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FINAL REPORT
on the
**LWU AREA AND TRANSMIGRATION DEVELOPMENT
PROJECT**
FINAL EVALUATION, PHASE I

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September 1983

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FINAL REPORT

**Luwu Area and Transmigration Development
Project
(Final Evaluation, Phase I)
Under Contract No. PDC-1406-I-05-1096-00
Work Order No. 5**

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September 1983

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PROGRAM IDENTIFICATION SHEET

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2. Project Title: Luwu Area and Transmigration Development Project
3. Project Number: Loan Agreement No. 497-T-038
Grant Agreement No. 497-0244
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Project Grant: May 1981
Scheduled Termination Date: December 1983
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AID Grant: \$2,090,000
Government of Indonesia: Est. \$68,980,000
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7. Project Design: USAID/Capital Assistance Paper, June 1975
8. Responsible Mission Officials:
 - a. Mission Directors: William P. Fuller, 1982 - present;
Thomas Niblock, 1976 - 1981.
 - b. Project Officers: Nancy M. Tumavick, June 1983 - present;
William Ackerman, July 1982 - June 1983;
Frederick Machmer, July 1978 - July 1982;
Ronald Trostle, October 1975 - July 1978.

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9. Previous Evaluations and Reviews:

a. USAID Evaluations:

1982 - 1983, Michael Morfit

April, 1980, RD/AD

1978, Cornell University and University of Hawaii

1978, RD/AD Internal Evaluation

b. Checchi and Co. Evaluation

"Project Luwu Evaluation Study," February 1980

c. Hasanuddin University (Ujung Pandang) Evaluation

Regular evaluation studies, 1976 - 1983, under multi-year contract
from Project Luwu.

Including: Base Line Studies

Bone-Bone Irrigation Impact Study Final Impact Evaluation,

March 1983

10. Host Country Exchange Rates:

a. Name of currency: Rupiah

b. Exchange Rates:

March 1983 to present: Rp. 980: US\$1.00

November 1979 to 1983: Rp. 650: US\$1.00

1973 to 1979: Rp. 415: US\$1.00

ABBREVIATIONS AND ACRONYMS

Adat	Customary law in Indonesia
APBD	Anggaran Pendapatan dan Belanja Daerah (the Provincial Budget)
APBN	Anggaran Pendapatan dan Belanja Negara (the National budget)
BAPPEDA Tingkat I	Badan Perencanaan Pembangunan Daerah, Level One (the Provincial Development Planning Board)
BAPPEDA Tingkat II	The Kabupaten Development Planning Board
BAPPENAS	Badan Perencanaan Pembangunan Nasional (Ministry of State for National Development Planning)
Bidang	Sector, section
BIMAS	Bimbingan Masal (Mass Guidance for agricultural extension)
BLKOP	Bagian Proyek Luwu Bidang Perkoperasian (Luwu Project Division Cooperative Section)
BPLPI	Badan Pendidikan, Latihan dan Penyuluhan Pertanian (The In-service Training Directorate for Agricultural Personnel, located in Jakarta)
BRI	Bank Rakyat Indonesia (the People's Bank)
BULOG	Badan Urusan Logistik (Agency for State Logistics Affairs)
Bupati	Chief administrative officer of a Kabupaten
BUUD	Badan Usaha Unit Desa (Village Unit Executive Body)
Camat	Chief administration officer of a Kecamatan
Daerah	Area, region
Desa	Village
D.J.(also, Dirjen)	Direktorat Jenderal (Directorate General)
Dinas	Provincial representative of central government ministry

DIP (also DIP Murni)	Government operating budget
DIP Supplement	Budget which is reimbursable from foreign aid
DOLOG	Logistic Depot (the government's rice purchasing and distributing agency)
D.M.J.M	The U.S. Contracting firm which, in affiliation with CHECCHI and Co., helped to build the road
DPU	Dinas Pekerjaan Umum (Public Works Service)
DPUP	Dinas Pekerjaan Umum Pengairan (Irrigation Service)
DUP	Budget request Submission
FCC	Farmer Cooperatives Center
GOI	Government of Indonesia
Gotong royong	Mutual assistance, cooperation, especially on desa public works programs
ha.	Hectare
HYV	High Yielding Varieties (of rice)
INPRES	Instruksi Presiden (Instruction of the President, the subsidy programmes by the Central Government)
IPEDA	Iuran Pemerintah Daerah (local land development tax)
INMAS	Intensifikasi Masal (Group intensification, a way of extension for paddy production).
Irigasi	Directorate of Irrigation, Ministry of Public Works
ISs	Irrigation systems
Kabupaten (also Kb.)	Sub-provincial administrative district, regency
Kampung	Sub-section of a village
Kanwil	Kantor Wilayah (Regional Office)
Kecamatan	Administrative district below Kabupaten level

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KELANG	Kelompok-Kelompok Anggota (Small Farmer Group)
KUD	Koperasi Unit Desa (Village Unit Cooperative)
Lappo Ase	A program involving intensive water-agency coordination to implement the BIMAS program as intensively as possible
LPPM	Lembaga Penelitian Pertanian Maros (Maros Agricultural Experiment Station, near Ujung Pandang)
Mandor Wae	Elected Waterusers' Association member responsible for tertiary canal water flow maintenance (also known as Ulu Ulu)
mt	Metric ton
O&M	Operations and Maintenance
PLP	Pusat Latihan Pertanian (Agricultural Training Center).
PERSPŪKA	Perwakilan PUSKUD Kabupaten (Kabupaten Puskud representative)
PMD	Pembangunan Masyarakat Desa (Rural Community Development)
Pompengan	A Dutch financed and managed irrigation system development project at Lemasi, in Kb. Luwu
PPK	Pusat Pelayanan Koperasi (Farm Cooperative Center)
PPL	Penyuluh Pertanian Lapangan (Agricultural Extension Worker)
PPM	Penyuluh Pertanian Menengah (Senior Agricultural Extension Worker)
PPPA = P3A	Water Users Association
PPS	Penyuluh Pertanian Spesialis (Agricultural extension specialist)
PROLU	Project Luwu
PROV. PU	Provincial Department of Public Works
PUSKUD	Cooperatives Center at the Provincial Level

PUSRI	The national body responsible for the manufacture and distribution of fertilizer
REC	rural Extension Center
REPELITA	rencana Pembangunan Lima Tahun (Five Year Development Plan)
Sawah	Rice (padi) field
SDC	Survey design and construction
Sederhana Project	Ordinary (i.e., non-technical) irrigation project
Seksi	Section, an administration unit
Sistem LAKU	the training-and-visiting system (of agricultural extension)
Sulsel	Sulawesi Selatan (South Sulawesi)
Tani Makmur	Prosperous farmer (a project name for increasing of rice production)
TPK	Tempat Pelayanan Koperasi (within village distribution point)
Ulu Ulu	See Mandor Wae
UNHAS	Universitas Hasanuddin (University of Hasanuddin in Ujung Pandang)
USAID	United States Agency for International Development
Wilayah	Region, district
WILUD	Wilayah Unit Desa (Unit village's region)

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EXECUTIVE SUMMARY

Russell H. Betts

The Luwu Area and Transmigration Development Project is now scheduled to be completed in December 1983, following nearly an eight-year implementation life. This report summarizes the conclusions and recommendations of an independent, outside Study Team which spent a six-week period ending in early September 1983 investigating selected project components of the overall integrated area development effort. No attempt at comprehensiveness was made because this activity was expected to constitute only the first of two phases in the final evaluation of Project Luwu. This first phase was planned to be restricted to an assessment of the effectiveness of the manner in which key components of Project Luwu (e.g., Farmers Cooperative Centers, the irrigation systems, and the strengthening of local government capacities primarily through the District Planning Board) were implemented, and the second phase was intended to assess more broadly the effectiveness of the integrated area development approach applied in Luwu as a general means of accelerating development efforts. During the course of the first-phase inquiries, it emerged that the second phase evaluation might not take place. Where possible, the report therefore goes beyond the boundaries initially set for it in an attempt to comment, at least provisionally, on some of the key issues which the second phase of this final evaluation might have been expected to address.

The Study Team's key conclusions and recommendations are detailed below.

A. The Farmers Cooperative Center Project Component

The activities of the Farmers Cooperative Centers (FCCs) have, in the short time-span of four years since they were established, served effectively to strengthen the capacity of village-unit cooperatives (KUDs) in Luwu to perform effectively and efficiently the various services, including provision of agricultural inputs and marketing, they provide to their members. The FCCs thus have come to play a vital, positive, and important role in the dynamics of rural development in the project areas. The Team's firm conviction is that the FCCs must be provided with the latitude and support required to enable their further development and strengthening. All of the available evidence suggests that the FCC experience in Luwu can provide a replicable and highly appropriate model for the future development of an Indonesian cooperative movement.

The Team also notes the need for timely attention to the status of the FCCs in Luwu following termination of Project Luwu, both for their own sake and in order to contribute to on-going GOI efforts to redesign and refine Indonesia's policies toward farmers' cooperatives.

The Team's principal recommendations are that:

1. Legal status should be granted to Cooperatives Centers at the kabupaten level. This does not currently exist. There is a definite need under certain circumstances to provide a legal basis for bridging the gaps between kabupaten-level PUSKUDs and individual KUDs.

2. The option for having more than one FCC per kabupaten should be left open. The current policy of only one FCC per kabupaten seems not well-advised, especially in circumstances such as exist in Luwu where the size of the area to be served, its remoteness from provincial centers, and its state of economic and institutional development all have contributed to a situation where more than one functioning FCC within the kabupaten clearly benefits the farmers and promotes the region's development.

3. Serious consideration should be given to granting business autonomy to kabupaten-level PUSKUDs primarily to simplify logistics and to improve incentives for economic efficiency in order to help accelerate the country's regional economic growth and development.

4. For similar reasons, and to encourage development of strong local cooperative activities in accordance with emerging national policy, considerable care needs to be exercised to keep national directives from encumbering the effective operation of individual kabupaten-level PUSKUDs. Concurrently, however, caution needs to be exercised in not prematurely withdrawing government financial support from kabupaten-level activities such as the FCC program in Luwu.

5. Finally, care needs to be exercised to keep the rural elite from capturing for themselves any disproportionate share of the economic benefits from farm cooperative activities.

B. The Irrigation Systems Project Component

In marked contrast to the FCC project component, the Team determined that the irrigation systems project component is in serious trouble. This situation has arisen because of unsatisfactory construction of the irrigation infrastructure and has been immeasurably compounded by inadequate attention to operating and maintaining completed parts of the systems. Several parts of the infrastructure constructed under Project Luwu, including parts which were completed as recently as only a few months ago, are either now non-functional or are likely to become non-functional in the near future unless substantial investments are made to correct underlying structural inadequacies and to assure appropriate on-going operations and maintenance capabilities.

Under these circumstances, plans in Luwu to continue construction of further new irrigation infrastructure for the next several years at the rate of between 2,500 and 4,000 hectares of additional land annually does not, in the Team's opinion, represent rational strategy. Discussion needs to be undertaken by national and provincial policy-makers to assure greater awareness of:

1. The requirements of proper systems design;
2. The trade-offs between using funds for new construction and using those same funds for properly operating and maintaining existing systems;
3. The crucial importance of making provision in irrigation system design for the establishment and implementation of proper operations and maintenance programs on each section of a system as it is completed, and;

4. The need to assure clear understanding of the procedures and timing for transferring responsibility for completed systems from those who construct them to those who must then operate and maintain them.

Concurrently, policy-level discussion is needed regarding the relative inflexibility which presently is built into the design of the Luwu irrigation development program. The program has minimal tolerance for adjustments that might come to be required by policy, economics, social, or environmental change. For example, the system is presently designed to service a rice monoculture on a double crop basis. As such, it must operate under carefully controlled conditions. If these conditions are disrupted (as, for example, they seem likely to be because of physical failure), productivity of the system is likely to decrease; impacts could be severe not only economically, but socially as well.

C. The Rural Extension Centers Project Component

Although not required to do so, the Team superficially examined the process by which the Rural Extension Centers (REC) component was implemented, primarily to provide bases for comparison with other project components. These inquiries led the Team to conclude that REC accomplishments may have been greater than apparently has been assumed (at least by USAID/Indonesia). Of particular note is the extent to which the REC training methodology emphasized on-site field training geared to location-specific circumstances and needs. This, we understand, is an important innovation in extension training and the provision of extension services in Indonesia. If this is true, then the REC project merits more careful examination and evaluation than we were able to give it, because there may be important lessons to learn which might be applicable elsewhere in Indonesia.

Similarly, the Team notes with concern that comparatively little attention is being paid to the need to resolve the status of the RECs following termination of Project Luwu (PROLU). Given the high regard in which REC activities appear to be held by those most directly affected, i.e., Luwu farmers, it would seem to constitute poor planning and/or insensitivity to end user needs and preferences if this was not done. Careful consideration should be given to providing an institutional base for REC activities which might encourage continuation of the user-oriented approach to training and to the provision of extension services.

D. Development of Local Government Capabilities Project Component

This project component was added to Project Luwu only in 1981, at the time of the USAID project amendment providing grant support to enable continuation of expatriate technical assistance. It is thus a "late comer" to PROLU, and its activities have had to be accelerated accordingly. Project activities have focused on helping create, in January 1982, a Kabupaten Planning Board (Bappeda Tk. II) and on then strengthening, through training and the introduction of a capability to employ computer-based input-output analysis models and techniques, that body's capacity to carry out integrated area planning and development following the termination of Project Luwu. This work was still very much "in process" at the time of the Team's visit; not only was the training schedule not yet completed, but the programming work necessary to adopt the input-output model to Kabupaten Luwu needs and circumstances was several weeks away from being

finalized. Thus, the total system has not yet been tested, and final judgments regarding this set of activities would be premature. The Team can, however, make note of certain observations and provisional recommendations:

1. Project Luwu personnel involved with this project component, i.e., two expatriate consultants, have implemented a well-conceived set of activities designed to bring Bappeda Tk. II to an impressive level of competence, at least relative to similar efforts Study Team members have observed elsewhere in Indonesia. Training programs have been formulated to address defined needs, have been skills-oriented, and have involved considerable learning-by-doing. Concurrent training programs for personnel from other agencies of the local government have been designed to heighten awareness of and interest in the more rational use of existing (and continuously collected) data for development planning purposes. The possibility thus has been heightened of these agencies generating continuing demands for the types of data analyses which Bappeda Tk. II staff have been trained to supply.

2. As indicated, however, it is too early to tell if this experiment will succeed. The system needs to be put into a higher level of implementation to see what happens. If this is done, the key variables to watch will be:

- The Bappeda Tk. II staff's capabilities to use the technologies and the model in dynamic and useful ways, and;
- The continuing enthusiasm and willingness of other local government agencies to provide appropriately formatted data and to make meaningful use of Bappeda Tk. II's analyses and development plans for decision-making purposes.

3. Concurrently, assuming that there is a continuation in the momentum which Bappeda Tk. II has developed, it will be useful for concerned parties in both the GOI and the international donor community to investigate and consider whether (and, if so, how) the experiment might be replicated elsewhere--possibly via the Provincial Planning Board (Bappeda Tk. I) in Ujung Pandang and selected kabupaten-level Bappedas in South Sulawesi--in order to begin testing its wider applicability to regional development planning activities.

Thus, the Team recommends that this experiment be appropriately nurtured in order to provide the additional time which will be required before any definitive assessment can be made regarding its applicability or replicability. It also recommends that a proper assessment of project continuation be conducted sometime after March 1984 by properly qualified evaluators. The Team is well aware of the concerns being expressed in some quarters, especially within USAID/Indonesia, that input-output modelling may be unnecessarily sophisticated for situations such as currently exist in Kabupaten Luwu. The Team is not prepared at this time to pass any judgments on this matter and therefore, prefers only to observe that a good basis appears to have been laid to enable the technology a modest opportunity to "prove itself" in a unique and, in some ways, difficult environment. If it can be shown to have any long-term applicability in addressing Luwu's continuing development planning needs, then this should be demonstrated and documented so that GOI and foreign donor agency personnel might consider how and where it might be incorporated into other development programs.

4. An important related issue concerns broader questions of the local government's ability and/or willingness to assume, upon termination of PROLU, the burdens previously assumed by project headquarters and project implementing agencies. Without wishing to duck the issue, the Team notes that its inquiries have led it to the conclusion that questions couched in such terms may be missing a more fundamental point. Aside from the Bappeda Tk. II and local government training activities noted above, PROLU was not conceived, designed, or implemented in ways which might have meaningfully involved it, over the long haul, in efforts to enhance local government capabilities. PROLU was created outside the existing local government structure, was charged with implementing a nationally conceived and directed program and, therefore, in many ways constituted an alternative to the local government structure. Thus, but again excepting the Bappeda Tk. II project, PROLU's impact on the capacity of the local governmental structure to sustain developmental momentum following project termination seems both marginal and indirect--the latter primarily through the precedents it may have set and, most importantly, because of the higher level of governmental services which the people of Luwu have come to expect in consequence of the accelerated rate of development which has resulted from Project Luwu activities over the past eight years.

If, therefore, the local government has the capacity to assume PROLU burdens (and the Team discovered no intrinsic reason to believe that it could not), it will be because of its own efforts more than because of anything (other than the Bappeda project component) which Project Luwu has done for it.

There is a second, and equally crucial, intervening variable. As a nationally conceived and directed set of project activities, before the local government can know what burdens it will be required to assume, important decisions must first be made at the national level regarding what responsibilities will be transferred to whom, and with what budgetary provisions and other conditions. Conclusions drawn and recommendations made throughout this report illustrate the extent to which less than four months prior to project termination many such major decisions remain to be made.

E. Project Structure and Interministerial Coordination

The preceding discussion leads the Team to make two final observations.

1. Project Luwu provides a good case study of a basic dilemma which needs to be considered when designing such large-scale area development programs in areas where the capacities of existing local government infrastructure are felt to be limited. That is, if management leadership is vested in a special "Project Office" outside local government, as with PROLU, implementation might proceed more smoothly and simply than if implementation were folded into existing systems and structures. But the activity's ability to significantly contribute to enhancing local institutional capacities for sustained growth following completion of such special projects would in all probability be lessened. Choices need to be made at the project design stage. PROLU's efforts, late in the game, to strengthen Kabupaten Luwu's development planning capabilities was admirable and may well have lasting effect. But it was neither structural nor systemic, and the many decisions regarding the transfer of responsibility for PROLU activities which have not yet been taken provides ample verification of the extent to which long-term institutional capacity building was not integral to the

basic project design. Given the GOI's declared desire to strengthen local government capacities, we believe that in planning for future area development programs, the responsible authorities should consider structural arrangements which explicitly provide, either from the outset or on a phased basis, for significant levels of local government involvement. While this may initially complicate implementation, it offers perhaps the most rational means of assuming the sustainability of project benefits over the long term.

2. The issue of "interministerial coordination"--which, after all, was perhaps the underlying rationale for Project Luwu having been set up and implemented in the way that it was--needs to be carefully examined. The experience of Project Luwu suggests that "coordinated," or at least concurrent, implementation of a number of related projects can have far greater impact on the development of an area than would the "uncoordinated" introduction of comparable activities over a longer period of time. And it must be acknowledged that Project Luwu realized significant achievements in spite of the magnitude and complexity of the site-specific challenges to effective implementation with which it had to deal.

But it cannot be concluded from this that PROLU represents a successful example of active interministerial coordination in the implementation of an area development project. In fact, interministerial coordination in the meaningful sense initially anticipated for Project Luwu has been an illusion. Despite periodic rhetoric to the contrary, the Government of Indonesia was unable, throughout the eight years of PROLU, to establish any adequate forum or mechanism for coordination. This extends from policy determination and budget allocations at the national level through providing guidance for management tools to PROLU for project control and fiscal monitoring at the project site. The difficulties faced throughout the history of PROLU by project management because of these coordinative shortcomings occasionally were immense, and it is to project management's credit that it functioned as well as it did at times.

Interestingly enough, however, this does not lead the Study Team to any conclusion that "coordinated area development" does not work in the Indonesian context. As indicated earlier, in fact, the evidence from Project Luwu suggests that it does--but perhaps, at times, in spite of itself.

Project Luwu was initially designed as an integrated and coordinated effort with the important consequence that policy decisions made at that time establish the basic project parameters. As a consequence, a set of activities were set in motion in Luwu which, notwithstanding the extent to which during implementation they may have appeared to be running on separate and frequently unrelated tracks, were in fact running on parallel tracks in pursuit of the common goals which had been established at the outset. The result appears to be a case where the final after-the-fact reality has become the desired synergistic impact of the coordinated approach. If so, then it has occurred not because of interministerial coordination, but rather in spite of it--and instead because an approximately correct mix of activities were implemented in geographic and temporal proximity all under the aegis of "The Project."

Thus, the illusion of coordination may be as valid as its actuality, provided that appropriate preproject planning and design has taken place. While it is tempting to do so, further exploration into the implications of this interpretation lie far beyond the scope of the current study, and therefore must be left for others.

FOREWORD

This report presents the observations, conclusions, and recommendations of a Study Team which was fielded jointly by Development Associates, Inc., and RONCO under contract to USAID, in order to conduct part of a final evaluation of the Luwu Area and Transmigration Development Project. Project Luwu is an area development project comprising six distinct but related activities, all to have been carried out in the district (kabupaten) of Luwu, on the north coast of the Bay of Bone in South Sulawesi Province in Eastern Indonesia. The first of these activities is the construction of the trunk road linking the kabupaten capital of Palopo with the eastern town of Malili. The second activity involves the construction of large-scale irrigation systems in the coastal plain of the kabupaten. The third and fourth activities are to establish Farmer Cooperative Centers to serve and support village-level cooperatives in the provision of agricultural inputs and credit, and the marketing of farm products and Rural Extension Centers to provide training and assistance in modern agricultural techniques. The fifth activity is the resettlement of 700 transmigration families from Bali and Lombok. The final activity is to provide technical assistance to help develop the planning and management capacity of the District Planning Board (Bappeda Tingkot II) so that this institution might be provided with the human resource capacity and planning and management systems capabilities required to continue the development of the kabupaten upon termination of the nationally supported and directed Project Luwu.

Each project component has been implemented through a sectoral agency of the Government of Indonesia. The road construction has involved the Office of Highway Construction (Bina Marga); the irrigation system, the Directorate General of Water Resources Development; the Farmer Cooperative Center, the Department of Trade and Cooperatives; the Rural Extension Center, the Department of Agriculture; and the resettlement project, the Department of Transmigration and Manpower. The local government assistance effort has been sponsored by the Ministry of Home Affairs.

The activities of these various agencies were designed to be coordinated through the Project Luwu headquarters, established in Palopo in 1979, with a Project Manager appointed by the Department of Transmigration and Manpower, the official counterpart agency for the project. The work of the implementing agencies has been assisted by a team of expatriate consultants assigned to the various project components.

The rationale behind Project Luwu has been that separate, but conceptually linked, programs which are implemented at the same time and in a coordinated fashion can have far greater impact on the development of an area than would be the case if the same projects were implemented in an uncoordinated fashion over a longer period of time. Project Luwu began in 1975 and is scheduled to be completed in December 1983.

The work of this Study Team was initially conceived as the first of two phases in the final evaluation of Project Luwu. The Scopes of Work for these phases are attached as Appendix A. As these indicate, the first phase was to be limited to determining the effectiveness of the manner in which key components of Project Luwu were implemented; i.e., the focus was to be on the "process" of implementation, not on the extent to which any specific project goals had been achieved. Moreover, this phase of the study was to be restricted to three project components -- Farmers Cooperative Centers, irrigation systems, and development of planning capabilities in the Bappeda Tk. II. Informal discussions with USAID personnel in Indonesia at the beginning of the evaluation work revealed that these three components were specified because they constituted the areas of greatest continuing interest to AID.

The Team's investigations were to address the following broad issues:

1. Farmers Cooperative Centers -- Examine the extent to which these Centers have been created and are effective in serving the functions intended and the extent to which they might serve as a model for future cooperative development in Indonesia.

2. Irrigation Systems -- Examine the manner in which the project attempted to meet its target (of 8,470 ha. of irrigated land upon project completion).

3. Bappeda Tk. II -- Examine the extent to which the project helped the Bappeda be prepared to continue integrated area planning and development activities following completion of Project Luwu.

The Study Team was also charged with considering, and making appropriate observations on "lessons learned" during implementation of each of these three project components which might be applicable either to future activities within the project area or elsewhere in Indonesia. Finally, the Team was charged with making recommendations and conclusions of direct potential benefit to Government of Indonesia agencies at the local and national level, as well as to USAID.

The second phase of the evaluation of Project Luwu was conceived to be considerably broader in scope and was, in fact, intended to address a series of generic questions relating generally to the effectiveness of the integrated area development approach utilized in Project Luwu. Specifically, it was intended to consider overall strategic questions, with the objective of learning "to what extent this understanding of integrated development has yielded the results hoped for and can serve as a possible model for future area development programs in Indonesia."

Initial discussions among the Phase I Study Team and USAID officials in Jakarta revealed that certain ambiguities in thinking existed within the AID mission regarding this division of labor. In fact, the Team quickly learned that there was a recognition that the first phase probably could not examine questions of "process" without necessarily using some of the lines of questioning which more appropriately would be expected to occur during the Phase II evaluation. The Team, therefore, was invited informally to broaden its scope of reference to incorporate, wherever appropriate, the key generic issues. This was done, also informally,

during the course of our inquiries, and the Team had intended to leave behind, for consideration by the Phase II Evaluation Team, a packet of informal notes concerning relevant matters.

In the middle of the sixth and final week of its work, the Study Team learned that there was a strong possibility that the second phase of the Project Luwu evaluation would not be undertaken after all. Given this possibility, this report incorporates observations and conclusions concerning broad issues surrounding integrated area development. These observations and conclusions are neither as comprehensive nor as fully considered as the Team might have liked, but circumstances have not enabled the full examination of relevant issues which would have been required.

Three principal methods were used to obtain information upon which this report is based. First, there is a large amount of documentation on Project Luwu, and as much of this was reviewed as time allowed, both in Jakarta and in Palopo. A visit by a team member to the Agricultural University at Bogor produced several useful documents. The team had discussions with officials in Jakarta, in the project area, and in the provincial capital of Ujung Pandang, and these also produced additional documentation. Key references are listed in Appendix C; they are by no means all that could have been read, but are cited as some of the many sources that provided background and insights into the development decision-making process generally and into the history of the implementation of Project Luwu specifically. What was apparent in reviewing the literature, however, was that it did not actually provide answers to the types of questions the Team determined were most relevant to understand the development process. This omission is not due to shortcomings of the literature as much as it is to the nature of the Team's inquiry; i.e., because of the primary concern with "process," and not with measurement of "product," the Team found that they were dealing with issues which had not been explored before, or at least which had not been written about for Project

Luwu. Of course many persons associated with the project had thought about various aspects of such issues, and many persons in fact expressed themselves volubly, drawing attention to frustrations in the way of proper operation of the process. Some of them expressed clearly defined areas for improvement.

Second, informal discussions, often conducted in a casual atmosphere, were among the most valuable. The Team appreciates the assistance given them in these sessions and in all other situations. Key individuals who were contacted during the course of the work are acknowledged in Appendix B. Informal discussions provided the most useful information when they focused on a specific situation that could be used to illustrate a more general issue, such as a field trip to an irrigation canal wall that had recently collapsed. This provided visual background, for example, to discuss the topic of operation and maintenance and how maintenance could have been, but was not, carried out to prevent damage.

Field trips thus served as the third method to obtain information, especially when they provided an atmosphere for discussion. They also permitted one to obtain a sense of the enormity and complexity of the Luwu development effort, and they provided firsthand knowledge of limitations on project activity due to logistics, isolation from sources of supply, lack of communications, difficulty of access, and disruptive influences of climate.

The Study Team conducted its inquiries and prepared this report during the period from 27 July through 6 September 1983. It spent nearly half of this time in the project area and wishes to express its appreciation to Project Luwu officials and the many other people with whom it came in contact for the warm hospitality which was so generously extended.

Much time was spent during the final week of this assignment in meetings and discussions with senior GOI and USAID officials. The Team is gratified to note the interest its evaluation has generated and now

completes this most interesting assignment with the satisfaction of being able to believe that its efforts may substantially contribute to on-going GOI and donor agency efforts to optimally program development funds for the benefit of the Indonesian people.

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CHAPTER I

THE KEY ISSUES: CONCLUSIONS AND RECOMMENDATIONS

Donald C. Taylor and Russell H. Betts

Indonesia is among those developing nations which still have an opportunity to choose among several possible development alternatives. Area development with irrigated agriculture designed to utilize abundant land and water resources, to settle people in sparsely populated areas, to increase food production, and generally to improve regional economies, is one such alternative which has been attempted. The Luwu Area and Transmigration Development Project (Project Luwu, or PROLU) constitutes one of the first such attempts in Indonesia, and the anticipated termination in December 1983 of USAID's donor agency support to the effort therefore provides an unusual opportunity to examine the strategy of area development as a means to achieve national objectives.

More specifically, termination of AID funding provides an opportunity to learn from the PROLU experience how area development projects actually work and to assess whatever there may be in the development process that does not work and why. Knowing how something works is more important than cataloging specific achievements, especially if the process for development is to be tried again.

It was planned that this examination would be undertaken in two phases, with the first phase looking at selected specific project components and the second phase examining broader issues relating to overall strategies for integrated development. An experienced multidisciplinary team was given the task of undertaking the first phase of this assessment, not to evaluate quantitatively or qualitatively the project, but to try and determine from that experience what guidelines or lessons could be identified that might be applied elsewhere in future area development projects. The findings and recommendations that follow reflect this learning process as identified by the Team.

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In accordance with the Team's Scope of Work, as modified and expanded and as described in the Foreword to this report, this chapter both addresses project-specific issues and, when appropriate, generalizations concerning "lessons learned" which may have broader applicability. Conclusions and recommendations are grouped to reflect what the Team considers its most important findings relevant to the three separate project components which it was specifically charged with investigating. Additionally, a fourth grouping addresses other project-specific matters which lie somewhat outside the Team's Scope of Work, but which merit mention nonetheless. This fourth grouping also tentatively addresses some of the broader, generic issues concerned with overall strategies for integrated rural development which originally were expected to be the focus of the second phase of this final evaluation of PROLU.

MUCH OF THE DATA AND BACKGROUND MATERIAL UPON WHICH THESE observations are based is contained in the subsequent chapters of this report and, therefore, for the sake of brevity, is not repeated here. Also for the sake of brevity, the Team has not included in this chapter an all-inclusive itemization of its conclusions and recommendations. Instead, it has attempted to aggregate findings and consolidate recommendations in order to focus only on what it has come to consider to be the key issues, the major problems, the most impressive examples of positive aspects, and/or the basic "lessons learned." Those readers who are concerned with greater specificity are also encouraged to refer to the remaining chapters of the report.

The PROLU Study Team's key conclusions and recommendations are detailed on the following pages.

