marketing systems, including private sector entrepreneurs and firms, were mentioned by others. On balance, it would appear from a very superficial examination that such problems are amenable to significant alleviation and should not therefore present an overriding constraint to crop diversification or the potential for developing an effective communication program in support of technology transfer--provided they are recognized and specific attention is directed toward such alleviation. As in the case of the "availability of improved technology" question, this highly tentative conclusion will require investigation and verification.

ref

## 2. Research-Extension linkages

Viable linkages and effective two-way communication between research and extension are essential to the success of technology transfer programs. From contacts made by the consultants in South Sulawesi and East Java, it would appear that there is extensive interaction between research and extension, at least at the field level. Although it was not possible to ascertain the adequacy of such interaction (an issue which the SCFD Project evaluation team will examine in greater depth), it was the impression of the consultants that research-extension linkages and interaction could benefit from being strengthened.

Effective communication is required at every stage in the technology development and transfer process to assure that results of research are made available to extension for inclusion in its programs and are understood by extensionists, and that farmers' problems and difficulties experienced in the use of recommended technologies are promptly brought to the attention of research. Research-extension interaction is particularly crucial in determining the technologies to be recommended by extension in each region (see Section IX.B.2 for a discussion of this process). Assistance provided through a SFCO Project communication component should include specific attention to developing and strengthening multi-directional research-extension-farmer communication networks to meet such needs effectively and efficiently.

### D. Extension performance

The Head of the DGFCO Palawija Section in East Java Province stated that their present program is based on demonstrations, but that it is impossible to serve the needs of all farmers through such heavy reliance on this one approach. A senior staff member of the DGFCO Extension Directorate in Jakarta stated that too many people need help to depend wholly on the demonstration approach. He went on to comment that extension needs related to palawija crops are great, but that "the technology is better than the extension." He felt that a much better job has been done by extension with respect to rice production. Others at both the central and field levels expressed the opinion that, using present methodologies, there cannot be sufficient PPLs to serve the needs of Indonesian farmers.

In short, concern was expressed at all levels about the present capacity of extension to serve the country's agricultural extension needs, particularly with respect to the palawija crops.

Nevertheless, there is evidence that extension has had an impact--although that impact may be difficult to quantify. In Science and Rice in Indonesia, a recent assessment made by William B. Ward, the author concludes that

"Considerable credit for the widespread adoption of modern varieties and better rice production practices by farmers in Indonesia can be given to the efforts of an energetic food crops extension service. Indonesian extension workers now have something worthwhile to extend, but the most capable of them are more than just extenders of information. They have frequent contact with farmers and are good advisors and a vital link with institutional sources of credit, modern

inputs, and services. They have found that one of the best ways to establish rapport with farmers is to demonstrate mastery of new rice technology."

From inspecting demfarms conducted under the SFCD Project, and talking with extension workers and farmers, the consultants concluded that provincial and kabupaten level extension staff are providing active leadership to establishing and supervising the demfarm program, and that PPLs are conversant with both the technologies included in the demonstrations and the demonstration methodology. Although the rate of spread of the demfarm technologies is less than desired, there is nevertheless evidence that other farmers in the vicinity are, indeed, using the technologies being demonstrated.

Extension service facilities and personnel have been expanded, and systematic in-service training programs established, with assistance from the World Bank. The extension system now has the potential to expand its areas of action and improve its performance.

In short, although the criticisms about extension performance expressed by Indonesian extension leaders with whom the consultants visited are generally valid, extension has had some concrete accomplishments. Incorporating effective communication support into extension methodologies and programs could contribute significantly toward improving extension performance in terms of the numbers of farmers reached and the technology transfer achieved.

## V. THE SECONDARY FOOD CROPS DEVELOPMENT PROJECT

### A. Overview

The goal of the Secondary Food Crops Development Project is to increase the volume of consumption, employment and income through the increase in production and improvement of marketing of non-rice, or palawija, crops. To achieve these goals, the project has been assisting the Directorate General of Food Crops, Department of Agriculture, to introduce a technology package consisting of site specific cropping systems, inputs and facilities for production and post harvest operation, and special extension services on improved agronomic practices and marketing of palawija crops.

Bone in South Sulawesi Province, North Lampung in Lampung Province, and Ponorogo in East Java Province were selected as pilot sites because they are predominantly palawija crop producing areas with potential for increased production; they represent different agro-climatic conditions; their populations consume secondary crops as a supplement or substitute for rice; and improved cropping systems have been tested with some degree of success.

It has been amply demonstrated that there is a wide yield gap for the palawija crops between farmer's yields and yields achieved on research stations and in on-farm yield trials. Several factors cited to account for this gap suggest that improved technology is available but is not being broadly utilized by the farm community. To bridge the technological gap, the Government has developed a technology transfer system built upon several layers of demonstration and extension.

Palawija technologies are developed in the foodcrop research institutes, and the most promising ones are tested in on-farm research trials. The technologies which perform best in the on-farm trials are diffused through demonstration farms (demfarms). These multi-operator farms are five hectare tracts whose members are provided either with production credit or a particular form of production subsidy. Technologies used in a successful demfarm are expected to diffuse throughout the community and evolve into a demonstration unit having an area of roughly 25 hectares. The technologies are then expected to diffuse into the surrounding areas and evolve into demonstration areas. A demonstration area is defined as a group of contiguous farmers using advanced technology on an area of approximately 500 hectares.

A total of one hundred and eight palawija demfarms have been financed through SCDP in the three provinces since 1983-1984. Each demfarm receives production subsidies for a full crop year plus post-harvest equipment, plows, sprayers, a pair of bullocks and intensive extension support.

The SCDP demfarms are an expensive means of transferring improved cropping technology. The cost of operating a demfarm is approximately five million rupiah, not including local extension costs. To obtain a positive return on this investment, the demfarm must continue to be a viable unit long after the termination of project assistance; and farmers in surrounding areas must adopt and realize benefits from the new technologies. Factors which influence the ability of farmers to use those technologies are discussed briefly in Section III.C. To a great extent, the primary benefit accruing from the demfarms is

the expected spread effect of the new technology in the project impact areas.

The Secondary Food Crop Development Project (SFCO) has apparently been successful--up to a point--in its demfarm approach in the two provinces visited (South Sulawesi and East Java), based on the consultants' visits to demfarms in the two areas, discussions with Extension personnel at all levels, and interviews with key farmers. For example, in Kabupaten Bone, South Sulawesi, SFCO has been in the forefront of a general soybean intensification effort that has increased the area of soybeans planted to more than 11,000 hectares in comparison to less than 1,250 hectares two years ago when the project began. The average demfarm soybean yield is 1.5 tons/ha, well over the kabupaten average of .75 tons/ha. The specific insect control and fertilizer management measures responsible for this dramatic production increase are known and are being widely copied. High soybean prices have reinforced this momentum.

On the other hand, project emphasis to date has been on getting demfarms up and operating with increased production rather than on the desired spread effect. Diffusion of improved demfarm technology has taken place naturally and through close collaboration with traditional extension at the project sites. It now appears to be time for the SFCO Project to shift emphasis and provide assistance to the diffusion component as well.

One implication of this shift in emphasis will be to consider relocating the SFCO Project within the Food Crops Directorate--from the Production Directorate to the Extension Directorate and Market Information Service Division--in keeping with the expressed wish of the Food Crops Director General to place financial management and logistic backstopping with the units directly involved in project implementation.

## B. Transfer of Palawija Technologies to Farmers

The consultants visited two of the three SFCO Project provinces, South Sulawesi and East Java, and demfarm sites in each. It is hoped that the recommendations developed from experience gained during these site visits will also be relevant to not only the unvisited site but also potential SFCO expansion sites.

Profound similarities as well as differences between activities were observed at the two project sites. The sites are at remarkably similar junctures in their project life, and each could benefit from additional appropriate support for extension.

### 1. Kabupaten Bone

Kabupaten Bone is a sprawling district where demfarm clusters are situated as far as 110 kilometers from each other. Wood homes on stilts with colorful porches and orderly front yards line the road through each desa, or village, deteriorating in quality only gradually as tarmac turns to dirt beyond the reach of electrification and the occasional television antenna. Fields extend far behind each home and fill the generous space between desas. It is said that herbicides are popular here because of labor shortage for weeding in comparison to available land, and "due to the desire of farmers in the region to be "up on the porch by 1:00", the end of their work day whenever possible.

These Bugis (the local language is Buganese) grow rice as their primary crop. They have recently begun to introduce a second crop of palawija, although most would not need to do so to survive. Soybean, cassava, and maize are favored in the high pH soils in northeastern Bone beyond the picturesque lime hills; maize and peanuts are preferred in southern Bone. A third crop is rarely grown.