A. The Farmers Cooperative Center Project Component (PPK Luwu)

The activities of PPK Luwu have served effectively to strengthen the capacity of village-unit cooperatives (KUDs) in Luwu to provide input and marketing services to their members. Within the short time-space of four years since Luwu's FCCs were first established, the FCCs have come

to account for over 90 percent of the agricultural inputs sold in the primary project area. The FCCs' paddy purchasing activities have brought direct benefits to KUDs and their members. Further, the FCCs have been directly instrumental in strengthening the capacity of KUDs to perform effectively and efficiently the services that they provide to their farmer members.

While certain "free enterprise" elements are inherent in the PPK Luwu structure, it is clear that until now these elements have been overshadowed by the contribution of GOI (USAID) financial support to PPK Luwu.

A study of PPK Luwu's financial statements shows that it is a fast-growth enterprise, and that there is a definite upward trend over time in the "surpluses" ("operating profits") that have been realized from FCC operations. It is also true, however, that over one billion rupiah of non-interest and low-interest bearing "loans" have been provided by the GOI (and USAID) to help establish and operate Luwu's FCCs. One reflection of the magnitude of this support is that PPK Luwu's total "retained earnings" until now represent less than 10 percent of its overall equity capital.

Five key analytic issues underlie the considerations of policy-makers as they seek over the next several months to redesign and refine Indonesia's policies toward farmers cooperatives. These issues concern:

- Whether FCCs will come to be interim or permanent features in the structure;
- The nature of relationships between Provincial PUSKUDs and kabupaten-level PUSKUDs;
- The nature of relationships between kabupaten-level PUSKUDs and KUDs;
- The extent and nature of Government involvement in FCCs and;
- Who will reap the benefits of economic power from the FCCs.

These important issues are elaborated upon in Chapter II.

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Recommendations of the Team are described below.

1. There is a definite need for kabupaten-level PUSKUDs to bridge the gap between Provincial PUSKUDs and individual KUDs. Therefore legal sanction should be granted to kabupaten-level PUSKUDs.

The justification for kabupaten-level PUSKUDs arises from two standpoints -- to mitigate the logistical burdens of long-distance administrative and business communications and to take advantage of economies-to-scale in the provision of services to KUDs and their members.

2. The option of having more than one FCC per kabupaten should be left open.

The physical size, state of economic and institutional development, and intensity of agricultural economic activity vary much from one kabupaten to another within Indonesia. In some kabupatens, the rationale for having more than one FCC is weak. In others, it is not. A rigid policy of one FCC per kabupaten is, therefore, not well-advised.

3. Serious consideration should be given to granting business autonomy to kabupaten-level PUSKUDs.

We recognize the need for administrative ties between kabupaten-level PUSKUDs and Provincial and National PUSKUDs. From the standpoints of simplified logistics and improved incentives for economic efficiency, however, we believe that kabupaten-level PUSKUDs should be granted business autonomy. Such autonomy is not only in the best interest of KUDs and their members, but also is in the best interest of the country's regional economic growth and development.

4. Caution needs to be exercised in not prematurely by withdrawing government financial support from PPK Luwu.

Creating viable economic institutions in primitive economic environments such as that in Luwu before PROLU takes time. While Luwu's

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FCCs show definite signs of "economic health," they are not yet at the point where they can stand on their own economically. We therefore recommend that the GOI carefully study those aspects of future FCC development and operations that require further financial nurturing, and that they provide continued financial support in accordance with the results of such study.

5. Considerable care needs to be exercised to keep national policies from encumbering the effective operation of individual kabupaten-level PUSKUDs.

Critical elements in the technical, institutional, and economic environment within which various kabupaten-level PUSKUDs operate differ greatly from one region to another. In formulating national cooperative policies, much discretion needs to be exercised so that the policies will indeed facilitate, and not inadvertently impede, the development of strong local cooperative activities.

6. Considerable care needs to be exercised to keep the rural elite from capturing for themselves "the lion's share" of economic benefits from farm cooperative activities.

As PPKs grow in their economic viability, the interests of people in trying to tap some of the economic power for themselves are bound to arise. While dealing effectively with this issue is inherently problematic, we believe certain actions could be undertaken to help insure as wide as possible a diffusion among the farming community of the fruits of economic power generated by the cooperatives. Principles of institutional design that we believe might offer prospect for helping to ensure a wide distribution of the economic power are included in Chapter II.^{1/}

^{1/} See also pp. 377-381 of the Bromley, et. al. Article on, "Water Reform and Economic Development", cited in Appendix C.

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B. The Irrigation System Project Component

The principal difficulties arising from the implementation of the Irrigation Subproject in PROLU involve the unsatisfactory construction of the project's irrigation infrastructure and inadequate attention to operating and maintaining completed parts of systems.

The Team believes that six conclusions can be drawn from the PROLU experience with irrigation. The first two have specific reference to PROLU; the others have potentially broader significance.

1. Certain parts of the infrastructure in the Bone-Bone and Kalaena Irrigation Systems are either now non-functional or are likely to become non-functional in the near future unless substantial investments are made to correct the underlying structural inadequacies.

It is unusual for irrigation infrastructure to become totally non-functional during the first one or two years of use. Yet this has happened in parts of the Bone-Bone and Kalaena Irrigation Systems. The underlying reasons for the fragile nature of infrastructure in these systems are because of inherently troublesome soils in which the civil works have been undertaken and inadequate attention to detail in the survey, design, and construction process. Inadequate attention to subsequent O&M has further exacerbated the situation.

Some irrigation systems which suffer from inadequate O&M will continue to perform over time -- though at a sub-optimal level. In the case of totally non-functional elements in irrigation infrastructures -- as in the Bone-Bone and Kalaena systems -- the situation is different. With zero degree of water control in such areas, no irrigation of crops can take place.

The basic structural inadequacies in the Bone-Bone and Kalaena systems, therefore, can not be "swept under the carpet". Substantial additional investments and professional expertise are required to

overcome these inadequacies. Without this, the actually irrigated area in the two systems will decrease over time. This would involve a great cost to society.

2. In a similar vein, sufficient flexibility has not been built into the policy design for the utilization of the Luwu development program to allow adjustments to be made if required by economic, social, agricultural or environmental changes.

The technical system designed to produce rice on a double crop basis must operate under carefully controlled conditions. If for any reason these conditions are disrupted, because of drought, floods, plague, or physical failure, for example, productivity of the system will decrease. Furthermore, the system is presently designed to emphasize a rice monoculture; if disturbed for any reason, impacts could be severe, not only economically but socially as well.

Alternative crop production is not part of the system; hence, failures in rice production would have very severe implications. Consideration should be given to possible means to modify the system so as to introduce the flexibility in utilization which it currently lacks.

3. Trade-offs between use of financial resources to construct new irrigation systems versus operating and maintaining existing systems need to be carefully evaluated. This point is a logical extension of the first, and it has general validity. Investing money in new systems which later become totally dysfunctional is like "pouring water down the drain." Using resources to fine-tune O&M to the point where each moving part is lubricated daily or structures are painted once weekly is equally ill-advised.

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A middle-of-the-road position, obviously, needs to be followed. On the basis of what the Team learned in PROLU, and from discussions on irrigation elsewhere in the country, it was concluded that the current situation in Indonesia resembles the first position more closely than the second. ~~It does not appear to be rational strategy and the Team therefore feels extremely uncomfortable with~~ plans to construct irrigation infrastructure for between 2,500 and 4,000 ha. of additional land over ~~each~~ of the next several years when the O&M on recently completed systems remains inadequate ~~appear to be irrational~~. *The team not feel comfortable*

It is therefore recommended that discussions be undertaken by national and provincial policy-makers concerning this issue. The result from such a discussion will ^{should} hopefully be a greater awareness of the trade-offs between using funds for new construction versus using their funds for operating and maintaining existing systems. It is to be desired that such discussion could substantially, and quickly, lead to a ^{more balanced} determination of policies reflecting a rational balance ^{on} between these two aspects of irrigation development ~~add use~~.

4. An element contributing to inadequate O&M in the Bone-Bone and Kalaena systems is ambiguity about procedures for transferring physical assets and managerial responsibilities from Irigasi to Prov. PU. Two specific aspects of the transfer process require ~~attention and~~ clarification: (a) whether parts of overall systems might be transferred one-at-a-time in sequence during ~~the process of~~ construction, or whether only completed systems can be transferred, and (b) whether ~~existing~~ regulations concerning the transfer of physical irrigation infrastructure assets can be clarified and ~~disseminated~~ to reduce ~~or eliminate~~ the wide differences in interpretation which ~~currently exist~~ among ^{those} ~~the~~ various people who ~~should be or are~~ principally concerned about these matters.

It is therefore recommended that there be a clear understanding before new irrigation construction projects are initiated on the procedures that will be followed in transferring the completed systems from Irigasi to Prov. PU.

5. One important consequence of the existing confusion regarding transfer procedures is that neither Irigasi nor Prov. PU have perceived that they have formal responsibility to undertake O&M on the completed parts of the systems. Whereas certain factors beyond their control contributed to this problem, it also appears that an appreciation of the need for proper O&M and a commitment to financially support proper O&M programs is lacking at this time.

To help deal with these issues, it is proposed that provisions be made in the design of future such projects for the establishment and implementation of a proper O&M program on each section of an irrigation system as it is completed. This would include: attention to procuring necessary maintenance equipment; constructing shops to store and service such equipment; recruiting, training, and paying salaries of an adequate-sized O&M staff; and closely supervising the work of O&M staff.

By including such an O&M component within the design of a project, there should be better assurance that a properly functioning irrigation system could be turned over to Prov. PU at the completion of the project. Further, there is a possibility that the demonstration in the field of the results of a proper O&M program might influence the perspective of host country professionals on the importance of strong commitments being made to O&M programs.

6. Officially stated procedures for survey, design, and inspection activities appear to be quite appropriate. The actual implementation of procedures in PROLU, however, has left much to be desired.

To tighten up the survey, design and construction components of future projects, it is recommended that attention be given to strategies such as the following: providing incentives that will attract high quality staff to work in remote project-sites; providing imaginatively conceived training for government survey, design, and inspection staff; requiring that expatriate consultants have facility in Bahasa Indonesia;

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and providing for effective professional interaction between host country survey, design, and inspection staff and expatriate consultants. Which of these approaches should be stressed in particular projects should depend on the results of pre-surveys to determine the greatest inherent weaknesses in host country capacities for sound survey, design, and inspection work.

7. The Team also wishes to add one further set of comments regarding the related issue of the role of community groups -- i.e., The Water Users' Association, or P3As, -- in operating and maintaining the tertiary and quarternary canal components of the irrigation system which, under any circumstances, will fall below the threshold of Prov. PU's (or Irigasi's) responsibility.

The response from the farming communities to the P3As varies. In the transmigrant communities, the P3A associations have had no trouble obtaining membership subscriptions and volunteer labor to clean the tertiary canals. In contrast, the associations in the local Luwu farming communities find members unwilling to pay subscriptions or help maintain the tertiary canals. Sociocultural factors underlie this difference in farmers' response. The transmigrants have previous experience in irrigated agriculture and cultural practices governing water management and maintenance of irrigation farming. However, the local Luwu farming community has had no previous experience with irrigation systems. The extension strategy used to form water users' associations and to train farmers does not address this sociocultural difference between the local and transmigrant communities.

The present extension program, therefore, should be modified to take into account the inexperience of local Luwu farmers with irrigated agriculture. A study should be conducted to identify constraints faced by the local Luwu farmers which make them unwilling or unable to support the water users' associations. The findings could form the basis for redesigning the extension program.

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C. Development of Local Government Capabilities Project Component

The District Planning Board (Bappeda Tk. II)

The primary focus of PROLU activities relating to the strengthening of local government capabilities has been on the creation and strengthening, beginning in early 1982, of kb. Luwu's District Planning Board (Bappeda Tk. II).

The Team's main conclusion is that it is too soon to come to any definite conclusions. The training which has been provided appears suited to the purpose, but the proof of the experiment will have to be in the effectiveness over the next few months (and especially following the departure of the expatriate technical assistance) of its implementation. If it works, the input-output analysis might provide a highly useful tool for the rational use of data in regional development planning and management. In the interim, the experiment at Bappeda Tk. II in Palopo might require nurturing for the next few months, perhaps until it has completed its work on the 1984/1985 budgets for Kabupaten Luwu in March 1984, following which a proper evaluation of its and the kabupaten's, experience in attempting to apply input-output modelling to the planning process should be undertaken.

Capability of Local Government Agencies to Assume PROLU Burdens

The Team also was invited to comment on the institutional capacity of local government agencies to assume the burdens previously assumed by PROLU headquarters and other sectoral agencies, and to comment on the economic, legal, or institutional constraints to greater participation by local government agencies in the future development of Kabupaten Luwu. In doing so, the Team arrived at the following conclusions and recommendations:

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1. The way in which PROLU was set up structurally was not conducive to the strengthening of local government capacities. PROLU existed separate from the local government structure and it was charged primarily with implementing a nationally-conceived, directed and financed program. Prior to the inauguration, late in its history of the Bappeda Tk.II project component, PROLU had neither effective mechanisms nor persuasive incentives for involving itself in the efforts of the local government. Similarly, and again with the exception of the Bappeda Tk. II project component, nothing in the nature of things provided adequate cause for either PROLU or the local government to actively consider, and deal with the transference of burdens and responsibilities following the termination of PROLU. To the contrary, the local government's expectation that there would be a PROLU Phase II (an expectation which was not adequately dispelled by USAID until very recently) appear to have undermined whatever preparatory activities might otherwise have taken place.

2. There is, in fact, little which must be transferred from PROLU headquarters to the local government. That office's functions have revolved primarily around: (a) serving as liaison with the national government, and (b) providing a single entity with which USAID could deal in oversight and management of its own support to an otherwise unwieldy package of activities. As PROLU winds down, most of these functions will simply fade away.

3. Transferring burdens to appropriate authorities with respect to the continuation of the separate project component activities is far more problematic. Details appear throughout this report. But the key issue here is not local government capacities nearly so much as it is the more generalized issue of the national-level decisions which need to be taken concerning which responsibilities will be transferred to whom, and with what budgetary provisions

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4. To the extent that responsibilities (and funds) are transferred to the local government, the relevant authorities can be expected to respond as best they can. The Study Team's impression, which cannot be confirmed by any empirical evidence, is that the generally positive consequences of PROLU-implemented activities will motivate a sincere desire to do the best possible job under existing circumstances. But if such a response proves unequal to the task, then a judgment could be rendered that part of the reason lies in the fact that the structure of PROLU did not incorporate early enough, or thoroughly enough, adequate provision for sustaining, through local government efforts, the benefits and developmental momentum which was inaugurated through PROLU. This is a problem of program design, far more than it is any reflection of inadequacies in its implementation.

The Team's principal recommendation in this regard is that in designing future area development programs such as Project Luwu, the GOI and external donor agencies explicitly deal with the issue of enhancing local government capacities. Important trade-offs will be involved, between: (a) short-term effectiveness in attaining implementation goals within allotted time frames, and (b) enhancement of longer-term local institutional capacities for sustained growth following project termination. Given the GOI's declared intention to decentralize responsibilities for the planning and management of regional development, the Study Team strongly suspects that Indonesian developmental interests will be more appropriately served to the extent that mechanisms for effectively following the latter course can be determined and applied.

D. Integrated Area Development

One final set of observations dealing with issues which are beyond the scope of work for this assignment may be in order. Inter-ministerial coordination, in any truly meaningful sense, has been an illusion in PROLU. Perhaps it truly existed only in the eyes of the donor agency and those of its clients who believed it was necessary to perpetuate such an illusion because of the extent to which it had become enshrined in the documented project expectations, goals, and objectives.

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The fact of the matter seems to be that PROLU was conceived, in its pre-project and design stages, as an integrated effort, and that at that point certain policy decisions were made which set in motion in Luwu activities which progressed during implementation along parallel, but separate and frequently unrelated tracks.

Interestingly enough, the final after-the-fact consequences can be said to be a situation in which the sought-after synergistic impact of coordination, i.e., intergration, may have occurred "in spite of itself, but not because of actual inter-ministerial coordination, but rather because an approximately correct mix of activities occurred in geographic and temporal proximity, all under the aegis of "the Project.

If this is the case, then the illusion of coordination may be as valid as its actuality, provided that appropriate pre-project planning and design took place. This should not, however, lead to any conclusion that "coordination/integration" concepts are irrelevant and should be discarded. The history and the documented beneficial consequences of Project Luwu cannot sustain any such judgment.

The greatest challenge would appear to be in designing programs which, in addition to providing the capacity to achieve specified implementation objectives, can concurrently effectively enhance local capacities to sustain the effects and momentum of development following project completion and can accomplish both of those goals within the context of the optimal level of coordination/integration appropriate to the circumstance surrounding each such project. Project Luwu attempted to deal with many of these issues. It was unable to provide satisfactory answers to them all. That challenge remains to be met.

CHAPTER II

THE FARMERS COOPERATIVE
CENTER PROJECT COMPONENT

Donald C. Taylor

The Farmers Cooperative Center (FCC) Subproject of PROLU consists of a BPLKOP ("Bagian Proyek Luwu Bidang Perkoperasian" = Luwu Project Division Cooperative Section) which is located in Palopo and three currently operational FCCs at Bone-Bone, Mangkutana, and Walenrang. For discussion purposes, the term PPK ("Pusat Pelayanan Koperasi") Luwu will be used to represent the combined BPLKOP-FCC activities undertaken in Kabupaten Luwu. (A fourth FCC -- currently being constructed at Bajo in South Luwu with exclusive GOI funding -- will also be under the jurisdiction of PPK Luwu.) It should be noted at the outset that until now PPKs have not received legal sanction in Indonesia.

At present, there are 20 PPKs in South Sulawesi. The decision to establish a PPK in Luwu was made in late 1977. The Luwu FCCs were considered to represent an experimental approach for strengthening the village-level KUD institutions -- not only in South Sulawesi, but for the country as a whole. The other 19 PPKs in South Sulawesi were established beginning in 1981. While some progress has been made with them, the current status of not one of them is nearly as advanced as the one in Kabupaten Luwu (personal communication, Office of the Kanwil of Cooperatives, Ujung Pandang, August 25, 1983). In addition, the Team understands that the PPK Luwu is more advanced than any of the some 200 PPKs that have been established throughout Indonesia (personal communication, Department of Cooperatives, Jakarta, August 29, 1983).

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A. Basic intentions of the FCC Subproject

From the beginning, village unit cooperatives ("KUDs") have been intended to strengthen the economic organization of Indonesian farmers living in "compact" areas comprised of 600 to 1,000 ha. each. The emphasis of KUDs has typically been on input distribution, paddy buying and milling, and credit.

The business achievements of most KUDs during the 1960s and 1970s were at best only modest. A 1977 field survey of the 12 KUDs in Bone-Bone^{1/} showed this to be the case. Of the 12, only three were relatively well established, and of the three, two were in "very serious" financial difficulty.

One of the reasons for the weak economic conditions of the Bone-Bone KUDs was geographic. Bone-Bone is about 500 km from Ujung Pandang. Further, in the late 1970s, nearly 150 km of the road connecting Bone-Bone with Ujung Pandang was hardly serviceable. Notwithstanding such communication difficulties, the KUDs had to rely on the Provincial PUSKUD in Ujung Pandang for business and training services. It was little wonder that Bone-Bone's remote KUDs were struggling for survival.

The basic idea underlying the FCC Subproject in PROLU was to create an intermediate institution between the provincial PUSKUD and the individual KUDs. The primary purpose of this institution was to strengthen the business activities of the KUDs. The initial thinking was that the FCCs would be semi-autonomous parastatal organizations providing input procurement and distribution, crop processing, storage, and marketing services to the KUDs.

1/ Reported by S. Filiaci as "Field Report on the Conditions and Potential of FCC Bone-Bone Area Cooperatives", under a memo to Purnomo, No. CON/KOP/08/III/1979, dated March 29, 1979.

The FCCs in PROLU were introduced one-at-a-time in the project area, with Bone-Bone first (it first began rice milling in June of 1979), Mangkutana second, and Walenrang third.

A three-phase process is intended to be involved in developing each FCC.^{1/} The first phase, which begins after the construction of the physical facilities for the FCC, lasts for one to two years. This trial period involves the establishment and staffing of an organizational structure for the FCC and training for FCC staff, KUD managers, TPK staff, and KUD members.^{2/} Efforts to introduce members to a business orientation and the cooperative spirit are begun at this time.

During the second phase, which lasts for three to four years, field operations are undertaken. A Joint Committee -- consisting of a representative from each KUD served by the FCC, a representative of the Kabupaten Department of Cooperatives, and the FCC Subproject Manager provides overall management to the FCC. Among other things, this involves planning and coordinating activities, setting prices to be charged for inputs and paid for commodities marketed, and exercising control over FCC operations. Final management decision-making authority rests with the FCC Subproject Manager. In this phase, operations are intended to be funded through working capital credit provided by the Ministry of Finance's Directorate of Investment Capital and "progressively decreasing subsidies" from the project.

1/ This process is outlined in Condition Precedent No. 307 to the GOI/USAID Loan Agreement. Particularly because of continued uncertainty on the future status of PPKs in Indonesia, it is unclear at this time whether certain features in the third phase will actually be realized.

2/ The Department of Cooperation Staff in Jakarta, however, described these training activities as part of the preparations preceding the trial period.

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During the third and final phase, the complete managerial authority over FCC operations and financing is to be turned over to Boards of Directors consisting of representatives from each KUD. It is intended that operations will be funded exclusively by revolving working capital provided by the Ministry of Finance and through internally generated revenues.

B. Provincial Cooperative Organizational Structure

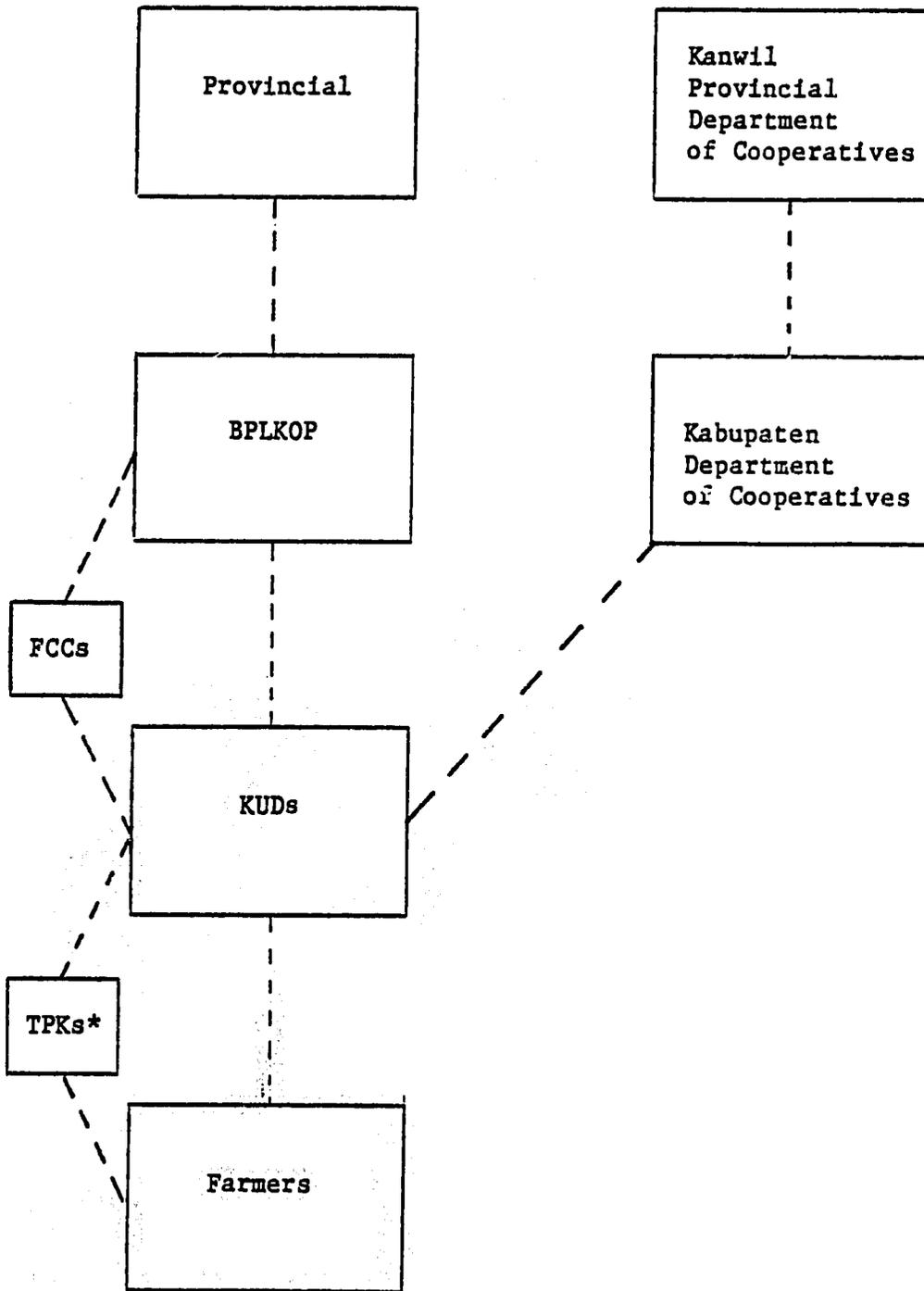
The place of FCCs in the overall provincial cooperative organizational structure is indicated in Figure 1. The right panel in this figure represents the role of the Department of Cooperatives vis-a-vis the KUDs. The Department is responsible for establishing and servicing the KUDs administratively, disseminating information to the cooperatives, and generally nurturing the continued development of the "cooperative spirit" (characterized as "solidariti," "ideologi koperasi, and "self-help;" not by the more familiar and perhaps less fundamental term "gotong royong") in the KUDs and their members.

The left panel portrays the business component of the organizational structure. As already indicated, the PPKs were created as bridges between the provincial PUSKUDs and the KUDs which they serve. The KUDs exist to provide service to farmers.

The FCCs and TPKs ("Tempat Pelayanan Koperasi" or within-village distribution points) are viewed as "tools" of the formal business structure. They do not have a clear legal standing and, therefore, at this time must be viewed as outside the formal cooperative structure. Since the Directorate General of Cooperatives has "traditionally"

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Figure 1. Organizational Chart, Provincial Cooperative Structure, South Sulawesi



* "TPK" = "Tempat Pelayanan Koperasi" or within-village distribution points.

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advanced a policy of only one FCC per kabupaten, the future status of the four FCCs in Kabupaten Luwu is also problematic.^{1/}

An issue of considerable concern to some people is the extent to which Indonesia's farm cooperative structure will be permitted to have relative business autonomy as opposed to being a communication channel of official national cooperative policy to the village level cooperatives. A specific aspect of this issue involves the status of workers in the FCCs. Initially in PROLU, all workers in the FCCs were apparently in the private sector.^{2/} Now about 30 percent of the workers are government employees ("pegawai"), with about one-half of them being "regional" and the other half "local." The percentage of government employees is larger for the higher level staff in the FCCs.

Existing regulations have permitted government employees in PPK Luwu FCCs to receive up to 100 percent of their base salaries as bonuses. The amount of the bonuses -- paid from project funds -- varies from person to person depending on their rank within the governmental employment structure and the level of their responsibilities in the FCC. It appears that the "all-in" salary levels of government employees in the FCCs are higher than those for private sector FCC counterparts.

Explanations about why some workers have become government employees and the underlying significance of the change vary widely among

1/ The issue of only one PPK per kabupaten as a rigid policy is, however, apparently being reconsidered at present in the Department of Cooperatives, Jakarta.

2/ Pak Purnomo, Manager of the FCC Subproject, and two others in the PPK Project Office were, however, from the beginning federal civil servants.

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informants. One person has indicated that letters of instruction have been issued to private sector staff to report for induction training courses. Another person indicates that the staff who have become government employees earlier made their own decision to do so. The Department of Cooperatives in Jakarta indicated that it was difficult in the late 1970's to find employees who were willing to be transferred to Palopo. The strategy, therefore, became one of hiring all local staff at the outset, with the idea that those who performed well and were interested in becoming government employees would be invited to do so.

Some commentators see represented within this change of employment status the beginning of deeper penetration of government into the cooperative structure, and the eventual undermining of the potential economic viability of the FCCs and KUDs. This could happen, for example, if the cadre of government employees were to be used by government to advance national policies that were unsuited to the unique conditions found in individual PPKs and/or KUDs. Some are troubled because they see the possibility of government employee staff transfers from the Kabupaten Luwu FCCs at such a rapid rate that the FCCs will lose their viability.

Others are more sanguine. They see the presence of government employees in FCCs as a natural outgrowth of the fact that the GOI provided the bulk of the funds to establish the capital infrastructure for the FCCs, and that nothing pernicious is necessarily represented by the presence of some government employees in the FCCs. They believe that the Director of "Kanwil Koperasi" in Ujung Pandang will exercise restraint so that government staff from PPK Luwu will not be transferred prematurely.

C. The Rationale for PPK Luwu

The rationale for introducing BPLKOP-FCC activities in Luwu arises because of logistical problems frequently associated with long-distance administrative and business transactions and opportunities for taking

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advantage of economies-to-scale in business activities. Palopo is nearly 400 km from Ujung Pandang. Bone-Bone and Mangkutana are over 100 and 160 km, respectively, farther from Ujung Pandang. The physical possibilities of the provincial PUSKUD being able to provide needed input supply, product buying, and training services to individual KUDs in the project area are quite remote. A similar, though less strong, line of reasoning represents the rationale for having more than one FCC in a kabupaten as large as Luwu (a road distance of about 300 km from one end of the kabupaten to another). The clients of the FCCs that were interviewed -- both KUD managers and KUD members-at-large -- cited the importance of widely dispersed elements in the overall cooperative servicing structure. To them, their KUDs could not be serviced satisfactorily from Ujung Pandang or even Palopo.

The possibilities for economies-to-scale in the provision of services needed by farmers can perhaps most appropriately be seen in terms of some of the specific services provided by the FCCs. The basic underlying question is whether only moderately strong KUDs would be able to undertake responsibility for providing the service and, if so, how efficiently they could provide the service if their only clients were their own farmer members.

At present, the FCCs own five trucks; three additional trucks and two four-wheel drive jeeps are on order. The services of these trucks are made available to KUDs on demand. By being involved in the trucking business -- albeit on a small scale -- the FCCs are able to help insure that competitive pressures rather than protected markets establish the rates charged in the private trucking industry. The probability of individual KUDs having the resources to own their own trucks (and if they did, then being able to make full use of them) is small.

A similar line of reasoning surrounds the use of the fleet of mini-tractors and rototillers owned by the FCCs. Prior to January 1, 1983, the Bone-Bone and Mangkutana FCCs each had a few of their own

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tractors. Overhead costs for servicing and repairing the equipment were high and the number of months per year of tractor-use was small. As of January 1, 1983, these tractors have been combined into a single fleet for use throughout the kabupaten. The land preparation season varies considerably from one area to another within the kabupaten. Experience thus far with the mobile fleet indicates that each tractor will probably be used, on the average, 10 months per year. In this case, the economies-to-scale, even at the level of the individual FCCs, were inadequate to enable profitable operations. But since there is an organizational structure at the level of the kabupaten, the economic prospects for the cooperative-based tractor activity at long last appear quite bright.

To multiply high yielding seeds requires very careful management. Undertaking seed multiplication on plots under each KUD would not be likely to result in uniform high quality seed production. Concentrating seed multiplication activities at each FCC, or perhaps mainly at one of them as now seems to be taking shape (at Walenrang FCC), offers prospect of more efficiently produced and more uniformly high quality seed multiplication.

Efforts are being made through the Lappo Ase Program to increase the production of secondary crops in Kabupaten Luwu. Increased production of a crop without much of a market can lead to economic disaster. The FCCs are large enough, however, to take the risks of initiating marketing services for relatively low-volume secondary crops.^{1/} The economic possibilities for most individual KUDs to become involved in such marketing, on the other hand, are small.

^{1/} A potentially rewarding activity currently being developed by PPK Luwu involves the production and marketing of tiger prawns.

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Even for the traditional input supply and paddy buying services of KUDs, there are some economic advantages of bulking operations provided through the PPK organizational structure. The managers of KUDs that we interviewed, for example, told us of the value to them of FCCs in being able to buy larger quantities of produce all at one time than the KUDs and private traders could. Further, because of the stronger overall financial condition -- including cash-flow position -- of the FCCs, farmers are able to receive immediate payment for their paddy sold via the KUDs to the FCCs. Farmers who sell paddy or rice to the KUDs for direct sale to DOLOG, on the other hand, have to wait before receiving payment for their commodity sold. Having an FCC as an outlet for their paddy also helps to cushion farmers against possible price-cutting by private tenders.

An additional element for which there exists economies-to-scale involves the maintenance of business accounts. To be able to (1) monitor progress toward achieving business targets, (2) diagnose weak areas within an overall business activity, and (3) help preclude the entrance of "non-operational losses" into a business activity requires the existence of a sound bookkeeping and auditing system. Establishing and maintaining proper accounting and auditing procedures requires considerable time and human skill.

If a central bookkeeping system is introduced at the kabupaten-level, the initial thrust of accountant training can be concentrated at that one location, rather than having to be dispersed simultaneously to each FCC and in the extreme to each KUD. The central bookkeeping system will, of course, have to be based on information supplied from the various FCCs and KUDs. Providing instructions on data that need to be reported regularly by the FCCs and KUDs is much simpler than providing instructions to the FCCs and KUDs that would enable each of them to maintain complete accounting systems. The probability of the FCCs and KUDs being able to perform their roles as data suppliers rather than business accountants is, in turn, greater.

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Further, maintaining effective internal financial controls requires strong accounting discipline. No system is foolproof in this context, but the establishment of a soundly based kabupaten-level accounting and auditing system, in which from the outset explicit attention to strong accountant discipline is given, may offer the prospect of dealing with "the problem" more effectively than if accounts were to be maintained by many dispersed business entities that are in immediate proximity to flows of financial resources.

D. The Performance of PPK Luwu

To appropriately assess the performance of PPK Luwu requires attention not only to business, but also to institutional and human aspects. We briefly examine these two aspects below.

Business Volume

Data on the value of agricultural inputs sold through Kabupaten Luwu's FCCs during their four years of operation are shown in Table 1. The real value of the FCCs sales increased by over 25 times during this four-year period. The total value of input sales in the "primary project area" (namely, in the Bone-Bone, Mangkutana, and Woto Kecamatan), on the other hand, increased by less than two times.

The share of total input sales accounted for by the FCCs in Kabupaten Luwu increased during these four years from 1.0 percent to 26.5 percent. The FCC share of total input sales in the primary project area went from 6.7 percent in 1979/80 to 92.6 percent in 1982/83.

Thus, the growth between 1979/80 and 1982/83 in the sale of agricultural inputs through the FCCs — judged in both absolute and relative terms — has been very rapid and very significant. The granting to PPK Luwu of exclusive distribution rights for agricultural inputs throughout Kabupaten Luwu in February 1983, with effect from July 1, 1983, can be expected to further consolidate the FCCs' roles as the major distributors of inputs in Kabupaten Luwu

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TABLE 1. Sales of Agricultural Inputs through FCCs, Kabupaten Luwu, and the Primary PROLII Area, 1979/80 to 1982/83

Year	Sales of Agricultural Inputs through FCCs		Total Sales of Agricultural Inputs		Percent of Total Agricultural Input Sales through FCC's	
	Nominal Terms (Rp. '000)	1978 Rupiah (Rp. '000)	Kabupaten Luwu (1978 Rupiah '000)	Primary Project Area	Level of Kabupaten Luwu	Level of Primary Project Area
	(1)	(2)	(3)	(4)	(5)	[(3):(4)] x 100
1979/80	5,252	4,625	484,412	69,475	1.0	6.7
1980/81	21,206	14,605	420,103	71,838	3.5	20.3
1981/82	139,329	80,855	739,853	136,987	10.9	59.0
1982/83	239,925	117,635	443,613	126,968	26.5	92.6

Sources: Col. 2, Memo from S. Filiaci to C. Nunn, No. COON/KOP/226/VI, dated June 30, 1983.
Col.'s 4 and 5, 1979/80 to 1981/82 data from Checchi/DMJM Annual Report, June 1982, pp 88, 90; data for 1982/83 via personal communication with Bappeda, Palopo, August 22, 1983.

Note: In computing the data for Col. 3, the data in Col. 2 were deflated using the "Wholesale Price Index" data for "Food Crops" as reported by the Central Bureau of Statistics (the CBS index data were converted from a base of 1975 to a base of 1978).

Data on the volume of grain handled through Kabupaten Luwu's FCCs are shown in Table 2. In absolute terms, the over 20-fold increase between 1979/80 and 1982/83 in grain handled through the FCCs is far greater than the 2.6-fold increase in the total production of food crops in the primary project area.

Relatively speaking, however, the FCCs in 1982/83 still accounted for less than 4 percent of the total food production in Kabupaten Luwu and 15 percent of the total food production in the primary project area. While there is a strong probability that these percentages will continue to increase (e.g., the first quarter 1983/84 tonnage handled by the FCCs is more than one-half the tonnage for all of 1982/83), there is some question on whether the FCCs will come to dominate the grain handling market to the extent that they do the agricultural input market.

From discussions in the project area, the Team came to understand that the KUDs have some financial incentive (via "retribution" incentives) to sell paddy (rice) directly to DOLOG rather than to the FCCs for processing and later sale to DOLOG. It, therefore, appears that the KUDs often look to direct-sales-to-DOLOG as their market of first preference. If difficulties arise with this market channel and/or the KUDs have large stocks of paddy that they need to dispose of quickly, they can resort to selling their paddy for processing by the FCCs. Further, the market outlet provided by the FCCs can cushion KUDs from having to make forced sales at depressed prices to private traders. Thus, even if FCCs do not come to dominate the grain handling market in Kabupaten Luwu, they still may perform useful roles for the KUDs and their members.

Comparable time series data on the amount of credit provided by FCCs to farmers for the purchase of inputs, the amount of seeds multiplied and sold under the auspices of the FCCs, the area of paddy land rototilled with FCC tractors, the FCC marketing services associated with poultry and livestock enterprises, and the FCC distribution of consumer goods are not available. It is clear, however, that the pace and magnitude of

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TABLE 2. Grain Handled through FCCs, Kabupaten Luwu and the Primary PROLU Area, 1979/80 to 1982/83

	Volume of Grain Handled (mt)	Total Production of Food Crops		Percent of total production of Food Crops Handled by the FCCs	
		Kabupaten Luwu (mt)	Primary PROLU Area (mt)	Level of Kabupaten Luwu	Level of Primary PROLU Area
(1)	(2)	(3)	(4)	[(2):(3)]x100	[(2):(4)]x100
1979/80	344	176,879	19,146	0.2	1.8
1980/81	1,210	224,301	50,280	0.5	2.4
1981/82	2,486	259,069	63,501	1.0	3.9
1982/83	7,649 ^{1/}	213,001	49,883	3.6	15.3

Sources: Col. 2, Memo from S. Filiaci to C.C. Nunn, No. CoON/KOP/226/VI, dated June 26, 1983

Col.'s 3 and 4, 1979/80 to 1981/82 data from a report published by Checchi, Agriculture in kabupaten Luwu, April 1983, p 7; 1982/83 data via personal communication with Bappeda, palopo, August 22, 1983

^{1/} The volume of grain handled by the FCCs during the first quarter of 1983/84 was 4,520 mt.

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development with these activities is slower than that with either agricultural input distribution or grain purchasing and processing.

Since agricultural credit is one of the long-term focal points of KUDs, we give some qualitative attention to the FCC involvement in credit activities. Early in the history of FCC Bone-Bone, the BIMAS credit program was working poorly. The FCC stepped in to meet this need through a small-group farmer credit program (KELANG = "Kelompok-Kelompok Anggota").

Once the potential for effective BIMAS credit activities became stronger, pressure was put on the FCCs to cut back on their credit program so that a viable BIMAS credit program could have a chance to become established. The introduction of the Lappo Ase program has further strengthened the BIMAS program.

It appears that the desire for a larger scale BIMAS credit program was not fully against the wishes of FCC Bone-Bone. In its first two and one-half years of operation, the rate of repayment by farmers of FCC credit was only 59 percent (BPLKOP Annual Report for 1979/80 - 1980/81). This relatively low repayment rate was not necessarily because KELANG members were disinclined to repay their loans. Apparently, pressure was sometimes exercised by "outsiders" on KELANG members to not repay their loans. The outsiders might say, for example, "After all, this money is from the government so you don't need to repay it; furthermore, we have land that needs to be cleared so just take the money that you would have used for repayment and we'll clear land with it."

The KELANG system continues to be used -- not primarily as a means of expanding the flow of FCC credit available to farmers-- but rather as a vehicle for helping to develop the cooperative spirit of KUD members. What rests ahead for FCC credit to farmers is unclear. It is known that the Department of Cooperatives staff in Jakarta believes that the BIMAS credit program is not working well, and that perhaps the FCCs should move into expanded rural credit programs.

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Human and Institutional Development

Considering the short life-span of PPK Luwu (four years), the Team believes that considerable human and institutional development has taken place. The training programs sponsored by the project have increased the knowledge of FCC, KUD, and TPK staff concerning their respective responsibilities. The management of perhaps 70 percent of the KUDs in Kabupaten Luwu has definitely become stronger (personal communication, Department of Cooperatives, Palopo, August 22, 1983). The business volume and the financial condition of many KUDs have improved considerably. Further, the people connected with the project's cooperative activities -- including the FCC Subproject staff, FCC Bone-Bone staff, and KUD managers -- impressed the Team favorably. They seemed particularly aware of what was going on and could meaningfully discuss a variety of issues in connection with their work.

In terms of achieving effective management and institutional linkages, two items are particularly deserving of mention. A Joint Committee ("Panitia Bersama") -- consisting of a representative of each KUD served by an FCC, a representative of the Department of Cooperatives in Palopo, and the FCC Subproject Manager -- meets regularly to plan and coordinate activities within the FCC. If conflicts between the KUDs and FCCs arise, the Joint Committee is responsible for finding ways to overcome the problem. The representatives of each category of members of the Joint Committee with whom the Team talked attested to the effectiveness of the committee in overcoming whatever difficulties that have been faced.

A second type of institutional linkage that has been developed in Kabupaten Luwu involves the "Food Team" (Team "Pangan"). This group -- created in the wake of the Lappo Ase program in October 1980 -- is chaired by the Bupati and is comprised of representatives from the FCCs, BIMAS, Agriculture, Cooperatives, DOLOG, Information, BRI, Pusri (the national body responsible for the manufacture and distribution of fertilizer) and other input distributors. While the "Food Team" was not

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developed by PROLU, it is clear that the production and marketing concerns of PPK Luwu receive definite consideration by this inter-agency committee.

On the other side of the coin, a considerable challenge in developing a spirit of "solidarity" in the hearts and minds of individual KUD members in Luwu appears to remain as yet unmet. This is not surprising. The Luwu area has enjoyed peaceful conditions for perhaps only 15 years. The traditional views on interpersonal relationships by people native to Luwu are in need of radical change before genuine feelings of solidarity can be expected to emerge. This situation does not reflect a failure by anyone. It simply represents an inherently difficult circumstance within which the cooperative spirit has to develop, and highlights the need for sustained efforts over considerable time in nurturing a cooperative spirit in the Luwu area.

E. Selected Glimpses into the Economics of PPK Luwu

In this section, the basic groundwork is laid for examining the prospects of PPK Luwu being able to wean itself from "subsidies" and to function thereafter on its own. To do this, the Team first examined the sources of finance that have powered the PPK Luwu enterprise until now. Next, the sources which might most legitimately be called "subsidies" were then identified. Finally, selected indicators of the financial health of PPK Luwu were examined. Underlying each of these considerations is a desire to discern the extent to which "free enterprise" is embedded in PPK Luwu.

Sources of Funds for Developing and Operating PPK Luwu

A variety of sources of funds have been involved in developing the PPK Luwu capital infrastructure and in carrying out the on-going PPK Luwu business activities. A brief description of each of these sources is presented below.

- The capital start-up costs for the FCCs (e.g., to purchase land, construct buildings) have been provided through DIP Murni and DIP

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Supplement support. The current value of FCC capital assets financed via this DIP support exceeds Rp. 500 million.^{1/}

- Non-reimbursable loan funds from USAID have been used to purchase a variety of pieces of equipment for use in the FCCs. As of June 30, 1983, the value of FCC equipment purchased via USAID-funding was \$571,000. An additional \$159,000 of equipment (e.g., computer facilities, three five-ton trucks, two four-wheel jeeps, cold storage facilities) is now on request. If procedural matters do not cause these requisitions to abort, the total value of USAID non-interest bearing loan contributions to PPK will amount to about \$730,000.
- Two working capital ("intermediate-term") loans have been obtained thus far from the Directorate of Investment Capital in the Ministry of Finance. The FCC Bone-Bone loan -- received in June 1980 -- is for Rp. 94.5 million. The FCC Mangkutana loan -- received during the first quarter of CY 1983 -- is for Rp. 211,671,000.^{2/} The terms of each loan are the same: a two-year grace period before repayments begin, quarterly repayments extending over four years which involve constant principal and decreasing interest payments, and 4.0 percent "administrative" and 0.25 percent "commitment" costs. As of August 18, 1983, five quarterly payments -- amounting to Rp. 26,311,356 -- had been made on the FCC Bone-Bone loan, with each having been paid according to schedule.

1/ The data cited in this section were obtained from a study of balance sheets, profit-and-loss statements, and related documents obtained from the BPLKOP Office in Palopo.

2/ Until now, however, only Rp. 114 million of funds have been transferred to PPK Luwu.

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- Short-term loans for paddy (rice) purchasing are obtained through a group of banks -- including BRI -- and the Ministry of Finance. The outstanding balance of these loans on March 31, 1983 was Rp. 132.3 million.
- The salaries of FCC government employees and the costs of certain materials (e.g., fuel) are met through routine DIP support.
- The final source of capital for carrying on FCC activities is "retained earnings" (sometimes referred to as "surpluses"). The amounts of these retained earnings thus far obtained are as follows: 1981 - Rp. 12.7 million, 1982 - Rp. 24.4 million, first quarter 1983 - Rp. 18.4 million, for a total of Rp. 55.5 million. These funds were not yet distributed ("dibagikan") as of March 31, 1983. They comprise less than 10 percent of the FCCs' owned equity capital.

Subsidies Granted to PPK Luwu

Which of these various sources of finance can most legitimately be viewed to represent "subsidies" depends on one's point of view. From the standpoint of the FCC Subproject, all of the sources except the short-term loans and retained earnings involve subsidies.^{1/} Judged in this context, one must conclude that the non-subsidized portion of the FCC enterprise in Kabupaten Luwu is represented by only "the tip of the overall FCC financial iceberg."

From the standpoint of the GOI, the sources of finance involving subsidies are: (1) the 40-year USAID loan -- involving a 10-year grace period and annual interest rates of two percent during the grace period and three percent thereafter -- to cover 50 percent of the local

^{1/} The subsidy portions of the working capital loans -- represented by the value of the two-year grace period and the extent of below free market rate of interest charged -- cannot be precisely measured.

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construction costs for the PPK facilities and 100 percent of the training costs; and (2) the non-reimbursable USAID loans for the purchase of equipment. Because of the inherent impossibility of being able to measure the economic value of "deferred" loan payments and assess precisely the extent to which "free market" interest rates exceed the specified two percent and three percent, it is not possible to quantify precisely the magnitude of the USAID subsidies to the GOI for the development and operation of PPK Luwu.

The Financial Health of PPK Luwu

Conventional approaches in trying to determine the financial health of a business enterprise are to examine changes over time in (1) its "operating profits," and (2) the magnitude and structure of its assets, liabilities, and net worth. Data provided in the preceding section show a definite upward trend in "operating profits" ("retained earnings" or "surpluses") for the FCCs over time. As percentages of gross sales, the operating profits from quarter to quarter vary from roughly seven to 20 percent.

Summary data from the balance sheets of the FCCs in Kabupaten Luwu are provided in Table 3. The dominant impression from studying these data is that PPK Luwu is a fast-growth enterprise. There is absolutely no indication of financial stagnation. The two indicators reflecting a healthy financial position of PPK Luwu are the following:

- A near ten-fold increase in the value of FCC assets since December 31, 1979, and a doubling of FCC asset value since December 31, 1981; and
- A six-fold increase in the value of owned equity capital since December 31, 1979, and a 1.6-fold increase in overall equity capital since December 31, 1981.^{1/}

^{1/} The reader should keep in mind that these are "nominal," not "real," rupiah values.

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TABLE 3: Summarized Data from Balance Sheets, FCCs in Kabupaten Luwu, December 31, 1979 to March 31, 1983

Balance Sheet Item	Dec 31, 1979	Dec 31, 1980	Dec 31, 1981	Dec 31, 1982	Mar 31, 1983	Increase to Mar 31, 1983			
						From Dec 31, 1979 Rupiah	Multiple ^{b)}	From Dec 31, 1981 Rupiah	Multiple ^{b)}
Current assets	10.5	48.3	124.8	321.8	478.0	467.5	45.5	353.2	3.8
Fixed assets	93.5	121.5	366.4	523.7	506.2	412.7	5.4	139.8	1.4
Total assets	104.0	169.8	491.2	850.3 ^{a)}	988.9 ^{a)}	884.9	9.5	497.7	2.0
Short-term liabilities	0.1	0.2	33.9	193.3	132.3	132.2	1323.0	98.4	3.9
Middle-term liabilities	9.1	74.4	98.6	122.8	285.4	276.3	31.4	186.8	2.9
Total liabilities	9.2	74.6	132.5	316.1	417.7	408.5	45.4	285.2	3.2
Owned equity capital	94.8	95.2	358.7	534.2	571.2	476.4	6.0	212.5	1.6
Debt-Equity ratio	0.10	0.78	0.37	0.59	0.73	n/a	n/a	n/a	n/a

Source: PPK Luwu project files, Palopo

Note: All monetary values in the table are in current-value millions of rupiah

- a) These totals do not correspond identically with the serves of their two component figures. This was discovered only after we returned to Jakarta, so the discrepancies could not be investigated. The magnitude of the discrepancies, however, is very small (less than one percent).
- b) The "multiples" shown in the table are the March 31, 1983 values expressed as ratios to the values for the respective earlier dates.

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On the other side of the ledger, however, is a rapid increase in the liabilities of PPK Luwu. Since December 31, 1979, the magnitude of these liabilities increased by 45 times, and since December 31, 1981, it has trebled. The debt-equity ratio -- while not being "alarmingly high" -- is not showing "improvement" over time. On the other hand, without using expanding sources of credit, the chances of PPK Luwu being able to continue to exercise a pioneering role in the economic development of Kabupaten Luwu are remote.

A final qualitative indication of PPK Luwu's financial health is reflected by the willingness of BRI to make some short-term loans to the FCCs in Luwu with no "guarantees." Their willingness to do this attests to the confidence that they have in the quality of the PPK Luwu leadership and their ability to undertake sound business transactions.

F. Future Prospects for PPK Luwu

During the study of PPK Luwu, the Team talked with a wide range of people about their views on the future prospects for PPKs in Indonesia, including PPK Luwu. They were impressed with the diversity among different commentators in views concerning the "desirable" future for FCCs and the overall structure of cooperative relationships in Indonesia.

In reflecting on these discussions, five analytic issues were identified that seem to be embedded in various people's points of view. The first three involve the future possible organizational structure of cooperatives in Indonesia. The last two have primary economic content.

In the discussion which follows, the Team highlights some points of view that they believe should be kept in mind by those responsible for making decisions on the future of farm cooperatives in Indonesia. To simplify exposition, the acronym "PERPUSKA" ("Perwakilan PUSKUD Kabupaten") is used to represent a possible kabupaten-level PUSKUD that would "represent" its parent provincial PUSKUD.

Organizational Structure

The three organizational issues are as follows.

1. Should FCCs be viewed as an interim tool to strengthen KUDs, or are they a critical feature of a desirable long-term cooperative structure? If the latter, is a standard policy of only one FCC per kabupaten well-advised?

This first analytic issue -- involving the need for clarification on the legal status of FCCs in Indonesia -- is clearly on the minds of all people with whom the Team had discussions concerning the FCC Subproject. Some commentators believe that the FCCs have no long-term function in the organizational structure of cooperatives. Others believe that the elimination of FCCs would cut out the "life-blood" from the cooperative movement. To help clarify thinking concerning this issue, refer to Figure 3. The questions are whether legal sanction should be granted to PERPUSKAs and, if so, whether more than one FCC should be permitted (encouraged) per kabupaten.

As indicated above, the Team believes that the basic rationale for FCC-type activity revolves around the advantages of geographically dispersed farm services and economies-to-scale in the provision of services to KUD and farmer clientele. Given the substantial distances between provincial PUSKUDs and individual KUDs -- especially in Indonesia's Outer Islands -- the Team believes there is a definite need for PERPUSKAs to bridge the gap between Provincial PUSKUDs and the individual KUDs which they are designed to serve.^{1/}

^{1/} If major distances are not involved, and Provincial PUSKUD's are functioning well, the rationale for creating FCCs is weakened. The assumption, then, would be that the Provincial PUSKUD could provide the economies-to-scale in services that otherwise would be provided by PERPUSKAs.

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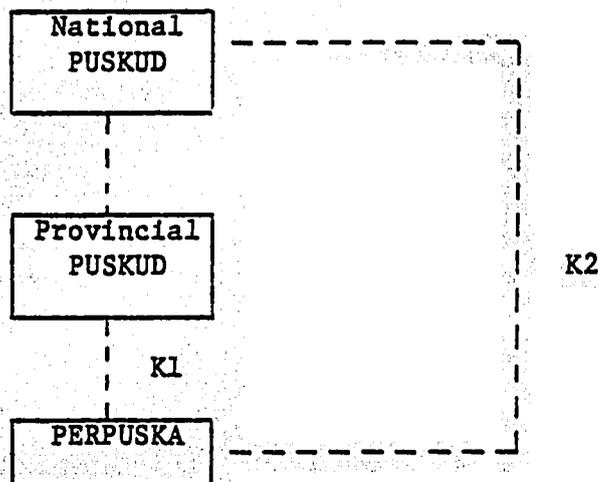
Further, the Team believes that the option of having one or more FCCs in a kabupaten should be left open -- depending on site-specific circumstances. The existence of one FCC per kabupaten would certainly seem to apply to small kabupatens with relatively limited agricultural activities. In this case -- and in terms of Figure 3 -- the operational activities of the FCC would become an integral part of the PERPUSKA.

In a larger kabupaten like Luwu, however, there should be scope for more than one FCC. In this situation, a balance would need to be struck between having several FCCs -- and hence a wider geographic dispersion of cooperative services -- and only having a few FCCs, thereby enabling fuller advantage of economies-to-scale to be realized.

2. Should PERPUSKA's have both administrative and business connections with their provincial PUSKUD, or only an administrative connection (as with a "federation" of PERPUSKAs), or no connection (with PERPUSKA Palopo having a parallel status with PUSKUD Ujung Pandang)?

Under this issue, three alternative possibilities are possible. The first two presuppose an administrative relationship (see K1 in Figure 2) between PERPUSKAs and their parent provincial PUSKUDs. Of these, the first also involves a business relationship between the kabupaten and provincial PUSKUDs, whereas the second one does not.

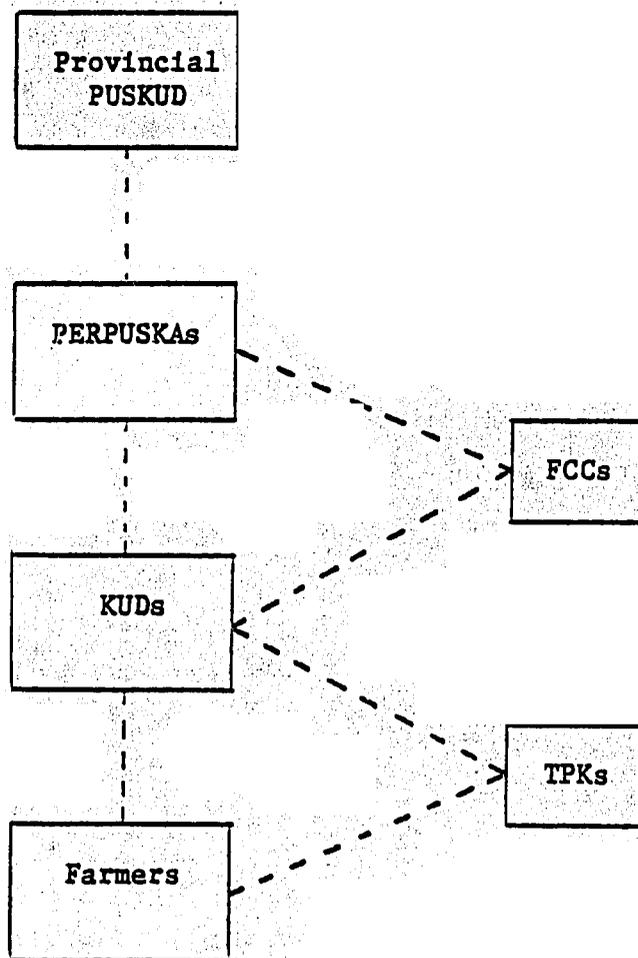
Figure 2. A Hypothetical Organizational Chart Illustrating Different Type of Inter-PUSKUD Relationships



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We envision two primary implications of there being only an administrative relationship between PERPUSKAs and their provincial PUSKUDs. The first is simplified logistics. This can be illustrated in terms of the current situation with PPK Luwu. Orders for inputs in Luwu are successively bulked through the TPK-KUD-FCC structure to the level of the BPLKOP (kabupaten-level FCC-HQ). BPLKOP then places an order for the inputs through PUSKUD Ujung Pandang. Only after the order is processed in Ujung Pandang can communication be established with the Pusri

Figure 3. A Hypothetical Organizational Chart showing the Place of FCCs in a Possible Long-Term Cooperative Structure.



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warehouse in Palopo from which the inputs (fertilizer) are actually obtained for distribution through the Luwu FCC structure. The cost to PPK Luwu of having business ties with PUSKUD-SULSEL involves both added time and administrative expenditures. Whether the added internal controls exercised by the PUSKUD-SULSEL have a counterbalancing positive value would seem open to rather serious question.

The second implication of there being a business relationship between PERPUSKAs and provincial PUSKUDs involves economic incentives. If there is such a relationship, at least part of the retained earnings ("surpluses") of the individual PERPUSKA would be subject to remission to the provincial PUSKUD. This could be expected to diminish the motivation of staff within the PERPUSKA organization to work as efficiently as possible. Not only would the benefits of cooperative activities to KUDs and their individual members thereby be diminished, but the impact of cooperatives on the regional economy would also be diminished.

A possible justification for business ties between PERPUSKA and provincial PUSKUDs would be to distribute the benefits from regions with strong cooperative activities to those with weak cooperative activities. While such a perspective could conceivably have some social merit, it appears to us to have a rather strong flavor of "throwing out the baby with the bath water." The Team therefore believes that serious consideration should be given to the possibility of providing for autonomous cooperative business activities at the level of PERPUSKA.

The third possibility involves PERPUSKA Palopo having a direct administrative tie to the National PUSKUD (represented by K2 in Figure 2). Since such a proposal has potentially great political repercussions -- which the Team did not understand -- no judgment concerning this possibility is exercised.

3. Should KUDs have both administrative and business connections with their PERPUSKA, or only an administrative connection?

The Team had not anticipated that some commentators on cooperatives might propose the possibility of only administrative connections between

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KUDs and their PERPUSKA. Since this idea was advanced, it is important to comment on it. The Team does not believe that the business services needed by farmers can be organized effectively and efficiently at as low a level in the cooperative structure as at the level of KUDs. The scale of business activities within individual KUDs is so limited that attempts to establish economically viable independent KUDs would inevitably abort. Serious students of the PPK Luwu experience can, the Team believes, arrive confidently at this position.

Economic Issues

In the preceding discussion, attention was given to the possibility of independently functioning business units within the cooperative structure at the level of the province, the kabupaten, or the KUD. In this section, attention is focused on two economic issues that inevitably must receive attention.

1. To what extent should each independently functioning business entity be expected to be financially independent? The possibilities include:

- 100 percent financial independence, in which case each independent business entity would have to assume responsibility for (a) paying off all outstanding debts at the time of structural re-organization^{1/}, and (b) meeting on its own all future capital expansion and routine operational expenditures; or
- Partial independence, in which case the independent business entities might expect:

(a) some grace in their having to pay off their full debt at the time of structural reorganization;

^{1/} A more extreme position is that the independent business entities would need to reimburse the GOI for all DIP Murni funds that had been provided to them from their inception.

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- (b) the subsidization by government of part or all future capital expansions (via deferred repayment of loans, below free market level interest rates, and/or grants); and/or
- (c) some on-going routine governmental support to meet part of their operational expenses.

Seeking the answer to the question on the extent of financial independence that should be expected of the independently functioning business entities within Indonesia's cooperative structure involves important value judgments that are most appropriately the prerogative of the GOI. The Team's comments are of a general nature only.

The Team thinks that it is possible to overestimate the ability of a newly created institution in a "pioneering environment" like that in Luwu to be able to stand on its own feet economically. The facts of the matter are that PPK Luwu is far from being financially independent at this time. This is not at all an indictment of PPK Luwu. As indicated earlier, the Team believes its accomplishments have been very significant. It rather is a reflection of the reality of a risky economic environment that prior to PROLU was very primitive.