SFCD Project demfarms are clearly marked with blue and white signs, popular local colors, indicating which inputs have been used and in what quantity. The dozen demfarms visited seemed outstanding in appearance, and the farmers encountered were proud of their participation. Some critical questions about the Kabupaten Bone demfarm program need to be addressed, however. How have the SFCD project and extension intersected? What has been learned, and is it being spread to other farmers? How, and how extensively?

a. The research base for refining SFCD Project recommendations is located three hours away, at Maros near Ujung Pandang, the capital of South Sulawesi. Research-extension relationships in the SFCD project have suffered from two major problems. First, experimental cropping systems at Maros, taken as a whole, have been geared toward three crops and greater intensification than would be acceptable to Bone farmers. Second, serious delays in reimbursements to Maros researchers from the logistic support base in the DGPCA Production Directorate in Jakarta have represented a significant disincentive for research collaboration. Bill Ruscoe, the SFCD Project agronomist residing in Ujung Pandang, has contributed significantly to overcoming these problems by personally acting as a bridge between research and extension, and by accompanying Maros advisors to sites on an as-needed, case-by-case basis. As a result, key crop intensification recommendations suitable for conditions in Bone have led to demfarm yields double those of neighboring farms. Thus, there are recommendations being put into practice in Kabupaten Bone with clear impact that could be copied and diffused with benefit throughout the Kabupaten.

b. The extension base for supporting SFCD Project activities is at Provincial MOA-Extension headquarters in Ujung Pandang and at Watangpone, the capital of Bone. Interviews in Ujung Pandang with the extension director and PPS coordinator, and at the BIP, verified that the Indonesian extension system is functioning along expected lines. The PPS coordinator publishes a quarterly bulletin for the PPMs and PPLs. The BIP provides an array of simple, if un-pretested, leaflets for PPLs and farmers and participates in some radio and television programming. Interviews in Watangpone and in the field, suggest that the PPM-PPL-contact farmer system is functioning, and that the SFCD Project demfarms are receiving special attention from this system. Thus, the Kabupaten Bone SFCD Project demfarms are in a context of enhanced extension support for adopting and maintaining recommendations. The high price of soybeans, the area's major palawija crop, has provided excellent reinforcement for these SFCD Project objectives.

c. The mechanics of adoption at the demfarm level appear to have been straightforward. Local leaders, taking into account SFCD Project and MOA suggestions, make the final demfarm site selections. The farmers' group in residence at that site nominates participants from contiguous plots so that a five-hectare demfarm site can be formed. In Bone, this requires about 7 participants out of a farmers' group of approximately 50 members. The provision of free inputs, the special nature of the project, and some past positive experience in following MOA agronomic recommendations generate genuine cooperation with the Project. By the time of this site visit, results on the

farms seem to have generated positive enthusiasm for the Project.

d. Diffusion to other farmers has begun. Those on plots near the demfarms are obviously copying some recommendations. It was reported that PPLs are using the demfarm experience to instruct other farmers in their areas of coverage. The SFCD project recommendations and their results seem to be favorably thought of by extension workers and farmers. The idea of introducing a second, palawija crop, particularly of profitable soybean, clearly seems ready to take off, with or without SFCD Project recommendations which might double the yield over traditional methods. But the diffusion effort under the SFCD Project to-date is largely passive--it is happening through normal, face-to-face networking channels more or less as a natural phenomenon, without strategic, planned inputs designed to produce diffusion from the SFCD Project. This situation can and should change in the project's redesign.

e. Programmatic implications. An effort should be made to enhance extension activities in Bone and accelerate diffusion of SFCD Project demfarm recommendations throughout the kabupaten.. This can take a variety of forms but should be the product of a carefully designed strategy.

Consideration should be given to:

- providing assistance to the BIP in preparing appropriate audiovisual extension support materials;
- production and use of pre-tested, well-designed pamphlets, flip-charts, posters, and slide materials;
- using local radio spots and programs, possibly in Buganese;
- incentives and promotions through private sector networks, as enumerated and discussed in Section VII.

Saturation of Kabupaten Bone through 16mm footage supplied to "wandering cinema" entrepreneurs, discussed later, may be particularly attractive for Bone.

Whatever is decided in terms of communication support, it must be closely articulated with all other extension activities and be part of a single, multi-channel diffusion plan. A major task of a resident advisor under a joint CTTA-SFCD project activity should be to assist in developing and monitoring the implementation of such a diffusion plan.

## 2. Kabupaten Ponorogo

The dense population of Kabupaten Ponoroga in East Java provides a striking contrast to Bone. Neat but tightly packed homes, typically on cement platforms, front the roads in a nearly continuous line from desa to desa. Plots, tiny in comparison to Bone, extend behind the homes. There is the sense that every available square inch of land is being cultivated or somehow intensively used. Here, three crops are often a necessity for survival. These Javanese are instinctively comfortable with intensive multiple cropping systems. Yet the story of how the SFCD Project and extension have cooperated here is not unlike that of Bone, and the need for additional SFCD Project activity to diffuse recommendations more widely is also true in Ponoroga.

- a. The research base for the SFCD Project is three hours away, at Malang Research Institute. Once again, the research-extension relationship has suffered from cross-institutional logistic problems, but dedication of an individual, this time the director for extension based at Surabaya, has once again provided the catalyst for research-extension interaction on a case-by-case basis. In addition, the PPS and PPM networks for Ponoroga have well established traditions with developing demfarms. Thus, in Ponoroga, SFCD Project recommendations suitable for local conditions are being put into practice with visible effects that could be copied and diffused with benefit throughout the Kabupaten.
- b. The extension base for supporting SFCD project activities is at both provincial MOA-Extension headquarters in Surabaya, the capital of East Java, and at Ponoroga, the Kabupaten capital. Interviews in Surabaya with extension personnel and the PPS coordinator, and at the BIP, verified that the Indonesian extension system is functioning as expected. As in Bone, the PPS coordinator provides technical bulletins for the PPMs and PPLs; the BIP provides a range of simple, if un-prettested, print materials and participates in radio and some television programming. In Ponoroga, interviews suggested that the PPM-PPL contact farmer system is functioning, and that the SFCD Project demfarms are receiving special attention. Thus, the SFCD Project demfarms in Kabupaten Ponoroga are in a context of enhanced extension support for adopting and maintaining recommendations.
- c. The mechanics of adoption at the demfarm level appear to be virtually identical to Bone. Demfarm plots and groups are recruited in a similar manner, the major difference being that as many as 20 farmers are required to establish the 5 contiguous hectares for a demfarm. Free inputs are an attractive incentive and, by the time of this site visit, results on the farm seem to have generated positive enthusiasm for the Project.
- d. Some diffusion appears to have occurred as a natural phenomenon. Farmers within the group sponsoring the demfarms are visibly copying recommendations from the demfarm fields. PPLs are using the lessons learned. SFCD Project recommendations appear to have a positive image among extension workers and farmers. But as in Bone, the diffusion effort to-date has not been a product of conscious strategy. This can and should change in the redesign of the SFCD project.
- e. Programmatic implications. Virtually the same set of general recommendations can be made for enhancing diffusion in Ponoroga as were suggested for Bone. Yet the strategy developed will almost certainly differ in specific detail. Factors such as the long tradition of group activity in East Java and the linguistic and artistic conventions prevalent in the Province will influence the mix of channels used as well as motivational content. The greater intensity of private sector activity, including the activities of commercial sales staff, will have some bearing on approaches taken. A major task of a resident advisor under a joint CTTA-SFCD project activity should be to assist in developing and monitoring a diffusion plan for Ponoroga.

## VI. THE MARKETING SERVICES PILOT PROGRAM

Since 1979, the DGFCOA Economics and Food Processing Division has developed a daily radio program for farmers on the latest market prices for vegetables, rice and palawija crops. The Division has the responsibility of monitoring price information, floor price policy, and market developments relevant to farmers. Price data are collected daily from 14 provinces through a network of field workers. The system has been refined over the years so that data reporting times and formats are well established. As a result, the latest price information is broadcast daily at national, provincial and local levels. Figure VI.1 expresses the radio marketing information service as it presently functions.

An internal evaluation conducted after four years of operation indicated that the program was well received by farmers, 70 percent indicating that the information provided was useful. With reference to palawija crops, studies in 1981 and 1983 indicated that farmers increasingly accepted the information received by radio and found it to be useful. In contrast, a senior East Java extension official was of the opinion that the market news programs were of relatively little interest to palawija crop farmers and that they made little use of the information. The types of studies suggested below are needed to determine which conclusion is correct.

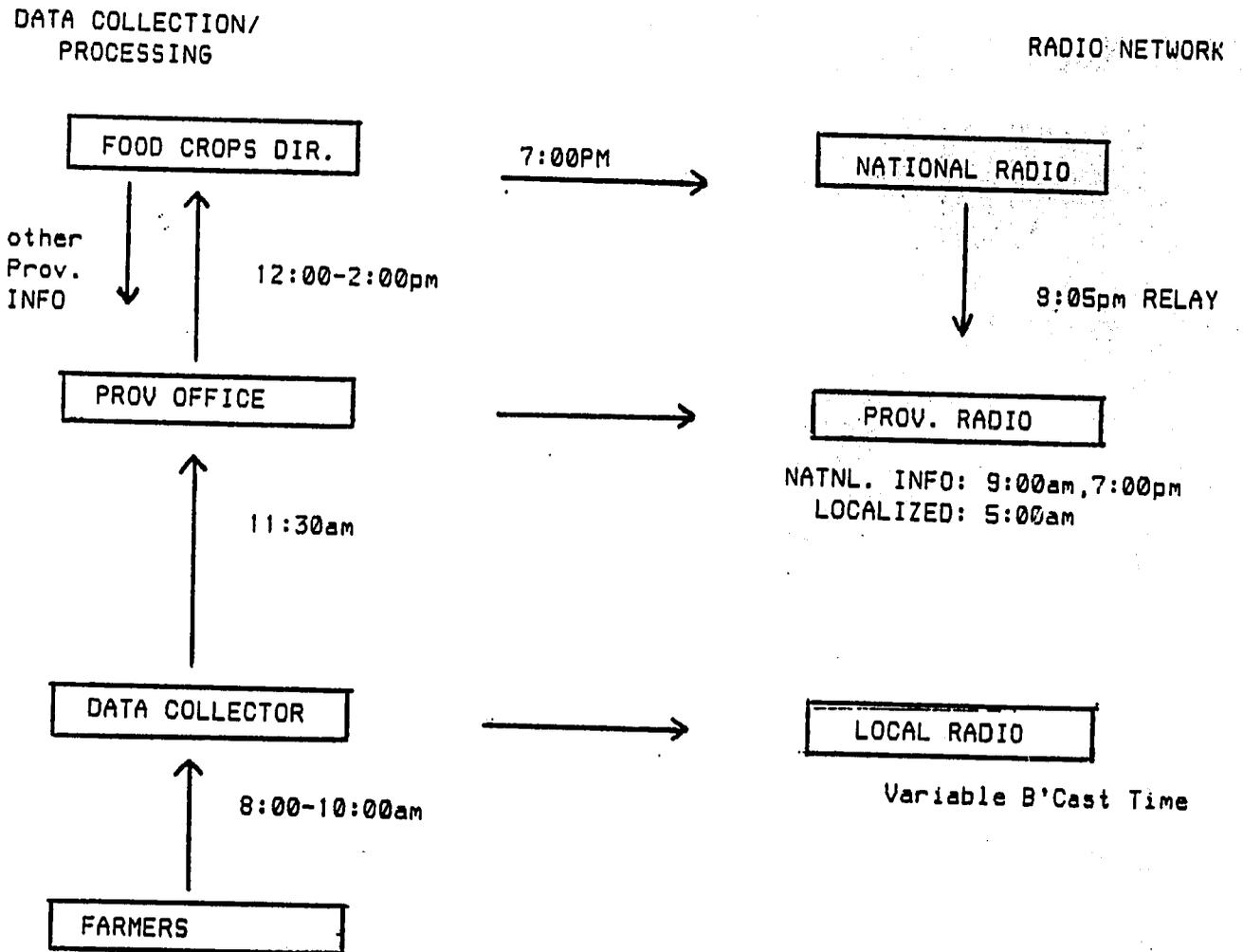
The Radio Marketing Information Service Staff within the Economics and Food Processing Division would like to broaden and improve data collection procedures in addition to expanding the scope of service offered. For example, information on palawija is presently available for only eight provinces and the number of crops covered is incomplete. The staff would like to include information on 8 to 10 commodities. It would also be desirable to predict future market demand for palawija crops. This would represent an entirely new and untested service.

Knowledge of how the farmers are using the present level of service is imprecise. How relevant is the marketing information to farmers at any given time? Is it sufficiently localized? How do traders use the information? Do farmers use the information literally (Crop x has y value; my price will be y!) or by analogy (Crop x is experiencing trends a,b,c; in my locale, these trends should lead to similar trends). How often is the service useful to any given farmer?

AID support for expansion of the information service should include expanded awareness of the target audience, the farmers, and how they process and use the information. It would also be useful to know how traders use the information. A variety of formative evaluation techniques including focus groups and in-depth interviews using tapes of past programs to obtain reactions would probably be useful, as well as on-going monitoring of audience reaction to the program. One role for the long term resident advisor under a joint CTTA-SFCD project activity should be to provide guidance for this kind of market/target audience research.

Figure VI.1

RADIO MARKETING INFORMATION SERVICE



## VII. PRIVATE SECTOR NETWORKS

The Indonesian government remains the largest purchaser and provider (through subsidies) of critical inputs such as insecticides and fertilizers. A variety of private companies such as Cargill, Pioneer, P.T. Agrofim, and a parastatal (P.T. Pertani) are involved through contracts. Numerous "free market" inputs of all kinds are available for purchase at local farmer stores, or kiosks, after their certification and registration by a government review board. Some inputs important for some areas, such as herbicides in labor-scarce South Sulawesi, are available only in free market kiosks. There is a working, well established symbiotic relationship between the two sectors. At the same time, there can be disagreement over policy decisions and room for shifts in the relative role one sector or the other plays regarding a particular input.

At the Province and Kabupaten level, company representatives and sales staff are known personally by the PPMs and PPLs. Several companies have sales staff covering the major provinces who collaborate with PPMs and PPLs, giving lectures at farmer extension meetings and farmer field days, particularly when a new product is being promoted. Cargill distributed a large cloth flip chart to explain practices surrounding its hybrid corn seed which was highly regarded by extension staff. These private sector promotional efforts are incorporated as a regular and expected part of extension. Along the same lines, one local kiosk proprietor, himself a farmer, had accompanied the provincial extension director on a visit to SFCO demfarms. These kinds of interactions between the two sectors were universally acknowledged to be part of a provider system that has government and free market elements intertwined.

Thus, while the public sector carries the major workload in extension, the private sector provides complementary support through sales staff and kiosk proprietors. Both interact at the local level, and assistance to extension should take both public and private sector elements into consideration.

Discussion of the private sector here is limited to operations which act as communication channels influencing technology transfer rather than to all operations pertinent to the conduct of business. The private sector in this role includes a variety of networks relevant to reaching farmers:

- input providers--the seed, fertilizer, insecticide and herbicide companies along with their sales forces and promotional activities;
- local farmer stores for subsidized and "free market" products, including the local agricultural supply store (kiosk), the local "poultry" or variety store, the P.T. Pertani store for subsidized inputs, and the local cooperative stores;
- traders, whose purchasing practices--e.g., whether the point of purchase is on-farm or not and whether the price includes harvesting or not--significantly influencing farmer practices in addition to price as such;
- the Bank Rakyat Indonesia, (BRI) local banking network;
- advertising agencies;

commercially available mass media, including national and provincial magazines, newspapers, local radio (programs can be sponsored and/or commercial advertising "spots" broadcast); and the kioskop keliling (a wandering cinema show).

There is no one way, nor should there be, to orchestrate all of these networks in the service of agricultural technology transfer. But their possible roles should be systematically considered in the design of any communication or social marketing strategy to support technology transfer. The GOI Extension Service does not presently have the expertise or experience adequate for this task. Present communication strategies are designed on the basis of the use of in-house operations such as the BIP and the production of ad-hoc audio-visual products.

A few impressions will now be included about each of these private sector networks. They are intended to provide an orientation for more complete investigation as part of further project implementation planning.

Input providers, through their sales forces, appear to interact with extension staff more frequently and meaningfully than any other private sector network. These providers conduct demonstrations of their own, give extension lectures, participate in farmer demonstration days, sponsor public relations lunches at the kabupaten level, and distribute promotional materials (feed caps, etc.) and sample packets. Companies occasionally hire advertising agencies to assist them in undertaking a new product launch. Matari advertising agency developed a cloth "flipchart" (along with other print and radio promotional materials) for Cargill to help introduce its CI hybrid corn seed. P.T. Agrofin has used Indo-Ad similarly. Companies vary in the number and nature of their sales forces. Cargill has three salesmen in East Java, Pioneer has a nationwide sales staff of five, P.T. Agrofin has a staff of 12 in East Java. But a more comprehensive roster of companies and their field staff is needed before the impact of this network can be understood and strategically incorporated into extension plans. What can be the impact of a handful of sales staff in the context of millions of potential adaptors? Certainly it can be at least enough to pay their salaries.

Local farmer stores deal more directly and more frequently with the farmer than any other private sector network. One kiosk proprietor interviewed, himself a farmer, had an articulate sales pitch for every product about which he was asked. Point of purchase promotional material was not in evidence, although the consultants were told that these are used from time to time.

One question regarding the use of this network will be how to channel its influence in support of specific production objectives. Perhaps the creative lottery idea developed for BRI, discussed below, could be adapted and applied to sales of particular "extension recommended" inputs. Purchase of established quantities of these inputs could include a lottery coupon good for the next quarterly sweepstakes.

Traders can influence on-farm practices by insisting on quality standards and by offering a variety of harvest and post-harvest services. The bearing of these influences on palawija extension is not known well by the consultants nor, it is suspected, has it been examined thoroughly enough by extension. This is an area of investigation that can significantly influence the content of extension communication.

It is reported that the Bank Rakyat Indonesia (BRI), with 3,600 local units, is the oldest and most widespread rural banking system in Indonesia. In the past, operating at a loss in these rural units, the system has served safety purposes, provided loans to local government, and provided a vehicle for the transfer of money between urban and rural areas. Over the past two years, a market trial has taken place in 13 villages to "get the money out of mattresses" and revitalize the savings-credit system. Members are given interest on savings over a minimum amount and have immediate access to their savings. For every 5,000 Rps. saved, a lottery coupon is issued. Sweepstakes occur every few months. The market test was reported to be successful, and the system is going nationwide in the next few months. The increased local savings are being made available for local small business credit.

The BRI is a private sector network with possible relevance to extension. Is collaboration possible? Are BRI local units appropriate places for posters about the cost effectiveness of key palawija inputs? Might local BRI representatives give extension presentations? Should extension initiate a BRI-type promotional sweepstakes with local KUDs?

Advertising agencies are fairly young in Indonesia. Most are locally owned companies who also represent a variety of international agencies. Marketing research is in its developmental stage in this country, with Survey Research Indonesia (SRI) being the only firm of note; and development of marketing and advertising strategies is as yet an imprecise art. But business is brisk (\$85 million spent on print advertising alone in 1985), and production qualities good. According to Media and Marketing (March, 1986) published out of Hong Kong, there are 120 firms in the Association of Indonesian Advertising Agencies, 52 of which are based in Jakarta; 16 are affiliated with international agencies.

Agencies have been active in pharmaceutical sales and in contraceptive social marketing. Their involvement is being considered for up-coming immunization and oral rehydration therapy campaigns. As noted above, Cargill has used Matari, and P.T. Agrofin Indo-Ad, for promoting agricultural inputs. The development of modern social marketing strategies in support of extension must clearly consider how to incorporate the expertise, experience and, selectively, the services of Indonesia's growing family of marketing research firms and advertising agencies.

Commercially available mass media should be used extensively by extension as it moves beyond its present heavy reliance on demfarms and face-to-face contact. Knowledge of media coverage and use is spotty, and the results of market researchers sometimes surprising.

Daily newspaper readership in Jakarta and other major cities has grown steadily over the past decade. In 1976, fewer than four in 10 Jakarta adults over age 15 (38 percent) read a newspaper on a given day. Now, almost six in 10 (58 percent) read Pos Kota on a single day. The percent of household literacy in rural areas is considered to be high; one executive suggested that all young adults can now read. Is the time ripe for a national extension weekly with local inserts?

There are over 300 radio stations nationally; about 40% of the adults in principal cities listen to the radio on a given day. Rural ownership of radios

is high, with an estimated 60 to 80% of households having one or more radios and as many as half of these radio-cassette combinations. Local dialect broadcasting is popular but difficult to orchestrate nationally. "Story teller", "puppet master", and soap opera formats are popular, depending on region. Local radio--public service and pay--seems a ready-made tool with which to extend extension.