"Infant industry protection" applies not only to industries like car assembling and steel manufacturing, but sometimes to agricultural development as well. To consider a major retrenchment in government support from PERPUSKA Luwu at this time could be to obliterate the substantial progress that has been realized by PPK Luwu to date.

Further, the Team recognizes that the substantial financial involvement of government in PPK Luwu could be seen as justification for a substantial involvement of the national government in establishing detailed operating policies for kabupaten-level PUSKUDs and individual KUDs. Because critical elements in the technical, institutional, and economic environment within which various kabupaten-level PUSKUDs operate differs greatly from one region to another, it is suggested that great discretion needs to be exercised in the formulation of national cooperative policies -- so that these policies are designed to

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facilitate, and do not inadvertently impede, the development of strong local cooperative activities.

2. What provisions can be made to help insure a wide distribution among KUD members of the benefits of economic power generated by the strengthened rural cooperative activities?

To the extent that PERPUSKA activities become strong economically, there is the potential for "the rural elite" to try to capture the economic benefits for themselves. Dealing effectively with this issue is inherently problematic. Nevertheless, the Team believes that certain actions could be taken to help insure as wide as possible a diffusion among the farming community of the fruits of economic power generated by the cooperatives.

It appears that priority should be given to developing formal by-laws for whatever cooperative structure that emerges from the policy discussions over the next several months. Included in this should be attention to the way in which earnings are to be handled. Including some provision for patronage refunds based on the volume of business undertaken with KUDs by individual members would be a means of encouraging more active member participation. The extent to which earnings should be returned to members versus "plowed back into the business" is a question that perhaps can most appropriately be left to the discretion of the board that governs each independently functioning business entity within the cooperative structure.

A second approach to helping ensure a wide distribution of economic benefits to KUD members involves the continued nurturing of the cooperative spirit, and especially approaches for helping to insure effective democratic action in the operation of the KUDs and FCCs. A good start seems to have been made with the Joint Committees, but much more will need to be done in order to guard against the potential for the

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most powerful rural people capturing the lion's share of economic benefits from cooperative activities for themselves.^{1/}

G. Conclusions: Key Findings and Recommendations

A summary of the key findings and lessons that have been learned from the experience with the FCC Subproject in PROLU follows.

1. The activities of PPK Luwu have served effectively to strengthen the capacity of village unit cooperatives ("KUDs") in Luwu to provide input and marketing services to their members.

2. While certain "free enterprise" elements are inherent in the PPK Luwu structure, it is clear that until now these elements have been overshadowed by the contribution of GOI (and USAID) financial support to PPK Luwu.

3. Various people involved with Indonesia's cooperative movement have very different perceptions of the "desirable" future for FCCs and the overall structure of cooperative relationships in Indonesia. Five key analytic issues seem to be embedded in these various perceptions. It is crucial that considered attention be given to each of these issues before recommendations on the future of Indonesia's FCCs and overall farm cooperative structure are made.

The Team's own tentative conclusions are that:

- There is a definite need for kabupaten-level PUSKUDs to bridge the gap between Provincial PUSKUDs and individual KUDs, and therefore that legal sanction should be granted to kabupaten-level PUSKUDs;

^{1/} Basic principles of institutional design that might be considered for incorporation into Indonesia's cooperative philosophy -- so as to help insure the protection of the rights of "little" (economically weak) KUD-members -- are outlined on pp 377-381 of the Bromley, et al. article on "Water Reform and Economic Development" cited in Appendix C. The rural elite correspond to the head-end water-users, and the "little" KUD members to the tail-end water-users, in the article.

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- The option of having more than one FCC per kabupaten should be left open;
- Serious consideration should be given to granting business autonomy to kabupaten-level PUSKUDs (but not at the level of individual KUDs);
- Caution needs to be exercised in the timing of the withdraw of government financial support from PPK Luwu; and
- Considerable care needs to be exercised to: (1) keep national government policies from encumbering the effective operation of individual Kabupaten-level PUSKUDs and (2) keep the rural elite from capturing for themselves "the lion's share" of economic benefits from farm cooperative activities.

CHAPTER III

THE IRRIGATION SYSTEMS PROJECT COMPONENT

A. Explanatory Comment

This chapter comprises three separate papers, each prepared by a different member of the Study Team, pertaining to selected aspects of the Irrigation Systems Project Component. This arises in part from the overlapping interests of Team members in this particular component of PROLU and in part from a collectively perceived Team need to examine the key issues from a variety of perspectives. Preliminary examination of implementation of the PROLU Irrigation component immediately revealed the existence of serious and complex problems, and the Team quickly agreed on the need to come to as complete as possible an understanding of relevant issues prior to the formulation of conclusions and recommendations. The result was the three following papers.

While some overlap and therefore redundancies exist between these papers, there are no contradictions among them. The Team's consensus of the key issues within the irrigation system project component are summarized in Section B of Chapter I of this report.

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B. Implementation of the Irrigation System Component

Fred H. Hubbard

Irrigation systems of the Luwu area development project are basic physical and organizational components to achieve three interrelated project purposes:

- Agricultural productivity;
- Well-being of the rural poor; and
- Institution building;

Among these, increased agricultural productivity by the rural poor is the primary focus of the project (USAID, CAP).

This report of the final evaluation of selected components of project Luwu contains background and basic information for analysis of the irrigation system of the project. It provides substantive information for examining the process which enabled, or limited, achievement of results. Knowing "how and why things got done" in Project Luwu can provide assistance to the GOI, USAID, and perhaps other donors if they contemplate implementing similar projects elsewhere in the future.

The evaluation Team's scope of work led to an examination of the processes to plan, design, construct, operate and maintain specific and identifiable physical works that must be managed for productive project purposes through organizational and institutional arrangements. Development of irrigation infrastructure and their management is a part, and a key part, in understanding processes by which other components of the system operate and achieve results, i.e., farmer's cooperatives and development of local government capabilities. These arrangements are examined in other reports and together provide substantive information for an integrated report.

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1. Organization of the Report

This report describes how, where and from whom information was obtained to analyze the irrigation component. It presents factual background information about the Luwu project, and about irrigation in particular; i.e., it describes what was attempted and what generally has been done — not to judge results, but as background to understanding why things happened as they did.

The report begins with a straightforward description of project activity relevant to irrigation, to provide a launching pad for identifying opportunities and limitations. A review is given of organizations involved in the project and the roles of key contributors. The processes that were used to implement irrigation projects and to followup on results of them are described as accurately as could be understood in the time available.

Organizations, institutions and procedures relevant to project development were identified and subsequently analysed to understand how the development process actually worked. Obstacles that stood in the way of achieving project objectives or issues that arose as a result of project intervention are described; conclusions are drawn and lessons learned from project Luwu activity identified, as perceived from an evaluation of the irrigation component.

The order of presentation followed in the report generally is an application of the problem-solving process adjusted to suit the team's scope of work and subsequent interpretation of it after greater knowledge of the issues was obtained in the initial stages of field work.

2. Background

Efforts to rehabilitate and extend the existing system were actually initiated by the GOI in 1969; the master plan referred to above was an

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outgrowth of that early effort and supported by the Government of the Netherlands (DHV; Williams). USAID investigated possibilities of furnishing assistance to the Luwu area in 1973 and as a consequence ultimately provided construction funds and technical assistance in 1975 to rehabilitate and extend irrigation systems for two areas, Bone-Bone and Kalaena.

Assistance for irrigation in Luwu Kabupaten was provided by the Government of the Netherlands in 1980 for work on the Pompengan (Lamasi) area (21). In addition to the support from USAID and the Government of the Netherlands, the GOI has irrigation development programs planned for Luwu that ultimately may reach the full 100,000 potentially irrigable area. A table summarizing the current irrigation situation, as of the end of 1983, follows:

<u>Area of Development</u>	<u>Project Sponsors</u>	<u>Area to be Irrigated</u>	<u>Completion Dates</u>
Kalaena	USAID - GOI	6722	Dec. 1983
Bone-Bone	USAID - GOI	1758	Dec. 1983
Lamasi (Pompengan)	Dutch - GOI	4472	Scheduled 1984
Bone-Bone	GOI	1009	Scheduled 1983
Kanjiro Rt.Bk.	GOI	1517	Scheduled 1984
Lamasi (Rt. Bank)	GOI	<u>1065</u>	Scheduled 1984
		16542	

By the end of 1983, 8480 hectares should be under irrigation. By the end of 1984, 16,542 hectares, or about 16.5 percent of the total irrigable area, is expected to be under irrigation if current construction is completed as scheduled (Williams).

Sites of these projects are shown on detailed maps in the master plan and on updated maps in the offices of the Irrigation Department. Detailed maps show the main canal systems and the tertiary and quaternary systems.

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Contour maps showing elevations have been prepared and are reportedly revised by Irrigation Department survey crews prior to project design. Aerial photos were completed in 1975 and rectification of photos and composition of photomosaics began in 1976; preparation of maps at scales of 1:5,000, 1:10,000 and 1:20,000 were completed in 1977. Dam sites were located on photos enlarged up to a scale of 1:2,000 (DHV).

In addition to projects included in the table above, desa irrigation systems are in operation in the North Luwu plain area. These systems are simple diversion structures with various lengths of small and randomly placed canals and ditches. The systems took advantage of accessible lands that were relatively easy to drain and were infrequently flooded. These systems will be incorporated into the Luwu irrigation system and become part of a "technical" program initially established in the master plan; they will be implemented under direction of the Department of Irrigation. Detailed surveys would, of course, be necessary to complete the 100,000 ha. system.

The initial intention of irrigated agriculture of the Luwu project was to convert a relatively flat coastal plain from extensively vegetated and uncultivated or simply cultivated land to a carefully controlled, but highly productive, technical system. The approach was to make a direct impact on existing and future small farmers and establish a foundation for future development efforts. Capital infrastructure such as roads, rivers, canals and dikes were to be complemented with social and institutional infrastructure necessary to operate, manage, and sustain agricultural development. Emphasis in crop production was given to growing rice with the eventual intent of assuring a surplus over consumption during low production years (USAID, CAP).

Project Status

Tracking schedules of irrigation development is complicated because so many steps need to be taken to complete the process. Even after

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construction has been completed and accepted for payment, a poorly designed structure may show up weeks later when cracks or cave-ins of canal walls occur, or a weir collapses. Thus, even "completed" works may be useless.

Details of steps for awarding contracts, selecting contractors, inspection and approval of work and payment procedures need not be elaborated here to identify critical issues in the development process. The following section of this report describes the status of construction activities for irrigation in the Luwu project. Contributions of the major donors to project Luwu irrigation construction are described, but the key role of the GOI in actual project development and of providing staff, data, facilities and administrative support for donor projects is clearly recognized. The GOI irrigation department, under the Ministry of Public Works, for example, continues to survey, design and construct irrigation works and provide support for donor projects.

USAID Projects

The first contract for rehabilitation of the Kalaena irrigation system was awarded in October 1976; from 1976-1978, six other contracts were awarded for extension and rehabilitation of irrigation in the Kalaena and Bone-Bone systems; all were completed and accepted for reimbursement in May 1981. Five more contracts were completed and accepted for reimbursement in June 1982 for extension of irrigated systems in the Kalaena and Bone-Bone area.

Amendments and revisions in the USAID loan agreement in 1981 provided for a reduction in the number of hectares to be irrigated from 10,760 to 8,480 ha. for the two project areas. Contracts for extension of irrigation works were awarded in 1981 and work remaining under Phase I of the loan agreement was contracted for in 1982. All work is now scheduled to be completed by the end of 1983 (Williams). As of August 1983, five contractors were working on contracts partially financed by Project

Luwu: Purwosari, Rantetiku B & C, Maramba (Kalaena) and the S-7/S-8 area (Bone-Bone). The progress made on each of these contracts is as follows:

<u>Area</u>	<u>Percent Completion</u>
Purwosari III	100%
Rantetiku III	100
Maramba I	100
Maramba II	84
Bone-Bone Left Bank III	91

Ninety-eight percent of the planned primary and secondary canal lengths and 98 percent of the diversion box structures have been completed in the Bone-Bone and Kalaena area; 86 percent of the total area is irrigated (Briefing Book, 1983).

Government of the Netherlands

The Dutch government has financed construction of 4472 ha. for irrigation from the Lamasi river for the Pompengan project. Most of the main canal system and weir and diversion structures on the right bank of the Lamasi have been completed and will serve 5506 irrigable hectares. Tender documents for the right bank have been prepared and construction is in progress by the Government (Williams).

Government of Indonesia

The GOI has provided manpower, equipment, and funds to carry out some work of projects described above. The Government has also designed and constructed many projects, such as temporary weirs on the Kanjiro and Kalaena rivers, a permanent weir on the Kalaena river (about 50 percent complete), an irrigation system in the Kanjiro area (under contract), an irrigation system in the Bone-Bone area (non-U.S. project that is about

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80 percent complete), an irrigation system in the Lamasi right bank area (under contract), and a small desa system to tie into the master plan system.

Future Department of Irrigation plans call for design and construction of from 1,500 to 2,500 ha. of new irrigation each year, using government forces and financing, to reach the 100,000 ha goal. Additional, external, funds could be used to accelerate development (Williams). However, before further investments are made, rational management would require that attention be given to making sure that the existing system operates as fully and effectively as intended in the initial design. A system not operating as designed, or one that is in danger of deterioration through lack of O&M, wastes resources and prevents project objectives from being achieved.

Functioning of Projects

The foregoing indicates that a substantial effort is being made to produce and develop an advanced irrigation system into the Luwu area. Knowing how well that system functions can contribute to understanding of the processes enabling the system to do what it does.

A report prepared for the Director General of Water Resources Development and Irrigation, Ministry of Public Works (Bupati Luwu, 1983), gave results of a field survey based on whether or not projects were functioning. Functional projects are those that presently are working; non-functional projects are those that are built but not working. The survey also included potential areas where no facilities have been built and examined three types of systems in use: technical, in which water is fully controlled; semi-technical in which control through the secondary canal is often left to the villages; and no control, when water is taken where and when available. The study indicated that of all areas under any kind of irrigation in the Kabupaten, those under the functional category were only 50 percent operational, due to break downs in some

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part of the system or to unavailability of water. Under such circumstances, important questions arise regarding whether or not further investment in additional new system construction could be legitimately justified until such time as evidence becomes available indicating acceptable operation of the existing system.

Other signs tell something about the way the system functions. For example, when the Dutch master plan was prepared, enough water was found to be available for any irrigable land near the Kalaena, Balease, Rongkong and Lamasi rivers. For smaller rivers -- Makawa, Tubu, Ampok, Kanjiro, Bone-Bone, Kauwo, Senggeni and Tomoni -- yield estimates indicated that insufficient water would be available to meet proposed requirements during periods of low flow (Williams). Inadequate hydrologic data could lead to serious miscalculations in water available for irrigation, particularly when the system is fully developed and if water regulation procedures are not carefully applied. At present, however, sluice gates of division boxes are generally open and no apparent control is practiced at all, except when a farmer does not want water.

Another example of the delicacy of the system is illustrated by a break in the Kanjiro weir in 1982. Low flows in that year made less water available and a second crop could not be produced. Data indicating the results are as follows:

<u>Year</u>	<u>Ha. Harvested</u>	<u>Tons</u>
1981	8625	31462
1982	4054	9962

Drought and the break in the Kanjiro weir led to lack of water in the tertiary system. The present weir, which is a low, Gabion-type structure, has broken before; small rocks used in wire containment structures of the weir are likely to be washed out again in the next flood.

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The quality of construction of projects has a direct influence on the functional characteristics of the irrigation system. For example, an improperly constructed weir in the Kalaena system collapsed during a flood because water seeped behind protective walls. Farmers interviewed some distance downstream from the weir expressed concern about the availability of water to produce a second crop.

Elsewhere, a weir of the Tamuko secondary canal on the right bank of the Bone-Bone was seen where the water level of the canal was half a meter lower than that of the tertiary. To enable water to pass into the system will require reconstruction and lowering of the crest of the tertiary weir.

A lack of basic information has resulted in inadequate structural design. Although soil and topographic surveys were made when the master plan was prepared at the level of a prefeasibility study, data were not sufficient for detailed design and project siting. In the Bone-Bone and Kalaena areas, for example, there are areas where soils are very light; when saturated, these silty sands and sandy silts soils become unstable and crade readily; canal construction in soils of this type results in sloughing, which is easily observed in the area. Importance of clay soils and compaction of them is necessary in unstable soil areas.

For each area where construction is planned, detailed on-site surveys by trained and supervised crews are necessary. The Team was assured that such surveys were a continuous activity, but field visits spoke for themselves. Either information was not collected properly or it was not used properly in the design stage and verified on site. The process involved to incorporate field data into design and to verify appropriateness of design would appear to be flawed.

A further illustration of inadequacies in the construction process was seen in the upper reaches of the Purwosari and Rantetiku canals. In some sections of these canals, banks have eroded and water from adjacent

irrigation fields seeps into the canal, causing bank saturation and sloughing because compaction and bank protection were not included in the original design. Many structures are designed which do not have cutoffs that are deep enough and do not have adequate protection on downstream banks.

Along the Kalaena and Pawesui rivers, design elevations used for top of levee and drainage-outlet structures in some areas are not high enough, and overtopping occurs at flood crest. At a location along the Kalaena river, a section of the levee has eroded away; at another location along the Pawesui river, the levee was overtopped by flood waters and the levee washed out, filling the drainage canal with sediment over a meter deep.

Design inadequacies may seriously affect the farmer who anticipates a regular water supply the system is designed to deliver. Loss of a crop would obviously have ramifications throughout the total farm economy and conceivably cause personal suffering. In addition to crop losses, however, rectification costs involved in rehabilitation of inadequately designed structures may be higher than initial investments. After damage occurs, repairs are more difficult and expensive than if initial design and construction were done properly.

If inadequacies in design and construction of irrigation works are recognized, improvements can be made in the processes which limit achievement of sustainable results. Some of these inadequacies have been identified as:

- lack of qualified contractors properly equipped and supervised;
- lack of control over contractors due to improperly or inadequately trained field staff who cannot enforce adherence to specifications;

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lack of proper equipment and operation, service, and maintenance of it;
 lack of laboratories to test equipment and compaction of soils, etc.; and
 lack of site-specific basic data.

Many design limitations are being overcome, or efforts are being made to correct them. However, some of the basic limitations stem from introduction of a technical system into an institutional and organizational environment that previously had no experience with such a system and from the lag time required for organizational and institutional arrangements to be developed to cope with a new system. Recognition of the basic limitations has led to appreciation of the development processes in Luwu, but closer supervision and control over contractors could improve project implementation significantly.

A discussion of related experience in the Pompengan project is provided later in this report.

3. Implications for the Future of Irrigation Program

There are two principal observations that can be made from an examination of the status of irrigation development in Luwu Kabupaten. One concerns the long-term implications for development in the Luwu area as the result of past decisions and present activities; the other concerns sustainability and costs of maintaining the system.

Long-term Implications

The master plan completed in 1977 that was the basis for design and layout of the on-going and future irrigation system required some decisions that essentially established the principal parts of the system

and defined the area's future economy. The predominant thrust is to develop a technically controlled water management program for intensive rice production. Development of alternatives or a flexibility in the system has been given lower priority until such time as the majority of irrigation systems are in place and are functioning properly.

Proceeding as planned, the irrigation system has the advantages of high productivity in what may be an efficient use of land and water resources which could produce significant cost savings and substantial benefits to the entire economy from specialization of this kind. There also may be a number of disadvantages.

Most obvious among the disadvantages are those stemming from dependency on a single crop monoculture: disease, plagues and the long-term potentially high cost of maintaining an agroecosystem, particularly when using HYVs, chemicals and energy-consumptive fertilizers (Janzen). Reliance on rice production at the expense of other crops--both cash and consumptive--weights human diets and the economy in one direction, leaving a society vulnerable to crises such as drought.

As the total irrigation system comes closer to completion in the next few years, water demand will increase. As noted previously, the larger rivers appear to be able to provide sufficient water for all irrigable adjacent land, but this may not be true for the smaller rivers. The absence of accurate, long-term hydrologic flow measurements ought to be of great concern to planners and to farmers whose systems may come on line near the end of the development period. Furthermore, once the system is in place, but does not or is not operated as planned, then there is little to be done to change it except at high cost.

Finally, there may be a disadvantage stemming from success. As lowland plains become developed and land is settled, population pressures on Kabupaten Luwu will cause people to move up the hillsides from

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irrigated areas. Most of the streams observed in the area generally were clear of sediment; the watershed at present does not appear to be cutover or farmed extensively. Operating canals that had slack water pools in which sediment was deposited were also those with eroding streambanks. Emergent plant growth was observed to be rooting in these deposits. However, watersheds are certain to be affected by future settlement. As land is cleared and farmed, floods and erosion will increase and affect the quantity and quality of water necessary for irrigation. Coordination and management of all of these aspects will be a monumental task.

Sustainability and Costs of Maintaining Systems

To assure system sustainability once construction is completed will require careful management and control. Management and control of the system is presumably the responsibility of the provincial public works department. The Team, however, was not able to obtain details of plans for transfer of responsibility during their interviews in Palopo or in Ujung Pandang. The provincial public works department staff, however, drew attention to the newness of the irrigation system.

Bappeda Tk. I, the provincial planning agency, may be institutionally the most appropriate agency to coordinate what will be a complex water management system and to look to the future for purposes of planning and resource allocation. But again, actual planning to assume management responsibility did not seem to be in progress. Discussions with officials in Ujung Pandang did indicate, however, that the transfer of responsibility for project management was an issue that had to be addressed at the central government level.

Maintaining the system, especially as it matures, will require continuously increasing costs, both for the main and tertiary and quarternary canals. Present indications are that budgets for operation and maintenance are not adequate and that when money does become

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available, it is often months behind schedule. A system that is not maintained can deteriorate very quickly, as has occurred in some locations already. Rehabilitation or "improvement," as it is called by the Irrigation Department, then becomes expensive, but without the expense, losses will be suffered by farmers while the system does not function.

Organizational and Institutional Arrangements

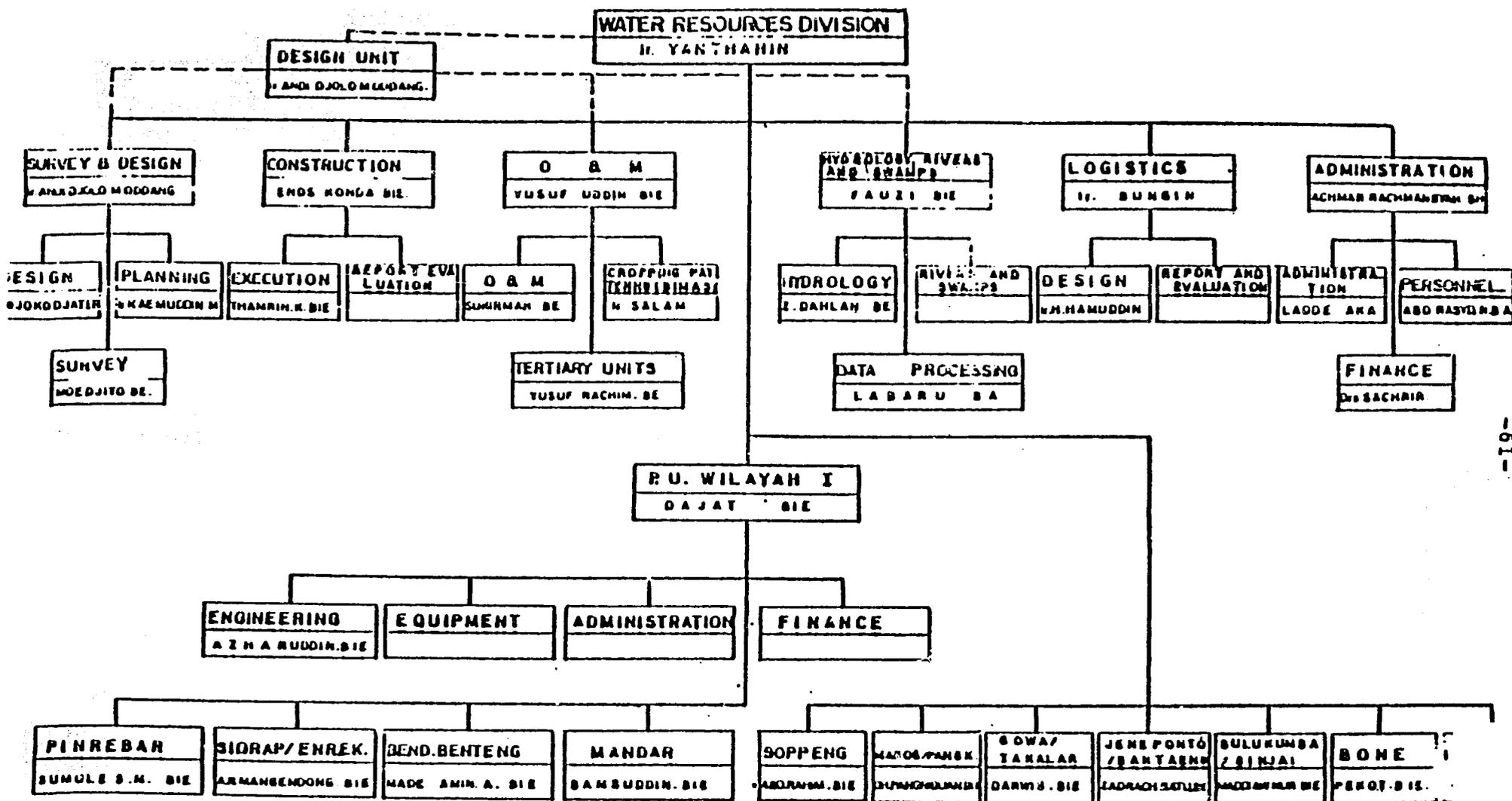
Five ministries are involved in the Luwu project: Transmigration, Public Works, Agriculture, Cooperation and Home Affairs. Of these, the Ministry of Public Works, Directorate of Water Resources Development, is most directly concerned with irrigation.

The Department of Irrigation, Directorate of Water Resources Development, Ministry of Public Works, has four sections: survey and design, construction, operations and maintenance and heavy equipment; field offices of the department include those concerned with water user associations, inspection, heavy equipment and survey. Information from one part of the administrative structure flows to another through a formalized procedure. Data passed from one unit in a department is not necessarily and automatically analyzed or incorporated into design or development plans. Collection of data or interpretation of them appears to be loosely connected with project design. An organization chart of the Irrigation Department is provided on the following pages (Figures 4 and 5).

Design of irrigation works in project Luwu is based on the master plan referred to above. To adapt the master plan to specific irrigation sites, field surveys are made by crews from the Irrigation Department and design plans appropriately refined. Once designs are completed and verified, bids are let to contractors and work can proceed; after construction is completed and approved for payment, final payment from a lump sum contract can be made. Full payment, however, may be withheld if work is not satisfactory. Delays in the process occur frequently and

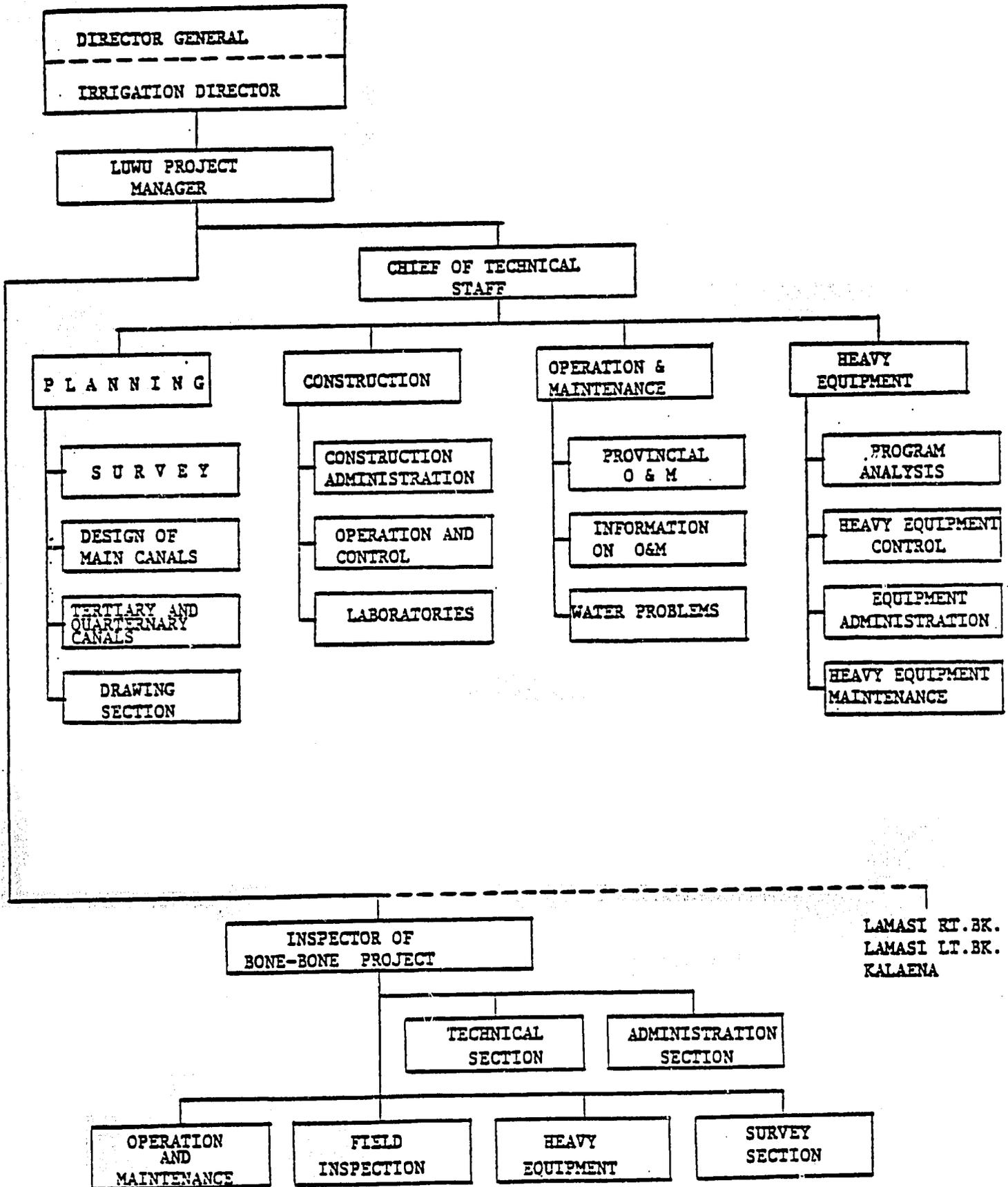
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FIGURE 4
 WATER RESOURCES DIVISION
 PROVINCIAL PUBLIC WORKS OF SOUTH SULAWESI



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 FIGURE 5
 PROJECT LUWU IRRIGATION ORGANIZATION CHART
 (DRAWING NOT COMPLETE)



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work often is not completed on schedule; if a contractor is at fault, penalties may be invoked. We were not informed of any situation where penalties were actually imposed, however.