Television is not yet prevalent in rural Indonesia, and is not really a commercial medium. People want TV; black and white sets are available in even secondary city stores for \$120-160. Rural electrification is the major factor limiting television coverage. Even so, the GOI is said to have provided a battery powered television to every village. Rural development programs are produced and aired, with Province BIPs participating in the development of some of this programming. Thus, television is a medium on the move in Indonesia, and should be monitored for its eventual relevance to extension.

The kioskop keliling, or wandering cinema, provides a popular kind of village evening entertainment, with audiences of 500 to 750 on any given evening. These entrepreneurs show a variety of public service and other films on battery powered 16mm projectors. Ad agencies pay for the inclusion of 16mm. footage for their clients and negotiate kabupaten-specific saturation strategies from time to time. The wandering cinema appears to provide a presently underutilized rural medium for use in extension.

In reviewing these private and public sector mass media communication channels for their relevance to extension, it is important to bear in mind that no single medium--just as no single communication channel or audio-visual aid--represents a communication or social marketing strategy. The haphazard use of media can be fascinating, seductive, and tremendously unproductive. If technology transfer objectives are specified and intervening behavioral objectives targeted, however, then a communication/extension strategy can be developed to pursue these objectives through group activity, extension demonstrations, farmer days, private sector sales promotion, BIP radio and audio-visual inputs, advertising promotions, and a variety of mass media inputs in cogent and selective interaction. Any CTTA-SCFD project activity should include technical assistance to facilitate the transition of Indonesian extension to this level of operation.

## VIII.

### OTHER RELEVANT PROJECTS/PROGRAMS

The consultants interviewed representatives of several other projects and programs that may have relevance to the communication component of a redesigned SFCO Project. Among these, the World Bank-supported National Agricultural Extension Project III (NAEP III) appears pre-eminent in this regard. It is recommended that SFCO communication support be coordinated closely with NAEP III, and that opportunities be sought for collaborative efforts in working toward common objectives.

In a somewhat different context, the recently established Rural Communications Graduate Program at Bogor Agricultural Institute represents a potentially important resource for the future whose development should be supported in appropriate ways through the SFCO communication component and other available mechanisms.

#### A. Third National Agricultural Extension Project (NAEP III)

The World Bank's involvement in assistance to the GOI for improvement of field extension services for food crops began with extension components in irrigation projects, whereby a version of the T & V extension system was introduced into irrigation command areas. In 1976, the Bank approved the National Food Crop Extension Project under the DGFCO--in nine provinces initially and later expanded to four more. This was followed in 1983 by the Second National Agricultural Extension Project whose objectives included a) strengthening food crop extension services in a further group of 13 provinces not covered by the first project; b) establishing an integrated extension service for transmigration areas; and c) incorporating extension activities for smallholder estate crops, animal husbandry and inland fish culture into the basic extension program and delivery system heretofore exclusively utilized for food crops.

The NAEP II was initially managed at the national level by the project unit under the jurisdiction of the DGFCO, pending completion of an organizational study aimed at examining ways of unifying agricultural extension services under the coordination of AAETE. Transfer of NAEP II from DGFCO to AAETE resulted in some implementation problems which now appear to have been largely overcome, and it is anticipated that the NAEP III will continue under the jurisdiction of the AAETE.

Major objectives of NAEP III include strengthening of extension services covering estate crop, livestock, and fisheries activities, in addition to food crop, in all provinces through provision for an increase in trained extension personnel, vehicles and equipment, and some infrastructural facilities.

Three components of NAEP III--training, consulting services and studies--are of particular relevance to the recommended SFCO Communication Component, and represent areas in which close coordination and some joint activity would be highly beneficial.

The NAEP III will provide for training of various levels of extension staff and key farmers through a large number of local training courses and a limited

number of overseas courses and fellowships. Collaboration should be sought in incorporating communication skills training into the continuous routine bi-weekly training of PPLs by PPSs in the RECs and in special training related to technical subject matter fields; in organizing special training for staff to be responsible for developing and implementing communication strategies integrated into the total extension program; including communication, evaluation, social marketing, and related areas in the degree or certificate training programs of key extension personnel; and including the opportunity to observe effective extension communication programs during study tours abroad.

It is anticipated that the NAEP III will provide a range of consulting services in areas such as extension, training, rural sociology and evaluation that are especially relevant to extension communication activity needs. Close coordination between NAEP III- and SFCD-provided consultants would work to the advantage of both in assisting the MOA to improve the capacity and performance of its extension services.

Studies of various types will be conducted under both the World Bank and AID funded projects. Some, such as a study and evaluation of extension delivery systems, could be enhanced through coordination and, perhaps, collaborative action between the two projects.

A fourth area in which the NAEP III Project might relate directly to SFCD communication activities would be in equipment to be provided to the new RECs.

It is strongly recommended that SFCD-CTTA communication inputs and activities be implemented in close coordination with the World Bank-supported Third National Agricultural Extension Project.

## B. Bogor Agricultural Institute

The Master's level program in rural communication and extension at Bogor Agricultural Institute is intended to meet the need for trained rural communication personnel, particularly those who might staff the provincial information centers (BIPs). The program offers a modest selection of practical and more theoretical courses. For example, a single year of coursework was reported to include:

### First Semester

- Basics in rural communication
- Photography
- Print communication
- Agricultural news writing

### Second Semester

- Introduction to communication research
- Preparation of research proposals
- Audiovisual communication
- Small group communication

This program is still in its formative stages, facilities and library are

limited, faculty are still developing courses, and graduate student research is just getting underway. Nevertheless, it represents a potentially valuable resource for the future as a source of trained staff for communication support programs in extension, for providing specialized short courses and other non-degree training in various aspects of agricultural communication and related topics, and for significant research in communication and related fields.

Opportunities should be sought to nurture this program and support its development in order that it may realize that potential. With respect to the SFCD communication component, involvement of faculty and students in studies to be conducted and, possibly, support for faculty and graduate student research on communication-related topics relevant to palawija crop technology transfer merit serious consideration.

### C. Other

Other projects/programs with which contact was made by the consultants included:

- FAO

An FAO project has been involved for several years in work related to palawija crop production, including the establishment of field demonstrations in several provinces. It was the understanding of the consultants that the future of that project is uncertain, as the present phase is now near completion.

- ESCAP CGPRT Centre

The Regional Coordination Centre for Research and Development of of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific was established in 1981 by the United Nations Economic and Social Commission for Asia and the Pacific to promote regional cooperation for research and development of CGPRT crops.

The Centre's objectives are: to expand and stabilize the production of CGPRT crops and to increase net farm income through a multi-disciplinary approach to research, extension, and the development of infrastructure; and, to raise the nutritional level of rural people by introducing the cultivation of low-cost protein-rich coarse grains and pulses, and by production through the development of multiple cropping, livestock raising and agro-processing industries. The Centre pursues its objectives by providing expert technical development and information services, and by promoting technical cooperation trade.

At present, the Centre has four major program areas: formulation and implementation of a CGPRT crops research network; agro-economic studies on CGPRT crops and farming systems; studies on production constraints and the potential impact of expanded production of CGPRT crops on income, employment, prices and rural economy; and, collection and dissemination of information on CGPRT crops.

- German Agency for Technical Cooperation

This agency is providing assistance to Indonesia on seed processing. Few details were obtained by the consultants concerning the overall scope of this assistance, or how it relates to research and extension, however. It was the consultants' understanding that this assistance is being provided under a World Bank-supported project.

Although such projects would appear to have relevance to SFCD, neither the extent nor nature of potentially useful coordination arrangements could be determined during the time available to the consultants.

## IX. INCORPORATION OF AGRICULTURAL COMMUNICATION INTO A REVISED SFCO PROJECT DESIGN

It is concluded from findings of the consultancy that incorporation of an agricultural communication component into the re-designed SFCO Project is strongly justified. Methodologies presently used by extension (including the demfarm approach used in the present SFCO Project) are effective, but are at present inadequate for serving the general farming population due to financial and human resource constraints. This conclusion is shared by senior extension staff at both the central and provincial levels with whom the consultants had contact.

Major communication problems related to secondary food crop production identified during the study are summarized in the next section. In designing communication support to alleviate these problems, activities related to food crop production should be considered within the context of the total extension program. Rice is still the major crop produced, and is a part of the cropping system used by many secondary food crop producers.

A number of institutions and programs are involved in communication-related activities. At the provincial level, the information centers (BIPs) established with World Bank assistance and under the purview of the AAETE, have capability for producing graphic and print materials and are involved in extensive radio programming. At least in East Java, the provincial extension office also produces folders, bulletins, slide sets, and similar materials. Limited materials are prepared at the kabupaten level. The marketing services pilot program regularly broadcasts regional (in eight provinces) and national market news information. Private sector firms are producing a variety of promotional materials, frequently utilizing advertising firms; are making extensive use of radio, wandering cinema shows, and other locally available dissemination channels; and are in frequent contact, at least in the field, with extension.

The impact of this extensive effort is not commensurate with the investment being made, however, due to the lack of an organized communication strategy which integrates the use of media and teaching materials into the extension program (discussed in Section IX.B.2 below). The situation is exacerbated by the scarcity of funds for purchase of paper, inks, film, cassettes, and other supplies required for media production.

The basic elements required for improving communication support to extension programs designed to transfer agricultural technologies to Indonesian farmers already exist. In the judgment of the consultants, although the extension system is complex and implemented through several directorates/agencies of the MOA, it is feasible to link an effective communication component into the present system. No substantive changes in extension's organizational structure should be required for this purpose.

The development of research has been supported extensively by AID and other donors. Early work supported by AID to determine needs for extension programs on rice has been followed by continuing assistance from the World Bank in establishing the extension infrastructure, introducing the T & V system, and intensive training of extension workers. The SFCO Project is a logical follow-on to extend extension more effectively to serve the needs of secondary

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food crop producers, and to introduce a cropping systems approach into both research and extension (e.g., on-farm trials by the research institutes and demfarms by extension).

The time is now appropriate to move beyond present assistance programs to address other issues vital to the development of Indonesia's technology development-adaptation-verification-transfer system for agriculture. Among such issues, the development, implementation and institutionalization of effective communication support incorporated directly into the system at all stages merits specific attention. Communication support, effectively integrated into the system and organized into appropriate communication strategies, has the potential for facilitating research-extension linkages and improving extension performance.