If a contractor does not have construction equipment, the Department may provide it on a lease basis, returnable less fair wear and tear. Inexperienced operators and lack of facilities for maintenance have deadlined up to two thirds of the heavy equipment in one reported situation. Breakdown of equipment and failure to maintain it is a continuous occurrence that has so far not been resolved. Private contractors interviewed on site at the Bone-Bone project, however, said they owned their equipment and serviced and maintained it, readily obtaining spare parts from Ujung Pandang as necessary.

The Department of Irrigation is responsible for design and construction of the main system and in order to accelerate progress recently assumed responsibility for construction of the canals and division boxes of the tertiary and quarternary system. After projects are completed, the entire system is to be turned over to the provincial government, including operation and maintenance up to the end of the secondary canals; farmers and water user associations (P3A) are then to operate and maintain the tertiary and quarternary systems, with the provincial government providing technical assistance on request.

A good deal of uncertainty surrounds the question of responsibility for O&M because the provincial government is naturally reluctant to take charge of the system until assured that the system is fully constructed and properly functioning. Until the system is functioning and income is generated through taxes for provincial O&M, authorities say they do not have the means to assume responsibility. While the system is under construction and O&M is neglected by the central government, parts of the system break down or become damaged from floods, erosion, weed growth and general neglect.

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4. Planning and Implementation Process

Luwu is a multi-sectoral rural development project designed to coordinate planning and implementation of rural development activities of various ministries to benefit the rural poor. The program depends on improving factors influencing a farmer's income, such as improved irrigation, roads, modern farm technology, availability of agricultural inputs, and access to markets; the concept is that an integrated program could have a greater impact on the farmer and the total economy than if projects were implemented separately (DHV).

The irrigation component of Luwu was initially designed in 1975-77 by a team of consultants from the Netherlands who prepared a master plan that focuses on extensive, technical control of water. The plan provided for development of 100,000 ha in the north plain area but does not include emphasis on dry land farming development, livestock raising, fisheries, or vegetable growing.

Factors taken into account in preparing the master plan included:

Rainfall and temperature or climatic factors, which pose some limits on the quality and quantity of production;

Soils, which were found to be low in organic and nutrient content and to have high permeability;

Hydrology, which found that water was sufficient from the Rongkong and Balease rivers, but that shortages were to be expected in smaller catchment areas in the dry season. The watershed was generally found to be protected, but rivers flood frequently and occasionally change their banks, eroding adjacent dikes if they are built too close to the river;

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Site conditions, which found that extensive efforts were required to clear lands for irrigation;

Physical infrastructure, where high costs were required to prepare land for irrigation, drainage and road construction; suitable dam sites do exist, however.

Sites for irrigation subprojects were selected on the basis of soil suitability, topography, water availability, possible dam sites, cropping patterns, water requirements and economic criteria (DHV). The development plan was divided into two stages, one lasting seven years and a second lasting 18 years. An alternative implementation schedule was prepared for the short-term period in which social criteria dominated. During the short-term, areas to be developed included Kalaena right bank, Bone-Bone, Kanjiro, Lamasi, Makawa and Tomoni, totalling 29,000 hectares. The long-term period was to include opening up the Bakase and Rongkong areas. Since considerable land clearing was required for the last two, they were given second development priority.

Design for irrigation structures is now done by the Design Division in the Irrigation Department. Designs are based on a standard developed by Dutch engineers and modified by the department to fit site conditions. Actual construction is done by contractors whose work is inspected by Irrigation Department staff. Two types of inspector personnel are involved, an inspector who assesses the extent of completion of a contractor's work, and an inspector who checks on the quality of work. Interviews indicated that the work-completion inspector made weekly reports for the contractor and monthly reports for the Irrigation Department. Reports to the Irrigation Department are sent to Palopo for review where progress of a contractor's work is monitored. The effectiveness of this process was not determined, but the breakdown of some completed structures would suggest some inadequacies in the procedure.

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Information on the qualifications of field inspectors and on-going construction suggested that inspectors were untrained, rarely visited a site or had little control over the contractor. All three, but especially the latter, were mentioned during interviews and in some of the literature (Williams).

The Dutch Experience

An interview with the Pompengan project manager indicated a close relationship existed between the expatriate manager and the GOI counterpart. The project manager is both a technical advisor and a representative of the Government of the Netherlands in which capacity certification for quality of work can be given or withheld.

As with the Bone-Bone and Kalaena project design, Pompengan (Lamasi) site plans had to be revised for specific locations. The Lamasi site is an expensive area to work in because of the need to construct flood protection dikes and access roads. Canals, in addition, have been lined. On the other hand, the area has not had to deal with transmigrant settlements although rights to land ownership have confused and slowed progress, as has occurred in other development areas.

Completion of Lamasi may come near the end of 1984, but delays may require that schedule to change. The Netherlands government made a "sort" loan for 100 percent of total construction cost, but no amounts were allotted for land compensation for roads, canals, flood plains, etc.

The expatriate project manager and the GOI counterpart visit sites completed by a contractor for the purposes of inspecting and certifying work done. Little is reportedly done without expatriate project manager approval; detailed records of work completed are signed by many persons, as noted below.

The Netherlands expatriate manager indicated that services of an Indonesian consulting firm, Indah Karya, were used to supervise contracts. The firm was said to be hired by the GOI irrigation department and has field inspectors and surveyors.

Payments certifying acceptable work are signed by the Indah Karya team leader, project engineer's representative, Luwu Irrigation office manager, the site engineer (i.e., contractor), the Netherlands project representative and the Netherlands consulting engineer (the last two are the same individual).

When a contractor prepares a draft progress report, it is checked by project staff; monthly payment requests are then prepared. After approval by the several parties, payment requests are submitted to the Netherland's embassy in Jakarta and then to the appropriate office in The Hague. Payment is made through Dutch and Indonesian banks. Contractors may not receive payment for three to five months and frequently complain about such delays to the project manager, who actually has no control over payment after submitting the signed forms to Jakarta.

Contractor Arrangements

Contractors on the Luwu project have a critical role in implementation and in making the irrigation system effective. Contractors are selected by the Irrigation Department on the basis of experience, size, equipment, and availability. Although contractors have more experience now than when construction first began, field observations indicated that either more experience is required or greater attention must be given to supervising their work, proper structural design verified by field conditions.

When a contractor has completed a project or section of a project and the field inspector certifies completion, reports are sent to the Department of Irrigation to review for payment. Payment may be made on a

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monthly basis as a percentage of the total cost; a balloon payment is made at the beginning of the contract and final payment made if all work is completed satisfactorily. If not, a percent of total cost can be withheld.

When final payment is to be made, a committee established by the irrigation department inspects the contractor's work; if acceptable, payment can be made. The process resulting in final payment, however, takes considerable time.

Lack of close control over contractors has been suggested as a reason for poor and delayed work. If supervisory officials, or project consultants, for example, had tighter control over payments to contractors, a higher quality work might result; management of the Pompengan project was suggested as a better procedure because the expatriate project manager certifies to the quality of work before request for payment certificates are sent to Jakarta and The Hague. According to the Dutch project manager interviewed, the procedure has worked quite well, but constant supervision of contractors is required.

Operations and Maintenance

To assure that investments in the irrigation system produce desired and sustainable results, operation and maintenance must be an integral part of the project, and preparations must be made to incorporate these into the system at an early stage. Unless the physical structures are operated and maintained properly, the irrigation and drainage system will not function as intended and results expected cannot be achieved; the importance of operating and maintaining the system, furthermore, will increase as the system ages.

Monitoring head works and primary and secondary canals will be required on a regular basis because an interruption of water flow at the upper end will reduce or stop supplies at the lower, quarternary end.

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Systematic housekeeping, including removal of plant growth, debris and sediment, is as important to keep the system functioning as rehabilitation of failed weirs, sloughed banks, or cracked canal walls.

O&M activities precede and follow rehabilitation of improperly operating structures; they include establishment of facilities such as repair shops, storage yards and warehouses and training programs that provide operators with skills for maintenance. Training staff to give them knowledge and ability to inspect sites and to bring their attention to potentially serious failures of the system are essential to O&M as rehabilitation. Constant surveillance is required to assure effective operation to prevent disruption before damage occurs. Canal riders, sluice gate operators, and gate guards will thus become key actors in a monitoring program that is part of an information feedback system which reports any actual or potential disruption to project managers for attention.

Operation and maintenance for the irrigation system proper can be divided into activities that focus on the main system and O&M of the tertiary and quarternary canals. By operation is meant control and use of weirs and division boxes to allow water to flow, according to a pre-determined schedule or allocation. Maintenance refers to activities required to allow the system to perform as designed and includes removal of plant growth from canals, eliminating dead water ponds, streambank protection, greasing weir screws to prevent rust, removal of sediment from canals, repair of cracked linings on canals and plugging canal leaks, etc. Maintenance is a never ending process, and one which needs to begin as soon as a system, or a component to a system, is brought in line.

Present Situation

Concern about the state of O&M had been expressed even before the project started. A provision in the CAP called for establishment of

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an operations and maintenance program for the Bone-Bone and Kalaena irrigation system. The Loan Agreement said that specific subprojects of the project were to include "rehabilitation and extension of, and establishment of an operations and maintenance program for the Bone-Bone and Kalaena (Right Bank) irrigation systems, including on farm ditches and necessary land operations" (USAID Loan Agreement). Unfortunately, expectations have not been fulfilled; a consultant who was employed by the Luwu project to institute a proper O&M program left after a year of effort when the situation did not change and, reportedly in the belief that continuing efforts in this area would be futile, Checchi and Co. decided against replacing him.

The difficulty in implementing an O&M program can be seen from two perspectives: institutional and organizational responsibility and financing. At present, O&M is the responsibility of the contractor working for the Department of Irrigation on the main system, up to the end of the secondary canal. Departmental responsibility, according to an official in the Irrigation Department, is exercised if the tertiary canals are functioning. O&M responsibility for tertiary and quarternary canals is to be assumed by water user associations and farmers who may provide services according to their assessment of the availability of water. This matter is elaborated on more fully later in this section. Once the total system is completed, O&M responsibility for the main system is to be assumed by the provincial government's Department of Public Works.

Since the system is not now complete, the province has not accepted O&M responsibility. Completed portions need maintenance which may be provided by the central government under a budget category called "improvement" but which nevertheless involves repair of non-operating structures such as the weirs which have collapsed. Sediment or weed removal are apparently not involved under the central government's definition of maintenance of the main system.

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The O&M financial situation of the provincial government (SEKSI LUWU) may be illustrated by the following table.

Project Area	Year	O&M Request (Rp.)	O&M Received (Rp.)
Kalaena	1982/83	36,910,000	7,445,000
Bone-Bone	1982/83	30,600,000	10,183,600

Funds are to support the services of gate keepers, laborers, some equipment, per diem, etc. None of the money would be for heavy equipment. These funds come to the provincial government from the central government DIP, but according to the Irrigation Department, are generally very late; hence workers have gone without salary for many months. Use of these funds for hand labor and not for equipment is very significant because of the implicit concept of O&M requirements and of the technical system.

Before controlled or technical irrigation was introduced by the master plan, traditional irrigation required relatively simple maintenance with hand labor. With concrete weirs, lined canals, dikes and access roads, however, these structures would be difficult to maintain without heavy equipment, such as bulldozers, rollers, back hoes and trucks.

Furthermore, double cropping irrigation schedules limit the time manual labor could be used to work on cleaning a canal; instead of a canal that is dry for six months under traditional cropping, a canal under the double cropping is dry for only two months. The large number of canals, length of the main system and geographic area over which it extends adds to the difficulty of employing hand labor to maintain the system and of the provincial public works department to manage it.

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Maintenance of heavy equipment to keep the system in working order underscores the importance of a systematic O&M program, one that begins with training operators and shop personnel, establishing shops and warehouses, training and supervising field crews and contractors, and development of an information system to keep abreast of all elements that might disrupt planned performance of the system.

Preparations to assume O&M responsibilities were not evident in the literature or precisely expressed in discussions with central provincial or local government personnel. Information on O&M budgets did not suggest recognition of requirements for operating a technical irrigation system, from the head works down through primary and secondary canals to the farmer's fields. Emphasis seemed to focus on construction of the physical works and less on managerial arrangements to sustain operation of existing facilities.

5. Future Prospects

The future sustainability of the Luwu irrigation system is not encouraging because of the quality of construction, of present approaches to controlling quality and of the absence of on-going planning to assure sustainability of large water management programs. None of those interviewed were optimistic about this situation or able to suggest how a future management plan would define responsibilities and organizational or institutional arrangements appropriate to budgetary and staffing support.

Three key ministries, Home Affairs, Agriculture and Public Works should be participants in a system's management effort. Although each has a contribution to make, none is the most appropriately suited because of the nature of work required. Discussions of the importance of a systematic approach may have occurred among government officials, but the

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Team was not aware of any move in this direction and/or steps underway to implement such a program.

A great deal of progress has been made since Project Luwu started. Much has been accomplished in the critical and fundamental component of irrigation; whether or not that progress will be maintained will depend on the sustainability of the irrigation system. A well organized water management program that involves a strong O&M component is essential to that sustainability.

6. Identification and Definition of Problems

Drawing from substantive material provided above, the following part of this report discusses problems identified in implementing the irrigation development component of project Luwu.

Problems defined in this context describe situations which prevented timely achievement of anticipated results and/or which caused or may cause unanticipated, unplanned effects. Identification of problems is not meant to prejudge competence, but as a stage in analysis useful to understand the development process carried out in project Luwu; identification is also useful as a step in determining lessons learned for application elsewhere.

PROBLEM AREA 1: Institutional and Organizational Arrangements

Institutional and organizational arrangements required for a technically controlled water management system have not been developed for the Luwu area development project.

Previous irrigation experience in Luwu Kabupaten focused on desa agriculture. No governmental programs of the type required for technical irrigation then existed in the province. Buildup of technical knowledge and experience is a long-term process, not fully completed. Although expatriate counterparts have provided technical advice, learning a

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foreign technology and adopting procedures to implement it are time consuming. Project Luwu brought to the area ministries and their staffs that were responsible for project implementation. Some of the staff had been associated with preparation of the master plan and with structural designs under close supervision of Dutch engineers. However, most had little experience with a plan of the scope of the Luwu irrigation system. Furthermore, experience and training were oriented along sectoral lines, not in the management and administration of a complex system. Management experience may develop as the system comes on line, but a program leading to development of management capability throughout the system has not yet been established to our knowledge.

PROBLEM AREA 2: Basic Data and Skills

Basic data and skills required to use it are limited in quantity and quality necessary for proper design, construction, operation, maintenance and management of a technically oriented irrigation system.

Surveys to prepare the irrigation system master plan were used by the GOI Irrigation Department to design layout and construction of the main, tertiary and quarternary systems. Initial surveys were as detailed as normally conducted for master plans; but more detailed, site specific studies are required for each project area, and must be verified in the field and related to appropriate engineering design of structures. For example, if data on soil compactability or permeability were lacking and design did not account for such site conditions, structural failure would be inevitable. Similarly, design that did not allow for protection above a weir (e.g., shallow cut-offs), or for protection of canal banks below a weir, structural collapse is nearly certain. There are many examples of these conditions in the Luwu system.

More detailed data for design and construction are required. Such data either are not being collected or transmitted to designers and incorporated into site-specific situations or are ignored by contractors.

Skills required to design structures to verify designs against site characteristics and to assess contractor performance either do not exist or are not being used, judging from observable results of structural failure.

Current water management practice is ad hoc because present water demand does not necessitate systematic allocation. Evidence suggesting that water management plans or design of a management unit were in preparation were not available. The Luwu irrigation system is at such an early stage of implementation that control and management have room for error. As the system becomes more operational, however, that margin will be reduced and the skills necessary to cope with a delicate management system increased to a level far beyond what appears to be available at present ... or for which any planing or preparation are being made..

PROBLEM AREA 3: Coordinated Plans and Schedules

Lack of coordination of activities in the development process led to waste of resources and delays in implementation of schedules.

Field observations of structures that collapsed or of canal banks that sloughed suggest a weakness in the process necessary for efficient implementation. Utilization of basic data collected by survey units in the Irrigation Department may not be the most desirable for implementation purposes. An example was cited previously of a secondary canal constructed with an elevation lower than the adjacent tertiary canal; lack of information and coordination of plans among responsible units is obviously the result. Another example is an area used as a barrow pit that was later scheduled for canal construction. Inability to trace land owners and/or their willingness to cooperate in development schedules has delayed progress of irrigation development schedules.

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PROBLEM AREA 4: Water Management System and Rice Production Strategy

The design of the water management system and the emphasis on rice production reduces opportunities for project design change if such changes are desired in the future.

The water management system completed or under construction is designed for technical control over use of water. The system is not designed for alternative development purposes such as cash or estate crops, vegetables, or fruit crops. Livestock, in particular, are not considered in the system even though many are raised in the area and can be quite destructive to dikes and stream banks.

If some change in the system is desired in the future to account, for example, for drought or water logging, changes in human dietary habits or plagues or disease, then changes in the irrigation system and supporting facilities may be difficult and expensive to implement. Furthermore, the system must work as designed or objectives cannot be achieved; there is little to be done if for some reason the system does not perform as expected; and there is not much of a fall-back position once resource commitments are made.

7. Conclusions

Problem areas cited previously perhaps appear as negative or critical of the development scenario. Viewed in another way, problems identified may be transformed into positive suggestions to improve integrated area development project planning and implementation.

Project Luwu is a useful case example from which lessons, suggestions, or criteria may be developed to guide future projects with

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similar objectives. Project Luwu is a useful case example because certain components of the project were introduced into an environment under circumstances essentially of a frontier type: the area had not undergone significant development before the project came and what existed before the project started (e.g., the unimproved road and a neglected Dutch irrigation system) had to be turned into established projects.

Basic capital, institutional, and social infrastructure had to be imported and/or developed for the Luwu project. Because Luwu was a frontier, a "clean-slate" type situation prevailed and innovations were necessary to design new systems because models that could be followed were limited in number. For this reason, Luwu is a useful case example to examine for lessons it can provide if similar objectives are to be pursued. If lessons are to be learned from Luwu, the situation must be understood as a special case of an undeveloped area ripe for development.

The following conclusions are actually a set of criteria to consider when a project of the Luwu orientation is proposed. Most of these have been written about before in the water management literature and may not appear to be new or innovative. The criteria and/or conclusions, however, are worthy of repeating because they are so frequently overlooked, especially when the development process is accelerated and objectives other than resources management, such as development of local capability, take precedence.

Comprehensive Planning

Long and short-term consequences of a project need to be accounted for in the earliest stages of design; once plans are established and work moves along in one direction, adjustments of an established plan are difficult to make. Parameters to include in project design need to be broad in scope because an integrated area development project requires inputs from a very wide range of sources, such as soils, water, climate,

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geology, forests, human resources and organizational and institutional infrastructure.

Water demand and water supply, for example, must be studied over extended periods and projections made accordingly. Prefeasibility studies limited to a few parameters cannot be expected to provide detailed site data essential for structural design; data must be collected before structures are designed. Comprehensive plans are particularly important when resources are allocated for more and more projects. As irrigation systems become operational and projects come on line, equitable distribution of land and water resources becomes critical. Areas developed last must be assured of water they need, just as those who came first benefit from a position at the head of the line. Forecasting future requirements can only be done if a system is planned comprehensively.

Operations and Maintenance as a System

Irrigation works are a delicate system that must be tended carefully to assure continued operation. Improperly designed or constructed systems raise project costs when replacement or rehabilitation of structures are required. Normal operation of an irrigation system will produce wear and inevitable deterioration; measures to avoid failure, such as accurate soil tests or compaction studies, must be used to prevent damage, O&M should be part of the design process; O&M planned for the long-term requires a systematic and comprehensive approach to provide all support services a project requires. O&M may commonly be thought to relate to equipment or hardware rehabilitation, but organization for O&M is equally important. There may be little drama in pulling weeds, removing logs or patching a stream bank compared to rebuilding a dike with heavy equipment, but irrigation cannot be effective for long without mundane tasks being performed regularly. Project cost estimates will need to reflect demands of O&M throughout project life.

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Data Collection Relevant to Objectives

An enormous amount of data are required for proper project design and construction of an irrigation system. The nature of data collected is, or ought to be, a reflection of project objectives and the level of detail of the data appropriate to project design. In Luwu, there is evidence that hydrologic data for smaller streams are insufficient to determine whether or not the supply will be sufficient to sustain the planned system; elevation data were not accurate enough and soil compaction data were inadequate for construction purposes. Among the most difficult situations was an absence of data on land ownership, i.e., who has rights to land currently blocking completion of particular blocks in the system? Data limitations may be no worse in Luwu than other projects, but a lesson learned from these limitations is that minimum essentials should have been known before construction began. These essentials need to be defined early in project planning as part of the comprehensive planning process referred to in Conclusion One above.

Development Keyed to Institutional, Organizational, and Environmental Characteristics.

One of the most widely recognized development criteria is that of project adaptability, adaptability to cultural, institutional, organizational and environmental characteristics of the area into which an intervention is made. The manner in which development of irrigation objectives were pursued in Luwu was that of applying a technically controlled system to a very elementary irrigation system through expansion and rehabilitation. From an engineering and water management perspective, the approach was adaptable to site conditions, although some constraints, such as permeable soils that were saturation-prone, or widely fluctuating climatic factors and a densely vegetated environment. Under the right management, the system can be very productive, and given proper O&M, production can be sustained, as appears true elsewhere in Indonesia (Booth).

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When Luwu began, organizational arrangements for implementing irrigation projects were in a rudimentary state of development. Much experience had been obtained elsewhere in Indonesia to implement irrigation systems, but necessary arrangements in the Kabupaten had to developed by central, provincial and local governments. These arrangements have not yet been adequately developed or applied, and this needs to be done before the system becomes fully operational and responsibility for O&M is assumed by the province.

Some inadequacies in design and construction of irrigation structures were noted in the report; a partial explanation of them was given by governmental authorities as the lack of experience in organizing and implementing a large system quickly. Perhaps greater attention to building up organizational capability earlier in the development process may have avoided some planning and construction failures. An alternative would be to adopt a longer term development schedule that was more appropriate to existing organizational and managerial capability.

Technical Irrigation Systems Require Trained Staff, Supervision and Management Control.

When fully operational, the Luwu irrigation system could be highly productive, if carefully managed. Staff trained to operate and maintain headworks and main canals will need to coordinate management efforts with farmers and water-user associations, particularly if the system is stressed by floods, drought or breakdowns. Water masters or water engineers with an overview of the system will be required to supervise and manage operations.

An irrigation system of the technical control type programmed for Luwu projects is a high-risk venture dependent on system quality control. Failure in operation of even part of the system due to human or natural causes will limit achievement of project objectives, losses to presumed project beneficiaries, social and political discontent and added remedial costs to rectify a damaged or improperly operating system beyond

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normal O&M. Diligence in managing the system once fully operational will be required; plans to assure sustained productivity of the system did not appear to us to be at a level of detail or conceptualization necessary to assure that objectives will be reached over time or even in the very short term after initial irrigated areas are completed.

Maximizing the Use of Existing Systems

If parts of the system are not operating as initially planned and effort is not put into making those parts perform in the way expected, then resource investments have been wasted and design objectives are not achieved. Furthermore, the cost of going back to redesign or rehabilitate a deteriorated system may often be much higher than the cost for proper design and construction of the original structure. Concrete and stone of a collapsed weir needs to be removed before reconstruction can begin, for example.

To expend effort and resources on implementing additional systems when those in existence do not function properly is poor management strategy. Production from an efficiently operating system may alleviate the need for more facilities and could prolong the day when new investments are made.

An evaluation of the potential productivity of the present system, if it were fully functioning at design capacity, may be useful for the GOI to undertake as an aid in determining further investment schedules.

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C. Findings on the Irrigation Systems Project Component

Donald C. Taylor

This report on the Irrigation Subproject in PROLU is organized around the specific issues outlined on page 3 of the Team's Scope of Work. The first issue is covered in the section, "Contractors and Infrastructure Construction".^{1/} The third and fourth issues are covered in the section, "Management, Operations, and Maintenance". The fifth issue is covered in the concluding "Lessons Learned" section.

1. Contractors and Infrastructure Construction

The Directorate of Irrigation in the Public Works Ministry in Jakarta (hereafter abbreviated as "Irigasi") is responsible for designing and constructing "large" irrigation systems (usually interpreted to involve those with 10,000 hectares or more) in Indonesia. The Bone-Bone and Kalaena Irrigation Systems (ISs) in the Luwu Project -- involving intended command areas of 1,758 and 6,720 ha, respectively (8,480 ha total) -- were awarded "special project" status, and therefore the construction of the irrigation infrastructure in them has been the responsibility of "Irigasi."

This part of the report that deals with contractors and infrastructure construction consists of three sections. In the first, background information on the organization of the Irrigation Subproject is provided. In the next section, the procedures for preparing and monitoring construction contracts -- as explained by the Irrigation Subproject Manager -- are outlined. In the third section, attention is drawn to the present condition of the irrigation infrastructure and some possible underlying reasons for inadequacies in the infrastructure.

^{1/} The second issue did not lend itself to a careful analysis at the time of the study.

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Organization of the Irrigation Subproject

The Chief of the Irrigation Subproject component of PROLU is directly responsible to the Director of Irrigation in Jakarta. The design and construction of the irrigation infrastructure in the Luwu area (ultimately involving the development of 100,000 ha of irrigated land) -- including that in the Bone-Bone and Kalaena ISs -- is his responsibility.

Directly beneath the Chief of the Irrigation Subproject in PROLU are (1) a supporting technical section, (2) an administrative section, and (3) a field staff for implementing the design and construction activities. The first and third groups are most important for our purposes.

Within the technical section are four separate activities:

- Planning, which involves the survey and design functions [for each of the main system ("jaringan utama") and tertiary system ("jaringan tertier") levels];
- "Operasi", which involves the construction function;
- "Exploitasi dan pemeliharaan" (operations and maintenance = O&M) which is responsible for preparing O&M manuals, disseminating information on O&M, collecting hydrological data, and overseeing the so-called "improvement" activities (discussed below); and
- Heavy equipment, which involves utilization and maintenance functions.

A point of special significance is that although the Irrigation Subproject organizational chart shows an "operations and maintenance" activity, no money is provided to the project for O&M per se and the Chief of the Irrigation Subproject does not perceive that the Subproject

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is responsible to operate and maintain completed portions of the irrigation systems.^{1/}

The field staff in the Irrigation Subproject are organized into four system-oriented sections which cover each of the Bone-Bone, Kalaena, Lemasi Right Bank, and Lemasi Left Bank ISs.^{2/} The titles and functions of these four sections are as follows:

- Field inspection, which involves a crew of people who are supposed to be in continuous contact with and report the status of progress by construction contractors;
- Surveying, which involves the fine-tuning on the exact location of smaller canals as the work is undertaken by construction contractors;
- Heavy equipment; and
- "Exploitasi dan pemeliharaan", which involves "Irigasi's" staff contribution for the establishment of local water user associations (P3As).

Procedures for Preparing and Monitoring Construction Contracts

The single most important document underlying the design of the irrigation infrastructure in the Bone-Bone and Kalaena ISs is the Master Plan for Irrigation Development in the North Luwu Plain that was completed by

^{1/} In an "exit interview" with the Director of Irrigation on August 27, 1983, we came to understand an underlying reason for this anomaly concerning O&M. With earlier large-scale irrigation projects financed by the World Bank -- and administered through PROSIDA -- there was provision within the projects for O&M budgets and activities. A policy decision by BAPPENAS since then, however, precludes the provision of O&M funding through project DIPs. BAPPENAS holds the view that project DIPs should be limited to construction, and that O&M should be handled through the existing framework in which provincial and local governments are responsible for O&M.

^{2/} The Pompengan IS which utilizes water from the Lemasi River involve an intended command area of 4,472 ha. This project is being constructed with aid from the Netherlands Government.

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the Dutch and published in 1977. This document provides a "preliminary" plan for the design of the infrastructure.

The planning component of the Technical Section under the Subproject Manager is responsible for obtaining additional information on elevations and soil conditions -- relative to the construction of civil works -- before the specifications in contracts are finished. Crews of people are supposed to obtain detailed data in the field under the supervision of the planning staff. The planning staff is supposed to interpret these data and develop appropriate specifications for entering into contractual documents.

A 1980 Presidential Decree requires that "local" contractors be used for construction. In practice, this means that efforts are made to find suitable contractors within the vicinity of where the work is to be done. If such efforts are not productive, attention is given to possible contractors elsewhere in the province, and only after that to contractors elsewhere in the country. The underlying rationale for using local contractors, of course, is to build indigenous capacities for development. On the other side of the coin, the performance of high quality and timely work by relatively inexperienced local contractors can be expected to be somewhat problematic.

The system of bidding involves "lump sums" rather than "unit costs." With a "unit cost" system, bids are made on individual activities within the contract. If the actual physical requirements to complete specific components of the work exceed those specified in the initial contract, a contractor is paid more than his bid-price. With a "lump sum" system, a contractor cannot expect to receive more than his bid-price -- even if the actual physical requirements of the job exceed those specified in the contract. A necessary condition for using a "unit cost" system, of course, is the existence of detailed and accurate specifications in a contract.

Bids on specific contracts are evaluated by the planning staff, and decisions on the award of the contracts are made. Within the contract, a

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schedule for each physical activity is shown. The format used by the Irrigation Subproject for planning and monitoring the rate of completion of work on contracts -- along with explanatory notes -- are shown in Figure 1. To the extent that the actual completion of work is later than that specified in the contract, the dotted straight lines for each construction activity are horizontally displaced to the right -- relative to their straight line counterparts. The dotted-S curve showing the cumulative actual rate of completion is accordingly displaced vertically downward from the cumulative intended rate-of-completion S-curve.

Field inspectors are supposed to submit daily, weekly, and monthly reports of the progress in construction on the contracts which they supervise. Attention is given by the field inspectors to the "quantity" and "form" (e.g., whether embankments are aligned properly) of the work done on the contract and whether the infrastructural components function properly. The fourth inspection criterion -- quality -- is assessed through field observations and tests of embankment compaction. The latter are performed on-contract by a private laboratory. "Irigasi" is in the process of establishing its own soil compaction laboratory, but the laboratory is not yet operational.

The actual rate of work completion is based on the monthly reports submitted by the field inspection staff. Unless each of the four inspection criteria is met, the relevant portion of the contract is not considered as completed. There are penalty clauses for the late completion of work. A committee from "Irigasi" determines whether the late completion of work is the fault of the contractor or the result of external circumstances -- and hence whether or not a penalty should be imposed.

Following an initial downpayment of 20 percent of the value of the contract -- a percentage specified by the Directorate of Irrigation in Jakarta -- payments are made to contractors in accordance with the actual rate at which they complete their work. These payments are authorized monthly, and are based on the cumulative S-curve data as illustrated in Figure 1. Five percent of the value of a contract is retained for a

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period of one to three months (as specified in a contract) after the completion of the physical work on a contract. If any part of the infrastructure does not prove satisfactory during this initial period of use, a contractor is supposed to take remedial actions, and only then will he receive the 5 percent balance due him.