It is recommended that a substantive communication component be incorporated into the re-designed SFCO Project, taking into account all of the factors identified above, and the fact that improved technologies now appear to be available that are not yet in general use by farmers (based on reports of production increases being obtained on demfarms and very limited information received from the Malang Research Institute). The scope and magnitude of assistance recommended for this component are discussed in Sections IX.8 to IX.6 below.

#### A. The Communication Problem

The Indonesian extension system "communication problem" summarized briefly above is discussed more fully in foregoing sections of the report in relation to its component parts, and areas of potentially productive assistance are suggested with respect to each. Those areas of assistance are enumerated below.

##### 1. Indonesian Agricultural Extension System (Section IV)

- The communication component should focus major attention on communication support to extension in the transfer of technology; but the need also exists to facilitate inter-agency coordination through enhancing the two-way flow of information among the agencies involved directly or indirectly in extension programs at the national and provincial levels, and between the central agencies and the provinces.
- Assistance should be provided in clarifying the "philosophy" issue at both the national level and in the provinces in which the SFCO Project is functioning; and it should serve as a catalyst in institutionalizing this philosophy at all levels.
- Attention should be directed to the "flexibility in planning and implementation" issue, and assistance provided--in collaboration with the World Bank-funded Third National Agricultural Extension Project--in re-examining and adjusting the current methodological framework as appropriate to best serve the needs of Indonesian farmers in all provinces and kabupatens.
- Substantive assistance should be provided in developing and implementing comprehensive multi-media communication strategies directed

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toward well-defined audiences, as well as in improving the quality (through communication-related investigation, pretesting and staff training) of materials produced.

The role of communication in establishing and/or strengthening viable research-extension linkages, including the two-way flow of information, should be investigated in greater depth and appropriate assistance provided to address the needs identified by that investigation.

2. The Secondary Food Crops Development Project (Section V)

- It is now time for the SFGD Project to shift emphasis to the diffusion component and to fund technical assistance and activities in support thereof.
- An effort should be made to enhance extension activities through a carefully designed strategy to accelerate diffusion of appropriate technologies and cropping systems used successfully in Project demonstration farms. In developing such a strategy, consideration should be given to:
  - assistance to the BIPs in preparing appropriate audiovisual extension support materials;
  - pretested, well-designed pamphlets, flipcharts, posters, and slide materials;
  - local radio spots and programs in the regional language;
  - incentives and promotions through private sector networks.

Communication support must be closely articulated with all other extension activities and be part of a single, multi-channel diffusion plan.

3. The marketing services pilot program (Section VI)

- AID support for expansion of the market information service should include market/target audience research, using a variety of formative evaluation techniques to increase awareness and understanding of the farmer target audience, and of how farmers and traders process and use the information disseminated.

4. Private sector networks (Section VII)

- The possible role of private sector networks in the service of agricultural technology transfer should be systematically considered in the design of any communication or social marketing strategy to support technology transfer.
- Investigation of traders' present or potential influence on on-farm practices is merited to determine how they can be linked into extension palawija programs.
- Possibilities for substantive collaboration by extension with the

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Bank Rakyat Indonesia (BRI) should be explored.

- The potential utility of extension initiating a BRI-type promotional sweepstakes with local KUDs merits exploration.
- The development of modern social marketing strategies in support of extension should consider how to take advantage of the expertise, experience, and, selectively, the services of Indonesia's growing family of marketing research firms and advertising agencies.
- Possibilities for using commercially available mass media to extend extension programs beyond their present reliance on demonstrations and interpersonal contact should be carefully investigated, and action taken to utilize such media appropriately in the total extension communication support thrust.

5. Other relevant projects/programs (Section VIII)

- The communication component of the SFCD Project should be implemented in close coordination with the World Bank Third National Agricultural Extension Project.
- Although the masters program in rural communications at Bogor Agricultural Institute is in an early stage of development, involvement of that rural communication group could pay high dividends for extension in the future in terms of research and student training relevant to extension's needs. The possibility of supporting faculty and graduate student research on communication-related topics relevant to palawija crop technology transfer should be considered.
- Opportunities for SFCD Project coordination and collaboration with other relevant national, regional and international projects/programs should be actively pursued.

B. **SFCD Project Communication Component Description**

It is recommended that technical services for the SFCD communication component described below be provided through the worldwide Communication For Technology Transfer in Agriculture (CTTA) Project (AID/S&T 936-5826), which provides a mechanism for its early implementation on a shared cost basis through provision of incremental funding by USAID Missions to an existing contract. The CTTA Project Scope of Work is consistent with objectives and activities recommended for the SFCD communication component, and the CTTA Contractor has the capacity to provide the required technical services.

1. Purpose and objectives

The purpose of the SFCD-CTTA communication component will be to accelerate the transfer of improved technologies to Indonesian farmers, with major emphasis on palawija crops, through developing, implementing and institutionalizing the incorporation of effective multi-media communication support into the technology development and transfer system. The specific objectives will be to:

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- 1) Assist the MOA in defining the extension philosophy most appropriate for Indonesia and in building flexibility to adjust to local needs and situations into extension's methodological framework.
- 2) Assist the MOA in development of interactive communication networks linking extension, research, input and agricultural service providers (private and public sector), policymakers, and planners to facilitate development and coordination of comprehensive extension programs directed to region-specific farmers' needs and possibilities.
- 3) Assist in development, implementation and institutionalization of appropriate multi-media communication strategies to reinforce and supplement presently used extension methods for the purpose of facilitating the diffusion of improved palawija technologies among the general farming population.

In addition to the above country-specific objectives, CTTA will have the further objective of contributing to worldwide improvement in the use of communication strategies and technologies to support agricultural technology transfer programs through sharing with all participating countries and others the lessons learned and methodologies developed through CTTA.

## 2. Methodology overview

The general process through which appropriate communication strategies will be planned and implemented is conceptualized in Appendix A. The application of the steps will vary depending upon the particular situation, institutions involved and general characteristics of the region and its rural families. The first two steps in the process proceed concurrently, and each draws upon the other.

Investigation of new and underutilized technologies to determine the content of the communication support program is the first essential step. In general terms, it involves examining available technologies from five perspectives:

- **Research**, to determine the suitability of the technology from the standpoints of biological and economic viability, adaptation to the region, practicality for use by farmers, and dependability (risk associated with its use).
- **Extension**, to determine results obtained from the technology's use in demonstrations or by farmers who have used it previously; and to obtain the extensionists' judgments concerning the practicality of the technology for use by farmers in their area as well as the farmers' potential receptivity to the technology, based on their experience in working with farmers in the region.
- **The agrosupport sector** (input and other agricultural service providers, markets, etc.), to determine whether the inputs and services required by farmers to enable them to use the technology are or can be made available.
- **Policymakers and planners**, to determine how and to what extent government policies and programs will influence potential adoption of

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the technology by farmers in the region.

- **Farmers**, to assess their potential receptivity to the technology and how information about it can be packaged and disseminated to obtain greatest acceptance and impact. (This type of information will be obtained in large part from the developmental investigation which constitutes the next step in the communication process.)

This is an iterative process required for each technology or set of technologies considered for use in the multi-media communication support program. The role of the communication component is to facilitate the gathering and assessment of information from these perspectives in developing the communication program's technical content.

In the Indonesian context, government policies concerning national production goals will bear directly on the technology development and transfer process, particularly with regard to cropping systems--rice, palawija crops, or rice-palawija combinations--to be promoted. Research institutes should become increasingly involved in well-designed and well-conducted on-farm trials to respond to questions such as those posed above, and viable information networks linking all of the above-cited sources of information will become increasingly important. Reliable feedback from the field, particularly the farmers, will be indispensable.

Developmental investigation follows, to determine the characteristics of the farmers who comprise the target audience; the forms in which technological information should be packaged to make it acceptable to and understood by farmers; the ways in which farmers receive and attach credibility to agricultural information; the target farmers' current agricultural knowledge, attitudes and practices, particularly as they relate to the technologies being considered in Step 1 above; and the constraints--social, economic, physical, political--that enhance or limit the opportunities for farmers to gain knowledge, change attitudes (if necessary) and adopt such technologies. Studies to obtain such information should be focused at the kabupaten and village levels.

Much of the needed information will be available from Indonesian staff and previous studies. Well-designed and conducted studies will be required to obtain other information and verify existing data. The design of such studies should combine methods and techniques adapted from several social science disciplines to obtain the maximum relevant information rapidly at an affordable cost. Among the research instruments appropriate for such studies are:

- reviews of existing data and information,
- focus group interviews,
- in-depth interviews,
- central location (intercept) interviews, and
- other small sample surveys.

The developmental investigation must also yield information about Indonesian research and extension systems, and existing communication and media networks (public and private), to identify the available resources and channels from which to select those that will be incorporated into a multi-media strategy for maximizing the effectiveness and impact of communication support in the target area. These will include, for example, extension staff, demonstration

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programs, interpersonal contact methodologies, private sector networks, radio production and transmission facilities, graphic/print materials and production expertise and facilities, and other existing channels (including traditional ways of receiving information such as storytellers or puppet shows). Included in this assessment, also, should be information concerning present knowledge levels of extension workers about the technologies to be included in the program and extensionists' communication skills, and of the capacity of the in-service training system to strengthen the extensionists' competence in these areas.

Design of the the communication strategy. The communication strategy is the plan for mobilizing resources such as those identified above and incorporating them into the program in such a manner that the selected media and teaching methodologies are mutually reinforcing and maximize the desired impact on the target audience. An initial selection of materials to be used in implementing the adopted strategy should also be made and prototypical materials produced during this stage.

As identified earlier in the report, Indonesian extension appears to need significant strengthening in the areas of strategy formulation and materials selection. Since media production facilities are situated in several agencies and understanding about such factors as how to use radio for educational purposes to achieve maximum impact is limited, there will be need for improving coordination among agencies involved and guidance in developing and implementing appropriate communication strategies. Additional discussions of communication strategies in the Indonesian context are included in Sections IV.B.3 and VII.