The Actual Experience with Construction in the Bone-Bone and Kalaena ISs^{1/}

In October of 1976, the first irrigation construction contract was awarded for work in the Kalaena IS. Due to lateness in the completion of the contracts, the duration of the Irrigation Subproject was extended through the end of 1983. Although the formal construction contracting is scheduled to be completed by December 31, 1983, several parts of the infrastructure are fragile and within one to three years of completion have already become non-functional. The money provided through PROLU for irrigation "improvement" (see Table 4) has been inadequate to overcome basic deficiencies in the infrastructure.

TABLE 4. Project Budget for Irrigation "Improvement," Bone-Bone and Kalaena Irrigation Systems, 1980/81 to 1983/84 (Rp. million)

	Bone-Bone	Kalaena	Total
1980/81	0	0	0
1981/82	19.0	13.0	32.0
1982/83	34.4	54.3	88.7
1983/84	0	37.0	37.0

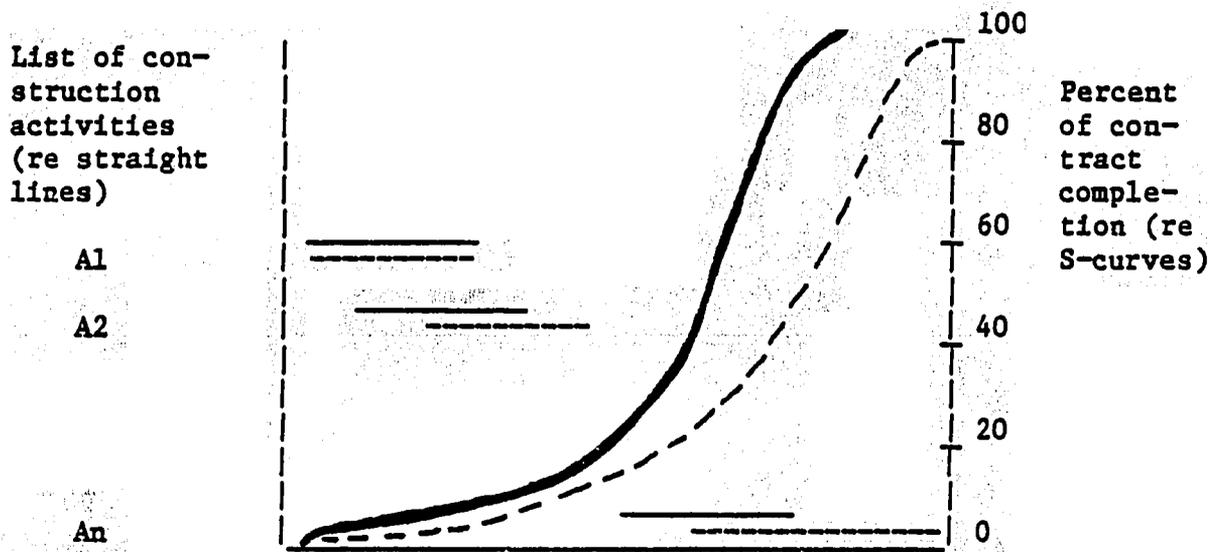
Source: PROLU Irrigation Subproject, Palopo Office

1/ The substance of this section is based on Max G. Williams (Senior Irrigation Consultant, "Irigasi") Consultant, Project Luwu - Irrigation Status Report, August 1983.

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FIGURE 6

The Format with which the Rate of Completion of a Project is Planned and Monitored



Notes: 1. On the horizontal axis are the months spanning the period of the contract.

2. The solid straight lines show the scheduled time for each construction activity.

3. The illustrative dotted straight lines show the actual progress realized for each construction activity.

4. The solid "S-curved" line shows the cumulative intended rate of completion (in percentage terms) over the time-period covered by the contract).

5. The dotted "S-curved" line shows the cumulative actual rate of completion of the work on the contract.

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Examples of infrastructural deficiencies follow: weirs have washed out; canal embankments have eroded away, especially in areas where main canals adjacent to flooded paddy fields are cut unnecessarily deep; control structures in canals have washed out and in some cases have also broken into pieces; control structures do not lend themselves to proper O&M; and drainage structures are non-functional because of improper location.

These problems have arisen for a variety of reasons.^{1/} A crucial underlying problem is that light silty and sandy soils are rather common in the project area -- especially in the Kalaena IS. When these soils become saturated, they become extremely unstable and are readily subject to erosion. Special attention has to be given to designing infrastructure that will not be vulnerable to this unique and difficult soil situation.

Apart from problematic soils, certain human and institutional factors appear to be associated with the inadequate infrastructure. In principal, the procedures for survey, design, and construction outlined in the preceding section (except for supervisory aspects) are sound. In practice, however, the procedures often are not implemented completely, and inadequate attention is given to qualitative detail. These circumstances could reflect any of several possibilities: a lack of technical know-how by survey, design, and inspection (SDI) staff; a disinclination of SDI staff to have intimate contact with field conditions; a lack of incentive for SDI staff to do first-class work; and cultural traditions that impede "business-like" communication between irrigation inspectors and construction contractors concerning the maintenance of quality standards. The latter point is particularly prejudicial. If contractors do not believe that specified quality

1/ A contributing factor not covered in the discussion that follows -- because this issue was outside the scope of the Evaluation Team's work assignment -- is the lack of effective use of heavy equipment that was intended to be used by contractors.

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standards must be met, it is unreasonable to expect that they will do work of adequately high standards.

2. Management, Operations, and Maintenance

It is important now to turn to the issue of making appropriate use of irrigation systems, once the infrastructure in the systems has been properly constructed. The two field activities involved in using irrigation systems are:

"Operations" that involve opening and closing gates so that water is distributed properly throughout the various canals within an irrigation system, and

"Maintenance" that involves vigilance to identify early signs of break-down in the irrigation infrastructure, lubricating moving parts and replacing faulty parts of water control structures, repairing faults in water control structures and canal embankments, removing weeds and silt from canals, and other related activities.

The term "management" applies to the planning and supervising of O&M activities. This includes attention to decisions on how water is to be allocated among canals in an irrigation system and when and how maintenance activities are to be carried out. Management involves both the making of decisions about these matters and the supervision of the activities undertaken by O&M personnel so as to insure that performance in the field conforms to the management plan.

In this section, who is responsible for operating and maintaining completed irrigation systems is examined first. Then O&M responsibilities in irrigation systems that are in the process of being constructed, but which have not yet been transferred from "Irigasi" to "Prov. PU" are examined. Finally, attention is drawn to the actual performance until now of O&M in the Bone-Bone and Kalaena ISs.

Responsibilities for O&M in Completed Irrigation Systems

The Irrigation Division ("Bidang Irigasi") of the Provincial Public Works Department (hereafter abbreviated as "Prov. PU") is responsible for managing, operating, and maintaining the main portions (namely, headworks and primary and secondary canals) of completed irrigation systems. Below the Irrigation Division in "Prov. PU" are regions ("wilayah"), and below the regions are sections ("seksi"). The Luwu Section (Irrigation) is responsible for the management, operation, and maintenance of all government-developed irrigation systems in Kabupaten Iuwu and Kabupaten Tanah Toraja. This includes responsibility for the Bone-Bone and Kalaena ISs.

Farmers are responsible for operating and maintaining the terminal portions (the tertiary and quarternary canals) of irrigation systems. This responsibility is intended to be executed through the use of local water user associations ("P3A") whose establishment and intended roles and responsibilities are outlined in "Peraturan Pemerintah No. 22-RI (Menteri PU), 1982".^{1/} "Main system O&M" is used here to refer to the responsibilities of "Prov. PU" and "terminal system O&M" is used to refer to the responsibilities of farmers in the management, operations, and maintenance of completed irrigation systems.

The main source of funds for main system O&M is an "Inpres" subsidy provided by the central government to provincial governments. The budgetary "DIP," reflecting the amount of the subsidy, is prepared in Jakarta at the level of the individual irrigation sections.^{2/} Because

1/ See Chapter III-D on Water User Associations by Chew Siew Tuan.

2/ The Team did not pursue systematically the mechanism by which requests for DIP support for O&M are made. It is our impression, however, that the procedure is initiated with requests from "Prov. PU" -- based on inventories of irrigation infrastructure assets -- to "Irigasi" in Jakarta.

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the DIP funds are transmitted from the central government through the Offices of Provincial Governors -- which can exercise discretion on how the funds are actually to be used -- the amount of DIP-support for O&M ... that actually is received by the irrigation sections may differ from that originally specified in the DIP in Jakarta.

In addition to "Inpres" subsidies for main system irrigation O&M, local revenues raised through land taxes (IPEDA) and other local sources can be used to fund main system O&M.^{1/} Apparently until now in South Sulawesi, IPEDA funds are transferred from the kabupaten to the Office of the Governor. The Governor's office determines how much of the locally raised IPEDA funds will actually be returned to the kabupaten from which they originated. Discussions reportedly are currently being held about the possibility of a greater role of local government in deciding how IPEDA revenues are to be used.

Terminal level O&M is to be supported by the farmers who receive irrigation water. The method by which these charges are to be collected and the amounts of the subscription fees are determined by each local water user association. The Evaluation Team found two different methods during its field contacts: so much paddy per hectare of land irrigated and so much paddy per member of the water user association. The subscription fees collected are used to compensate the gate keepers ("mandur wae"), their assistants, and members of the Committee that oversees the water user associations.

Responsibilities for O&M in Systems During the Process of Construction

While the situation underlying the locus of responsibility for operating and maintaining completed irrigation systems is quite clear.

^{1/} Irrigation O&M is only one of several local development activities that can be supported by IPEDA revenues.

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as just described -- the locus of responsibility for operating and maintaining new irrigation systems is not. One important area of ambiguity concerns procedures for transferring newly constructed irrigation systems from "Irigasi" to "Prov. PU," after which "Prov. PU" has clear responsibility for O&M in the systems. A second area of ambiguity concerns who is responsible for operating and maintaining newly constructed irrigation systems before the systems are transferred from "Irigasi" to "Prov. PU."

One ambiguous aspect of the "transfer" question concerns the definition of "system." Is "system" to be interpreted at a macrolevel -- as, for example, the full 6,720 ha comprising the Kalaena IS -- or at a more microlevel? The latter could involve that part of a primary canal that serves a secondary canal, and the secondary canal and all the tertiaries and quaternaries in the water distribution network for that secondary canal. If a micro-perspective is adopted, completed parts of overall irrigation systems could be transferred one-at-a-time in sequence during the process of the construction of the infrastructure to serve the full irrigation system. If the macro-perspective is adopted, the issue of transferring an irrigation system from "Irigasi" to "Prov. PU" would not arise until the construction of the infrastructure in all parts of the irrigation system had been completed. It appears that the Directorate of "Irigasi" in Jakarta views the micro-perspective as appropriate, whereas at the Subproject level in PROLU the macro-perspective is interpreted to apply.

A second ambiguous aspect of the "transfer" question concerns the adequacy of regulations describing how the transfer process is to take place. People in the Irrigation Subproject hold the view that a Presidential Decision document^{1/} provides the broad outlines of how the irrigation component of a Special Project such as PROLU is to be transferred from "Irigasi" to "Prov. PU," but that the level of procedural

^{1/} The Presidential Decision document involves "Pascal 82" in "Keputusan Presiden Republic Indonesia, No. 14A, Tahun 1980, setelah Disempurnakan dengan Keputusan Presiden Republik Indonesia, No. 18, Tahun 1981, tentang Anggaran Pendapatan dan Belanja Negara, RI, 1981."

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detail in that document is inadequate to permit steps to be taken to actually transfer the Bone-Bone and Kalaena ISs (or parts of the systems) from "Irigasi" to "Prov. PU."^{1/}

The second area of ambiguity concerns who is responsible for operating and maintaining newly constructed irrigation systems before the physical assets in the systems are transferred from "Irigasi" to "Prov. PU." With large-scale projects administered earlier by PROSIDA in Indonesia, funds were provided through the projects to operate and maintain the irrigation systems during the transition period. At that time, there was a clear responsibility for the project to provide main system O&M until such time as the irrigation systems were transferred from "Irigasi" to "Prov. PU."

More recently, however, BAPPENAS has adopted a policy whereby only construction activities can be financed with project monies. They insist that O&M should be handled through the existing framework in which provincial and local governments are responsible for O&M.

As a result, the Irrigation Subproject personnel were correct when they reported to the Team that no O&M funds have been provided through the project to cover operation and maintenance of the systems during the transition period. Some "improvement" funds have been provided through PROLU, however, for the purpose of reconstructing or rehabilitating faulty parts of the infrastructure.

^{1/} The "transfer" issue involves two components: physical assets and managerial responsibility. This paragraph involves the transfer of physical assets. It does appear that government employees who interpret regulations rather literally (rigidly), can find missing elements in the existing regulations. It is also true, however, that the existing regulations have been viewed as adequate by other government employees, and hence that the physical assets in other systems have been transferred from "Irigasi" to "Prov. PU" under the auspices of the existing regulations.

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The Chief of the Luwu Section (Irrigation) in Palopo reported that limited funding has been made available since 1981/82 from "Prov. PU" to operate and maintain the completed parts of the Bone-Bone and Kalaena ISs. Apparently, "Irigasi" field-staff report to "Prov. PU" field-staff when parts of the irrigation systems are completed. In turn, the Chief of the Luwu Section (Irrigation) reports to the Division of Irrigation in "Prov. PU," Ujung Pandang that part of the system is completed and therefore that funds are required to operate and maintain that part of the system.

Actual Performance of O&M in the Bone-Bone and Kalaena ISs

Until now, the physical assets of no parts of the Bone-Bone or Kalaena ISs have been formally transferred from "Irigasi" to "Prov. PU." The Irrigation Subproject staff indicate that the transfer has not taken place because of inadequate detail in the regulations governing the transfer. They are awaiting clarification on the transfer-procedures from the Directorate of Irrigation in Jakarta. The Chief of the Luwu Section (Irrigation) reports that no parts of the Bone-Bone and Kalaena ISs have been transferred from "Irigasi" to "Prov. PU" because "Prov. PU" does not consider that the infrastructure in the systems is satisfactorily constructed. Both explanations appear to be valid.

As indicated in Table 1 (presented earlier), limited funding has been provided through PROLU for making "improvements" to the irrigation infrastructure. These funds are disbursed through contracts which require the reconstruction or rehabilitation of faulty parts of the infrastructure.^{1/} The amount of the "improvement" funds made available, however,

1/ It appears that part of these funds and some other project funds designated for "salaries" and "materials" are also sometimes diverted for use in maintenance-type activities. The extent to which this happens depends on the personal judgments of the "Irigasi" personnel involved.

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has been grossly inadequate to correct basic errors in the initial design and construction of the infrastructure.^{1/}

The amounts of funds provided in the budget from "Prov. PU" for O&M in the Bone-Bone and Kalaena ISs for 1980/81 to 1982/83 are shown in Table 5.^{2/} As indicated, the amounts fluctuate widely from year to year.

TABLE 5. Provincial Budget for Main System Irrigation O&M, Bone-Bone and Kalaena Irrigation Systems, 1980/81 to 1982/83

	Bone-Bone	Kalaena	Total
Actual amount approved			
1980/81	13.0	12.0	25.0
1981/82	6.9	5.7	12.6
1982/83	10.2	7.4	17.6
Requested amount for 1982/83			
Value (Rp. million)	30.6	36.1	66.7
Actual as a percent of the requested amount	33.3	20.5	26.4

Source: Luwu Section (Irrigation), Palopo Office

^{1/} Even after the physical assets of irrigation systems have been formally transferred from "Irigasi" to "Prov. PU," the responsibility for correcting structural inadequacies in infrastructure that arise within two years of the transfer is formally the responsibility of the project. Budgetary provisions for such activities were not discussed. (Personal communication, Directorate of Irrigation, Jakarta, August 27, 1983).

^{2/} The inventory of irrigation infrastructure under control of provincial irrigation authorities serves as the basis for their requests of O&M funds. Even though the physical assets of an irrigation system have not been transferred formally to "Prov. PU," those assets are sometimes included in the inventory listing. This is apparently the means whereby provincial authorities gain access to federal "Inpres" subsidies for O&M during the transition period.

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As of December 31, 1982, a "complete" irrigation infrastructure was provided to approximately 1,525 ha in the Bone-Bone IS and 3,163 ha in the Kalaena IS, for a total of 4,688 ha. This suggests that Rp. 3,755 per ha was budgeted for maintenance and operations in the two systems. This compares with Rp. 14,230 per ha which had been requested for irrigation O&M in 1982/83 and Rp. 37,000 per ha which is now judged by the DMJM "Irigasi" Consultant in Palopo to be required for adequate O&M in the Bone-Bone and Kalaena ISs. At the national level in 1982/83, the Directorate of Irrigation had requested in the budgetary-DIP a minimum of Rp. 13,000 per ha in systems throughout the country. The actual amount approved by the Ministry of Finance for O&M for 1982/83 was on the average about Rp. 7,000 per ha.

Thus, no matter what the point of reference, the Rp. 3,755 per ha provided in 1982/83 for irrigation O&M to the Bone-Bone and Kalaena ISs is small. It is only one-half the amount provided on the average throughout Indonesia, $\frac{1}{2}$ only one-quarter as much has had been requested for the systems for 1982/83, and only one-tenth as much as is judged necessary to provide adequate O&M for the systems. Without significantly greater funding for O&M, the potential benefits inherent in these two systems cannot be realized.

A third problematic feature of main system O&M funding concerns delays in receiving the O&M monies in Palopo. Delays of two to three months have been common. This year the delays are even more exaggerated. As of August 15, 1983, no funds for irrigation O&M had been actually received from Ujung Pandang for disbursement in Palopo since January 1, 1983.

The implications of generally limited and highly variant O&M funding from year to year for main system O&M and of delays in the actual receipt

1/ The Rp. 7,000 per ha is not strictly comparable with the Rp. 3,755 per ha. It is the amount of Inpres funds provided via the DIP to the Governors' Offices for O&M, rather than the amount that necessarily would have arrived at the section level within the various provinces.

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of O&M funds in the field are extremely prejudicial to the conduct of proper main system O&M. Funds in general are inadequate to permit the hiring of a sufficient number of O&M personnel. Further, the uncertainty of O&M staff in knowing whether funds will be adequate to permit them to be employed in the future and the personal stress that they must bear because of extreme delays in receiving their monthly salary are bound to produce low morale and dissipate their motivation to do O&M work well. Within this context, the difficulties encountered in recruiting high quality O&M staff to work in the Bone-Bone and Kalaena ISs are easily understandable.

The above funding and staff inadequacies have led to very limited O&M actions in the field. Many of the gates and structures do not function properly. The movement of water in some reaches of the canals is impeded by weed growth and dirt-blockages, the latter caused primarily by embankment cave-ins.

Because of inadequate operations staff, a common procedure is to open all the gates in a system so that irrigation water flows freely throughout the completed portions of the irrigation systems. Such an approach is obviously problem-prone. Because water flows are uncontrolled, structures and canal embankments become especially vulnerable to erosion -- thereby exacerbating the already fragile nature of the infrastructure. Furthermore, as the fully intended command areas in the irrigation systems come to be irrigated, the balance between the demand for irrigation water and the supply of irrigation water during periods of low stream flow is likely to become "tender" enough (especially in the Bone-Bone IS) that an "open-gate" policy will result in enough water wastage upstream that down-stream lands will not receive adequate and timely supplies of water. This is bound to result in discontent by downstream water-users and under-utilization of the irrigation systems.

A final comment on the current O&M situation follows. The Team found it quite common for the "Irigasi" and "Prov. PU" irrigation staff to emphasize the importance of establishing effective water user associations in the terminal irrigation systems. The Evaluation Team agrees

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that, in the context of a total irrigation system, the role of farmers in providing proper terminal level O&M is critical. However, on the other hand, there needs to be a definite sequencing in the emphasis given to main system O&M versus to terminal system O&M. First and foremost, main system O&M has to be done properly. Only then can timely and adequate deliveries of irrigation water to the terminal portions of irrigation systems be assured.

If O&M in the main system is not done properly, and irrigation water therefore does not arrive at the terminal level in adequate quantity and on schedule, farmers are bound to become upset. They will become even more upset when they realize that they have been advised by irrigation and other staff to perform proper O&M at the terminal level, and yet they see improper O&M in the main system. This could easily prejudice later attempts to encourage farmers to undertake proper O&M.

3. Lessons Learned from Implementing the Irrigation Subproject

It is clear that two of the main continuing headaches throughout the implementation of the irrigation component of PROLU involved unsatisfactory construction of irrigation infrastructure and inadequate emphasis on operations and maintenance. While some of the underlying reasons for these difficulties may be unique to the location and timing of PROLU, it appears that all of them probably are not.

The Team believes that three primary lessons can be learned from the experience of implementing the Irrigation Subproject in PROLU.

- Attention should be given to building into the design of projects involving the construction of new irrigation systems provision for the establishment of a well-functioning O&M program.
- Intensive efforts are needed to help insure high quality survey, design, and construction activities.

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- The procedures for the transfer of "special projects" like the irrigation component of PROLU from "Irigasi" to "Prov. PU" need to be clarified before a possible project is initiated.

Build into the Design of Projects the Establishment of Well-functioning O&M Programs^{1/}

An appreciation of the need for proper O&M and a commitment to financially support proper O&M programs appear to be lacking in Indonesia at this time. Further, in PROLU there has been considerable ambiguity of who is responsible to undertake the O&M of newly completed parts of irrigation systems.

To help deal with these issues, the Team proposes that attention be given within the design of future such projects to establish and carry out a proper O&M program on each section of the irrigation system as it is completed. This would involve:

- The construction of shops to store, service, and maintain equipment required for O&M ^{2/};
- The procurement and use of equipment needed for O&M;
- The recruitment, training, and paying of salaries for an adequate-sized O&M staff; and
- On-the-job supervision by expatriate consultants to help insure the maintenance of high quality standards of O&M during the transition period.

^{1/} The Team believes that this issue is sufficiently important that efforts should be initiated for a reconsideration of BAPPENAS's current policy to not permit project support for O&M in irrigation construction projects.

^{2/} Such equipment is needed for major repairs to main system infrastructure, maintaining services roads that are adjacent to canals, etc.

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By including such an O&M component within the design of a project, there should be better assurance that a properly functioning irrigation system could be turned over to "Prov. PU" at the completion of the project. Further, there is a possibility that the demonstration in the field of the results of a proper O&M program might influence the perspective of host country professionals on the importance of strong commitments being made to O&M programs.

Exercise Intensive Efforts to Ensure High Quality Survey, Design, and Construction Activities

The procedures whereby these activities are supposed to be undertaken are outlined above. In general, the procedures as indicated "on paper" appear to be quite appropriate. The implementation of the procedures, however, leaves much to be desired.

The Team concludes that in designing future projects, such as PROLU, less should be taken for granted concerning survey, design, and construction than was the case with the Irrigation Subproject in PROLU. Possible approaches that might be taken to increase the probability of sound infrastructure being constructed, and to improve the capacities of host country staff for their participation in later such projects, include the following:

- Provide financial and perhaps other incentives so that high quality survey, design, and inspection (SDI) host country staff can be attracted to work in remote places such as North Luwu;
- Require that SDI expatriate consultants have facility in Bahasa Indonesia;
- Make provision within the scope of the project for training SDI staff, with particular emphasis on (i) field data collection, analysis, and interpretation and incorporating the results from such considerations into contractual specifications and (ii) the

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technical, institutional, and human components of effective inspections of completed works by contractors;^{1/}

- Make provision for specific host country staff to work closely with expatriate SDI consultants (the current water resource-related expatriate consultants have apparently not had close working relationships with counterpart staff); and
- Consider the use of "unit cost" rather than "lump sum" systems of bidding on contracts.

Which of these and other possible approaches for tightening up the survey, design, and construction components of a prospective irrigation project that should be adopted would depend on site-specific conditions. Pre-project surveys could be undertaken to determine which approaches would offer the greatest prospects of overcoming inherent weaknesses in existing host country survey, design, and construction capabilities.

Clarify Procedures for Transferring Irrigation Systems from "Irigasi" to "Prov. PU" before Project Activities are Initiated

The Bone-Bone and Kalaena ISs are the first large-scale irrigation systems developed in South Sulawesi. They are also some of the earliest "large-scale" projects undertaken anywhere by the Directorate of Irrigation other than those handled by PROSIDA. That there have been some problems concerning the transfer of these systems is to some extent understandable.

On the basis of this experience, however, it appears clear that steps need to be taken to clarify the processes by which the assets and the management of newly constructed irrigation systems in the future are to

^{1/} We would suggest that field visits to sites where recently constructed infrastructure has become non-functional be included in the training program. Training participants could share their ideas with each other on what may have gone wrong in the SDI process, what might have been done to prevent the problem from having arisen, and what could be done now to overcome the problem. Such field visits might help the participants to appreciate more the importance of disciplined attention to detail in SDI activities.

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be transferred from "Irigasi" to "Prov. PU." This should include attention to clarifications: (1) on whether parts of overall systems can be transferred one-at-a-time in sequence during the process of construction, or whether only completed systems can be transferred, (2) of issues in existing regulations covering the transfer of physical irrigation infrastructure assets that are currently open to different interpretations, and (3) on the steps that will be taken by "Prov. PU" to insure that adequate O&M funding will be available for use with the new systems immediately upon their assuming managerial responsibility for the systems.

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D. Water Users Association

Chew Siew Tuan

1. Formation and Functions

Water users' associations (Perkumpulan Petani Pemakai Air, or P3A) are responsible for operation and maintenance of tertiary and quarternary irrigation systems.^{1/} As of December 1979, 54 associations had been formed in the Bone-Bone and Kalaena areas. To establish them, a committee of P3A members is elected that includes a chairman, assistant chairman, secretary, treasurer, a Mandur Wae (or Ulu Ulu man), and an assistant Mandur Air or Ketua.

Each P3A committee is responsible for routine and periodic maintenance. The Mandur Wae and Mandur Air remove weeds, repair damage caused by livestock, clean tertiary division boxes and maintain levees at the recommended height. These activities are conducted twice per crop season, before planting and after harvesting. Voluntary group labor is usually organized for this purpose.

The Mandur Wae is also in charge of regulating water flows to individual sawah; a small compensation is provided by the Public Works department and P3A membership subscriptions for this effort.

^{1/} Data for this report were obtained from interviews conducted in three days in Bone-Bone. Sixteen farmers were interviewed, including four chairmen of P3As, a Mandur Wae, two KUD chairmen, one local Luwu farmer and two staff members of the Luwu Project Irrigation Office. Staff members of the project Luwu headquarters and the Seksi irigasi in Palopo also provided information. A Dutch consultant responsible for P3A formation in Lamasi was also interviewed.

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An extension worker contacts village leaders during the harvest festival and provides information about P3A functions; newly formed P3As are then registered. Initiative to form a P3A comes from the village leadership.^{1/} The response of village leaders to P3A formation has been good. No village has refused to form one and P3As have been established in villages even where construction of secondary canals has not yet begun.

An extension worker employs existing village leadership to organize farmers to form a P3A. The extension worker from the Luwu Irrigation project office usually contacts the Kepala Desa, the Ketua Kampong, and several Ketua Kelompok Tani. The first two are office holders appointed by the Camat and are usually picked for their capability in community leadership. The Ketua Kelompok Tani is a farmer elected by his neighbors to be a spokesman for about 10-15 households that form a Kelompok Tani.

2. Training

In 1979 and 1981, two courses were organized by the Proyek Luwu Irrigation project to train P3A members; each course lasted two weeks and provided participants with information about operation and maintenance of tertiary canal structures. All participants were P3A chairmen or leaders of Kelompok Tani.

A third course, funded by Project Luwu headquarters, was conducted in January-February 1983. The course was specifically aimed at training P3A chairmen, Mandur Wae, Mandur Air, and agricultural extension agents in their duties and responsibilities. The six-day course emphasized practical training in organizing P3A activities and solving problems related to tertiary system maintenance. The course taught participants

^{1/} A film "Tudang Sibulung," featuring the formation of P3As in South Sulawesi has been prepared for use by the extension worker from the Public Works Department.

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how to hold P3A meetings and organize gotong royong (community cooperation) activities. A field trip was included during which participants were guided around a tertiary system to identify and recognize problems with dikes, canals, boxes, and gates. There were 240 participants in the course.

Organizers of the course found that funding for it was difficult because the Dinas Pertanian and the Irrigation Section of the Public Works Department did not regard P3A training as their responsibility. One and one-half years after it was proposed, the course was funded by USAID. At present, no plans have been made to repeat the course or to propose follow-up extension activities.

3. Training and Extension

An extension strategy is needed to generate support for P3As particularly in activities requiring communal cooperation. The strategy should address two issues: (a) lack of communal support in the local Luwu farming community for P3A activities; and (b) lack of experience in inter-community water management.

(a) Communal Support for P3As

A major problem confronts P3A leadership in the local Luwu farming community because of the lack of community support to clean and maintain tertiary canals. P3A leaders cannot obtain enough volunteers to clean tertiary canals and are continuously repairing canal damage caused by wandering livestock.

The local Luwu farming community has had no previous experience with irrigated sawah cultivation and P3A leadership will need to devise strategies to develop support for a new communal activity. Farmers themselves have to be convinced that P3As serve an important function and that support for P3As will yield them benefits.

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Farmers in Japanese and Balinese transmigrant communities do not have to be convinced of the importance of communal cooperation in water usage and maintenance of irrigation facilities. Farmers in these communities have simply adopted the water management systems practiced in Java and Bali which stress communal cooperation. These systems have a mechanism -- i.e., fines and planting schedules -- which discourage uncooperative behavior. P3A leaders working with these systems do not need to seek new ways to carry out their responsibilities because existing cultural practice organizes communal activities.

Intensive educational and training programs may be necessary to generate communal support for P3As in the local Luwu farming community. An example is the Dutch approach in Lamasi.

Before a tertiary system is designed for an area, an extension team from the Public Works department collects information on sociocultural conditions at the Kampung level. Information collected is the basis for designing a system that accounts for local social and economic factors. Village leaders are asked to hold meetings with farmers to discuss construction plans for the area and to agree on how P3As should be formed. A resident Dutch social economist is closely associated with each step in this process.

(b) Inter-community Water Management

An issue not confronted in training P3A leaders for routine operation activities of the Mandur Waes is that of equitable water sharing; activities of P3As now focus on operation and maintenance of irrigation facilities. Prevailing practice, however, is to open all sluice gates in the system and allow water to flow unregulated; water is therefore wasted. In periods of drought, this practice will reduce water flow to downstream tertiary units and cause discontent among affected farmers. Although a prolonged drought season has occurred in Kabupaten Luwu and padi harvests were drastically reduced, arrangements for intercommunity collaboration in the management of water have not been made.

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In sum, P3A leadership should develop water management arrangements. P3A training courses should draw attention to the need for water management on an intercommunity scale. Leaders should be provided with workable arrangements when the need arises for an intercommunity cooperative effort in water management.

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CHAPTER IV

DEVELOPMENT OF LOCAL GOVERNMENT CAPACITIES PROJECT COMPONENT

Russell H. Betts and Chew Siew Tuan

A. Introduction

One of the goals for Project Luwu which was specified in the Capital Assistance Paper is increased inter-ministerial coordination in planning, budgeting and implementing rural development projects. To achieve this, a Project Luwu Headquarters Office was established in the expectation that this would ensure coordinated area development during the life of the project. This headquarters was set up at the project site, but was outside of and separate from the local government framework. Policy guidance on project implementation was to be provided to the headquarters office by an Inter-ministerial "Steering Committee," established at the Director-General levels of the GOI ministries which were directly involved in project implementation.^{1/}

In this initial project design, minimal thought appears to have been given to any involvement by the Kabupaten Luwu local government. Although a mix of reasons may be involved, the Team concludes that the primary reasons were (1) a preoccupation with ensuring effective inter-ministerial coordination at the national level because PROLU at that point was breaking new ground even at that level; and (2) an implicit assumption by those involved in PROLU design that local government was too weak and inexperienced at that time to be of any significant use.

This attitude is reflected in the original Capital Assistance Paper, where, for example, it is clear that local government officials were

^{1/} A further discussion of issues relating to inter-ministerial coordination and integrated area development concepts appears in Chapter V, pp. 131.

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expected to be involved in PROLU training activities not to improve local government, but instead only as the means to expand the cadre of people available to assist in project implementation. In the early years of PROLU, such training programs typically comprised lectures and seminars on somewhat abstract concepts for project design, management, and evaluation. Results appear to have been modest: the Team found no persuasive evidence that any such training had any significant or lasting benefits, either for local government officials or for PROLU staff. It seems unlikely that they had any impact at all on enhancing local government capacities. Such training activities were discontinued in approximately 1979.

It was not until 1981, when PROLU was amended, that project designers contemplated the role of local government offices in planning future development for the kabupaten. Consequently, a new stated objective in the project amendment paper is to develop a kabupaten planning capacity.^{1/} To achieve this, additional technical assistance was provided to develop a program to train the staff of a kabupaten planning office to be established in Luwu, and to upgrade the planning skills of local government officials. Specifically, two consultants were provided to develop the planning capacity of the Bappeda Tingkat II for Kabupaten Luwu to serve the local kabupaten administration. The Luwu project training program was expanded to include courses to train the staff of the Bappeda Tingkat II and other local government offices.

Although relatively minor in terms of its financial implications for the overall PROLU, the USAID-stimulated "local government capabilities" project component added, USAID-stimulated late in the project, a major new orientation to the project. Whereas previously its principal concern had been with implementation of predetermined program objectives, beginning in 1981 the project also found itself necessarily concerned

1/ Project Amendment Paper, no. 8

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with enhancing, and in the important case of the Bappeda Tk. II in creating local capacities to plan and manage future development activities within the kabupaten. Such activity was entirely consistent with the GOI policy of recent years (and with USAID's efforts to be supportive) to attempt to begin decentralizing certain planning and management functions for local and regional development activities. It therefore can be seen as being entirely justified. But it did introduce a new element into PROLU long after work on the other major project components had begun. Any evaluation of the impact PROLU has had in this area must, therefore, take into consideration the considerably shorter time frame which is involved. In fairness to the project, in fact, it may still be too early to conduct any truly meaningful evaluation at all regarding this component.

Since January 1982, at which time Bappeda Tk. II was formally established, PROLU efforts to improve local governmental capabilities have focused on enhancing the staff capabilities of that body, on the introduction and refinement of a computer-based Input-Output model for rational use of quantitative data and analysis in economic development planning, and on generating an appreciation throughout the local government of the data needs and decision-making power of that model.

The Team was asked to examine the extent to which the planning capacities of local government have been upgraded, and to focus on:

- adequacy and relevance of training and staff-upgrading programs for local government agencies, especially the Bappeda;
- the institutional capacity of local government agencies to assume the burdens previously assumed by Project Luwu headquarters office and other sectoral agencies, and
- economic, legal, or institutional constraints to greater participation by local government agencies in the future development of Kabupaten Luwu, especially the Bappeda.

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B. Background to Training

As indicated above, over the past eight years PROLU training activities have evolved to meet several different perspectives. Initially, training was provided on an ad hoc basis to serve immediate needs of project implementation, primarily in training project staff and the REC and FCC personnel.^{1/} Subsequently, the REC and FCC sub-projects developed separate training programs tailored to their respective objectives. Between 1976-1980, management training for project staff was confined to orienting participants to the overall goals and purposes of the project. Study tours were provided for key project staff professionals. A training consultant who evaluated the training conducted between 1976 and 1979 judged the value of the study tours to be minimal.^{2/} Moreover, there was no overall strategy to systematically train project staff and local government staff in area development planning (as stipulated in the Capital Assistance Paper) or to identify the training needs of the other sub-projects (roads, transmigration, irrigation). This stemmed in part from inadequate emphasis for training having been incorporated into the initial project documentation. For example, the Capital Assistance Paper provided only \$12,000 for training purposes, an insufficient amount for the training needs of the various project components.

The situation improved after 1980 as a result of two short-term consultancies and the additional technical assistance provided when the project was amended in early 1981. At that time as part of the additional technical assistance provided for the project, another \$200,000 was committed by USAID for additional training activities

1/ The Capital Assistance Paper stated that: "short-term training will be given to key members of the project office and local government officials in order for them to understand the basic principles for area development and physical planning and to enable them to better perform their role in the Project". (pg. 55)

2/ Schantz, Training Plan Study, pg. 5-6

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including the training of Bappeda Tingkat II staff. A training program was set up which specified courses for each sub-project and which, additionally, was designed to upgrade the planning skills of project staff and local government officials as well as the staff of the newly created Bappeda Tingkat II.

The Bappeda Tingkat II

The inadequacy of PROLU in helping upgrade the skills of local government officials came to the fore in 1981 when USAID/Indonesia took the initiative in proposing that a kabupaten planning capacity was essential to oversee the continued development of Kabupaten Luwu after the termination of USAID assistance. This initiative was in conformity with emerging GOI attempts to decentralize (or "deconcentrate") certain regional development planning functions to the provincial or lower levels, and was intended to reinforce other programs of cooperation (notably PDP and LGT-II) in which AID was substantially involved in cooperation with the GOI. Consequently, provision was included in the project amendment paper which identified the development of a kabupaten planning capacity as one of the three objectives of the additional technical assistance to be provided.^{1/}

A direct outcome of the new focus in USAID assistance to Project Luwu is the creation of a Bappeda Tingkat II for Kabupaten Luwu.^{2/} That office, which began operating in January 1982, now consists of a chairman, a secretariat and four divisions -- i.e., Data Collection and Analysis, Economics, Infrastructure, and Socio-Cultural Affairs. The Economics and Data Collection divisions are headed by two staff members seconded from the provincial Bappeda Tingkat I office in Ujung Pandang.

^{1/} Luwu Area and Transmigration Development Project Paper Amendment, pg. 8, 13.

^{2/} Decision letter of the Home Affairs Ministry, # 185, 1980

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The heads of the Infrastructure and Socio-Cultural divisions are staff members from other government offices in Luwu. At the time of our investigations, the office had a total of twenty-nine staff members, mostly university graduates.

As with other Bappeda Tingkat II operations in Indonesia, the role the one in Kabupaten Luwu is to assist the Bupati (head of the Kabupaten administration) in the formation and evaluation of development policy for the kabupaten. Specifically, its mandate is to undertake the following:

- Coordinating the planning of all government offices;
- Coordinating and conducting research for all planning;
- Following the preparation and development of plan implementation;
- Monitoring the implementation and progress of development.^{1/}

To enable the Bappeda Tk. II to perform these functions, two consultants were provided by PROLU to simultaneously: (a) train the newly recruited staff; (b) develop an appropriate analytical tool for planning development activities, and (c) formulate a medium-term development program for Kabupaten Luwu.

Since early 1982, the activities of Bappeda Tk. II have been focused in setting up an input-output analysis model using a microcomputer and collecting and interpreting the relevant information on the various economic sectors of Kabupaten Luwu for input-output analysis. Bi-weekly seminars, a set of five courses and fieldwork to collect the necessary data to comprise the core of the "learning-by-doing" staff training program (see Table 6 on the following page).

Adequacy and Relevance of Staff Training

At the time of our visit to Luwu, the activities described above were not yet completed: the fifth training course was underway, data manipulation using the input-output model was being finalized, and the

1/ Decision letter of the Home Affairs Ministry # 185, 1980

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TABLE 6

Courses Funded by PROLU for Training Local Government Officials^{1/}

<u>Course</u>	<u>Description</u>	<u>Date</u>	<u>Participants</u>	<u>Cost</u>
1. Bappeda Training I	Establishment of a data office; data collection and mapping	Jan - July 1982	Bappeda Tk. II staff	Rp. 1,097,000
2. Bappeda Training II: "Kabupaten Economic Analysis"	Continuation of above; Input-Output analysis; data analysis using computer; sample survey	Aug. '82 - Feb. '83	Bappeda Tk. II staff	Rp. 4,376,500
3. Project Design and Evaluation	Concepts in project planning and evaluation	1980; Sept. 13-19, 1982	Course held twice for total of 50 staff members from Bappeda, selected Dinas offices, and Socioeconomic Section of PROLU HQ.	Rp. 2,021,550
4. Application of Analysis Input-Output to Development Planning	Use of input-output analysis to test feasibility of projects		Bappeda staff and selected Dinas officials	
5. Bottom-Up Planning	Same as #4; use of input-output format in proposal writing		36 Dinas officials	

^{1/} Source: Bappeda File, PROLU HQ office

development plan had not been formulated. In short, the Team witnessed an intense flurry of activities which had not yet settled. Therefore, the Team could assess neither the full effect of the training nor the practical application of the input-output model. Any evaluative comments by the Team can only be considered as premature. Nevertheless, the Team has made some provisional observations.

The Input-Output Model as a Planning Tool

The entire thrust of the Bappeda's activities have been focused on setting up a data base for the use of the input-output model and on training the staff to use it. The preliminary objective was thus to determine whether this planning method would be appropriate for the Bappeda's information needs. Both from the documents the Team read and conversations with Bappeda personnel (including the two consultants), it was determined that, at least in theory and provided that certain conditions are met, the input-output analysis technique could be an appropriate tool to provide the relevant quantitative data for regional planning purposes. In particular, the "economic map" which the model produces will be able to indicate effectively the interrelationships among the various economic sectors of the kabupaten. Such information would be essential to direct development trends, which will provide the basis for the Bappeda to perform its basic function of supplying decision-makers in the Bupati's (and the provincial) administrations with objective indicators of the kabupaten's economic health and growth potential. Whether the decision-making process itself will be as objective must remain debatable until the system has been tested through use, but if Bappeda Tk. II can make effective use of the model and of the technical skills with which it has been provided through the PROLU training program, it would have fulfilled its mandate by at least providing the basis for decision-making.

Training of the Bappeda Tk. II Staff

At the time of the evaluation, the professional staff members of the Bappeda had undergone approximately 19 months of intensive training

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through a combination of seminars, courses and field trips. Between January 1982 and August 1983, all 29 staff members had participated in the following:

- An average of two seminars per week on the basic concepts on input-output analysis and data tabulation, and on analysis using the input-output format;
- Four courses on the application of the input-output model for planning development for the kabupaten as a whole (see Table 6.)
- Field work
 - gathering data from government offices in Kabupaten Luwu to compile baseline information on key economic sectors;
 - 15-day field survey to collect household data in 29 villages; and
 - field trip to collect information for mapping purposes.

In addition, six key members of the staff received further training in analyzing the "economic map" (a graphic display of economic indicators of development trends and potential in the kabupaten) produced by the micro-computer. Three of these individuals also were trained to operate the computer, i.e., to enter the necessary data required for the economic map and to perform other simple statistical analyses using software packages such as visicalc.

Conversations with staff members of the Bappeda indicated that they are applying the knowledge and skills they have acquired. Judging from the quality of the maps and reports, the Team is satisfied that they were well-supervised. However, the Team was not prepared to say that the same quality will be maintained after the departure of the consultants. For example, in-depth questioning of the members of the group which had been trained to analyze the economic map leads to two observations. On the one hand, the trainees appear to be thoroughly familiar with the basic concepts and applications of the input-output model and competent in using the microcomputer for analysing data. On the other hand, when asked to do assessments themselves, they seem to lack confidence in their ability to synthesize and analyze information without the help of the

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consultants. While the Team is convinced that the first observation suggests adequacy in their training, the second indicates a lack of practical experience. The learning-by-doing training they have received has been so intensive and recent that the staff have not had the chance to practice these skills on a routine basis. They have literally been kept moving from one phase to the next in their training program. In short, the Team can attribute their lack of confidence to the speed and intensity of the training. However, what may also be indicated is a genuine need for further supervision before they are left on their own.

Conclusions and Recommendations

In assessing the adequacy and relevance of the training program for the Bappeda staff, the Team considered the following:

- the relevance of the input-output strategy to the planning needs of the Bappeda;
- the approach taken to train the Bappeda staff;
- the capability of the staff in handling the microcomputers and interpreting the information; and
- self-assessment by the staff with regard to their ability to assume responsibility for planning.

The Study Team's findings with regard to each the above items are:

- Provided that accurate and pertinent data are made available for Bappeda Tk. II's use, the input-output technique will provide relevant information for the Bappeda to fulfill two key functions -- identifying alternative development plans for Kabupaten Luwu, and evaluating and establishing priorities for development project proposals submitted to Bappeda;
- The seminars, courses, and fieldwork which were conducted have adequately equipped the Bappeda staff with the necessary knowledge and skills to conduct routine data collection and analysis using the input-output format;
- There is a core group of six staff members who can interpret the information derived from the input-output model and three of them have been effectively trained to process data using the micro-computer; and

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- The self-assessment by key members of the staff indicates a lack of confidence in their ability to apply what they have learned in their work.

The Team attributes the lack of confidence of the staff to the speed and intensity of the training they have received in the past 20 months. However, it may also indicate a genuine need for further supervision.

In light of the foregoing, the Study Team recommends that The Bappeda Tk. II needs time to mature before it can be determined whether the training for its staff has been effective. Toward this end, the Team recommends that a further evaluation be conducted at an appropriate time in the future (perhaps in March or April 1984, after Bappeda Tk. II has completed its planning work, utilizing its acquired skills and the input-output model, for the 1984/1985 GOI fiscal year), to ascertain (a) the progress of the Bappeda staff; and (b) the adequacy of the input-output model in addressing the various planning functions of the Bappeda.

C. Upgrading the Planning Skills of Local Government Officials

Two courses in area development were funded by the new project component. Each lasted one week, and participants included officials from the Bupati's administration and the local branches of the Agriculture and Transmigration Ministries. The first course, Project Design and Evaluation, introduced general planning concepts and a format for writing project proposals. The contribution of the course is questionable: most of the participants the Team spoke to have not found the knowledge gained relevant to their work.

The second course, "Bottom-up Planning," trained 36 planners from the various local government offices to design area development projects using input-output analysis and to write a project proposal using an input-output format. In the future, the Bupati's administration will require such formats to be used in project proposals submitted by the planners. Therefore, the purpose of the course was to train local government planners to use a common methodology in planning projects.

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Concurrently, however, it should be noted that the consultants were clear in their minds, as were at least some of the Bappeda staff, that an equally important purpose of the course was to stimulate interest among local government officials regarding input-output analysis, its data requirements, the uses to which it could be put, and its potential value as an aid to planning. For example, there was a conscious effort to stimulate a local demand for the services Bappeda Tk. II was being prepared to provide. Of special note in this regard is the fact that interest in the course was far higher among local officials than even the normally optimistic consultants had anticipated: over 45 persons enrolled for a course which had been planned for a maximum of 30 people.

This course began toward the end of the Team's stay in Palopo and was still underway at the time of their departure. Therefore, the Team was unable to assess its effect on the participants. Judging from the course syllabus, the quality of instruction and the interest of the participants, however, the Team feels persuaded that the participants will at least be acquainted with the input-output format for writing proposals. Insofar as the participants are required to use this proposal format by the Bupati's administration, the course would have equipped the government officials with the necessary basic skills. Nevertheless, it is doubtful whether a six-day introduction to input-output analysis would be sufficient for the participants to acquire an in-depth understanding of this planning tool. More training would be required.

Conclusion and Recommendations

The Project Design and Evaluation course was less relevant to local government planners in Kabupaten Luwu than the Bottom-Up Planning course. Unlike the Project Design and Evaluation course, the Bottom-Up Planning course addressed a future requirement, i.e., that project proposals submitted to the kabupaten government for funding be subject to evaluation using an input-output analysis technique. However, more training in input-output analysis may be needed to build on what the local government planners have acquired from the Bottom-Up Planning course.

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Within this context, the Team recommends that:

1. A survey (e.g., questionnaires sent to the participants) be conducted to determine the effect of the Bottom-Up Planning course and the future needs of the government planners, and
2. More follow-up courses which take into account the findings of the survey, and which build on what the participants have learned from the Bottom-Up Planning course, should be offered. To achieve this, the set of courses used to train the Bappeda Tk. II staff could be modified and repeated for local government planners.

The Team noted that many participants who took the first course did not take the second course. Should more courses on input-output analysis be conducted, maximum benefit would only accrue to individuals who followed the sequence of courses. Therefore, it is strongly suggested that the same group of participants who took the Bottom-Up Planning course be included in any subsequent courses on input-output analysis.

3. It is too early to assess fully the impact of the approach taken to develop the planning capacity of the Bappeda in Kabupaten Luwu. The immediate need now is to put into effect the planning process and allow the staff to practice their skills and, possibly, verify the validity of the approach.

D. Bappeda Tk. II's Future in Planning Kabupaten Luwu's Development

Several factors will determine the future role of the Bappeda. These are described below.

1. Permanence of the Bappeda Staff

The capability of the staff in applying the input-output model depends greatly on their collective experience. A high turnover of staff, particularly the heads of the four divisions and the computer

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operators, would undermine the training effort. Already one key member has left; will others follow suit? Should steps be taken to induce the present staff to serve long enough for the Bappeda staff to establish itself?

2. Cooperation from Other Local Government Offices

The Bappeda's planning strategy relies heavily on information it receives from other local government offices. The cooperation of other local government offices is essential to ensure a continued and timely inflow of information. So far, the Bappeda has good relationships with the other local government offices -- will it be maintained in the future? A key element will be whether other local government planning offices will adopt the same methodology in their planning efforts. The recent Bottom-Up Planning course may serve to guide them in that direction, but other steps will need to be taken. For example, the Bappeda will have to demonstrate to local government offices the practicality and relevance of systematic quantitative analysis to planning development for the kabupaten. In other words, more proof of the applicability of the input-output technique is needed before other local government offices will follow (assuming that they can if they want to), and the Bappeda will have to set the example.

A more fundamental issue is whether or not the decision-makers in the local government will base their judgments on information derived from an objective, quantitative methodology. In other words, will political factors over-ride the Bappeda's attempts to use a purely economic logic to persuade decision-makers? The Team acknowledges that in some circles those who hold that politics and not economics will sway the local government decision-makers will argue that the Bappeda's planning strategy is too sophisticated for kabupaten planning and that therefore the input-output model will not work and that even Bappeda itself is doomed to irrelevancy. Such an argument prejudices the situation and is similar to the ethnocentric view that "natives" will never change their "backward" ways. The Team's position is that the Bappeda should be given

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the chance to prove itself; and only time will tell. Proper nurturing in the interim might help.

Notwithstanding potential deterrents, other factors may work in favor of the Bappeda: for example, the present policy of the national government to facilitate decentralization in decision-making by encouraging local government to design mid- and long-term area development plans compatible with Repelita goals. To do so, kabupaten and provincial administrations will have to submit proposals based on information about the region within their jurisdiction. It is the task of the Bappeda Tingkat I and II to collect such information, and if that is all they do, at least they are providing a needed service. A functioning input-output model could prove useful in this regard.

E. Capability of Local Government Agencies to Assume PROLU Burdens

The Team also was invited to comment on the institutional capacity of local government agencies to assume the burdens previously assumed by PROLU headquarters and other sectoral agencies, and to comment on the economic, legal, or institutional constraints to greater participation by local government agencies in the future development of Kabupaten Luwu. In addressing these issues, the Team has observed that PROLU's status outside the existing local governmental structure, charged primarily with implementing a program which was conceived and directed from the national level, and interacting principally with national-level authorities and budgets, did not create a system which was conducive to strengthening of local governmental capacities.

PROLU was not originally set up for this purpose, and was required to involve itself in this process only beginning in 1981 with the inauguration of the Bappeda Tk. II project component. Aside from its sizeable impact on Bappeda, it therefore should not be surprising that PROLU's influence on improving local government capacities has been only limited, and usually indirect.

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An examination of the PROLU headquarters activities reveals that there is not really very much relating to that entity's operation which needs to be assumed by local government. Headquarters was primarily responsible for coordinating and overseeing implementation of project components, for providing a focus for expatriate technical assistance activities and, perhaps above all, for providing a single entity with which USAID could interact in oversight and management of its own support to an otherwise unwieldy package of diverse activities.

With the forthcoming termination of large-scale foreign donor support, most of these functions will simply fade away, and the question of local government assuming PROLU headquarters' burdens will largely become a moot one.^{1/} A more serious problem exists with respect to the transference to appropriate authorities of many of the burdens which thus far have been assumed by the separate PROLU project components. These have been discussed at length in other sections of this report with regard to the Farmers' Cooperative Centers and the Irrigation Systems project components, and also have been mentioned briefly as they affect the Rural Extension Centers. But as has been indicated, the key issue is not the capacity of local government to assume burdens previously assumed by PROLU project components: it is the urgent need for decisions at the national level regarding what responsibilities will be transferred to whom, and with what budgetary provisions and other "conditions," in order to provide bases for continuation of activities which were begun under PROLU auspices. If responsibilities are to be transferred to local authorities, then these authorities will respond as best they can. If such response is inadequate, then a judgement could be rendered that the structure of PROLU did not incorporate early or thoroughly enough adequate provision for strengthening local government capacities. But at this point in time, the Study Team is unable to predict confidently

^{1/} It should be noted in passing, however, that many questions regarding the transferring of physical inventory under PROLU's control (vehicles, buildings, and equipment) to other agencies or persons are not yet resolved.

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whether or not the local government will be up to the task, primarily because so little thought has yet been given to exactly what that task might consist of. In this sense, it might be said that the existence for the past eight years of PROLU itself as a separate, nationally-directed operation may prove to have been the greatest single constraint to increased participation by local government agencies in Luwu's development.

The problem, if it exists as suggested here, is a structural one which should be thoughtfully addressed before the GOI or donor agencies embark on further programs based on the Luwu model. The dilemma is whether managerial leadership for activities similar to those implemented under PROLU should be vested in a Special Project office or should be integrated with existing local government structures. Trade-offs are involved. If a Special Project office is created, project implementation and achievement of pre-determined outputs and goals might be more effectively accomplished. But opportunities to build local institutional capacities might be sacrificed in the process. If, on the other hand, integration into local government structures is attempted (either at the outset or during the course of project life), greater local institutional capacities for post-project continuation might be developed, but achievement of specified project outputs might prove more difficult to accomplish within allotted time frames.

PROLU tended strongly toward the former model. While this enabled more effective achievement of specific project objectives, the sustainability of these benefits must remain an open question until such time as the basic decisions identified above have been addressed and resolved, and continuation responsibilities have been assigned.

Given the GOI's declared intention of decentralizing and deconcentrating responsibilities for the planning and management of regional development, the Study Team believes that in planning for future area development programs, the GOI, USAID, and other donor agencies may wish to consider structural arrangements which led to greater local government participation than, with the important exception of the Bappeda Tk. II project component, characterized Project Luwu. The sustainability of

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project benefits seems likely to be enhanced if greater attention is paid, at the project design stage, to mechanisms for encouraging greater local government involvement in and control over the development process.

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CHAPTER V

OTHER ISSUES: RURAL EXTENSION CENTERS AND CONSULTANTS

(Chew Siew Tuan, Donald C. Taylor, and Russell H. Betts)

The observations, conclusions, and recommendations presented in this final chapter to The Report of the Study Team on The Luwu Area and Transmigration Development Program (Final Evaluation, Phase I) fall outside the Scope of Work which guided the team. Nonetheless they are recorded here in the hope that they may prove useful to interested readers.

The Study Team would first like to dwell briefly on (a) the Rural Extension Center Project Component and then on (b) lessons which may have been learned during the implementation of PROLU concerning the role and use of expatriate consultants in technical assistance programs.

A. The Rural Extension Centers Project Component

The Capital Assistance Paper provided for the establishment of four Rural Extension Centers (RECs) to: (1) develop an extension service to train farmers; (2) conduct field trials to develop improved rice production and secondary crop cultivation; and (3) provide "an atmosphere conducive to the interaction of governmental and educational agencies assisting the Luwu program" (CAP, pg. 39).

At present, all four RECs are fully operating, and by June 1983 a total of 80 extension agents and 11,710 contact farmers had been trained. Eighty-two percent of the planned budget for REC activities had been expended. At the time of the study, an active program of demonstrations and training was underway and will continue through the remaining period of PROLU. A full list of REC extension training activities is presented in Table 7.

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TABLE 7
EXTENSION ACTIVITIES OF THE REC'S

		No. of Partici- pants	Funding Rp.
Proyek Pembinaan Pendidikan dan Latihan Pertanian Daerah Transmigrasi Kab. Luwu (REC)	1. Workshop/Latihan PPL/PPM angkatan ke I	30	2,250,000
	2. Workshop/Latihan PPL/PPM angkatan ke II	30	2,250,000
	3. Kursus Tani 8 angkatan	175	1,600,000
	4. Karya Wisata Petani 2 Angkatan	120	1,600,000
	5. Pertemuan PPL/PPM, kontak tani dan tani maju 20 angkatan	440	9,770,000
	6. Sensus kontak tani	100	
	7. Workshop PPL/PPM	30	5,000,000
	8. Kursus tani 10 angkatan	250	3,200,000
	9. Kursus kontak tani 2 angkatan	55	1,334,000
	10. Pemutaran film 20 kali	19,295	1,140,000
	11. Pertemuan kontak tani 2 kali	40	500,000
	12. Demonstrasi perkawinan buahan 10 kali	258	750,000
	13. Demonstrasi pengolahan makanan tambahan 10 unit	400	500,000
	14. Competition and reword fisheries two times	-	500,000
	15. Percobaan Pengadaan kebun rumput (5 ha)	125	1,250,000
	16. Percobaan Pengawetan/ Penghijauan Makanan Ternak (Rumput)	57	750,000
	17. Penetasan telur ayam	50	200,000
	18. Demonstrasi tanaman padi, palawija dan horticultura 10 units	203	500,000
	19. Demonstrasi pertanaman 10 units	596	860,000
	20. Demonstrasi pestisida 10 units	182	500,000
	21. Demonstrasi kesejahtraan keluarga 10 units	111	350,000
	22. Demonstrasi makanan bergisi 5 units	112	375,000
	23. Testing pemupukan 2 units	123	458,000

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TABLE 7 (Cont'd.)

	No. of Partici- pants	Funding Rp.
24. Testing tanaman tumpang sari (2 units)	45	1,015,000
25. Percobaan pemupukan	-	110,000
26. Kursus tani perikanan 5 angkatan	132	3,000,000
27. Pembuatan baaklet dan kaflets:		
a. tanaman pangan 5000 bh		
b. perikanan 1000 bh		525,000
c. perkebunan 1000 bh		
28. Peralatan training untuk 4 REC		600,000
29. Film procurement (6 units)		3,510,000
30. Procuring film (2 units)		400,000
31. Material training:		
a. buku-buku, surat kabar dan magazine		300,000
b. chichen (Hens) 50		150,000
c. chichen (Cocks) 75		150,000
32. Procurement of cattle:		
a. quality bulls 2		400,000
b. cross female cows 5		500,000
c. fatt ming cows 2		140,000
33. Competition and reward		1,390,000
a. tanaman pangan		
b. perkebunan		
34. Karya wisata Petani		700,000
Karya wisata kontak tani		480,000
35. Demplat kelapa hybrida 1 unit		259,000
36. Pembibitan kelapa hybrida		95,000
37. Percobaan kelapa hybrida		90,000
38. Produksi slide dan baaklits		1,000,000
39. PPL (extension workers) Training in Ujung Pandang	20	6,300,000
40. REC Kursus tani training	180	1,250,000
41. Beef Cattle Raising for Transmigrants	90	4,150,000
42. REC Brahman Cattle training (proposed)	not yet determined	3,964,000
43. REC Whole Farm Management	20	7,770,000

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The Team was not required to examine the RECs. In the course of the investigations, however, the Team made observations which suggest that in several respects the RECs have in certain ways perhaps been as successful as the FCCs. However, whereas the future status of the FCCs is currently a "hot" issue, comparatively little attention is being focused on the future of the RECs after the termination of USAID assistance to PROLU. The Team, therefore, wishes to draw attention to several accomplishments of the RECs and to issues which will arise when PROLU is terminated.

1. The Training Programs

Of all the PROLU project components, the REC activity has developed the most extensive training program, one which was put into operation right from the beginning of project implementation. For example, between 1976 and 1979, while the other projects components had little or no training activity, the REC made a good head start, with 21 courses to train agricultural extension personnel. From 1980 to the present, the REC project expanded its program substantially, as is indicated by the 43 items listed in Table 7.

Although no systematic monitoring of the effects of the REC project has been done (a situation which the Study Team considers to be unfortunate), observations by PROLU training consultants have consistently indicated that the extension activities were well planned and executed, and that the trainees found the courses useful. The Team's interviews with contact farmers confirmed these observations.

Two features of the REC training program are especially noteworthy. First, most of the courses are conducted at the project site, which facilitates on-site field training geared to location-specific circumstances and needs. Second, the long-term presence of an Agriculture Extension Advisor and his personal involvement in training and with farmers contributed greatly to developing a program which is responsive to the needs of both trainers and farmers.

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2. Coordination among the Various Local Agricultural Departments

In implementing its extension program, the REC head office has facilitated cooperation between the various agriculture departments -- Food Crops, Estate Crops, Fisheries, Forestry, and Extension Service. For example, many of the courses are designed and taught by staff members from the various departments. On at least one occasion, the staff resources of the irrigation department and the agriculture departments were combined to design and teach a course (e.g., the P3A course). In this sense, the REC head office has had a noteworthy degree of success in providing a common basis for cooperation among different sectoral agencies. As suggested elsewhere throughout this report, such inter-agency coordination has otherwise been a less noteworthy aspect of PROLU implementation than had been anticipated.