The communication strategy cannot be rigid if it is to serve the needs of the extension program. On the contrary, it must be capable of rapid modification to adjust for unforeseen changes in the local situation or to take advantage of emerging opportunities to increase impact.

Testing strategy concept and materials. The preliminary communication strategy, although developed on the basis of knowledge and understandings gained through the technology identification and developmental investigation stages, requires verification of its validity and appropriateness through field testing of both the strategy concept and materials to be used in the program (analogous to on-farm testing of new agricultural technologies). In the case of materials in particular, pretesting of prototypical materials in each of the media to be used is essential to a sound communication support program.

Based on the consultants' observations, few materials presently produced for extension use are adequately pretested. In one BIP, the consultants were informed that an outside expert had pretested BIP-produced materials. The implication was that the pretesting need had been met. However, pretesting is a continuing process that must continued as long as the communication support program exists. This need will become even more urgent as media materials are linked more and more closely into the ongoing extension program.

Production of materials for use by extension appears in general to be largely unplanned and ad hoc at present. As communication strategies are developed and planned multi-media support is implemented, there will be need for close coordination of production schedules with extension and research to assure that content is synchronized with agricultural cycles and carefully targeted toward

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the intended audience (PPLs or farmers as examples), and adherence to production schedules that assure that the materials are ready and distributed to the place of use on time. The PPSs should have a major role in determining content needs and when the information will be relevant, as well as in preparing texts to be used by production staff.

Improvement in quality of materials produced will be achieved gradually as staff become more familiar with pretesting techniques and improve their skills through training. Short term technical assistance will be utilized for providing training for which expertise does not exist in-country. However, the expertise and skills of agencies such as private sector advertising firms should be utilized for this purpose to the extent possible.

Dissemination of information through interpersonal contact and the other channels included in the communication strategy is self-explanatory. To obtain maximum impact, PPMs and PPLs must be knowledgeable about the various media and methods through which the information is being disseminated and how each relates to the others. They must also possess communication skills that enable them to convey information to and interact with farmers effectively and positively. Both needs should be addressed regularly in established in-service training activities.

Formative evaluation, as used in the context of Appendix A, follows the program in progress to determine:

- whether messages are reaching the farmers as planned;
- which channels are being used by farmers for receiving the information disseminated;
- which messages are being assimilated and which require reinforcement;
- which technologies and behaviors are being adopted, how they are applied, and with what results; and
- how farmers' attitudes and willingness to accept the risks associated with adoption of new technologies are being changed.

Based on such information, the general strategy can be modified and improved to make it more effective in contributing to achievement of extension objectives. Many of the techniques used in development investigation are equally appropriate for formative evaluation studies.

Ongoing monitoring. The communication process described to this point is iterative and continuing, with each stage feeding into every other stage. Such a process is essential to the continuing success of the communication support program. As mentioned earlier, however, the communication system must also have the capacity to respond promptly and appropriately to unforeseen circumstances (such as serious insect buildups or changes in price policies). Ongoing monitoring of both the program in the field and factors which may make it necessary to adjust message content is essential to establishing and maintaining this capability.

Thus, in essence, Appendix A illustrates two systems--the ongoing system for developing and maintaining effective, relevant communication support programs,

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and a system that provides regular, prompt and reliable feedback to the program to enable it to respond to immediate needs and opportunities.

Summative evaluation. From the standpoint of the project, and the likelihood of continuing institutionalization of the processes and systems described above, at least a selective summative evaluation should be built into the SFCD communication component to determine the results obtained through the strengthened communication support developed by the project.

### 3. Areas of action

Assistance to the MOA in defining extension philosophy, building flexibility into extension's methodological framework, and development of interactive communication networks (see Objectives 1 and 2 in Section IX.B.1 above) should be focused at the central level and extend to the provincial level. It is recommended that the first long term communication consultant projected in Section IX.E below be given primary responsibility for this phase of communication component activity and be headquartered in Jakarta.

The SFCD Project province to be used for the pilot activity related to Objective 3 should be selected on the basis of a more exhaustive study conducted during the initial months of the above long term consultancy. The second long term communication consultant should arrive in-country as soon as feasible after the pilot area has been selected, and should be headquartered in that province.

## C. Participating Institutions and Projects

The communication component should be an integral part of the re-designed SFCD Project and function in close association with other Project components, although some objectives and activities obviously will be specific to the communication component. Some of the institutions and other projects to which the communication group must relate directly or indirectly are identified below.

### 1. Ministry of Agriculture

At the national level, the principal institutional base for the communication component should be the DGFCFA Extension Directorate. Close association should be maintained with the Marketing Information Services of the DGFCFA Economics Directorate. It will also be essential to coordinate and collaborate closely with the AAETE which has responsibility for developing extension methodology and coordinating extension programs. Relationships with the AARD will be important in strengthening research-extension linkages and in involving researchers most appropriately in extension message content development and ongoing monitoring. Other relevant organizations and agencies will also be incorporated into the information network as the project progresses.

At the provincial level, work related to Objectives 1 and 2 should involve all Ministry of Agriculture departments, bureaus and other units. The DGFCFA extension bureau should provide leadership to the pilot effort in close collaboration with the BIP, regional agricultural research institute and other entities identified through the pre-implementation study. Private sector

firms should also be productively involved as providers of information and as dissemination channels.

## 2. AID-funded projects

The AID-funded project with which the communication component will collaborate and maintain closest relations is obviously the Secondary Food Crops Development Project. Communication inputs will also be coordinated with other relevant AID-funded Projects as opportunities arise. Unfortunately, time did not permit the consultants to assess the range of such possibilities.

## 3. World Bank National Agricultural Extension Project III (NAEP III)

The rationale and possible dimensions of SFCO communication component coordination and collaboration with the NAEP III are discussed in Section VIII.A.

## 4. Bogor Agricultural Institute

Students and staff for the fledgling rural communications graduate program will be involved in the communication program as opportunities arise, in recognition of the fact that this program represents a potentially valuable future communication resource. Support for graduate student and staff research on topics relevant to the pilot communication effort, and their participation in developing communication training approaches and courses are examples of promising ways to achieve such involvement.

## 5. Private sector firms and networks

Present extension-private sector relationships will be built upon to involve private sector firms and networks more substantively as sources of information on such factors as input supplies and market demands and structures, and as dissemination channels for information related to palawija crop production and marketing. The project should also draw upon private sector experience and expertise in improving the quality of materials produced for extension use.

## 6. Other relevant project/programs

It is likely that an array of other projects and programs will be identified during the course of project implementation with which coordination and/or collaboration in the communication program will be mutually beneficial. Among those identified during the consultancy are the FAO Secondary Food Crops program, the World Bank-supported seed improvement program, and ESCAP.

## D. **Communication Component Outputs**

Outputs can be expressed only in general qualitative terms at this stage. They are expected to include:

- generation of knowledge about the role and effective use of communication to reinforce extension activities in transferring agricultural technology;

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- development of a process and methodology for integrating the capacities of several disciplines--including agricultural extension, development communication, behavioral analysis, and social marketing--for their effective application in agricultural technology transfer;
- changes in farmers' practices resulting in direct benefits to the farmers and the nation;
- strengthening of intersectoral communication networks;
- institutionalization and expansion of the communication strategy development and institutionalization process developed in the pilot communication activity;
- re-articulation of extension philosophy and flexible methodological framework appropriate to meet the region-specific needs of Indonesian farmers.

#### E. Communication Component Inputs

As stated earlier, it is recommended that SFCO Project Communication Component inputs be provided through the Communication for Technology Transfer in Agriculture (CTTA) Project (AID/S&T 936-5826). Use of this mechanism will facilitate early implementation and enable the Indonesia project to link into similar projects being established around the world under CTTA.

Projected Life of Project (LOP) Communication Component inputs are described below.

##### 1. Technical assistance

###### Long term

- |   |  |           |
|---|--|-----------|
| 1 | Agricultural Communication Consultant<br>(to be headquartered in Jakarta)    | 36 p.mos. |
| 1 | Agricultural Communication Consultant<br>(to be based in the pilot province) | 30 p.mos. |

###### Short term

- |   |           |
|---|-----------|
| Various assignments in areas of specialization to be determined | 20 p.mos. |
|---|-----------|

###### Jakarta-based consultant

Preliminary recommendations regarding qualifications and scope of work for this consultant are presented below.

Qualifications. Minimum of Master's degree (or equivalent experience) in communication, agriculture or related social science, with relevant experience in at least one of the other two; minimum of three years cumulative experience

in developing countries (Asia preferred) in agricultural extension and/or communication with emphasis on planning, strategy development and coordination; familiarity with communication strategies, production of materials in various media, and formative evaluation; ability to relate to and work well with host country colleagues and officials at all levels, and with other expatriate personnel; fluency in the Indonesian language.

Preliminary Scope of Work. The Jakarta-based consultant will be primarily responsible for providing leadership, in collaboration with host country counterparts, in activities related to achievement of Objectives 1 and 2 as defined in Section IX.B.1 and for coordination of all communication component inputs and activities (including those of the pilot activity) with other components of the SFCO Project. More specifically, the consultant will, in collaboration with host country counterparts:

- 1) Assist in reviewing present extension philosophies with the objective of developing an extension philosophy appropriate for Indonesia and its development;
- 2) Assist in building into extension's methodological framework the flexibility required to adjust to local needs and situations;
- 3) Assist in the development of interactive communication networks linking extension, research, input and agricultural service providers (private and public sector), policymakers and planners to facilitate development and coordination of comprehensive extension programs directed to region-specific farmers' needs and possibilities;
- 4) Design and conduct a preliminary study to select the province to be used for the pilot communication activity, and to provide the basis for preparation of an integrated action plan for that activity;
- 5) Provide guidance to the market information service in designing and conducting market/target audience research utilizing a variety of formative evaluation techniques;
- 6) Develop strategies and mechanisms for involving the private sector substantively and productively in the technology transfer process;
- 7) Coordinate all communication component inputs and activities internally, with other components of the SFCO Project, and with other relevant projects and programs;
- 8) Provide leadership and assistance to additional provinces in adapting and using the communication methodologies and strategies developed in the pilot activity, and otherwise contribute to institutionalization of same;
- 9) Prepare required reports and other project documentation, and keep MOA and USAID/I informed of progress and problems encountered or anticipated.

In addition to the above technical and general coordination tasks, this consultant will serve as Contractor Field Director and be responsible for the following administrative tasks:

- 1) Maintenance of a project imprest fund for disbursements and accounting of in-country expenditures;
- 2) Scheduling and in-country support arrangements for short term consultants;
- 3) Hiring and supervision of local support staff (secretaries, drivers, etc.).

### Province-based consultant

Preliminary recommendations regarding qualifications and Scope of Work for the Province-based consultant are presented below.

Qualifications. Minimum of Master's degree (or equivalent experience) in communication or agriculture with relevant experience in the other; minimum of two years cumulative experience in developing countries (preferably Asia) in projects having a major communication or extension component; demonstrated competence in designing and implementing multi-media communication strategies based on the communication process described in Section IX.B.2; familiarity with production of educational radio programming, graphic and print materials, and other audiovisual training and teaching aids; familiarity with communication-related investigation, pretesting, formative evaluation and monitoring techniques; ability to relate to and work well with host country colleagues in project planning and implementation and staff training; fluency in the Indonesian language.

Preliminary Scope of Work. The Province-based consultant will, in collaboration with host country counterparts and the Jakarta-based consultant:

- 1) Assist in improving overall strategic approaches to using communication to support extension, particularly programs related to palawija crop production;
- 2) Introduce pretesting and formative evaluation of strategies and products, including market information content;
- 3) Assist in improving the provincial audiovisual support system;
- 4) Develop mechanisms for more effective involvement of the private sector in extension programs;
- 5) Prepare an integrated action plan for the pilot communication activity within six months of arrival of the consultant at post, and update it annually.
- 6) Oversee use of the methodology used in the pilot activity, combining behavioral analysis, social marketing, agricultural extension, and developmental communication concepts and techniques;
- 7) Assist other provinces, to the extent possible, to introduce the methodologies developed and tested in the pilot activity into their own extension programs;
- 8) Keep the Jakarta-based consultant fully informed of progress and problems encountered or anticipated;
- 9) Prepare required reports and other project documentation.

### Short term consultants

Short term consultants in areas of specialization such as evaluation, technical agriculture, specific media production, behavioral analysis and social marketing will be used as necessary to meet communication component

needs for which in-country expertise is not available. The specific areas of specialization, and timing and duration of assignments, will be determined during project implementation.

2. R & D materials

Funds will be provided for development, production and field testing of a limited number of new types of materials in various media targeted for specific audiences and purposes, e.g., training PPLs, reference materials for PPMs and PPLs, materials for direct dissemination to farmers.

3. Vehicles and equipment

One vehicle will be provided for each long term consultant. Limited communication-related equipment essential for use in the pilot activity will be provided to supplement that already available in the BIP, Extension Bureau and Kabupaten in the province selected for the pilot activity.

4. Operational support for consultants

An operational support budget will be provided to cover costs of vehicle operation and maintenance, in-country travel, local support staff, office expenses, communication and reproduction of materials, and other legitimate operational expenditures.

5. Staff training support

It is anticipated that most communication-related training will be on-the-job or incorporated into ongoing in-service training programs. Opportunities will be sought to collaborate with the World Bank-supported Third National Agricultural Extension Project to the maximum possible extent. A small training budget will be provided, however, to permit development and testing of new training techniques and organization of short courses for communication-related personnel.

USAID/I has expressed interest in providing some non-degree and/or degree out-of-country training. This could be provided through the CTTA Project, but would require separate funding not considered in present estimates.

6. Selective summative evaluation

The project will provide for a case study summative evaluation of results obtained from the pilot activity.

7. Mid-term communication component evaluation

Travel and incidental expenses plus an external evaluator for one p.mo. will be provided for this activity.

8. Discretionary fund

A modest discretionary fund will be provided to take care of unanticipated costs and relieve short term constraints to urgently needed project action.

9. National and international diffusion activities

The project will support participation of communication component staff in limited national and international diffusion activities, including participation of one long term consultant and one host country counterpart in annual cross-site conferences organized by CTTA.

10. Pro-rated share of CTTA Project home office costs

Home office support and technical backstopping are essential to successful implementation of the project in the field. Furthermore, the Indonesia project will benefit from CTTA project documentation and diffusion activities that cannot be assigned specifically to a country. Therefore, a pro-rated share of such costs will be assigned to the SFCD Project Communication Component.

Note. Present extension allocations for production of media materials are highly inadequate. Success of the pilot activity will be seriously jeopardized unless additional resources for this purpose can be provided either by the GOI or from some other source outside the SFCD-CTTA communication component.

**F. Reporting Requirements**

Reporting requirements for the SFCD-CTTA communication component will include:

1. LOP implementation plan developed in collaboration with host country counterparts, to be approved prior to posting of long term consultants in the country.
2. Integrated action plans (annual workplans) prepared in collaboration with host country counterparts, with the first due within six months of arrival at post of the Province-based long term communication consultant.
3. Semi-annual reports to be submitted to the MOA, USAID/I, and the AID/S&T Cognizant Technical Officer (CTO).
4. Trip reports for all international travel of project staff and consultants.
5. Summative evaluation reports--a minimum of two during the life of the project.
6. Final report.
7. Informal written and oral reports of progress and problem.

**G. Implementation Schedule**

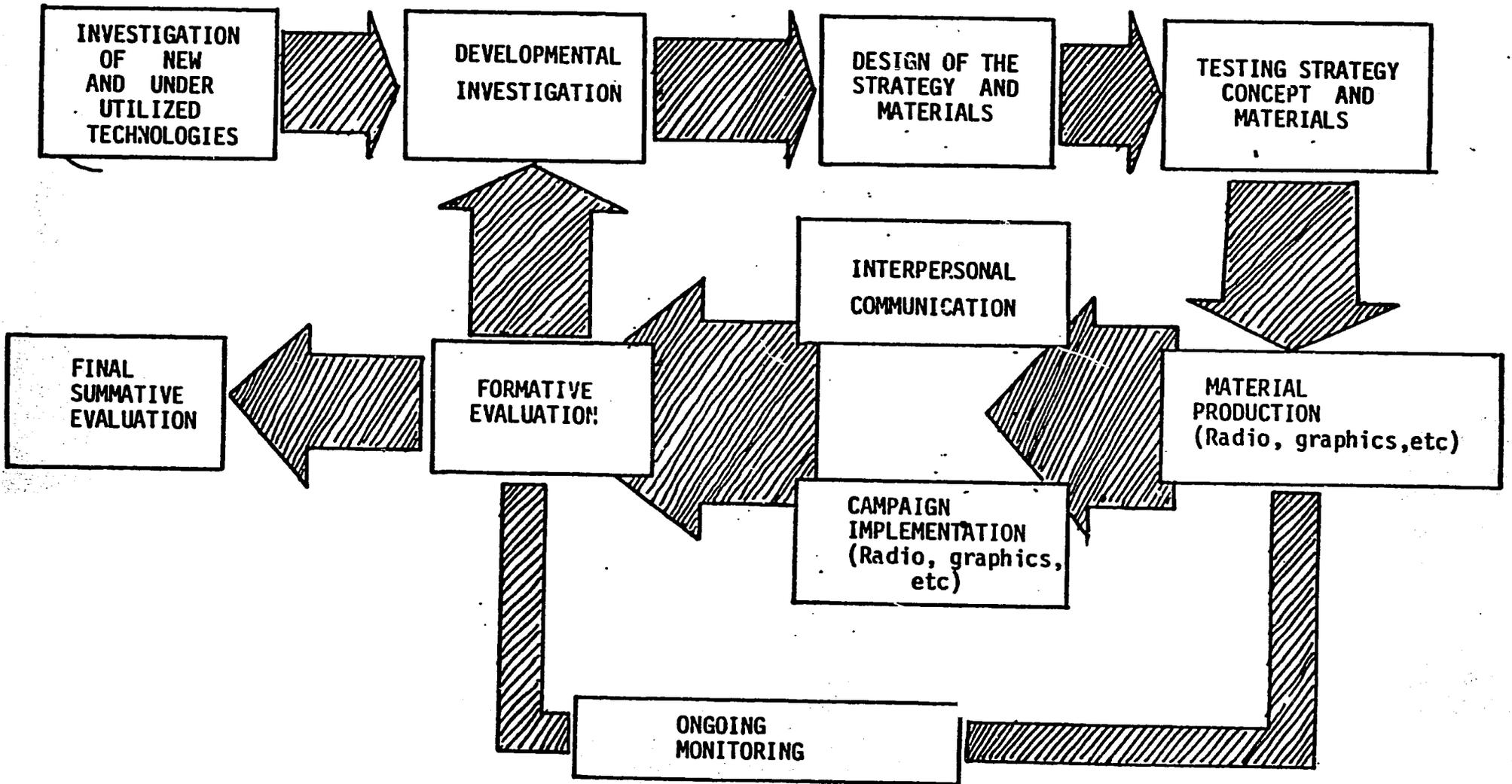
The following preliminary implementation schedule assumes that SFCD communication inputs will be provided through the CTTA Project, and that funds for the first full year of activity can be obligated by 10/86.

- |    |   |       |
|----|---|-------|
| 1. | Preparation of LOP implementation plan and letter of understanding  | 11/86 |
| 2. | Approval of implementation plan and letter of understanding   | 1/87  |
| 3. | Arrival at post of Jakarta-based long term consultant   | 4/87  |
| 4. | Completion of pre-implementation study  | 8/87  |
| 5. | Arrival at post of Province-based long term consultant  | 10/87 |
| 6. | Preparation of integrated action plan   | 4/88  |
| 7. | Pilot activity-designed communication interventions initiated in the pilot area                                   | 5/88  |
| 8. | Mid-term communication component evaluation   | 1/89  |
| 9. | Completion of AID-supported communication component activity and departure of long term communication consultants | 4/90  |

Summative evaluation and short term consultancies are not included in the preliminary schedule, as they will be intermittent with timings to be decided on the basis of the integrated action plans.