On the basis of the foregoing, the Study Team recommends that early attention be paid to resolving the future of the RECs. An institutional base needs to be identified which will: (1) nurture the innovative approach to training, and (2) prevent the splitting up of the REC training activities among the different agriculture departments where they would be subject to budgetary constraints and possibly be withdrawn from the extension program.

B. The Role and Use of Expatriate Consultants in Technical Assistance Programs

The basic rationale for including expatriate consultants in technical assistance packages arises from a belief that without the consultants, the physical and other financial resources included in a technical assistance program will not be used effectively. To the extent that consultancies work out well, both the immediate project outputs and the professional capacities of host country staff to undertake similar work in the future should be improved.

During the conduct of the study in PROLU, the Team observed and thought about different possible arrangements whereby the services of

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consultants can be used by host countries. At least four possible roles for consultants are envisioned, as follows:

- a consultant is incorporated into an existing organization and exercises line-authority over the host country staff who work beneath him;
- a consultant has direct line authority over contractors who undertake construction work financed by a donor agency;
- a consultant works as an advisor to pre-designated host country counterparts; or
- a consultant works as an advisor to a particular agency, but without pre-designated counterparts.

In considering the pros and cons of these various roles, the Team concludes the following:

1. Other things being equal, greater progress toward achieving immediate project goals for project components involving infrastructure development (e.g., in PROLU, the road or the irrigation systems) can be expected from technical assistance projects involving consultants with line-authority roles rather than solely advisory roles. To exercise line authority roles may, however, require the expatriate consultant to spend a large amount of time and attention on rather minor details.

2. Other things being equal, greater progress toward developing longer-term indigenous skills and professional capacities might be expected from technical assistance projects involving consultants in advisory rather than line-authority roles. (This does depend importantly, however, on inter-personal compatibilities. It also may depend on the exact nature of the advisory assignment.)

3. The probability of in-depth professional interaction is greater for advisors who work in agencies for which counterpart relationships are not pre-designated. With an unstructured counterpart relationship, there is freedom for professional interrelationships to develop between individuals who discover that they are personally compatible with one another.

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4. A possible shortcoming of arrangements in which advisors do not have pre-designated counterparts is that the advisor will have "no one" with whom to interact. Advisors to agencies that are "short on staff" are particularly vulnerable to this possible shortcoming.

5. The potential suitability of line-authority consultancy relationships to technical assistance activities involving the construction of capital infrastructure is probably greater than for technical assistance activities involving the building of institutional capacities.

6. The potential added productivity of line-authority consultancy relationships is greater to the extent that the institutions with which the consultants work are at an early stage of development.

7. There may be greater potential for sustained project benefits in technical assistance activities involving advisory rather than line-authority type consultants.

Some additional observations concerning consultancy relationships follow.

1. A necessary condition for effective consultancy relationships is that host country staff genuinely desire to have the services of consultants. In host countries that are recipients of large volumes of technical assistance -- such as Indonesia -- it sometimes may be difficult to find appropriate counterparts for all the consultants that are tied to all the various technical assistance programs being carried on in the country.

2. The Team believes there is a direct relationship between the probability of productive consultancies and the existence of an Indonesian language capacity by consultants. Other personal characteristics that can potentially contribute to productive inter-personal consultancy relationships are flexibility, cultural empathy, and prior experience which is suitably relevant to current-assignment circumstances and needs.

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3. Host country staff can sometimes use consultants as "third-parties" who insist that minimum quality standards must be maintained in construction contracts.

The Team's impression is that although the technical assistance provided to PROLU by Checchi & Co., D.M.J.M., and Louis Berger has made important contributions to the manner in which PROLU has been implemented (and the implementation goals), consideration of and adjustment to these thoughts may have even further enhanced the value of the technical component. Line authority over host-country contract work in irrigation systems construction, for example, might have helped avoid at least some of the problems now faced by those systems.

* * *

This concludes the Study Team's evaluation report on Project Luwu. In the next section several appendices are presented which include the scope of work, key individuals contacted, and a list of documents used in preparing this report.

APPENDICES

Appendix A-1: Scope of Work, Final Evaluation of Selected Project Components of Project Luwu (Phase 1)

Appendix A-2: Scope of Work, Final Evaluation of Integrated Area Development Approach of Project Luwu (Phase 2)

Appendix B: Key Individuals Consulted

Appendix C: Key Documents Consulted

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APPENDIX A-1

SCOPE OF WORK

FINAL EVALUATION

OF SELECTED PROJECT COMPONENTS OF PROJECT LUWU (Phase 1)

A. Purpose

The purpose of this evaluation is to enable both the Government of Indonesia and USAID to determine the effectiveness of the manner in which key components of Project Luwu were implemented. To the extent possible, the evaluation should serve as the basis for planning future activities both within Kabupaten Luwu and elsewhere in Indonesia where area development programs are contemplated. In this respect, the evaluation should not only address the concerns of USAID, but should also be aimed at the relevant Government of Indonesia agencies both at the local and the national level. The key components to be evaluated include the irrigation system, the Farmers Cooperative Center, and the development of local government institutions.

A. Background of Project Luwu

Project Luwu began in 1975, with total assistance of \$18 million from USAID, and counterpart funding from the Government of Indonesia. It is an area development project comprising five distinct, but related, components. The first component involves the construction of the trunk road linking the kabupaten capital of Palopo with the eastern town of Malili. The second component calls for the construction of large-scale irrigation systems in the coastal plain of the kabupaten. The third and fourth components are to establish Farmer Cooperative Centers to serve and support village-level cooperatives in the provision of agricultural inputs and credit, and the marketing of farm products and Rural Extension Centers to provide training and assistance in modern agricultural techniques. The final component is the resettlement of 700 transmigration families from Bali and Lombok. An additional project

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component was added by PP amendment in 1981 which provided technical assistance to develop the planning and management capacity of the District Planning Board so that this institution would have the human resource capacity and planning and management systems required to continue the development of the District upon termination of the nationally supported and directed Luwu Project.

Each project component has been implemented through a sectoral agency of the Government of Indonesia. The road construction has involved the Office of Highway Construction (Bina Marga); the irrigation system, the Directorate General of Water Resources Development; the Farmers Cooperative Center, the Department of Trade and Cooperatives; the Rural Extension Center, the Department of Agriculture; and the resettlement project, the Department of Transmigration and Manpower. The activities of these various agencies have been coordinated through the Project Luwu Office, established in Palopo in 1979, with a Project Manager appointed by the Department of Transmigration and Manpower, the official counterpart agency for the project. The local government assistance effort was sponsored by the Ministry of Home Affairs.

The work of the implementing agencies has been assisted by a team of expatriate consultants assigned to the various project components.

C. Scope of Evaluation

1. Implementation of Irrigation System Component

The Capital Assistance Paper projects a total of 10,760 ha. of irrigated land upon completion of the project, later reduced to 8,470. The evaluation should examine the manner in which the project attempted to meet this target. A comparison with the process of implementing the Dutch supported irrigation scheme in neighboring Lemasi would be particularly useful. The following issues should be considered:

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- Guidance to and use of local contractors in system construction;
- Appropriateness of completed systems for agronomic conditions and terrain of project area;
- Adequacy of provisions for maintenance of both major works and on-farm works;
- Effectiveness of management of both major works and on-farm works; including degree of success in involvement of Water User Associations; and
- Lessons learned from implementation applicable either to future activities within the project area or elsewhere in Indonesia.

2. Implementation of Farmers Cooperative Center Component

After an initial stage of project implementation, the target of establishing four Farmers Cooperative Centers was agreed upon. These centers were intended to serve as an experiment in establishing intermediate institutions between the village level cooperation (KUD) and the provincial cooperative office (PUSKUD). The evaluation should examine the extent to which these centers have been created and are effectively serving the function intended. This should include an examination of the FCC as a possible model for future cooperative development in Indonesia and the extent to which it proved successful in assisting village KUDs in the following:

- Providing modern agricultural inputs for the project area;
- Providing credit required by farmers within the project area;
- Selling agricultural products from within the project area;
- Achieving effective management and institutional linkages; and
- Achieving independence of continued subsidies or outside support.

The prospect for the long-term financial viability of the FCC should be examined in depth.

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3. Development of Local Government Capacities

One of the goals specified in the original Capital Assistance Paper is increased inter-ministerial coordination in planning, budgeting and implementing rural development projects. To achieve this, a Project Luwu Headquarters Office was established to ensure coordinated area development during the life of the project. During the final stage of the project, efforts were made to develop the capacities of local government agencies to continue integrated area planning and development. The district (kabupaten) planning board (Bappeda) has been given particular attention to ensure that future Government of Indonesia programs are consistent with an area development approach. The evaluation should examine the extent to which this has been achieved. Attention should be given to the following:

- The adequacy and relevance of training and staff-upgrading programs for local government agencies, especially the Bappeda;
- The institutional capacity of local government agencies to assume the burdens previously assumed by Project Luwu Headquarters Office and other sectoral agencies;
- Economic, legal or institutional constraints to greater participation by local government agencies in the future development of Kabupaten Luwu, particularly the Bappeda; and
- Lessons learned from implementation applicable either to future activities within the project area or elsewhere in Indonesia.

4. Recommendations and Conclusions

The evaluation should contain recommendations and conclusions which are of direct benefit and use to Government of Indonesia agencies at the local and national level, as well as USAID.

D. Previous Evaluation Experience

AID has in the past supported a series of impact evaluations undertaken by Universitas Hasanuddin. The findings and results of these previous efforts, particularly those completed in 1981 and 1983, should

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be examined. Where these previous efforts have revealed problematic issues or anomalies concerning the impact and implementation of the components of Project Luwu emphasized in the final evaluation, there should be an attempt to address and analyze them to the extent possible.

E. Manpower Requirements

The team undertaking the final evaluation should include individuals with considerable experience in rural social research in developing countries, and a thorough knowledge of evaluation skills and methodology. In addition, the following specific professional skills will be required: agricultural economics; rural sociology; and public administration, water management and regional planning. A knowledge of Indonesia and the structure of its government and system of public administration is highly desirable. In addition, ability to work professionally in Bahasa Indonesia would be a great advantage.

F. Timing

The Mission would like to initiate the evaluation effort in early July 1983. It is estimated that the evaluation, including submission of a final report, can be completed within six weeks after the team begins work in Indonesia.

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APPENDIX A-2

SCOPE OF WORK

FINAL EVALUATION OF INTEGRATED AREA DEVELOPMENT APPROACH OF
PROJECT LUWU (Phase 2)

A. Purpose

The purpose of this evaluation is to enable both the Government of Indonesia and AID to determine the effectiveness of the integrated area development approach utilized in Project Luwu. A separate evaluation is being undertaken of individual components of Project Luwu which are felt to be of particular interest. This evaluation is more concerned with the overall strategy of integrated development employed in this project rather than discrete elements of the project. The objective is to learn to what extent this understanding of integrated development has yielded the results hoped for and can serve as a possible model for future area development programs in Indonesia. In this respect, the evaluation should address not simply the concerns of AID but should also be aimed at relevant Government of Indonesia agencies both at the local and the national level.

B. Background of Project Luwu

Project Luwu began in 1975, with total assistance of \$18 million from USAID, and counterpart funding from the Government of Indonesia. It is an area development project comprising five distinct, but related, components. The first component involves the construction of the trunk road linking the kabupaten capital of Palopo with the eastern town of Malili. The second component calls for the construction of large-scale irrigation systems in the coastal plain of the kabupaten. The third and fourth components are to establish Farmer Cooperative Centers to serve and support village-level cooperatives in the provision of agricultural inputs and credit, and the marketing of farm products and Rural Extension Centers to provide training and assistance in modern agricultural techniques. The final component is the resettlement of 700 transmigration families from Bali and Lombok. An additional project

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component was added by PP amendment in 1981 which provided technical assistance to develop the planning and management capacity of the District Planning Board so that this institution would have the human resource capacity and planning and management systems required to continue the development of the District upon termination of the nationally supported and directed Luwu Project.

Each project component has been implemented through a sectoral agency of the Government of Indonesia. The road construction has involved the Office of Highway Construction (Bina Marga); the irrigation system, the Directorate General of Water Resources Development; the Farmer Cooperative Center, the Department of Trade and Cooperatives; the Rural Extension Center, the Department of Agriculture; and the resettlement project, the Department of Transmigration and Manpower. The activities of these various agencies have been coordinated through the Project Luwu Office, established in Palopo in 1979, with a Project Manager appointed by the Department of Transmigration and Manpower, the official counterpart agency for the project. The local government assistance effort was sponsored by the Ministry of Home Affairs. The local government assistance effort was sponsored by the Ministry of Home Affairs.

The work of the implementing agencies has been assisted by a team of expatriate consultants assigned to the various project components.

C. Scope of Evaluation

1. Integrated Planning

The evaluation should consider the extent to which various project components were appropriate to the needs of Kabupaten Luwu and plans for their implementation were developed in an integrated fashion consistent with an integrated area development approach. Specifically, the following should be given attention:

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- The selection of project components;
- The development of plans for diverse project components;
- What institutional factors either encouraged, or inhibited or otherwise influenced integrated planning of a coherent project; and
- What lessons can be learned applicable either to future activities within the project area or to integrated rural development elsewhere in Indonesia.

2. Coordinated Implementation

The evaluation should consider the extent to which the implementation of the various project components was undertaken in a coordinated fashion to ensure integrated area development. Specifically, the evaluation should give attention to the following:

- How implementation schedules were determined;
- What mechanisms were established to ensure coordination and how well they functioned;
- What institutional factors either encouraged or inhibited coordinated implementation; and
- What lessons can be learned applicable either to future activities within the project area or elsewhere in Indonesia

3. Sustained Development

The evaluation should consider the extent to which the combined impact of the various project components has resulted in sustained development increasingly independent of either foreign donor agency intervention or further special efforts on the part of the Government of Indonesia. Specifically, the evaluation should give attention to the following:

- What sectors or problems (if any) have been overcome through the implementation of Project Luwu, obviating a need for continued special attention or outside interventions;

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- What sectors or problems (if any) still require special attention or outside interventions before sustainable development can be achieved and can the achievement of such development be projected;
- What institutional, economic, cultural or other factors either encourage or inhibit the achievement of sustainable development;
- Given the level of resources invested both by the Government of Indonesia and USAID, have the results achieved so far generally justified the integrated area development strategy attempted; and
- What lessons can be learned applicable either to future activities within the project area or elsewhere in Indonesia.

4. Participation by Local Institutions and People

One aspect of sustained development is the capacity of local institutions (both governmental and non-governmental) and the local population to assume the burden of mobilizing local resources, planning their use and benefiting from their application. The evaluation should consider the extent to which Project Luwu has increased these capacities. Specifically, the evaluation should give attention to the following:

- Continued dependence (if any) on outside expertise and advice with regard to planning development projects;
- Continued dependence (if any) on outside resources to finance development projects and private sector activities;
- Continued dependence (if any) on outside resources to implement development projects and private sector activities;
- The extent to which the local population can be said to benefit from development projects and private sector activities;
- Institutional, economic or social factors which encourage or inhibit greater participation by local institutions and peoples in the further development of Kabupaten Luwu; and
- What lessons can be learned applicable either to future activities within the project area or elsewhere in Indonesia or elsewhere in the developing world. Such comparisons should not be exhaustive, but should be used to highlight and emphasize the particular characteristics of the strategy employed in Project Luwu, its successes and its shortcomings, as well as lessons which can be learned.

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5. Recommendations and Conclusions

The evaluation should contain recommendations and conclusions which are of direct benefit and use to Government of Indonesia agencies, at the local and national level, as well as to AID.

D. Evaluation Methodology

AID has in the past supported a series of impact evaluations undertaken by Universitas Hasanuddin. The findings and results of these previous efforts, particularly those completed in 1981 and 1983, should be examined. In addition, technical assistance teams have undertaken various studies of Kabupaten Luwu and Project Luwu. To the extent that these are relevant and useful, they should be used as basic information for this evaluation rather than undertaking new surveys and studies.

Using this information, the evaluation should undertake supplementary interviews with key informants from all relevant agencies involved in the implementation of Project Luwu. This includes GOI officials, consultants, and relevant university staff. Together these should form the pool of raw data and information to be used to answer the points outlined above. In this sense, the evaluation will involve secondary data analysis and interpretation, supplemented by insights and experience gained elsewhere, rather than primary research and the compilation of entirely new data. Where necessary, however, the evaluation team may wish to undertake some limited original field investigation.

E. Manpower Requirements

Two outside consultants will be required to undertake this evaluation. The evaluation should be led by a relatively senior and experienced individual who has been actively involved in the planning implementation and evaluation of integrated area development projects. A thorough understanding and appreciation of USAID requirements and procedures, as well as a knowledge of Indonesia and the structure of its

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government and system of public administration is highly desirable. The team leader should have training in economics, rural development and/or public administration. The second member of the team should have complementary skills. An ability to work professionally in Bahasa Indonesia would be a great advantage.

In addition, the AID Mission to Indonesia will endeavor to supplement the team with FSN staff knowledgeable about Government of Indonesia structures and procedures to assist with the work of the team.

F. Timing

The Mission would like to initiate this evaluation effort at the beginning of August 1983. It is estimated that the team should be able to conclude its work, including the submission of a final report, within four weeks of starting work in Indonesia.

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APPENDIX B
KEY INDIVIDUALS CONSULTED

Government of Indonesia

National Level

Mr. H. Sitanggang - Director of Provincial Development, Ministry of Home Affairs

Ir. Suwasono - Director of Irrigation, Ministry of Public Works

Drs. Slameto Hadiwijono - Directorate of Irrigation, Ministry of Public Works

Mr. Sularso - Dit. Gen. for Cooperatives Development, Ministry of Cooperatives

Drs. Mamiel Marjono - Director of Rural Electrification and Transmigration, Ministry of Cooperatives

Drs. Soedjino - Director of Foreign Cooperation, Ministry of Transmigration

Dr. Hariri Hadi - Director of Regional Development, National Development Planning Agency (BAPPENAS)

Dr. Sayuti Hasibuan - (former Director of Regional Development, BAPPENAS)

Mr. Soediro - Project Luwu Development Officer, Ministry of Cooperatives

Provincial Level

Drs. Rasitiro - Office of the Kanwil of Cooperatives

Drs. A. Mappedjeppu - Staff member of Provincial Planning Board, Sulawesi Selatan

Ir. H.A.. Djollo M. Oddang - Head of Planning, Irrigation Division, Department of Public Works

Ir. Djoloe Djati Roso - Technical Planning Bureau, Department of Public Works

Ir. Achmad Baeohini - Technical Planning Bureau, Department of Public Works

Ir. Zainuddin Zake - Irrigation Division, Department of Public Works

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Kabupaten Level

Mr. Abdullah Suara - Bupati Kabupaten Luwu

Drs. Sendring Paita - Head, Department of Cooperatives

Ir. Syahrudin M. Alwi - Director of Kabupaten Department of Agriculture, Ministry of Agriculture

Drs. Arifin A. Umar - Team Leader of Harian Ola and of Team Pangan (Poskito), Inter-departmental agriculture development coordination in Kabupaten Luwu

Ir. Susilo Wibowo - Asst. Director of Food Crops, Ministry of Agriculture

Drs. Hasini Sahar - Director of Veterinary Division, Ministry of Agriculture

Ir. Martin Ramba - Asst. Director of Fisheries Division, Ministry of Agriculture

Ir. Darwis Laukek - Dir. of Forestry Division, Ministry of Agriculture

Ir. Halim M. - Agricultural Extension Specialist, Kabupaten Department of Agriculture

Project Luwu Officials

Drs. Heru Susanto - Project Manager

Mr. Clifford C. Nunn - Resident Manager, Checchi Advisory Team

Drs. Bachtiar - Rural Extension Centers Subproject Manager

Mr. Wayne L. Rude - Agriculture Extension, Checchi Advisory Team

Drs. Johannes Hetharia - Head of Social, Economic, and Training Section

Drs. Tampubolon - Staff member, Social, Economic and Training Section

Mr. Victor L. Scovill - Development Economist, Checchi Advisory Team

Cooperatives Subproject

Mr. Purnomo Subiato - Cooperatives Subproject Manager

Mr. M. Said - Chief of Marketing Section, Bone-Bone FCC

Drs. Suryadi Wasidi - Secretary, BPLKOP, Palopo

Pak Jumari - Manager, Village Unit Cooperative (KUD), Lemah Abang

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Pak Suhadi - Manager, Village Unit Cooperative (KUD), Subur

Mr. Samuel D. Filiaci - Cooperatives Adviser, Checchi Advisory Team

Irrigation Subproject

Mr. Alim Sukotjo BIE - Irrigation Subproject Manager

Ir. Sessu Sennang - Chief of Technical Staff, Dir. of Irrigation

Ir. M. Yunos Siwa BIE - Head, Luwu Section, Provincial Irrigation

Ir. Henry Hardjadweksa - Chief Field Officer, Bone-Bone system

Mr. Amiruddin - Chief Hydrology Section

Mr. Samsuddin - Irigasi Inspector, Kalaena Area

Mr. Max G. Williams - Senior Irrigation Engineer, Checchi Advisory Team

Mr. Joseph Rutsky - Water Hydrologist Resources Specialist, Checchi Advisory Team

Mr. Alfred L. Patten - Irrigation Plant Engineer and Heavy Equipment, Checchi Advisory Team

Regional Planning Sub-Project

Drs. Alwy Rum - Director of Kabupaten Planning Board (Bappeda Tk. II)

Drs. Bachtiar Battori - Head of Bappeda Tk. II, Data Collection Division

Mr. Steven Cochrane - Planning/Assistant Resident Manager, Checchi Advisory Team

Mr. Robert P. Manley - Planner/Economic, Checchi Advisory Team

Others

Dr. Kustiah Kristanto - Luwu Project Evaluation Team Leader
Hasanuddin University (UNHAS)

Professor Makaliweh - Luwu Evaluation Team Member, Faculty of
Economics, UNHAS

Dr. Burhamshah - Luwu Evaluation Team Member, Social Sciences
Faculty, UNHAS

Ir. Nazaruddin Lo - Faculty of Agriculture, UNHAS

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- Mr. Syamsuddin Suryana - Faculty of Economics, UNHAS
- Dr. Hasanuddin - Assistant Director Maros Agriculture Research Institute
- Dr. Burhan Magenda - Lecturer at Social Sciences Faculty, University of Indonesia (UI)
- Mr. Richard Black - Director, Checchi and Company
- Mr. Pieter van Nispentot Pannerden - Second Secretary, Netherlands Embassy
- Mr. Max Zonnenveld - Project Leader, Pompengan Project
- Mr. Aart Schrevel - Social Economist, Pompengan Project
- Dr. William C. Collier - Resources Management Inc., Bogor
- Dr. Ralph Retzlaff - International Agricultural Development Service, Bogor
- Dr. Effendi Pasandaran - Agency for Agricultural Development Research, Bogor
- Dr. Bungaran Saragih - Social-Economic Department, Bogor Agricultural Institute, Bogor
- Mr. Mentang - Supervisor, GFLORA RARA Co., (Consultants to the Kalaena irrigation system)
- Mr. Iqbal - Dep. Supervisor, GFLORA RARA Co.

USAID Officials

- Dr. William P. Fuller - Mission Director
- Mr. Douglas L. Tinsler - Chief of Office of Rural Development
- Dr. Frederick E. Machmer - Deputy Chief Office of Rural Development and former Luwu Project Officer
- Ms. Nancy M. Tumavick - Luwu Project Officer
- Mr. William Ackerman - former Luwu Project Officer
- Mr. Enrique Barrau - Agriculture Division Staff
- Dr. Timothy Mahoney - Evaluation Officer
- Mr. Michael Morfit - Rural Development Advisor
- Mr. David Robinson - Rural Development Advisor

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Mr. Arie Supit - Assistant Luwu Project Officer

Ms. Maureen Norton - Evaluation Division, USAID/W

Mr. Mark Svendsen - Water Management, ASIA/TR/W

APPENDIX C
KEY DOCUMENTS CONSULTED

Arndt, H.W. and R.M. Sundrum, "Transmigration: Land Settlement or Regional Development," October 1977.

Abdul Karim Saleh, Peranan Transmigrasi dalam Pembangunan Regional (Studi Kasus Kabupaten Luwu Propinsi Sulawesi Selatan), Fakultas Pasca Sarjana, Institut Pertanian Bogor, 1981.

Badan Litbang Pertanian/Balai Penelitian Tanaman Pangan Maros, "Laporan Hasil Penelitian Pola Tanam (Semester V), di Daerah Transmigrasi Kabupaten Luwu," Juni 1983.

Betts, Russell H. et al, "Report and Recommendations of the Evaluation Team: Local Government Training-II (LGT II) Project," April 1983.

Bromley, Daniel W., Donald C. Taylor, and Donald E. Parker, Water Reform and Economic Development: Institutional Aspects of Water Management in the Developing Countries, Economic Development and Cultural Change, XVIII (2), 1980: 365-387.

Bupati Kepala Daerah Tingkat II, Luwu, Buko Peta Kabupaten DAT/II Luwu, Palopo, 31 January 1983.

- CHECCHI and Co./DMJM, - All Annual Reports, 1978 through 1982.
- All Quarterly Reports, 1977 through March 1983.
- All Monthly Reports, 1977 through May 1983.
- Miscellaneous Sub-project Reports and Project Files.
- "Agriculture in Kabupaten Luwu," April 1983.
- "The Economy of Kabupaten Luwu, South Sulawesi," December 1982.
- "Industrial Development in Kabupaten Luwu," June 1983.
- "Luwu Area and Transmigration Development Project," April 1983.
- "Luwu Area and Transmigration Development Project," (briefing book for American Ambassador's visit), August 1983.
- "Project Luwu Evaluation Study," February 1980.
- "Resettlement Potential in Kabupaten Luwu, South Sulawesi," July 1980.
- "Training Plan Study: 1976-1982," May 1982.
- "Watershed Management in Kabupaten Luwu," July 1983.

Cochrane, Steven G. "A Critical Analysis of the Luwu Area and Transmigration Development Project," South Sulawesi, Indonesia, December 1980.

1/76

- Colter, Jusuf M., et. al., - "Pengkajian Fisibilitas Pembangunan Pusat Koperasi Pertanian (Farm Cooperative Center) Bone-Bone," Survey Agro-Ekonomi, May 1977.
- "Pengkajian Fisibilitas 'Farm Cooperative Center' Mangkutana, Kabupaten Luwu, Propinsi Sulawesi Selatan," Survey Agro-Ekonomi, December 1977.
 - "Pengkajian Fisibilitas 'Farm Cooperative Center' Walenrang, Kabupaten Luwu, Propinsi Sulawesi Selatan," Survey Agro-Ekonomi, December 1977.

Cowan, J. Ritchie "Luwu Tractor Project Study," March 1983.

Davey, K.J. et al, "Management Education Study in Indonesia: Education and Training for Government in the Provinces," Jakarta, November 1982.

Development Alternatives Inc., "Sustaining Project Benefits: Guidelines for Improving the Planning and Management of Rural Development," June 1982.

- DHV Consulting Engineers, - "Luwu Irrigation Project," Final Report, Amersfort, The Netherlands, March 1980.
- "Masterplan" Irrigation Development for the North Luwu Plain in Sulawesi Selatan," March 1977.
 - "Operation and Maintenance Manual Weirs, Bone-Bone and Kanjiro," Technical Note XVI, Luwu Irrigation Project, October 1979.

Dixon, John A. and Martin Hanratty, "Planning for Agriculture Development in Indonesia," undated Ms.

FCC, Annual Report, Luwu Project Division Cooperative Sector, Fiscal Year 1979/80 and 1980/81, Palopo.

FAO, "Draft Report of the Indonesia Agricultural Development Project in Sulawesi," Main Report, Investment Support Service, February 1980.

Janzen, Daniel H., "Tropical Agroecosystems," Science, Vol. 182, 1973.

Lembaga Penelitian Pertanian Maros, "Rencana Pembangunan Pertanian Menuju Pertanian Terpadu," Kabupaten Dati II Luwu, Tahun 1982/1983.

Morfit, Michael, - "Strengthening the Capacities of Local Government: Issues, Strategies, Experiences," November 1982.

- "Local Government in Indonesia: The Historical Context," undated Ms.

Nunn, Clifford C. "Memorandum, Scope of Services for Management Analyst, Project Luwu," 14 May 1983.

177

Patten, Al, "Project Luwu, Draft Report on Operations and Maintenance," August 1983.

PEMDA TK. II Luwu, "Proposal: Project Luwu Plan Phase II," August 1982

Roberts, John E., "Transmigration and Local People: An Outline of Conflict and Resolution in Indonesia," April 1978.

Rural Development Consultants, "Proposal for the Implementation of Primary Units Inside the Pompengan Irrigation Area", Pompengan Irrigation Project, July 1982.

Schantz, Fred, "Project Luwu Training Plan Study 1976-1982".

Sinaga, Rudolf S., et al, "Agro-Economic Survey, Identification of Anticipated Problems During and After the Execution of the Pompengan Irrigation Project, Kabupaten Luwu," Summary Report, Bogor, 1978.

Steinberg, David I., "Irrigation and Aid's Experience", Background Paper for the Irrigation Conference, May 3-6, 1983, March 1983.

Svendsen, Mark, et al, "Meeting the Challenge for Better Irrigation Management," Horizon, March 1983.

Trostle, Ronald G., - "The Luwu Area Development Program: A coordinated multi-sector area development effort in Indonesia," Office of Rural Development, USAID, January 1977.
- "Indonesia's Transmigration Program," December 1977

Transmigration Training and Research Center, "Transmigration in the Context of Area Development: Proceedings of the Workshop Concerning Area Development in the Bone-Bone/Mangkutana Districts of Luwu, South Sulawesi, September 1973," 1974.

Universitas Hasanuddin, - "Report on the Luwu Area Transmigration Development Project Evaluation System Study," 1978.
- "Impact Evaluation of Bone-Bone Irrigation System in Luwu, South Sulawesi, Indonesia," March 1981.
- "A Report on the Impact of the Luwu Area and Transmigration Development Project South Sulawesi, Indonesia," March 1983.

USAID/Indonesia, - "Luwu Agricultural Development Loan," Capital Assistance Paper, May 1975.
- "Loan Agreement Between the Republic of Indonesia and the United States of America for Luwu Area and Transmigration Development, Loan Number 497-T-038," October 23, 1975.
- "Project paper Indonesia Luwu Area and Transmigration Development Project Paper Amendment 497-0244," April 1977.

X178

- "Project Evaluation Summary (PES) - Part I," January 1979.
- "Project Evaluation Summary (PES) - Part II," June 1980
- Memorandum Conversation, February 2, 1983,
Watershed Policy Dialogue, Initial Meeting with
PPLH, USAID, IBRD.
- "Luwu Area and Transmigration Development," Project
Paper Amendment, April 1981.

Williams, Max, "Project Luwu, Irrigation Status Report," August 1983

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