# APPENDIX A

## COMPONENTS OF THE PROCESS OF THE COMMUNICATION MODEL



1.5

**INVESTIGATION (AREAS)**

- . Tecnology/Biology/Economy (Risk factors)
- . Marketing/Sources of supplies, commerce
- . Culture/knowledges, attitudes, practices, social structure, types of communications
- . Level of changing adoption

Objectives of:

- Behavior
- Knowledge
- Motivation

Sources/Resources

- Agronomy
- Economy
- Technical Institutions
- Behavioral analysis & Technics
- Social Marketing
- Anthropology
- Behavioral analysis sciences

**DETERMINATION OF CONTENTS**

- Behavior
- Knowledge
- Motivation

Definition of final spected behavioral framework

**STRATEGY AND MATERIALS DESIGN**

- Determination of the messages to be sent
- Audience definition and segmentation. Media and channels selection and design of integration models
- Determination of the communicational phases. Chronograms and costs. Material design

**TESTING OF CONCEPT, STRATEGY AND MATERIALS**

The campaign concept, contents and the final spected behavioral framework must be tested in order to see their feasibility and their spected acceptance level. Also the media and channels should be tested. Training needs. Cost effectiveness relationship. Testing the effectiveness of the materials for transmit the messages.

**CAMPAIGN IMPLEMENTATION AND THE EXTENSION WORK**

Material production. Training of extension personnel. Material distribution and diffusion. Farmers training.

**ONGOING MONITORING**

Supervision of the campaign development. Changes. Feed back.

**FORMATIVE EVALUATION**

Sistematical evaluation of the different phases of the process. Evaluation of channels and of the impact of the messages. Reprogramming of the strategy.

**FINAL SUMMATIVE EVALUATION**

Evaluation of the impact. Investigation of the adoption of the final spected behavioral. Benefit/effectiveness analysis.

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## APPENDIX B

### PRINCIPAL CONTACTS

#### I. USAID/Indonesia

Dr. William P. Fuller	-	Mission Director
Mr. Richard A. Cobb	-	Chief, OARD
Mr. James Gingerich	-	OARD
Ms. Joanne Hale	-	OARD
Mr. Martin Hanratty	-	OARD
Mr. I. Katut Djati	-	OARD
Mr. Roely Lekahena	-	OARD
Mr. Tim Mahoney	-	Program Office

#### II. Secondary Food Crops Development Project (SFCD)

Dr. Stephen R. Tabor	-	Agricultural Economist, SFCD/USAID
Dr. A. William Ruscoe	-	Agronomist, SFCD/USAID
Dr. William Collier	-	SFCD Evaluation Team Leader
Dr. Gerd Juntermanns	-	Agricultural Economist, SFCD Evaluation Team
Dr. Sadikin	-	Research/Extension linkages, SFCD Evaluation Team
Dr. Sarjono	-	Agronomist, SFCD Evaluation Team

#### III. Ministry of Agriculture

Ir. D. A. Sihombing	-	Director, Food Crops Production Development, Directorate General of Food Crops Agriculture (DGFA); National Director, SFCD Project
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- Ir. Suciptadi Sutarman - Field Crops Extension Directorate
- Dr. A. Soedradjat Martaamidjaja - Director, Bureau of Personnel Training, Agency for Agricultural Education, Training and Extension (AETE or BPLPP)
- Ir. Tb. Suhaedi Wiraalmaja - Director General, DGFCFA
- Ir. Hidayat - Director of Food Crops Extension, DGFCFA
- Ir. Sugianto B. - Director, Directorate of Food Crop Economics, DGFCFA
- Ir. Soepani - Market Information Services, Directorate of Food Crop Economics, DGFCFA
- Dr. Samedi Sumintaredja - Secretary, BPLPP
- Ir. Dady Ganda Sukaryo - Director, National Food Crops Extension Project

IV. Institut Pertanian Bogor (Bogor Agricultural Institute)

- Dr. Amri Jahi - Dept. of Agricultural Communication Graduate School
- Mr. Gunardi - Dept. of Sociology and Agricultural Economics
- Ms. Aida Vitalayala Sjafri - Dept. of Sociology and Agricultural Economics

V. Private Sector

- Mr. John S. Hamilton - General Manager, Seed Division, Pt. Cargill Indonesia
- Mr. Bert Van Den Bergh - Country Manager, Indonesia, Eli Lilly Canada

- Ir. Djati Santoso - Director, P.T. Agrofin
- Ir. Moeljono Moenawar - Executive Director, Deputy 1, P.T. Agrofin
- Ir. P. Hananto - Director Utama, P.T. Agrofin
- Ir. James Suliman - Director Utama, P.T. Buah Pangan (Pioneer Seed Co.)
- Ir. Maman A. Usman - Adm. Manager East Java, Pt. Cargill - Seed Division
- Ir. Endang Syachroni - Sales Representative (East Java), Pt. Cargill Indonesia - Seed Division
- Ir. Yudhi Madjid - Sales Representative (East Java), Pt. Cargill Indonesia - Seed Division
- Ir. Sahroni - Sales Representative (East Java), Pt. Cargill Indonesia - Seed Division
- Mr. Paul W. Karmadi - Sr. V. President, Matari, Inc.

VI. South Sulawesi Province

- Ir. Asikin Saleh - PPS, Kabupaten Bone and BIMAS Secretary
- Ms. Mary Coyle - Rural Development Advisor, Kabupaten Bone (Canadian)
- Ir. Suhandi - Subject Matter Specialist (PPS) Coordinator, Ujung Pandang
- Ir. Raja Gau - Director, MOA Food Crops, Ujung Pandang
- Ir. Arief Hasanuddin - Director, BIP, Ujung Pandang
- Ir. Nur Usman - Head of MOA in Kabupaten Bone, Watampone
- Mr. Nasrudden - Contact Farmer in Selli (Subdivision of Bone)
- PPL, PPM in Selli
- Maros Research Institute

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7) central coordination  
vs. provincial level

Bantz ing, extension, communication  
TA

get AED

\* Consultant or bank team  
of consultants

VII. East Java Province

- Ir. Boesono - Subject Matter Specialist (PPS) and Head, Bedali Agricultural Development Center, Lawang
- Ir. Soeparman - Assistant to Ir. Boesono
- Ir. Hidayat - Director of Food Crop Extension (second contact)
- Ir. S. Kadiono - Head of Agriculture, East Java Province
- Ir. Martono - Ministry of Agriculture
- Mr. Soeparman (B.Sc.) - Division Head, Extension Services, Provincial Office
- Ir. Imam Muslim - Head of Palawija Section, East Java Province, SFCDP
- Ir. Maryadi - Assistant Head, Palawija Section, East Java Province
- Ir. Nugroho - PPS, Plant Protection, Information Center (BIP), Surabaya
- Ir. Soedartanto - Secretary to Dr. Bataragua, Surabaya BIP
- Ir. Timoer - Assistant to Director, Surabaya BIP
- Ir. Imam Soejarwo - Head of Agriculture, Ponorogo Kabupaten (District)
- Mr. Soeratman - Ponorogo Agriculture Field Team
- Mr. Boediman - Ponorogo Agricultura Field Team
- Ir. Widodo - Director, New Campus, Agriculture School, Ponorogo
- Ir. Hamid Echwan - Deputy Director, New Campus, Agriculture School, Ponorogo
- Dr. Sutaryo Brotonegoro - Director, Malang Research Institute for Food Crops (MARIF)
- PPLs, PPMs, Contact Farmers at three demfarms in Ponorogo Kabupaten
- Two PPMs, 12 PPLs, Rural Extension Center (BPP), Ponorogo Kabupaten

CBX

\* We know extension

We don't know S.C

\* Contact farmer is good -

Don't have resources to expand

Demand, supply, opportunity cost

program

...

...

...

...

...

...

extension - new relevant technologies + marketing info

need to answer more socio-economic questions  
in order to be more relevant to farmers

Dependent on appropriate technologies

1) need to regionalize information -

(?)

→ 2) hierarchy of messages

3) advertising ? <sup>private sector</sup>  
radio, wandering cinemas  
Kabupaten saturation

4) not to replace but to complement & supplement

5) mkt info group - price analysis or prices to  
make production  
decisions -

6) evaluation ?

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VIII. Other Donor/Regional Agencies

ESCAP CGPRI Centre ( Regional Coordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific, Economic and Social Commission for Asia and the Pacific, UN/ESCAP )

Mr. Shiro Okabe - Director

Ir. J. W. Taco Bottema - Agricultural Economist/Information Officer

World Bank

Mr. John F. A. Russell - Senior Agriculturist

FAO ( Secondary Food Crops Project )

Mr. Lampe - Project Manager

Mr. Alain Vaes

Mr. Jan Bos

Mr. Tom Smitz

German Agency for Technical Cooperation

Dipl. Ing. D. Trenker - Technical Advisor to Director General of Edible Plant Agriculture; Seed Specialist, postharvest handling

X  
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Extension - Demfarm technique - what's its spread effect

Technologies 7-20 farmers

to be social, associated with curraio etc.

Insect control - soil application - cover, no pesticides, spraying - IPM

fruit

... .. 20 research plots

... .. farm research visits, etc, meet annually -

last 1 component

100 sites  
insect control (soil application)  
plant population  
water input

... .. of each  
... ..

... ..

... .. 22 post  
40 complete plots

100 sites

90 day vs 110 day

-> demfarm  
judgement of  
SMS of  
ext visit

iterative process,  
adjustment  
by researchers -

Communication & Diffusion - Spread effects

How much?

Revised areas - very high -

Irrigated areas - very low -

Demfarm free inputs -  
support price -

person to person - good  
change agents - good

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